FACILITIES PLANNING AND MANAGEMENT FOR THE LARGE-SCALE EVENT INDUSTRY

WITH A PARTICULAR REFERENCE TO A TYPICAL MEGA-EVENT, THE HAJJ (THE PILGRIMAGE TO MAKKAH, SAUDI ARABIA)

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بسم ا لله الرحمن الرحيم

الحمد لله رب العالمين

والصلاة والسلام على خاتم الأنبياء والمرسلين

In the Name of Allah,
the Compassionate, the Merciful,
Praise be to Allah, Lord of the Universe,
and Peace and Prayers be upon
His Final Prophet and Messenger.

DEDICATED TO

THE PILGRIMS AND VISITORS OF MAKKAH

ABSTRACT

The large-scale event industry is an ever growing and profitable business, and it is important to the economy of the host country. Based on the proposition that the determinants of an event's success are the quality of (1) its programme, and (2) the facilities and services available for such an event, this study explores the importance of the facilities and services required within venues for large-scale events with respect to the actual users' perceptions. This area has been neglected in the related literature and research. The current research will contribute to the overall knowledge concerning the large-scale event industry, improve the future practices of such an industry, and facilitate further research in this area. The Hajj, i.e. the annual Islamic pilgrimage to Makkah and the Holy Places, Saudi Arabia, is a typical mega-event, and it was used as a vehicle to meet the research objectives.

Mega-events involve a large number of diverse population who come from different parts of the world. With regard to this factor a quantitative research approach was employed to collect and analyse the research data, and an exclusive tool (i.e. a questionnaire) to measure the participants' perceptions concerning the importance of facilities and services was constructed. From the results, five indexes were developed to comprise the various aspects and types of facilities and services required within the different Hajj venues.

It is found that the types of facilities and services required in a particular venue correlates to the programme taking place in that venue. It is revealed that security and safety are perceived by participants as being a highly important factor required during mega-events. Other facilities and services are also of concern to participants as detailed in the research. It is concluded that both physical (e.g. buildings), and non physical aspects of facilities and services (e.g. appropriate treatment of participants), and the interactions between them, are important, and ought to be considered in further research, as well as in the practices of the large-scale event industry.

Six factors are found to have a clear and dominant effect on the participants' perceptions regarding the importance of facilities and services. The factors concern: nationality; verbal communication; participants' age; travelling experience; training and orientation; and resident and non-resident of the host country. The proposition concerning the two determinants of an event's success is supported by the research's findings, and it is argued that beside the programme quality, the success of a mega-event depends mainly on the availability, accessibility, affordability, and presentability of facilities and services.

It is revealed that the event industry involves various aspects, including: people; places; environment; processes; and business activities. The most commonly used approaches in managing events do not incorporate these aspects totally. Because the managing of such aspects and the interactions between them is the essence of the facilities management approach, this study proposes that facilities management should be employed in the mega-event industry, and further research is therefore required to assess the performance of facilities management in that area.

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CHAPTER 1

An Overview of the Research

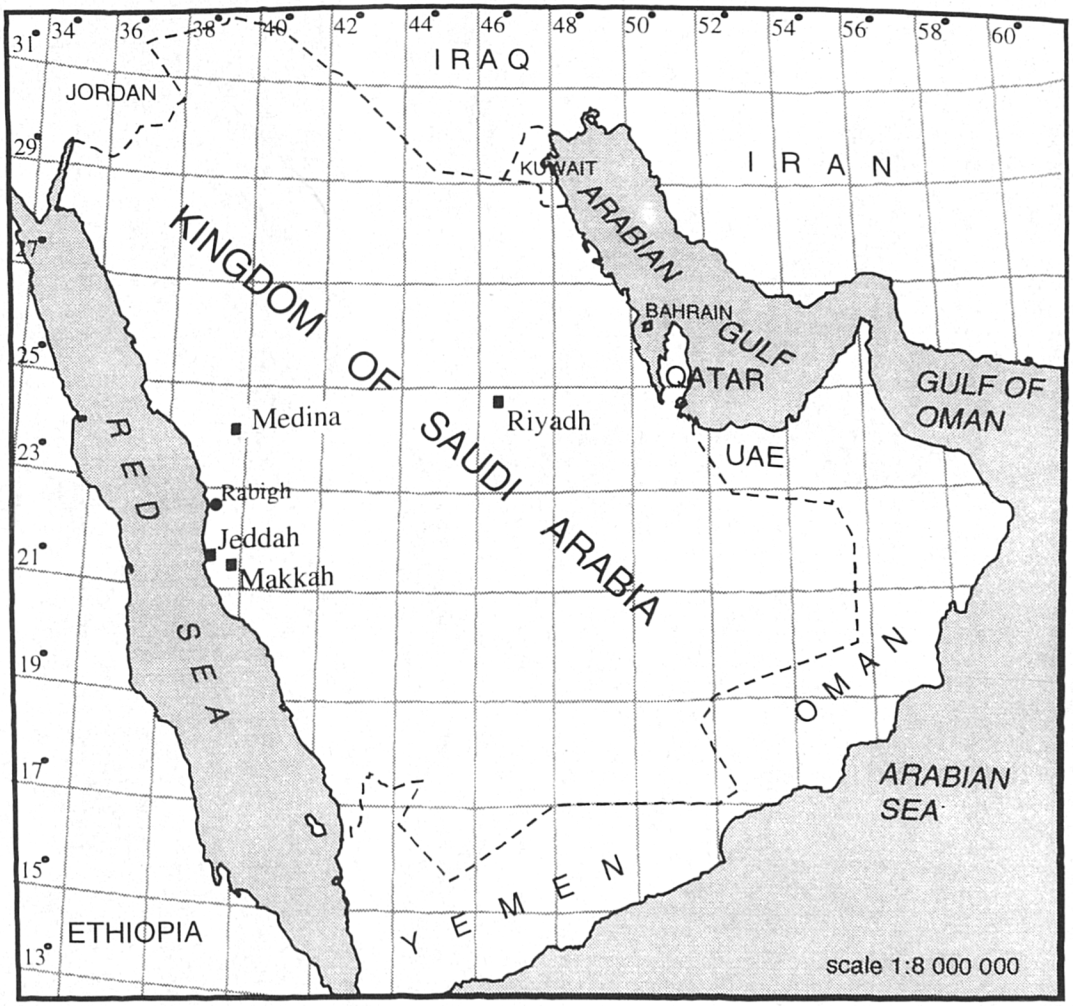
1.1 Introduction

This research is concerned with exploring the importance of facilities required within a venue for large-scale events with respect to the actual users' perceptions. This area has been neglected in the related literature and research, although in practice, only a few errors in managing the facilities and services during an event can impair years of preparation, produce a financial loss for the host city and organisation, and may affect the people's safety. This chapter aims to provide an overview of the research in an effort to briefly explain the research context, questions, contribution, and organisation.

1.2 An Overview of the Research

The broad context of this research concerns the event industry, and the large-scale event in particular. The Hajj event, i.e. the Muslims' pilgrimage to Makkah and the other Holy Places, Kingdom of Saudi Arabia (see location map in Figure 1.2.1), is a typical large-scale event. It has been employed as a vehicle to better understand the nature of planning and organising mega-events and to meet the research objectives. In the following paragraphs an overview of the research context and assumptions is presented.

Figure 1.2.1: The Kingdom of Saudi Arabia, Location Map



Source: Makky (1982)

The event industry is an ever growing, and profitable business. It has clear economic roles such as place marketing, image making, and as a catalyst for the host community's improvement (Getz, 1997). Events are particularly important to the tourism and hospitality industry because it motivates travel, and acts as a tourist attraction (Pyo, 1995). There are many expressions used in reference to this industry such as: 'special events', 'major event', 'hallmark event', and/or 'mega-event'. They are applied to a wide range of events such as festivals, fairs, meetings, conferences, exhibitions, sports, etc. For the purpose of this study, however, an event is "something of importance that is planned to occur at a specific time and place". A 'large-scale event' some times called 'mega-event' (e.g. the Olympic Games, the World Fairs, the Hajj, etc.) can be identified by its size and importance; it yields an extraordinary number of participants, media coverage, distinct image, and/or economic impact for the host organisation or destination (Getz, 1997). An event is mostly an activity that occurs outside the regular routine of an organisation. It can take a variety of forms and can be of international or local importance. In leisure, tourism, sports, religion, and other fields, events are extremely diverse and each one has its own characteristics and requirements which need to be identified and met. However, the basic principles and general practicalities of event planning and organisation can be applied to all events (Watt, 1992).

According to Hall (1992) events can be classified into five types according to their programme and context such as: 1) religious and sacred events - like the Hajj; 2) cultural events which includes, first - carnivals and festivals like Mardi Gras in Rio de Janeiro, second - historical milestones like the 500th Anniversary of the sailing of Columbus (1992), and third - educational like the annual transportation research board conference TRB in Washington DC, USA; 3) commercial events - like World and International Expositions; 4) sports events - like the Olympic Games; and 5) political events - like the Conservative and/or Labour party conferences each year in the UK.

Generally speaking, there are four key characteristics of events. Firstly, The major demand generated by events is not the demand for the event itself but the demand for a range of related facilities and services. Events' visitors are expected to spend their money at various activities and places, mainly concentrated at four different types of

establishments in a city: restaurants - (food and beverage); hotels - (accommodation); retail outlets - (shopping); and event tickets and concessions (Crompton and Mckay, 1994). Secondly, the demand for facilities and services is condensed into a relatively short period of time, from a single day to a few weeks. Services, however, cannot be produced ahead of time and stored. This leads to the typical 'peaking' problems experienced in main service industries. Thirdly, 'peaking' influences both the level and the distribution of benefits received. Finally, the net impact of redirecting local funds towards events is relatively small; the major benefits arise from the attraction of new funds from outside the region by way of the export of goods and services, especially services (Burns and Mules, 1986).

Saleh and Ryan (1993) found in their study regarding 'jazz and knitwear, factors that attract tourists to festivals', that event participants are mostly concerned about, (1) the quality of the programme and, (2) other factors such as: accessibility to the site; information; general hygiene matters; and other supplementary services (i.e. facilities and services). Although such a study was aiming to assess the importance of programme content *vis-à-vis* other factors thought to attract tourists, Saleh and Ryan argued that determinants of success for events basically relate to the above two factors. Hiller (1995) supported this notion through the use of case studies, and from a sociological perspective. He argued that, with regard to large-scale conventions which can be considered as mega-event (as he assumed), the destination where such an event takes place is less important than the purpose of the participants' gathering (i.e. the event's programme, theme, objectives, etc.). Hiller also argued that the required 'tourism product' is the facilities needed to host the event at the destination selected. Based on this, it is argued that the major components/elements of the event industry are the programme and the facilities available for it, and that the success of an event is related to these two elements. It is revealed that in addition to the studies mentioned above, other research and/or literature (e.g. Badmin et al., 1988; Oppermann, 1996; Getz, 1997) has recognised the importance of facilities to the event industry but with respect to planners, service providers, and/or researchers' points of view. No research, however, has been conducted concerning the importance of facilities needed within venues for large-scale events with respect to the actual users' perceptions (for whom an event has been created for). The current study will attempt to investigate this neglected area in order to enrich and facilitate further

research concerning the mega-event industry, and to help large-scale planners and organisers to create improved events.

There are positive and negative impacts of events which affect both the hosting organisation and the involved community (Hall, 1992; Getz, 1991; and Richie, 1984). Some positive impacts of events that the involved planners and managers should encourage include: creation of business and employment; increased awareness of the region as a travel/tourism destination; construction of new facilities; improvement of local infrastructures; the enhancement of international recognition of the region and its morality values; etc. On the other hand, the negative effects of events that ought to be minimised are: price increases during the event; the acquisition of a poor reputation as a result of inadequate facilities; improper practices and inflated prices; environmental damage and pollution; commercialisation of activities; and an increase in crime; as well as other negative aspects.

A quality event cannot be created without considering all involved people (i.e. stakeholders) such as: the event's visitors; employees; owners; retailers; and the general public of the hosting community; etc. (Hall, 1992). This is because: a) the event's quality is related to people, and it is perceived by them; and b) quality facilities and services are also prepared and delivered by those in the host community who include all service providers, as well as the average person in the community. A quality event has many positive impacts and very few or no negative impacts. All stakeholders should feel and benefit from the positive impacts of events. Negative impacts should be minimised as much as is practical, especially those in relation to the community and the environment. Therefore, event planning should rely on a clear knowledge of these factors, which requires especially a correct understanding of what the people involved need. This research will concern the most important group of people involved in the event industry i.e. the event's participants.

According to existing literature, no particular management approach has been recommended to be utilised in the event industry. However, operational management (OM); project management (PM); and logistics management (LM) have been suggested as approaches which can be employed in planning and organising events (Badmin, et al, 1988; Yafi, 1983; Getz 1997). OM, PM, and LM are well known management techniques. They are mainly designed to accomplish projects or jobs on

time, but without much concern being given to their further impacts, especially on the people involved (stakeholders) and the environment (Finkelstein, and Guertin, 1988; Leavitt, and Nunn, 1994). It is revealed that there is a need for an adequate overall quality management approach which can be employed efficiently in planning and organising the event business. Such an approach ought to consider the major aspects of the event industry which have been mentioned above, and particularly the major aspects such as (a) the physical resources (hardware) - venues; buildings; infrastructures; etc., (b) the services required (software) - accommodation; travelling; communication; information; etc., and (c) the benefits to all the people involved - visitors, service providers, and people in the host community.

1.3 The Research Questions

Based on the proposition that the success of an event relates to its programme and the facilities available for it, the present study aims to research the importance of facilities to large-scale events with respect to the actual users' perceptions. There is a shortcoming in literature and research which concerns the participants' perceptions regarding the facilities required during mega-events. The information provided by this research will be derived from the results of an in-depth **empirical** study. A typical mega-event, i.e. the Hajj, will be employed as a vehicle to meet the research objectives. This study will enrich the literature and facilitate further research regarding an ever growing and profitable industry, i.e the large-scale events' industry. In short, the current study aims to answer the following major questions:

1. **What is the importance of facilities in mega-events with respect to the actual users' perceptions?**

2. **What aspects of the facilities are perceived as being important to the users during mega-events?**

3. **What are the factors affecting the users' perceptions with regard to the importance of facilities in mega-events?**

In consideration of the Hajj as a typical mega-event, other questions have been proposed, namely:

1. **What are the major facilities and aspects perceived by the participants as being of importance to the Hajj event, and within each Hajj venue in particular?**

2. **What is the relative importance of these facilities and aspects with respect to the participants' perceptions?**

3. **What are the factors that affect the participants' expectations and perceptions concerning these facilities and aspects?**

Because this study will involve a large number of the event's participants who come from different countries, and because they only stay for a short time, an empirical research approach will be followed. A special research tool (i.e. questionnaire) and sampling method will be developed and employed in order to answer the research questions.

1.4 The Importance and Contribution of the Study

The importance of the present study is derived from the importance of the subjects involved. These subjects concern:

a) **the event industry which is an ever growing business that can bring substantial revenue to the host organisation and community;**

b) **the Hajj event which is a typical mega-event that attracts more than one and a half million people from all over the world every year, this event is totally neglected by researchers of the tourism industry; and**

c) **facilities and services which constitute a major element required in the tourism, travel, and event industries.**

This research attempts to contribute to the filling in of the gap in the knowledge concerning the perceived importance of facilities and services by the actual users in mega-events. According to the literature review (see below), the gap in the knowledge can be viewed from the following points:

1. **although facilities and services are a major element of the event industry, literature concerning such an industry does not include research regarding what facilities and aspects the event's visitors/participants consider as important for a large-scale event;**

2. **there is no reliable and valid information which research can depend on concerning planning and provision of facilities in mega-event; and**

3. **finally therefore, an appropriate methodology and/or instrument for obtaining such information is not established.**

The present research attempts to fill in this gap by providing the required information. An inclusive research methodology will be developed and a special research tool will be constructed in order to fulfil the research objectives. Such methodology and tool has proved later to be efficient and reliable, and thus it can be employed in further research concerning the mega-event industry. Moreover, some results which have been obtained from this research are deemed appropriate to be applied generally to other large-scale events and to be employed in further research with regard to them.

Although, the present research was started in early 1994, the significance of its contribution was later confirmed to be valid by Gunderson, Heide, and Olsson (1996) when they identified a similar gap of knowledge in the research concerning the hospitality industry which has strong relationships with the event industry. Gunderson, Heide, and Olsson argue that: (1) few empirical studies give recommendations that can help managers (and researchers) identify the key areas of importance to the customer, the implication of this fact is that 'managing quality is difficult without knowing what aspects the guests consider to be important when evaluating the hotel (and/or event) experience; and (2) although several measuring instruments for customer satisfaction have been proposed, these are frequently too general or too ad hoc to ensure reliable and valid measurements for tracking the guest's perceptions. In the current research these two issues will be addressed with respect to the large-scale event business. Oppermann (1996) in his study 'convention destination images: analysis of association meeting planners' perceptions' which involves facilities and services available within an event venue reveals that little is

known about attendees' motivations and specifically attendees' perceptions of convention destinations (i.e. event venues). He also indicates that a more thorough research of all factors and people involved in the event industry becomes of paramount importance. Furthermore, Getz (1997) notices (recently) that little or no research has been conducted on what makes a good event venue. This research proposes that planning and providing adequate facilities and services with respect to the people involved, and the event's programme, is a major factor in making good event venue.

1.5 The Research Organisation

In an effort to present the literature review, field survey, analysis, findings, etc. this dissertation is divided into three parts which comprises thirteen chapters:

Part one represents the general background of the research and it consists of five chapters. **Chapter one** aims to set forth a general overview for the study and to explain the research questions, the study importance, and contributions. **Chapter two** concerns the research context and literature review of the study. It discusses the event and festival industry and its related issues such as: definition, typology, components, impacts, quality, and management. **Chapter three** is concerned with the *Hajj* season, the typical mega-event which has been chosen as a vehicle to better understand the various aspects of the large-scale event industry. This chapter consists of nine sections. Section one presents an introduction to the chapter. Section two defines the importance of the *Hajj* as a pillar of Islam. Section three discusses the *Hajj* history before and after Islam. Section four explores the purpose of the *Hajj*. Sections five to eight explain the *Hajj* programme, and components such as: the religious; the temporal; and the spatial components. Finally, section nine summarises the main points of this chapter. **Chapter four** concerns the organisation and management of the *Hajj* event. It discusses the roles of the government and the non government bodies in planning and organising of this mega-event. This chapter also discusses some important and related issues of the *Hajj* such as: number of pilgrims; land use in the different *Hajj* venues; and economic aspects of the *Hajj*. To conclude this part of the thesis, **Chapter five** discusses the research model, questions, and hypothesis.

Part two represents the foreground of this study. It consists of five chapters. **Chapter six** consists of several sections. The first three sections reviews the different types of research design, and the quantitative approach that has been chosen for the present research. Sections four, five, six and seven concern sample design, sampling, the chosen sampling method, and the sample size, in that order. Section seven discusses the research's tool development. The rest of the sections in chapter six explain the procedures that have been taken in developing the questionnaire for this study and the framework for the data analysis. **Chapter seven** starts by explaining the field-work procedures and the computer analysis of the questionnaire. The remaining sections in the chapter show the results of the early descriptive statistics which include: nationality of the pilgrims; home of residence; pilgrims' age; educational level; number of previous *Hajj*; the purpose of coming to this *Hajj* season; etc. The chapter also comprises the statistical results of the factors that might affect the pilgrims' perceptions and expectations with respect to the *Hajj* facilities and services. **Chapter eight** presents the results of the descriptive statistics for the rest of variables in the questionnaire. These variables include the main *Hajj* facilities and services, and some issues related to the service quality during the *Hajj* season. This chapter also presents the analysis results which indicate the relative importance of the *Hajj* facilities and services in each of the *Hajj* venues (i.e. Makkah, Arafat, Muzdalifah, and Mina) as perceived by the actual users. **Chapter nine** includes eight sections. Sections one, and two introduce the procedures that have been followed in purifying the data in order to develop the *Hajj* facilities and services (HFS) indexes. Section three explains the reliability analysis and the factor analysis that have been employed in an effort to develop the HFS index for Makkah. Sections four, five, and six explore the process of developing the HFS indexes for Arafat, Muzdalifah, and Mina, in that order. Section seven explains the reliability analysis that has been conducted to test the *Hajj* facilities and service quality. The last section in chapter nine aims to summarise the main findings of the chapter. **Chapter ten's** main purpose is to test the research hypothesis concerning the factors that might affect the participants' perceptions and expectations with respect to the facilities and services required in the *Hajj* event. In this chapter each facility, service, and/or feature in the developed HFS indexes were tested to investigate for any relationship with the pilgrims' perceptions. The results of this investigation are reproduced in tables. The

tables represent the affected variables (i.e. facility, service, and/or feature) in each of the *Hajj* venues. Chapter ten also describes the t-test and the one way analysis of variance (ANOVA) and how they have been employed in testing the research hypothesis. The last section of chapter ten reviews briefly the most important factors affecting the participants' perceptions concerning the facilities importance in such a large-scale event.

Part three comprises the discussion of the research findings, its implications, recommendation for further research, and conclusions. This part consists of three chapters. **Chapter eleven** presents the research findings' discussion and its implications in light of the empirical analysis results which have been obtained from previous chapters. **Chapter twelve** attempts to link the research findings to the existing literature, and it suggests the means whereby these findings could be applied to further research. Finally, **Chapter thirteen** presents the research conclusions.

CHAPTER

2

An Overview of the Event Industry

2.1 Introduction

This chapter concerns the broad context of the present study with respect to the importance of facilities and services to the event industry. Chapter 2 aims to discuss the event industry to include three main points. The first point includes an explanation concerning the events' definition, typology, and character. The second point explores the facilities and services required for the event industry. The final point concerns the events' organisation on the whole, and the management approaches available to be employed by such an industry.

2.2 Definition and Typology

An event is something of importance which is pre-planned to occur at a specific time and in a specific place. In leisure, tourism, sports, religion, and other fields, events are extremely diverse and each one has its own characteristics and requirements which need to be identified and met. Thus each event is unique (i.e. has its own theme, objectives, programme, etc.). However, the basic principles and general practicalities of event organisation and management can be applied to all events (Watt, 1992). In any event many kinds of facilities and services must be prepared and delivered to different users. This requires effective planning, design, and management.

The event and festival business is very important to the tourism and hospitality industry. It motivates travel, acts as a tourist attraction, and helps with community

development (Getz, 1991; Pyo, 1995). An example of how many visitors attractions and/or events can bring to the host cities is taken from Europe, as illustrated in Table 1.2.1.

Table 2.2.1: European Cities with Cultural and Event/Festival Attractions

Attraction / Event	The City	Annual Visitors
Pompidou Centre	Paris	7 - 8 million
Albert Dock	Liverpool	5 million
Louvre	Versailles	2 - 3 million
"Year of Culture"	Glasgow	9 million (1990)
Edinburgh Festival	Edinburgh	0.75 - 1 million (3 weeks)
Pare de la villette	Paris	3 million (1993)
Cite de Science	Paris	5 million (1994)
Camden Lock Markets	London	5 million (1994)

Source: Evans (1996)

The expressions 'major event', 'hallmark event', and/or 'special events' are applied to a wide range of events such as festivals, fairs, conferences, exhibitions, sports, etc., and each expression may reflect the size of an event in terms of the visitors involved, the media coverage, and the facilities and services required for such an event. For example, Torkildsen (1986) described a 'major event' as:

> "An event, project or attraction of any kind that is outside the 'run of the mill' activities. It usually has some significance. It usually attracts a crowd or draws the attention of the media. It can be international, national, regional or local".

Ritchie (1984) defined 'hallmark events' as;

> "Major one-time or recurring events of limited duration, developed to enhance the awareness, appeal and profitability of a tourism destination in the short and/or long term. Such events rely for their success of uniqueness, status, or timely significance to create interest and attract attention".

According to Getz (1991);

> "A special event is a one time or infrequently occurring event outside the normal programme or activities of the sponsoring or organising body. To the customer, special events are often an opportunity for a leisure, social or cultural experience."

Hall (1992) noticed, however, that 'Mega-Event' (e.g. Olympic Games, and World Fairs and Expositions) is another term used by some researchers to refer to some events that could be noted by their size in terms of attendance, target market, level of public financial involvement, political effects, extent of television coverage, construction of facilities, and impact on the economic and social fabric of the host community. Wale (1996) argued that defining a mega-event with precision is difficult because such activities are best viewed in relative terms, and can be analysed with reference to the specific arena or venue in which they take place. However, mega-events are large-scale and they tend to be perceived as such within the host community and by the outside world. Wale (1996) noticed that festivals are a typical component of mega-events; the role of the festive component, however, varies from one mega-event to another. Hiller (1996) assumed that an event such as a large conference (he calls it a convention) may becomes a mega-event if it requires: 1) the use of numerous accommodation establishments rather than just one or two; 2) a major planning organisation with considerable time for planning; 3) a complex programme including ceremonial programmes, pre- and post-programme; 4) the need for many meeting rooms including one large assembly hall; and 5) the tendency towards national/international representations. Getz (1997) has argued recently that

> 'mega-events, by way of their size or significance, are those that yield extraordinarily high levels of tourism, media coverage, prestige, or economic impact for the host community or destination'.

This study concerns large-scale events and/or mega-events. At the present stage of the research an event is defined as:

> 'something of importance that is pre-planned to occur at a specific time and place. It is an activity that occurs outside the regular routine of an organisation. It can take a variety of forms and can be of international or local importance. A mega-event, however, is an event that attracts an extra-ordinary number of national and international visitors, and it involves several venues, facilities and services, as well as attracting extensive media coverage. The mega-event has clear impacts (economical, sociological, and environmental) on the host organisation and community, and therefore, requires extensive planning and organising.'

Events can be classified into five types according to their programme and context such as:

1. Religious and sacred events, like the Hajj, i.e. the Muslim's pilgrimage to Makkah and the Holy Places, Saudi Arabia.
2. Cultural events which includes, first - carnivals and festivals like Mardi Gras in Rio de Janeiro, second - historical milestones like the 500th Anniversary of the sailing of Columbus (1992), and third - educational like the annual transportation research board conference TRB in Washington DC, USA.
3. Commercial events, like World and International Expositions, and other related meetings and conferences.
4. Sports events, like the Olympic Games and Football World Cup.
5. Political events, like the International Monetary Fund/World Bank conference. (Hall, 1992).

It is noticed that many researches have been conducted which consider events and festivals that have common themes such as: music, food, culture, recreation and entertainment, history, sports, and arts (see for an example volumes 1, 2, and 3, (1993-96), of 'Festival Management & Event Tourism: An International Journal'). Religious events, however, are neglected in such studies. For example, although the Hajj event is a typical international (religious) mega-event, very little (English) literature and research have been found which address such an annual large-scale event.

2.3 The Character and the Impacts of Events

According to Burns and Mules (1986), four key characteristics of events can be identified:

1. The major demand generated by the special events is, for the most part, not the demand for the event itself but the demand for a range of related facilities and services. Events and festivals' visitors are expected to spend their money at various activities and places. It is assumed, however, that

expenditure is mainly concentrated at four different types of establishments in a city. They are: restaurants (i.e. food and beverage); hotels (i.e. accommodation), retail outlets (i.e. shopping), and at outlets which provide festival tickets and concessions (Crompton and Mckay, 1994).

2. This demand is condensed into a relatively short period of time, from a single day to a few weeks and, as service cannot be produced ahead of time and stored, this leads to the typical 'peaking' problems experienced in the main service industries mentioned.

3. 'Peaking' influences both the level and the distribution of benefits received.

4. The net impact of redirecting local funds towards special events is relatively small; the major benefits arise from the attraction of new funds from outside the region by way of the export of goods and services, especially service.

There are positive and negative impacts of events which affect both the hosting organisation and the involved community. Table 2.3.1 shows some of the positive impacts of events that the involved planner and manager should encourage, and the negative effects that must be minimised, particularly with mega-events. Some examples (from actual incidents) of negative impacts of large-scale events are given by Hall (1992). He points out that "physical evidence of either the failure or lack of event planning is seen in the costly 'white elephants' that may be left once an event is over. For example, the long-term debt of the City of Montreal for the construction of the 1976 Olympic Games stadium; the ongoing financial support of the Brisbane City Council for Queen Elizabeth II Stadium constructed for the 1982 Commonwealth Games; and the difficulties of Perth, Western Australia, and Christchurch, New Zealand, in finding events which can utilise their perspective Commonwealth Games Stadia" can be cited. Positive impacts, however, of mega-events can be various. Getz (1997) quoting Mihalik (1994) wrote that Atlanta's 1996 Summer Olympic Games generated $2 billion in construction projects in Georgia, including sports, educational, and housing facilities. In particular the Games were a catalyst for achieving a $42 million federal housing grant to revitalise a low-income housing

project next to the Olympic village. Sydney's Organising Committee for the Olympics Games (1995) reveals that it expects major benefits from hosting the 2000 Summer Olympics and that the event would add $7.3 billion to the country's Gross Domestic Product and generate 150,000 full and part-time jobs. Major benefits are expect to be with respects to housing facilities and urban renewal.

Therefore, it can be concluded that the demand for effective events' planning is derived from the importance of the events' various impacts. It is also revealed that one factor which has a clear contribution in forming negative and/or positive impacts of an event is with respect to facilities. In the next section, the importance of facilities and services for the event industry, and how they also effect the event's programme will be discussed.

Table 2.3.1: The Positive and Negative Aspects of Events and Festivals

Aspects affected by events	Positive	Negative
Economic	- Creation of business and employment. - Increase in standard of living.	- Price increases during event. - Real estate speculation.
Tourism / commercial	- Increased awareness of the region as a travel/tourism destination. - Increased knowledge concerning the potential for investment and commercial activity in the region.	- Acquisition of a poor reputation as a result of inadequate facilities, improper practices, and inflated prices.
Physical/ environmental	- Construction of new facilities; improvement of local infrastructure. - Preservation of heritage.	- Environmental damage and pollution. - Destruction of heritage and overcrowding
Social/ cultural	- Increased local interest and participation in the event.	- Commercialisation of activities and increase in crime
Political/ administrative	- Enhance international recognition of region and values. - Development of skills among organisers.	- Distortion of true nature of event to reflect elite value - Increase in administrative costs.

Sources: extracted and modified from Hall (1992), Getz (1991), and Ritchie (1984).

2.4 The Importance of Facilities for Events

Facilities are vital for the modern tourism industry (Inskeep, 1991; Page, 1995; Badmin et al., 1988; Hall, 1992; Lickorish, and Jenkins, 1997; Getz 1997). Without proper facilities and adequate services such industries do not exist. For an event, facilities and services refer to all those matters needed for the comfort and enjoyment of participants, performers, and visitors. According to Badmin et al. (1988) the required facilities and services for an event comprise several types such as accommodation; transport; information; toilets; restaurants; and security, as shown in Table 2.4.1. Oppermann (1996) in research concerning 'the planners' perceptions with respect to convention destination images includes aspects such as facilities availability, and service quality as factors of importance to the event planners. Hiller (1995) argues that the 'tourism product' required for a mega-event is the facilities needed to host such an event at the destination selected. In short, it is argued that without facilities and services no event can be created.

Table 2.4.1: The Facilities and Services Required for an Event

Facilities / Services
Accommodation
Car parking / traffic control / signposting
Transport / bus / rail / travel agents
Toilets
Changing rooms
Medical facilities
Lost people and property
Banking and monetary exchanges
Interpreters
Reception areas and gathering centres
Sales points / tickets /goods
Social facilities / bars / catering / entertainment
VIPs / invitations / protocol / sponsors / diplomacy / hosting
Communications / telephone / telex / post / telegrams
Emergency procedures / police / fire / medical
Information / maps for local sites, and for event's venues / programmes
Security / identification / documentary / searches
Entertainment /shops / complementary attractions
Religious services
Decorations / cleaning and maintenance
Complaints

Source: Badmin (1988)

The facilities and services required for an event, however, should be integrated and quality managed in order to produce a successful event. Many well run events can be ruined by insufficient planning and/or provision of facilities and services. One such example is the Olympic Games. In spite of the fact that the Association of National Olympic Committees pay special attention to the facilities and services, when evaluating the candidate cities which bid for the Olympic Games, as shown in Table 2.4.2, problems are still experienced.

Unfortunately, only a few errors in planning and/or providing the facilities and services during the event can impair years of preparation and cause financial loss to the host city and organisation. An example of such a problem is summarised in a newspaper report. The reporter Fred Barbs (1996) of the International Herald Tribune Daily Newspaper wrote concerning the Atlanta Olympics, 1996, USA. It reads:

> "Name your language. Choose your time zone. On the subject of the Olympics, and Atlanta, the world's press has spoken and the reviews of the way the Games have been run are hideous.
> It is "a big miss" (Hebrew), "a shambles" (English), "incredibly mediocre" (French) and "disastrous" (Spanish).
> "When Italy organise its next international event and we read some sarcastic report about those nice but inept Italians," said Italy's La Republica, "the answer will be easy: 'Remember Atlanta' "
> The complaints centre around, well, everything.
> The transportation, of course. The food. The rest rooms - a shortage therefore. The IBM computer system, and etc."

In the absence of any research concerning the causes of such a problem, there is no doubt that the main cause of this international scandal is due to the mismanagement of facilities and services such as: transportation; food; rest rooms; and information. Therefore, one can argue that facilities and services planning, management, and provision are of a high importance for the success of the event industry.

Table 2.4.2: Evaluation of Candidate Cities' Bids for the 1996 Olympic Games by the Association of National Olympic Committees.

Athens	Atlanta	Belgrade	Manchester	Melbourne	Toronto
Plus Points					
Moral contribution to Olympic tradition and history in Greece. Centenary of modern Olympic Games.	High concentration of very modern facilities. Convenient Olympic Village.	Many years quality experience in staging major international sports events.	Staging the Games will be of long-term benefit for the inhabitants in the area between Manchester, Liverpool, and Chester, considerably improving the environment.	85% of the venues within a radius of 6 Km from the Olympic Village.	Compact concept with the unique Skydrome and impressive lake front of Lake Ontario.
Olympic Sports Complex with Olympic Stadium, velodrome, sports hall, and other venues already completed.	Games will generate an enormous atmosphere with considerable financial profit to benefit of the Olympic Movement.	Huge number of existing sports facilities, concentrated in the centre of the city.	Elegant concept at Barton Cross for Olympic Sports Centre and Olympic Village.	Financial subsidy for NOC delegations.	Good experience in staging major sports events including recent Olympic Games (Montreal '76, Calgary '88).
'Olympic Ring' concept - limited to three concentration points with maximum 29 Km from the Olympic Village.	Most of the venues are ready, situated in a green environment.	Moderate climate at the crossing point of two great rivers.	Solid experience in organising important international sports events, sport-enthusiastic crowd.	Long sporting tradition and excellence.	Special hospitality programme for athletes.
Minus Points					
Probably traffic congestion and air pollution.	Few major international sports events have been organised which could mean lack of experience (organisers judges).	Most of the venues require considerable refurbishment.	Venues spread in the above-mentioned area.	Chosen date is the least convenient to the northern hemisphere, but might involve colder days.	Auxiliary Olympic Village are not planned, but they would seem necessary bearing in mind distances to the shooting (105 Km) and canoe slalom (200 Km) sites.
Probably high temperature (up to 36° C) with low humidity and scarcely and condensation.	Fairly high temperature (more than 30°C) with probably low precipitation.	Infrastructure of an old, naturally developed city may cause traffic problems (narrow streets, few parking places).	A request for additional accommodation for athletes competing in Liverpool and Chester is likely.	Long journey for most participating countries.	High hotel rates.
Olympic Games coincide with high tourist season.	Many high class hotels, but probably correspondingly high hotel rates.	Airport would need expansion.	Probably relatively low temperature and rain.	Probably high hotel rates.	The long lake front could cause strong winds.

Source: Association of National Olympic Committees, 1990.

One important issue to be considered in the applied event business is that facilities in the event industry include the scope of technical aspects which relate directly to the operation of the event, and those facets which are required to support the smooth and efficient running of the event. Table 2.4.1 shows examples of some events and the important technical aspects which are required for such activities.

Table 2.4.1: The Technical Aspects and/or Facilities Required for some Events

The event	The technical aspects required
Pop festival	Sound and lighting effects
Garden festival	Water fountains, construction of paths, walls, and road ways
Sporting event	Individual technical sporting requirements, e.g. water treatment, electronic, track markings and surface preparation, measuring equipment, etc.
Exhibition	Lighting, audio support for special effects

Source: extracted from Badmin, Coombs, and Rayner (1988)

The arrangement of the event's programme, which is the backbone of any event, is also - very much - within the field of the facilities and technical experts since there are many factors affecting the programme construction that are known and could be better managed by the facilities manager, i.e. the capacity of the performer/s, the physical capacity of the facility and/or venue, time availability, preparation time, the audience capacity, the contents and balance of the programme, etc.

However, although this fact is well known to researchers in the area of the tourism and event industry (see Inskeep, 1991; Page, 1995; Badmin et al., 1988; Hall, 1992; Saleh and Ryan, 1992, 1993; and Getz, 1993, 1994, and 1997), little research have been conducted concerning the perceptual importance of facilities and services with respect to the people involved in these industries. From the field of the tourism research, Saleh and Ryan (1992) conducted a research concerning 'client perceptions of hotels' which was aiming to measure the relative importance of both tangible and intangible factors (i.e. facilities and services) by using a multi-attribute approach. The study indicates that the tangible components (i.e. the comfort of the bed, clean rooms,

convenient location, availability of restaurants, etc.) of the hotel product are of importance to guests. Saleh and Ryan (1992) argue that in assessing the quality of the hotel, appearance is not only important but to some extent is more important than the range of facilities being provided (the current study, however, does not agree with the use of word 'facilities' in the last statement because 'facilities' comprise major components of the overall appearance such as a restaurant and car parks). They, however, reveal that although appearance (tangible components) might be initially important, a hotel might be rated on its range of provision (i.e. staff performance, and/or intangible components). Saleh and Ryan (1992) indicate that in addition to the contribution such a study makes for further research, in practice managers are provided by information which enables them to get things right in the hotel business. Girrad and Gratner (1993) discussed the second home owner's perceptions of facilities and services within the community and revealed that facilities and services such as health care and medical services, roads and streets, and recreational facilities are perceived as being important factors affecting location decision. Girrad and Gratner found that little attention has been given by researchers to the subject concerning the availability of facilities and services in a community. They argue that research which addresses the users' perceptions of facilities and services is important in order to assist the people in-charge in establishing better development programmes for such facilities and services. In another study, Saleh and Ryan (1993) argue that the event programme and facilities and services such as accessibility, information, and clean facilities are perceived by the festival-goers as important factors contributing to the success of an event. Vogt and Fesenmaier (1995) conducted an empirical research concerning tourists and retailers' perceptions of services. They reveal that 'tourism experience includes transactions with specific service sectors and providers (i.e. accommodation, catering, and transportation); however, this experience is also represented and evaluated by a complete service encounter or image that the destination holds in a travellers minds. Tourism is referred as " a people industry" (Morison, 1989), a service industry that is highly dependent on the quality of hospitality offered by employees work at hotels, restaurants, attractions, gift shops, etc.' Vogt and Fesenmaier (1995), however, argue that service providers do not understand the level at which customers perceive and evaluate their experiences concerning the services provided to them. Vogt and Fesenmaier,

therefore, point out that there is a need for research to understand the visitors' perceptions of service quality. Lewis and Nightinale (1991) argue that facilities and/or services in the hospitality industry must be defined relative to the exact need of the customer. In other words, providing customers with facilities and services they do not need will mean such customers will be paying for things they do not use, while failure to provide customers with facilities and services they need will yield dissatisfied customers. Oppermann (1996) in his study 'convention destination images: analysis of association meeting planners' perceptions' reveals that with respect to the event planners' perceptions factors such as meeting room facilities (i.e. venue facilities), and hotel service quality are of special importance to the planners. However, Oppermann (1996) points out that little is known about attendees' motivations and specifically attendees' perceptions of convention destinations (i.e. with respect to factors such as facilities and services available within event venues). He also indicates that a more thorough research of all factors and actors involved in the event industry becomes of paramount importance. In addition, Guneren et al. (1996) notice that in the hospitality industry managers (and researchers, arguably) often do not know what aspects the guest considers as important when evaluating the products of such an industry.

In conclusion, it is argued that: a) facilities and services are an important element in the event industry (which has a strong relation to the tourism and travel industry); b) there is a need for research to understand the exact need of the event-goers (i.e. visitors and/or participants) concerning facilities and services; and c) although some researchers are aware of the importance of facilities and services to the event industry, no research have been conducted considering the actual users' perceptions concerning the importance of facilities and services to the large-scale event industry.

2.5 The Event Management

There are two implications for event management which should be considered. Firstly, by definition, events occur outside the normal routine of an organisation, i.e. they occur out of repetitive and regular schedules, programmes, and operations. Furthermore, events management requires extended time, different participants, and non regular implication. Managing an event may involve a 'one-off' basis rather than

through predictable and normal business. Secondly, most events' organisational structure is temporary, and thus has a limited life span (Hall, 1992; Badmin et al., 1988). There are four problems which face event planners and managers. They are with regard to: 1) the short period in which events take place, i.e. the 'peaking' phenomenon discussed above; 2) the event depends on temporary employees and sometimes volunteers, who have their own problems and requirements; 3) the event management requires full community support, which is difficult to obtain most of the time; and 4) the management have to provide motivation and financial support to both paid and volunteer workers (Hall, 1992).

Accordingly, event management should rely on a clear knowledge of the objectives of hosting the event, which requires a correct understanding of what the audience and other people involved need. Furthermore, event management should establish an adequate organisational structure that can run the events, recruit staff who are capable of accomplishing the job and providing the required services, and finally the ability to evaluate the effectiveness of the events in meeting its initial set of objectives (Robinson, 1991).

Generally speaking there are four major functions of event management. They are:

1. "Planning - the determination of the development of events through the establishment of objectives and by designing and implementing the strategies required to achieve the objectives;
2. Organising - the determination of the specific activities that will be required to implement the event plan;
3. Leading - the motivation of staff (including volunteers), and the direction and communication of the responsibilities that must be fulfilled if the event is to succeed; and
4. Controlling - the adjustment and monitoring of activities in order to ensure that events develop in line with established objectives," (Hall, 1992).

Finance, marketing, and personnel are also among the important duties that an events' manager should consider during the early stages. Financial management

relies on the expenditure and the income of an event which contribute to determining the economical feasibility of an event. Marketing concerns attracting those facilities, staff and packages which are brought together to formulate the final product of the event for the benefit of all stakeholders. Personnel in event management differs from normal personnel management. It involves dealing with permanent, temporary, and voluntary labour who should be well informed and trained to provide customers with the required services.

2.6 The Approaches Available to Manage Events

The author recognises that many approaches can be utilised in managing events and festivals. Among those approaches are operational management, project management, logistics management, and facilities management. Brief discussions about each of these approaches follow.

2.6.1 Operational Management (OM)

Render, and Heizer (1994) defined OM, in general, as: " activities that relate to the creation of goods and services through the transformation of inputs into outputs". Hence, in service industries such as in the event business the transformation activities of different services (inputs) into the sold package (outputs) is called operation.

Badmin, et al. (1988) noticed that the Institute of Leisure and Amenity Management (ILAM) has adapted OM in its educational programme which relates to event organisation and management. According to Badmin, Coombs, and Rayner OM in the leisure sector, i.e. event industry, concerns "the day-to-day functioning of facilities and the provision of opportunities in which the public can take part. It is about making facilities presentable, offering potential clients enjoyable experiences and services, promoting service products and ensuring that they are managed within the appropriate budgets" (Badmin, et al., 1988).

OM covers areas in bringing forth products and services such as product plans, management quality, process design, capacity planning and location, facility layouts, priority scheduling, maintenance and sustainability, etc. Many of these areas are applicable and useful in the management of the event and festival industry. However, Finkelstein and Guertin (1988) noticed that there are some areas that were ignored by

OM such as user feedback analysis and support, and waste management, i.e. environmental issues. These fundamental areas are critical for the production of services, and especially for the event industry. Nevertheless, no operations texts covered these issues, as Finkelstein and Guertin declared.

2.6.2 Project Management (PM)

PM is a process that is designed mainly to manage projects, especially in the construction industry. PM involves managing time, cost, risk, information, human resources, procurement, quality, and communication. It is the integration of several skills and disciplines that requires a fullness knowledge in order to achieve the projects' objectives. PM uses different scheduling techniques and software in order to finish the project on time and within the target budget.

PM is not without negative aspects, i.e. the primary customers of PM are the people doing the work only, and not everyone who is involved. Furthermore, not all work is appropriately managed by PM, because it is designed for transient work that has a start and a finish, and where the work is guided by specific performance objectives (Leavitt, and Nunn, 1994).

It appears that the PM approach is not suitable for the event and festival industry for various reasons such as - a) events have different impacts on the host community and the environment, as shown in Table 2.3.1, which may continue to be influential after the event has finished, and b) events involve different stakeholders (i.e. various interested people), as discussed earlier, and not only the people who are doing the work. However, PM can be employed in the event industry as an effective tool to complete and deliver different projects and services required for an event within an optimum time and budget, yet PM should not be adopted to manage events in general.

2.6.3 Logistics Management (LM)

Webster's (1979) defined LM as an aspect of military science, dealing with the procurement, maintenance, and transportation of military material, facilities, and personnel. From the commercial point of view, LM can be perceived as production, operations, and the physical distribution of goods. However, efforts are being made

to integrate the terms being applied in the military field into the commercial environment. Logistics interface with the organisation's infrastructure in marketing, technology development, planning, finance, management, personnel, and services to maintain the value and usefulness of the product (Christopher, 1992).

LM concepts can be used in the event and festival industry to bring to users/customers the required equipment, goods, and services within the specified time and places. For example, Yafi (1983) investigated the complex transportation problems of the Hajj mega-event and tried to arrive at solutions to certain aspects of these problems, utilising the logistical management techniques with the help of a mathematical model. Nevertheless, facilities that are very important to the event and festival business always take less priority in LM, as Finkelstein and Guertin wrote:

> "It is time that facilities take less of a back seat in logistics planning and that facility's requirements and planning necessary to support them become much more pronounced in the logistics circles than they have been in the past." (Finkelstein and Guertin, 1988).

2.6.4 Facilities Management (FM)

FM is a generic term that refers to a range of activities and functions. It is a process by which an organisation delivers and sustains agreed service levels within a quality environment to provide full value in use to meet strategic objectives. FM is a quality management approach that integrates physical resources with different services for the benefit of customers (Alexander, 1991,1992; Friday and Cotts, 1995). FM focuses on people during all kinds of operations to provide them with quality services and facilities on time, first time and all the time. Although, FM concerns with the people involved, it also considers many important issues that relate to human well-being and needs such as environment, safety, security, and health.

FM is becoming more recognised as a strategic business element. Two practices that FM have used to advance this recognition: Total Quality Management (TQM) practices and Benchmarking. There are three basic principles that are considered by TQM, and thus by FM: customers, performance measurements, and continuos improvement. Moreover, the essence and value of benchmarking is the adoption of best practices. FM aims to improve the efficiency of organisations by employing

business tools such as: risk analysis; fast track project management; flexible space designs; customer satisfaction surveys; quality auditing; and safety auditing (Klammt, 1995).

FM can be applied across a range of fields of application and businesses that include: transport and distribution, utilities, health care, leisure, residential, etc. In some organisations facilities are seen as an important support to the core business e.g. manufacturing. However, facilities can be considered as a major part of the core business in other sectors e.g. tourism and leisure. Although facilities are recognised by several authors and researchers as an element of the travel and tourism industry (Inskeep, 1991; Crawshaw, 1993; Parry and Collins, 1993; Page, 1995), there is a short coming in research within this area concerning the different facilities aspects such as: planning; provision; management; and the interfaces between facilities and the business, the people involved, the environment - the venues used, and the resources available

2.7 Toward a Total Quality Management Approach for the Event Industry

There is no doubt that a quality event is the one that has a quality product. Getz (1991) argues that the tangible product of an event - which must be of a good quality - is its programme, or alternatively, packages and tours of the event, and the tangible merchandise sold or consumed at that event. Hiller (1995) argues that the 'tourism product' required for a mega-event is the facilities needed to host such an event at the destination selected. A high quality event, however, cannot be created unless consideration is shown to all involved stakeholders such as event visitors/customers, employees, owners, retailers, and public of the hosting community. This is because quality is related to persons or groups of persons, and it is perceived by them (Hall,1992). A quality event has many positive impacts and very few or no negative impacts. All stakeholders should feel and benefit from the positive impact of events. Negative impacts should be minimised as much as is practical, especially those in relation to the community and the environment.

As discussed in the previous sections, OM, PM, and LM are well known management techniques which deal with different resources, and aim to maintain

quality for customers and/or users. Such approaches can be employed as management tools in the event industry, however, they should not be implemented as an overall approach in managing events. This is because OM, PM, and LM are mainly designed to accomplish projects or jobs on time, but without much concern to their further impacts, especially on the people involved (stakeholders - those whom events are created for), and the environment. It is not an easy task, however, to plan, manage, and create a quality event without utilising a total quality management approach that considers all the points which have been discussed previously. It is revealed, therefore, that there is a need for an approach which can: (a) integrate, and manage the physical resources (hardware) such as venues, buildings, infrastructures, etc., with the required services (software) including accommodation, travelling, communication, etc., and (b) considers the economical, social, environmental impacts of an event.

This study argues that FM can be an adequate overall management approach for planning, producing, and managing quality events as discussed below. Implementing facilities management as a quality systems approach in the event industry will work for the benefit of all concerned people and will definitely enhance, facilitate, and add more value to the event's products. By providing an ever improved consistent level of services and facilities, Facilities Management will enable the event organisation to cope and beat other competitors. It will improve the event's general standard, and maintain the brand of the event product.

This is especially related to aspects such as: 1) facilities planning, provision and management; and 2) the interfaces between facilities and the business, the people involved, the environment - the venues used, and the resources available.

This research will provide empirical evidence to support its argument that facilities management is the most appropriate approach for managing the event industry.

2.8 Summary

The discussion of Chapter 2 comprises the broad context of the present study which concerns the event industry. This chapter reviews the events' definition, typology and impacts. It discusses the major issues of the event management and addresses the importance of facilities and services to the event industry. It is revealed that there is a shortcoming in research concerning the facilities and services needed within a venue for large-scale events with respect to the actual users' perceptions. This research will try to contribute to the filling in such a gap in the knowledge. The Hajj is a typical mega-event, and although the Hajj is an international event which involves one and half million people every year, it is ignored in the related literature. This research will employ the Hajj as a vehicle to meet the research objectives. In the next two chapters the Hajj event's issues will be discussed in detail.

It is also argued that there is a need for a management approach which can be employed for planning and organising the event industry such an approach must be able to: (a) integrate, and manage the physical resources (hardware) such as venues, buildings, infrastructures, etc., with the required services (software) including accommodation, travelling, communication, etc., and (b) consider major factors such as economical, social, and environmental impacts of an event. In event management there should be no room for mistakes, as mistakes are noticed and remembered. One should always keep in his mind that events clearly demonstrate the manager's abilities to get things done well, first time. Robert Townsend (1986) said concerning an event:

" if you can't do it excellently, don't do it at all".

CHAPTER 3

The *Hajj*: A Typical Mega-event

3.1 Introduction

Chapter 2 discussed the broad context of the present study with respect to the importance of facilities and services to the event industry. The previous chapter covered three main points. The first point included an explanation concerning events' definition, typology, and character, in general. The second point explained the importance of facilities' planning, and provision for the event industry. The final point concerned the events' organisation as a whole.

Chapter 3 discusses the subject of the *Hajj* event, i.e. the typical mega-event which was chosen to be employed as a vehicle to meet the research objectives. The *Hajj* is the Muslims' pilgrimage to Makkah and the Holy Places, Kingdom of Saudi Arabia. It is one of the most important events in the world that occurs annually and attracts more than one and half million people from all over the globe. In this chapter a detailed analysis of the *Hajj* components, and ritual activities (i.e. the *Hajj* programme) will be carried out. Chapter 3 starts by explaining the five pillars of Islam which include the *Hajj* as the fifth pillar. Then, the history of the *Hajj* before and after Islam will be reviewed. After that, a discussion concerning the purpose of the *Hajj*, the religious components, the temporal components, and the spatial components of the *Hajj* will be presented. This chapter will provide the reader with comprehensive information regarding the *Hajj* event. Such information is vital to understand the following chapters in this thesis.

3.2 *Hajj* as a Pillar of Islam

There are five pillars of Islam. They are the framework of the Muslim life: faith, prayer, concern for the needy, self purification, and the pilgrimage to Makkah for those who are able. *Hajj* is the fifth pillar of Islam. The five pillars of Islam are briefly discussed below:

• Pillar 1: Faith - there is no god worthy of worship except God (Allah) and Muhammad is His messenger. This declaration of faith is called the *Shahadah*, a simple formula which all the faithful pronounce.

• Pillar 2: Prayer (i.e. *Salat*) - is the name for the obligatory prayers which are performed five times a day. These five prayers contain verses from the Qur'an. Prayers are performed at dawn, noon, mid-afternoon, sunset and nightfall, and thus determine the rhythm of the entire day. Although it is preferable to worship together in a mosque, a Muslim may pray almost anywhere, such as in fields, offices, factories, and universities.

• Pillar 3: The *Zakat* - concern for the needy. Each Muslim calculates his or her own *Zakat* individually. For most purposes this involves the payment each year of two and half percent of one's capital. A person may also give as much as he or she pleases as *Sadaqa.* Although this word can be translated as 'voluntary charity' it has a wider meaning. The Prophet Muhammad said ' even meeting your brother with a cheerful face is charity.'

• Pillar 4: The Fast - every year in the month of Ramadan, all Muslims fast from first light until sundown, abstaining from food, drink, and sexual relations. Those who are sick, elderly, or on a journey, and women who are pregnant or nursing are permitted to break the fast and make up an equal number of days later in the year.

• Pillar 5: The *Hajj* - the annual pilgrimage to Makkah and Holy Places. It is an obligatory only for those who are physically and financially able to perform it (ESAW, 1989).

Because the *Hajj* event is chosen as a vehicle to meet the current research objectives, it is important to discuss *Hajj* event in more detail. Following paragraphs cover related issues of such a large-scale event.

3.3 The *Hajj* Before and After Islam

The *Hajj* is an ancient rite which was well established in Arabia long before Islam. It was one of the few traditions of the monotheistic religion of prophet Abraham peace be upon Him. The Holy Qur'an (Word of *Allah*, Muslims' book) relates the story of how 'the Father of the Prophets', Abraham, built the holy *Ka'ba* with the help of his son Ismael and in obedience to Allah proclaimed the *Hajj* to all mankind. The following quote is a translation from the Holy Qur'an (*Surah* 22, *Al Hajj* : verses 26-29).

> "(26). Behold! We gave the site to Abraham, of the (Sacred) House, (Saying): "Associate not anything (In worship) with me; and sanctify My House For those who compass it round, Or stand up, Or bow, Or prostrate themselves (Therein in prayer).
> (27). "And proclaim the Pilgrimage Among men: they will come To thee on foot and (mounted) On every kind of camel, Lean on account of journeys Through deep and distant Mountain highways;
> (28). "That they may witness the benefits (provided) for them, And celebrate the name of Allah, through the Days Appointed, over the cattle which He has provided for them (for sacrifice): then eat ye Thereof and feed the distressed Ones in want.
> (29). "And let them complete the rites prescribed For them, perform their vows , And (again) circumambulate The Ancient House." (The Holy Qur'an, *Surah:* 22, *Al Hajj).*

There are reports which take the *Hajj* further back in history and associate it with man's first steps on this planet (Bodo Rasch, 1980). The *Hajj* consists of ritual observances and the activities necessarily associated with it. Those observances and activities are well defined and documented in Islam. They follow - in principle - the example of the Islamic Prophet Muhammad -peace be upon Him - whose pilgrimage to Makkah has been described in detail by contemporaries. Some of the *Hajj* rites are also mentioned by *Allah* in the Qur'an. This means that nobody can alter any of those rites. Accordingly, it is vital to understand that the *Hajj* occurs and is performed only within a specified time and at certain places.

3.4 The Purpose of the *Hajj*

The *Hajj* is one single institution of Islam that extends benefit in several forms. It is a course of spiritual enrichment and moral strengthening, a path of intensified devotion and disciplinary experience. Furthermore, *Hajj* is a course of humanitarian

knowledge. It displays signs of unity, togetherness and a sense of belonging to a world wide community. It calls every Muslim to perform it peacefully and calmly (Aziz Alrhman, 1988).

The purposes of *Hajj* were summarised into six points by Abdal-A'ti (1975). They are:

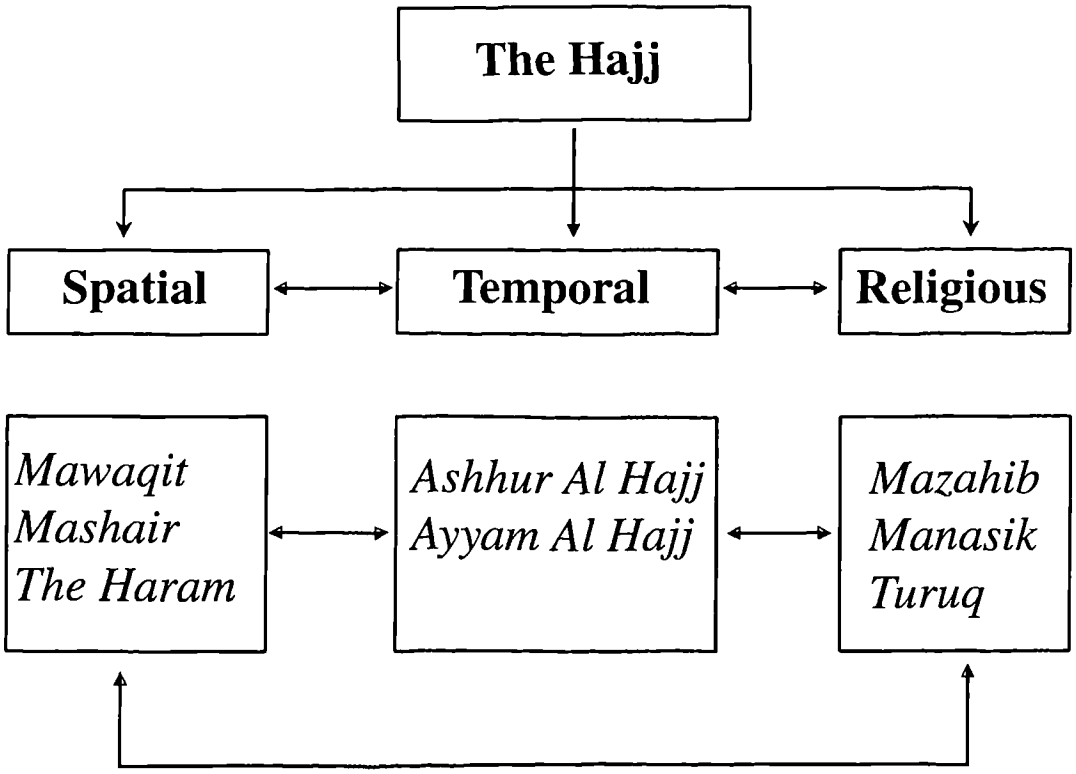
1. It is the largest annual peace conference known in the history of mankind. Throughout the course of *Hajj*, peace is the main theme; peace with God, with fellow human beings and with other creatures.
2. *Hajj* demonstrates the universality of Islam and emphasises the concept of brotherhood and freedom.
3. It also shows the willingness of Muslims to forsake material interests in the cause of Allah.
4. It is to acquaint the pilgrims with the historical and spiritual environment of the Prophet Muhammad - peace be upon Him - in order to derive inspiration from there and hence re-affirm faith.
5. *Hajj* is to commemorate and re-enact the religious rituals observed by Abraham and Ismael - peace be upon Them - who were the first known pilgrims.
6. Moreover, *Hajj* is a reminder of the day of Judgement when people stand equal before Allah; no superiority of races, colour, or stock can be claimed as all await their final eternal destiny.

As shown above the purposes of *Hajj* are manifold, so *Hajj* itself is multifaceted. The different components of the *Hajj* are briefly discussed below. For further details see Aziz Alrhman (1988).

3.5 Components of the *Hajj*

The *Hajj* consists of three distinct, yet inter-related dimensions. They are: religious, temporal, and spatial (Figure 3.5.1). A brief discussion of these components is presented below.

Figure 3.5.1: Components of the *Hajj*.



⟷ Division into parts ⟶ Inter-relationships

Source: Aziz Alrahman, 1988

3.6 Religious Components of *Hajj*

The religious rituals constituting worship in general, and the *Hajj* proper in particular, are based on four widely accepted *Mazahib* (schools of thought) which are derived from the Holy Qura'an and the *Sunnah* (teaching from the Prophet peace be upon Him). These *Mazahib* were founded in the eighth and early ninth centuries. The change in time, places, and environment especially after the enormous expansion of the Islamic Empire during the Abbasid era (750 - 1174), have necessitated innovative interpretations of the Holy Qura'an and the *Sunnah*. The four *Sunni Mazahib* are, *Hanafi, Malki, Shafi'i*, and *Hanbali*. The names of these Schools of Law refer to their founders.

It is important to say that the *Mazahib* are continuously updated by their followers to cope with the changing needs of society. The *Mazahib* have withstood the test of time. Accordingly they form a legal frame of reference to which Muslims adhere. Pilgrims follow any one of the aforementioned Mazahib. The impact of these schools on the facilities use pattern in Makkah, Arafat, Muzdalifah, and Mina - where *Hajj* is performed - is noticeable. This point should be considered in the *Hajj* research and planning.

3.6.1 *Manasik* (Religious Rituals)

Manasik are the religious rites of the *Hajj* performed in a prescribed manner. Theses may be further broken down into four types, *Shroot* (Bases or Foundations), *Arkan* (Pillars), *Wajibat* (Conditions), and *Sunan* (preferences). The bases are of principal importance, if one (or more) does not hold good, the *Hajj* is either not required from the person, or not accepted from him (see below). The pillars form the basic religious rituals that constitute the *Hajj*. If one (or more) Pillar is missed, the *Hajj* is not complete and accordingly not accepted by Allah. The Conditions on the other hand are far less restrictive, in that if they are not performed, then the *Hajj* can be completed with the proviso that an appropriate penalty is paid as laid down in the Islamic Law. The preference are complimentary - if a pilgrim does it he is rewarded from Allah, if he does not do it he will not be punished. The violation of the preference does not affect the completeness of the *Hajj*.

There is unanimous agreement between the four schools of thought (*Hanafi, Malki, Shafi'i*, and *Hanbali*) as regards the bases of the *Hajj* (Zain Al-A'bdien, 1986). The bases include:-

1. Islam - non Muslims are not required to perform the *Hajj*.
2. Sanity and Freedom - children, slaves and mentally retarded people are exempt from the *Hajj*.
3. Specific Hajj times - the *Hajj* can only be carried out during a specific time of the year (see section 3.7.2).
4. Ihram - entering the state of sanctity (see below).
5. Place - the Hajj should be performed in Makkah, Arafat, Muzdalifah, and Mina.

The *Hajj* is not required from 1) and 2) above, and is considered null and void if the other three bases are not applicable (Ibn Qudama, 1979). There is a slight variation between the four School of Law as regards the Pillar of the *Hajj*. Religious rites viewed as foundation include:-

1. Ihram
2. Standing in Arafat
3. Performing Tawaf Al-Ifadhah, i.e. the *Hajj Tawaf*
4. Performing *Sa'i*, i.e. the *Hajj Sa'i*

In order to furnish a basic, yet comprehensive understanding of the *Hajj*, it is necessary to explore each ritual as a separate entity as well as part of the integrated whole.

a) Ihram - entering into a state of sanctity, it is a prerequisite of both *Hajj* and *Umrah* (visit). Practically *Ihram* involves wearing particular clothes and abstaining from certain acts (Abdur Rahim, 1983). The permitted clothes are two plain (preferably white) unsewn sheets of cloth, the first covers the lower part of the body, and the second protects the upper part of the body to the neck. Women do not wear this kind of cloth. They wear their normal clothes. The prohibitions imposed throughout the period of *Ihram* include the following acts:-

1. The wearing of any close fitting clothes except for women who can wear their normal clothes.
2. Men should not wear any caps or turbans, but can protect their heads from the sun, using umbrellas for instance.
3. Shaving or removing hair from any part of the body by any means is also prohibited.
4. Nail cutting is not allowed.
5. No fragrance or perfume should be used.
6. Hunting wild game - except crows, kites, scorpions, mice or rabid dogs - is not permitted.
7. Getting married or proposing marriage is prohibited.
8. Committing acts of a sexual nature is not allowed.
9. Fighting and quarrelling should be shunned (Abdur-Rahim, 1983).

b) ***Tawaf*** - going round the Holy Ka'aba. It was a common religious ritual long before Islam was strengthened. It forms an essential part (pillar) of the *Hajj* and can be formed as a worship in its own right. *Tawaf* is comprised of seven rounds. The starting point is the Black Stone, fixed to the South Eastern corner of the Holy Ka'aba. The person who performs *Tawaf* marches anti-clockwise around the Holy Ka'aba starting from the Black Stone and ending at the same place for one round. He has to do so seven times (rounds or *Ashwat*) to complete the *Tawaf*. Al-Ansari (1983) views *Tawaf* as a parallel to the general movement of the Universe. The marching of seven successive rounds (*Ashwat*) should only be discontinued when prayer is called for. The pilgrim then restarts from the Black Stone regardless of the finishing point of the last round. When *Tawaf* is concluded, *Tawaf* prayer should be offered. The pilgrim then turns toward Safa and Marwa for *Sa'i*.

c) ***Sa'i*** - walking between the Mount of Safa and Marwa. As the pilgrim reaches the Mount of Safa, he or she first stands on the Mount and then raises his/her hands and prays to Allah. After that the pilgrim goes all the way down and walks until he/she reaches the Mount of Marwa. On reaching the top, he faces the Holy Ka'aba and repeats the aforementioned action. *Sa'i* is comprised of seven rounds. Unlike *Tawaf*

which is performed as part of the *Hajj* and *Umrah* or as a worship, *Sa'i* is only performed as part of the *Hajj* and *Umrah*, and can be performed as an optional worship as well at any time. In both *Tawaf* and *Sai'i*, personal cleanliness should always be maintained.

3.6.2 The *Turuq* (Modes) of *Hajj*

The *Hajj* may be performed in three different ways, *Ifrad* (Singleness), *Tamattu'* (Enjoyment) and *Qiran* (Combination). The discussion of these three modes of *Hajj* may be facilitated by a consideration of the ritual *Umrah* which may be combined with *Hajj* through the mode of *Qiran*.

3.6.2.1 Umrah

Umrah (visit) is a religious ritual that involves four basic rites, *Ihram, Tawaf, Sai'i* and *Halg* (shaving) or *Taqseer* (shortening) of the hair, which are essential rites of the *Hajj*. People approaching the *Mawaqit* (see Section 3.8.2) during the period of *Hajj* should enter a state of sanctity either for *Hajj*, *Umrah* or both. Unlike the *Hajj*, the *Umrah* can be performed throughout the year. People within the area of the *Mawaqit* can perform *Umrah* from their own residences (Abdur Rahim, 1983). The people of Makkah who live within the Metropolitan Religious Domain (*Al-Hill*) should pronounce *Ihram* outside that area in designated places.

3.6.2.2 Ifrad

The pilgrims who follow this mode perform the *Hajj* alone (without *Umrah*). Pilgrims commence *Ihram* from the *Miqat*. On arrival at Makkah they perform *Tawaf*, known as the Arrival *Tawaf* (*Al-Qudum*), this is a salutation to the Holy *Ka'aba* (Bogis, 1984). These pilgrims can also perform *Sai'i* in advance in which case he is exempt from it on the tenth day after the month of *Dhul-Hijja*. However, *Tawaf Al-Ifada* on that day should be performed. The pilgrims who follow this mode remain in *Ihram* till they complete the *Hajj* rituals.

3.6.2.3 Qiran

This is the mode in which the *Hajj* and the *Umrah* are combined. At the *Mawaqit* the pilgrim assumes *Ihram* for both rituals. A pre-requisite of this mode is the sacrificial

animal (see section 3.7.3) which is brought by the pilgrims from outside the *Mawaqit* area. *Qarin* pilgrims observe *Umrah* rituals other than shaving or shortening their hair, and are still in a state of sanctity till all *Hajj* rituals are completed (Zain Al-A'bdien, 1986).

3.6.2.4 Tamattu'

Pilgrims who wish to perform the *Hajj* of *Tamattu'* commence *Ihram* at the Mawaqit for *Umrah* only. On arrival at Makkah, they complete all *Umrah* rituals (four) and come out of the state of sanctity. On the eight day of *Dhul-Hijja* (see section 3.7.3) they pronounce *Ihram,* for the *Hajj,* from their residence.

3.7 The Temporal Components of the *Hajj*

Before the temporal component of *Hajj* is discussed a related topic - the Islamic Chronology - will be briefly reviewed.

3.7.1 The Islamic Chronology.

The Islamic Chronology begins with the year in which Prophet Muhammad peace be upon Him had to leave Makkah and flee to Al Madinah Al-Munawarah (al *Hijjra*) in 622 AD. So the year 1990 AD in the Christian calendar becomes 1410 AH (Anon *Hijjra*). The Islamic calendar, by which the time of the *Hajj* is set, corresponds to the orbit of the moon. One year in the Islamic calendar consists of twelve syndic months, each one having about 29.53 days, a year thus has 354.367 days. The solar year - as known - has approximately 365.25 days.

A month begins when the new moon is first visible. This is proclaimed by the authorities. It is important to mention here, that an exact pre calculation of the time is not possible. A deviation of one or two days - as for example through bad visibility of the moon - is easily possible. If the moon cannot be sighted, the duration of the month is assumed to be thirty days. For this reason orthodox Islam, has no predictable calendar (Bodo Rash, 1980).

Because the moon year is 10.87 days shorter than the sun year, it moves once every 33.6 years through the seasons, which means that the date of the *Hajj* appears 10 to 11 days earlier each solar year and falls back to the same date after about 33-34 sun -

or 34-35 moon-years. This yearly moving of the time has serious consequences for the *Hajj*. For example in the hot season, air cooling systems are required in all buildings, while in the cool season more elderly pilgrims are expected to come for *Hajj*, and thus proper facilities should be provided.

The Islamic calendar consists of twelve months. They are in order: Moharam, Safar, Rabei' al-Awal, Rabei' al-Thani, Jumada al-Olah, Jumada al-Thaniyah, Rajab, Sha'ban, Ramadhan, Shawal, Dhul-Quidah, and Dhul-Hijjah.

3.7.2 The Temporal Aspect of the *Hajj*

The temporal aspect of the *Hajj* refers to: a) the actual overall period of *Hajj* (*Ash-hur Al-Hajj*), the months of celebration - Shawal, Dhul-Quidah, and the foremost ten days of Dhul-Hijjah, and b) the individual days of *Hajj* (*Ayyam Al-Hajj*). The verse of the Holy Qur'an which refers to the months of the *Hajj* reads:-

> "For *Hajj* Are the months well-known. If any one undertakes That duty therein, Let there be no obscenity, Nor wickedness, Nor wrangling in the *Hajj* And whatever good Ye do, (be sure) Allah knoweth it. And take a provision (With you) for the journey, But the best of provisions is right conduct. So fear Me, O ye that are wise." (Surah 2: *Al Baqarah*, verse 197).

The *Hajj* Days and the activities that take place during that time are discussed below.

3.7.3 The Days of the *Hajj*

The *Hajj* commences on the eighth day of Dhul-Hijja - the twelfth month of the Muslim Calendar - and ceases on the thirteenth.

A) On the Eighth of Dhul-Hijja. Pilgrims who are not in the state of *Ihram*, do so from their residence in Makkah (Abdur Rahim, 1983). They have to pronounce *Talbiya*, a special praise to *Allah* which runs:-

> 'Here I am O Allah, here I am. Here I am; there is no partner unto Thee. Verily, praise and favour belong to Thee, and so also kingdom; there is no partner unto Thee'.

Talbiya should be maintained up to the dawn of the tenth day. On this day (the eighth of Dhul-Hijja) it is preferable to leave for Mina and stay there, where pilgrims pray at Noon, Dusk, Sunset, Night, and the Dawn prayer (of the ninth day).

B) On the Ninth of Dhul-Hijja. After sunrise, pilgrims leave for Arafat. The day itself is called the Day of Arafat (*Yawom A'rafah*). This is the largest gathering of Muslims from all corners of the world. At noon, the *Imam* (leader of the prayer) delivers a sermon at the mosque of Namirah and then leads the congregation for both the Noon and Dusk prayers, these two prayers are combined. The pilgrim then devotes the rest of the day to *Woqoof* - being and staying in Arafat. *Woqoof* is the most important pillar of the *Hajj*, the pilgrim who misses the *Woqoof* misses the *Hajj* (Al-Shawkani, Nayl Al-Awtar).

Only after sunset should the pilgrims leave for Muzdalifah, 7 km from Arafat. Here pilgrims pray the two prayers of Maghreb and Isha' (Sunset and Night prayers). It is also desirable to pick up pebbles from Muzdalifah. Pilgrims should spend the night in Muzdalifah, however, women, children and the weak can leave for Mina after midnight. Those who spend the night should also offer the Dawn Prayer (Hariri, 1986). It is also recommended that pilgrims pray at the Masha'ar Al-Haram mosque in Muzdalifah.

C) On the Tenth Day of Dhul-Hijja. On their way back to Mina, pilgrims should maintain *Talbiya*, the praise of *Allah*. Once there, they head towards *Jamarat Al-Aqaba*. This is the shrine marking the place at which the prophet Abraham peace be upon Him stoned Satan who tried to persuade Abraham not to execute a command of Allah.

Pelting is one of four other injunctions to be observed on that particular day, the remaining three are:-

1. to sacrifice *Al-Haddey* (an animal),
2. to shave or shorten the hair, and
3. to perform *Twaf*, known as *Tawaf Al-Ifada*.

Note that pilgrims who are enjoined to offer the sacrifice are those following the mode of *Tamattu'* and *Qiran*. Those performing Ifrad, together with the residents of Makkah only, are exempt.

Having offered the sacrificial animal, pilgrims are at liberty to shave or shorten their hair. At this point pilgrims partially come out of their state of *Ihram* known as *Tahalul*, which enables them to do anything other than sexual acts (Bogis, 1984). When *Tawaf Al-Ifada* (see above) is performed, the state of sanctity ends. Whereas pilgrims performing the *Hajj* through the modes of *Tamattu'* and *Ifrad* have to perform *Sai'i'*, those following the *Qiran* mode are exempt.

D) On the Eleventh, Twelfth and Thirteenth days of *Dhul-Hijja*. Having finished *Tawaf* and *Sa'i* at the Holy Mosque in Makkah, pilgrims return to Mina where they spend the following three days. There they should pelt with stones the three *Jamarat*, the small, medium, and large (*Aqaba*). The pebbles used are the ones picked up from Muzdalifah, but they can be picked up from anywhere else. Women, children or the weak and those involved in services rendered to pilgrims can deputise other people to do this task. The time of pelting starts from the afternoon and extends up to the following morning, according to Al-Shafi'i (1980). It must be emphasised that spending the entire night there is one of the conditions of *Hajj* that should be adhered to. If that proves too difficult, then at least half the night should be spent (Ibn Quadama, 1979). In cases where pilgrims are unable to carry out this obligation, they have to pay a penalty - a sacrificial animal.

The journey of *Hajj* can be cut short, and pilgrims may leave after pelting the *Jamarat* on the twelfth day if they so desire. The verse in the Holy Quar'an which refers to this permission reads:-

> "Celebrate the praises of Allah During the Appointed Days. But if anyone hastens To leave in two days, There is no blame on him, And if anyone stays on, There is no blame on him, If his aim is to do right. Then fear Allah, and know That ye will surely Be gathered unto Him." (Chapter: the Cow, Verse 203).

Those who stay behind on the thirteenth day have to pelt the Jamarat first and then leave for Makkah where they can stay as long as they desire. The majority of pilgrims visit Al-Madinah Al-Munawarah City after performing the *Hajj*. Those who have already visited Al-Madinah Al-Munawarah before may return home after performing *Tawaf Al-Wada'a* - the farewell Tawaf. The visit to Al-Madinah Al-Munawarah is not a prerequisite of the *Hajj*. However pilgrims like to take the opportunity, whilst

being in Saudi Arabia for the *Hajj,* to visit the Prophet Muhammad's (peace be upon Him) Mosque in Al-Madinah Al-Munawarah.

The temporal - time aspect - of the *Hajj* is universal. However, the spatial aspect requires the physical presence of the pilgrim at the Holy shrines and his or her active participation in the ritual. The extent of the interdependence of the religious, temporal and spatial aspects may be appreciated by a detailed description of the spatial component of the *Hajj.*

3.8 Spatial Component of the *Hajj*

In addition to the Sacred Mosque in Makkah there are two further areas essential to the performance of the *Hajj*; namely the Mawaqit and the Holy Places (Al-Masha'er Al-Moqadasah). This section discusses the religious shrines beginning firstly with a definition of the Haram of Makkah and then the Mawaqit and the other shrines.

3.8.1 The *Haram* of Makkah

The *Ka'aba* as a centre of pilgrimage had a sanctuary around it and this sanctuary was a safe area for the pilgrims and other visitors to Makkah. This safe area is known as *Al-Haram,* having the meanings of protected, forbidden and revered (Angawi, 1988).

The Prophet Muhammad peace be upon Him stated that the first man who declared the *Haram* of Makkah as a sanctuary was the Prophet Abraham peace be upon Him (Sahih Muslim, see Siddigi, 1973). Its wildlife and native vegetation are thus inviolable. In Islam the Prophet Muhammad peace be upon Him confirmed the inviolability of the Haram and set forth the legal precepts and sanctions by which its inviolability is preserved. On the day that Makkah submitted to Islam, He declared to the people:

> "It is sacred by virtue of the sanctity conferred on it by God until the day of resurrection; its fresh herbage shall not be cut, its thorn trees shall not be felled, its game shall not be disturbed, and no one shall pick up an object lost within it, except to make it known." (Sahih Al-Bukhari, see Khan, 1977).

From the time of the Prophet the boundaries of the Haram have been formally delineated. The boundary normally runs through the peaks of the hills or bottoms of the valleys. The area of the Haram is an oblong shape roughly 40 km from East to West and about 25 km from North to South (Angawi, 1988). It is quite fascinating to relate the concept of the *Haram* to the ongoing research taking place at the present time regarding the environmental issues in the tourism industry.

The following discussion concerns the rest of the spatial component of the *Hajj*, starting by the *Mawaqit*.

3.8.2 The *Mawaqit*

There are five *Mawaqit* (singular: *Miqat*) at which pilgrims must enter the state of sanctity (Ihram), the starting points of both the *Hajj* and the *Umrah*. Mawaqit places have been designated by the prophet Muhammad peace be upon Him, four of which were mentioned in the *Hadith* conveyed by Ibn Abbas in Al-Bokhary (1981), the translation of which is:-

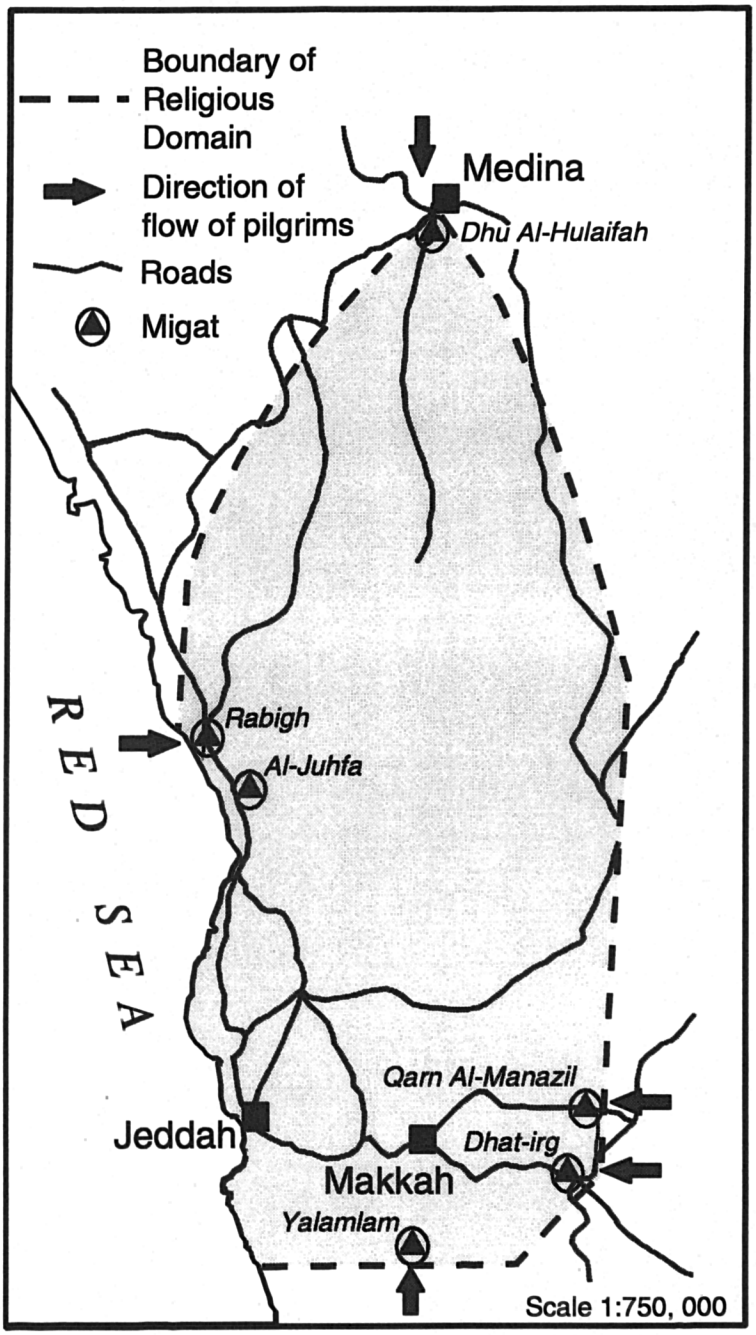
> 'The Prophet peace be upon Him has designated Dhul-Hulaifa for the people of Madinah, Al-Juhfa for People of Al-Sham, Qarn Al-Manazil for the People of Najd, Yalamlam for the people of Yemen. These *Mawaqit* are for them and for the others who go through them for *Hajj* and *Umrah*. Those who live within the boundary, start *Ihram* from their places; the people of Makkah start *Ihram* from their residences' (p350).

The fifth *Mi'qat* (Dhat-Irq) was designated in another Hadith narrated by Abu Al-Zubair on the authority of Jabir in Muslim (1982).

Pilgrims setting off for Makkah by inland routes should commence *Ihram* from these places; pilgrims travelling by see or air are to assume *Ihram* at points parallel to the *Mi'qat* concerned (Boqis, 1984).

The Mawaqit therefore forms the outer religious domain, (regional Domain) for the Holy Mosque, which cannot be passed without performing the *Hajj*, the *Umrah* or both (see Figure 3.8.1). If these points are surpassed without Ihram, the pilgrim or visitor should pay a penalty - a sacrificial animal. The very existence of this regional Religious Domain emphasises the fundamental importance of the Holy Mosque.

Figure 3.8.1: The Mawaqit of the Hajj



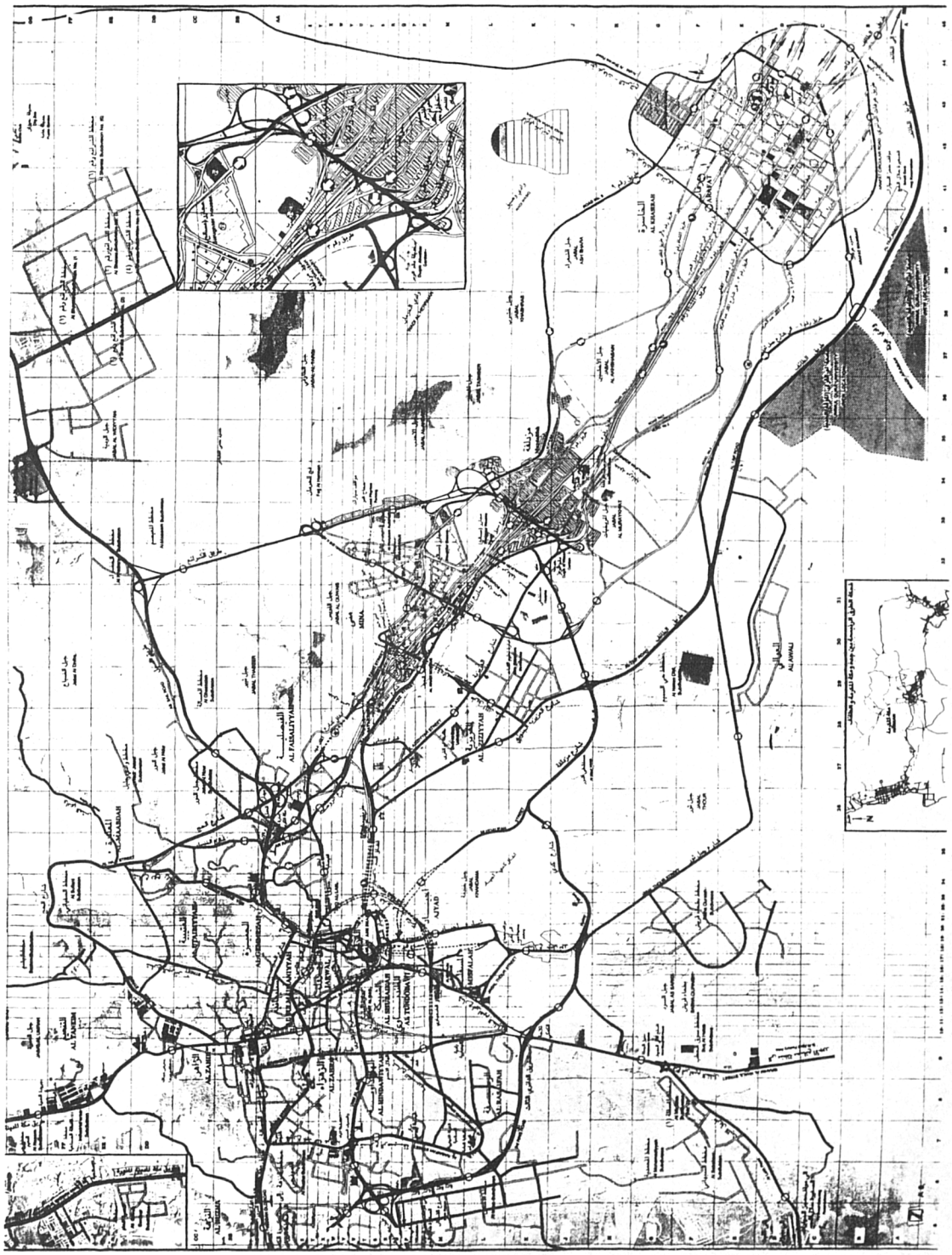
3.8.3 The Holy Places (*Al-Masha'ir Al-Muqadasah*)

In addition to the Holy Mosque, the metropolitan area of Makkah encompasses *Al-Masha'ir Al-Muqadasah* (the religious places) to the Southeast where the preponderance of *Hajj* rituals are carried out. *Al-Masha'ir Al-Muqadasah* are comprised of three distinct areas, Arafat 20 km from the Holy Mosque, Muzdaliah at 13 km from the mosque, and Mina 6 km from the mosque, they are connected by system of road networks that include tunnels. Makkah, Arafat, Muzdalifah, and Mina are the main venues of the *Hajj* event. See Figure 3.8.2 for the map of Makkah and *Al-Masha'ir Al-Muqadasah.*

The religious and temporal aspects of the *Hajj* have affected the facilities available, the use pattern, and the density of development in these venues. It is important to say that the Islamic shari'ah has recommended restricting the construction of permanent buildings and structures at these venues (Al-Azraqi, 1983).

Figure 3.8.2: The Map of Makkah and Al-Masha'ir Al-Muqadasah

Source: Farsi, Mohamad Zaki. Master Plan for Al Mashaer Roads (1414H)



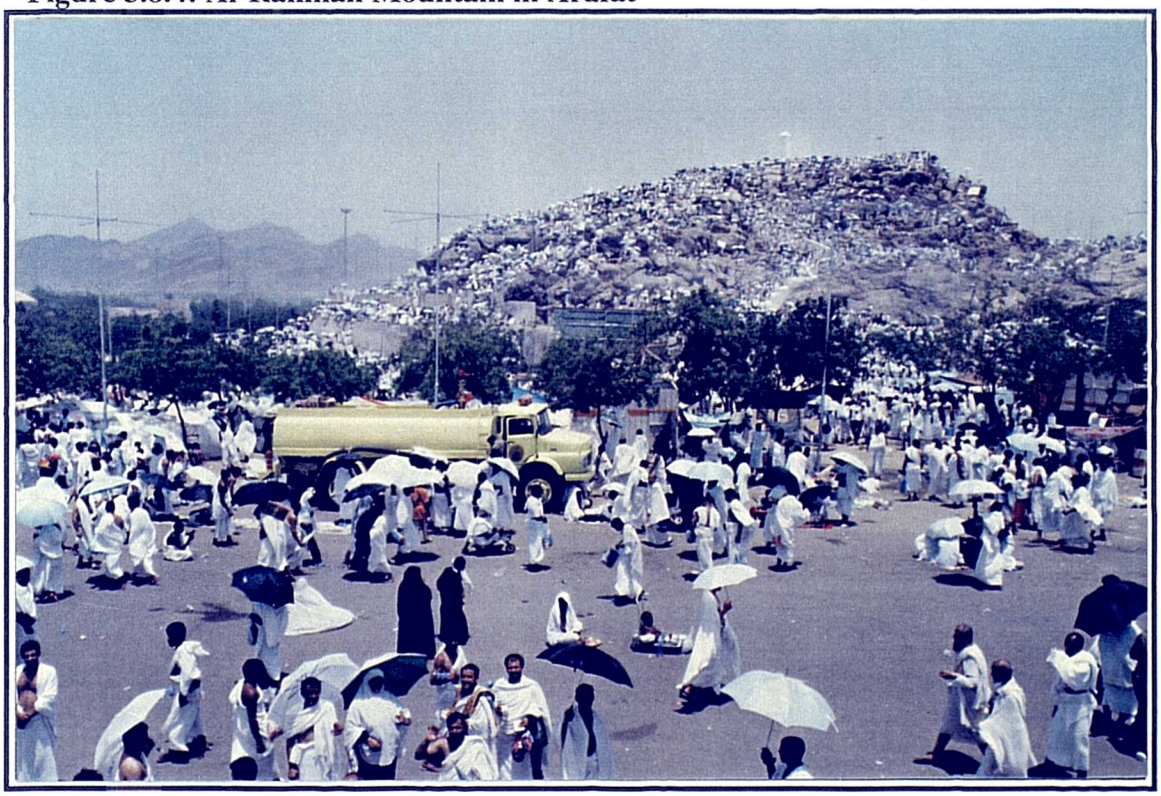
3.8.3.1 Arafat

Arafat is the venue where the grand assembly of Muslims takes place. It covers some 1,368 hectares of which 434 hectares are mountainous and very difficult to develop (MOC, 1979). The remainder is flat land which is easy to occupy. Arafat comprises Al-Rahmah mountain, the land mark of Arafat (Figure 3.8.4), where the prophet Mohammed (peace be upon Him) stand near to it in his *Hajj*.

Because the period of stay in Arafat lasts for one day (the ninth day of Dhul-Hijja), only very few permanent structures have been built. These include the great Namirah Mosque with its ancillary facilities (Figure 3.8.3), a general hospital together with clinics and dispensaries, police and fire stations, telephone booths, post offices and a guest house for shelter-less pilgrims. Temporary structures such as tents, portable cabins, mobile caravans etc. are used to accommodate pilgrims. The area is divided into blocks and lots which are serviced with car parks. A complete system of water and electricity has been built. All other types of services are provided by temporary structures.

Figure 3.8.3: The Namirah Mosque in Arafat

Figure 3.8.4: Al-Rahmah Mountain in Arafat

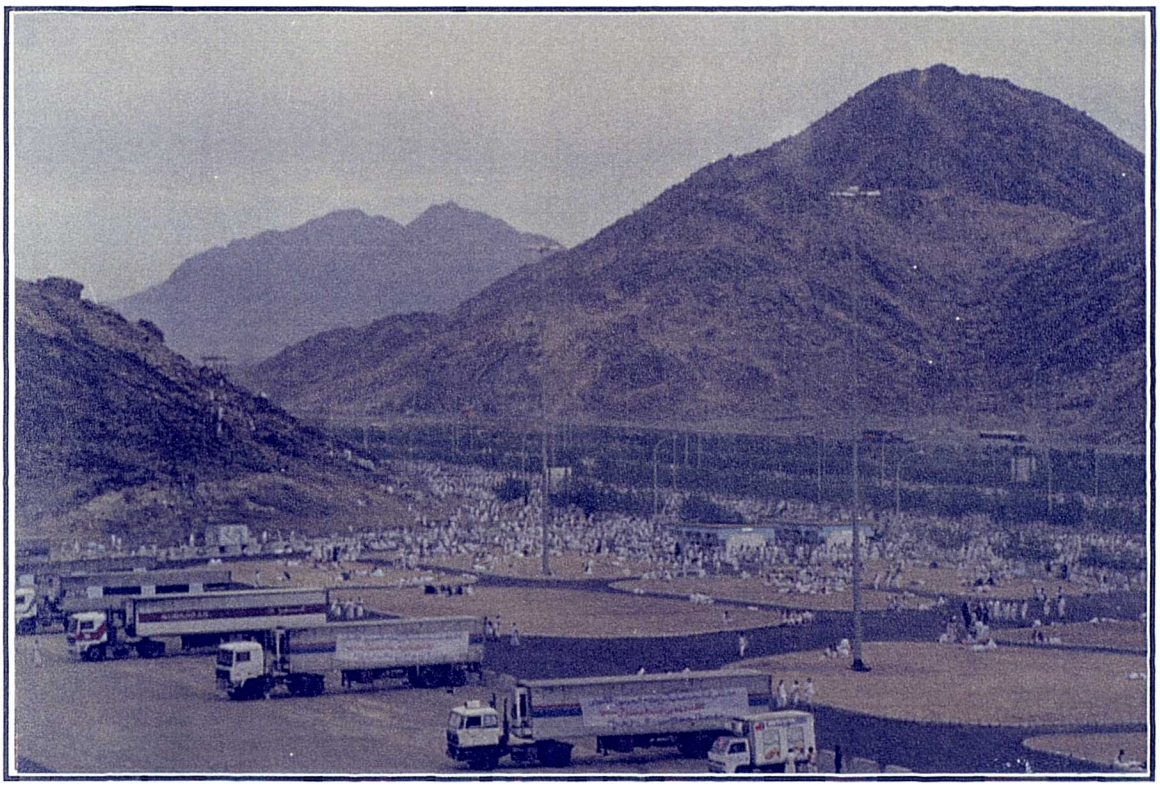


3.8.3.2 Muzdalifah

The legally defined area of Muzdalifah encompasses some 963 hectares, slightly more than half the area of Arafat (MOMRA, 1985). Much has been done to flatten mountainous areas which take up 281 hectares. Pilgrims have to go to Muzdalifah. Those following the *Hanafi*, and *Hanbali* schools of thought must spend the night there. The followers of the other *Mazahib* are at liberty to leave for Mina after midnight of the ninth day of Dhul-Hijja, or spend the night there.

Because the duration of stay in Muzdalifah is short, very few permanent structures have been erected. The most important is the Grand Mosque of Muzdalifah known as Al-Masha'ar Al-Haram. The area is left open, even tents for pilgrims are not erected. Obviously, the need for shelter during the night at Muzdalifah is not great because protection from the sun is not required. Also the duration of stay in Muzdalifah lasts for a maximum of eight to ten hours starting after sunset and finishing on the dawn of the tenth day of Dhul-Hijja. Muzdalifah is serviced with both electricity and water. Sanitation and parking facilities are also provided. Retail trades housed in temporary structures and mobile caravans, offer many kinds of goods especially food and drink (Figure 3.8.5).

Figure 3.8.5: Mobile Trucks Offering Food and Drink in Muzdalifah



3.8.3.3 Mina

Mina is located at a distance of 6 km from Central Makkah, and measures approximately 812 hectares, 52% of which is flat land (MOMRA, 1985). The hilly part is comprised of very steep slopes, very difficult to use by most pilgrims. Mina is very central to the urban system of the *Hajj* places (*Al-Masha'ir Al-Muqadasah).* Pilgrims have to spend at least three nights there. Moreover, pilgrims should pelt the '*Jamarat*' the shrines. The religious rite of pelting and sacrifice are again a re-enactment of rituals observed by Abraham peace be upon Him (*Surah* 37: *Al Saffat,* verses 102-107).

Problems of overcrowding in the *Jamarat* zone have led to the construction of a gigantic pedestrian bridge (fly-over) in that area. This has made it possible for pilgrims to pelt *Jamarat* on two levels, above and below the bridge. Moreover, the sacrifice of thousands of animals during the *Tashreeq* days in Mina has also necessitated the construction of massive slaughter houses that are only used during the *Hajj* season. In 1985 the government started to make a very efficient and effective use of sacrificial animals, *Haddey* and *Adhahi.* Administrative and financial affairs for the schemes are handled by the Islamic Development Bank, based at Jeddah, Saudi Arabia. Pilgrims participating in the scheme pay the set price of the required animal (i.e. sheep, cow, camel) in advance and up-till the twelfth day of Dhul-Hijja. Animals are then sacrificed on the tenth, eleventh, and twelfth of Dhul-Hijja in accordance with the requests of pilgrims, some are locally consumed, others are frozen and finally prepared for shipment. The Saudi Arabian Government air transport the Sacrificed animals free of charge to poor Islamic nations.

The above two examples in effect show that the religious rites observed in Mina necessitate the development of permanent structures. Indeed, slightly more than two thirds of Mina's flat land are developed for residential purposes. The remainder is taken up by the road network and other public buildings (see Table 3.8.1).

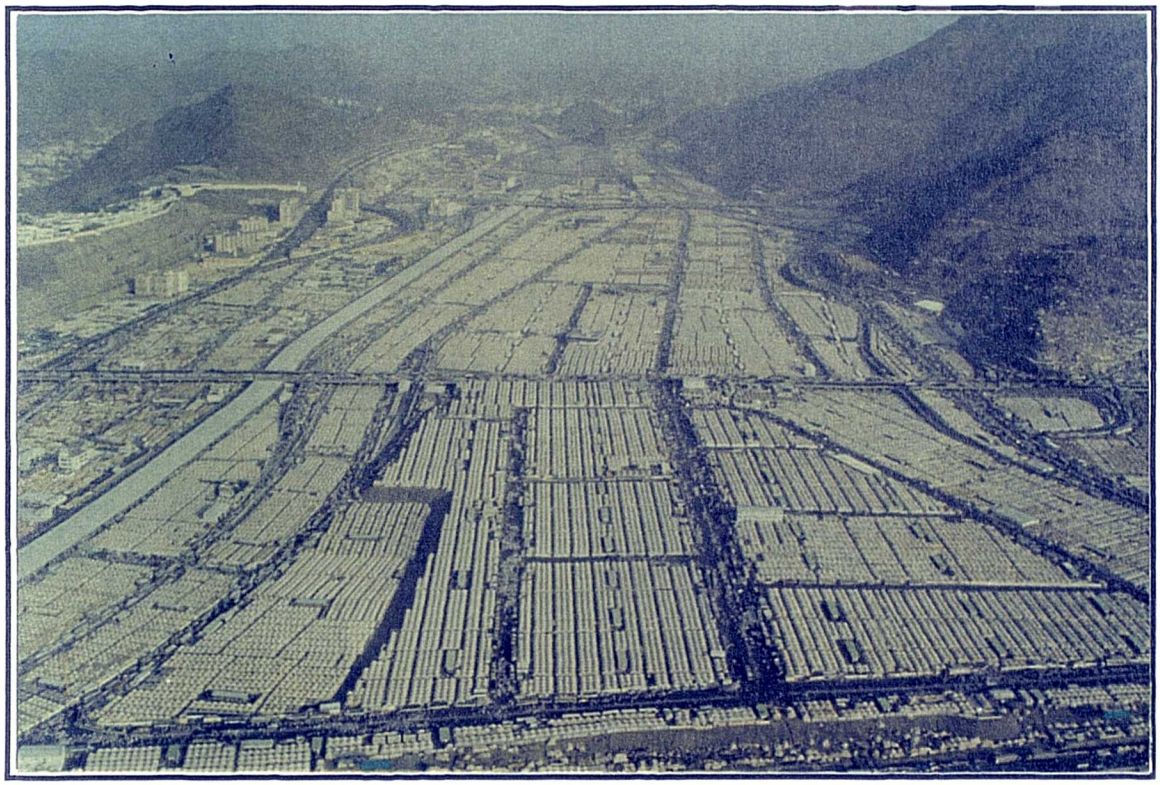
Table 3.8.1: Land Use in Mina

Land Use	Area Ha	Area %
Permanent Residential Community	5.8	67.8
Residential During the *Hajj*	282.5	
Commercial	11.6	2.7
Public Services/Facilities	18.5	4.4
Roads, Bridges and Al-Jamarat	106.4	25.1
Total	424.8	100.0

Source: MOMRA (1985 f); Makkah Region: Comprehensive Development Plan, Rep., Vol. 8, *Hajj*, Ministry Of Municipal and Rural Affairs.

The area is furnished with two water systems, one for domestic use and the other for fire fighting. Electricity and telephone networks have also been built. A central mosque (Al-Khaif Mosque), a general hospital together with dispensaries and first aid clinics are maintained for this period. The police headquarters and buildings of other government agencies are amongst the significant landmarks. Other municipal facilities such as public toilets, cleaning and social services are provided. Financial, commercial, and residential services are rendered by the private sector. Pilgrims are accommodated in temporary structures mostly tents which are arranged in camps (Figure 3.8.6).

Figure 3.8.6: Tents in Mina



3.9 Summary

Chapter 3 discussed and reviewed the *Hajj* event, i.e. the typical mega-event which is chosen as a vehicle to meet the current research objectives. The *Hajj* is the Muslims' pilgrimage to Makkah and the Holy Places, Saudi Arabia. The *Hajj* is comprised of three distinct, yet inter-related dimensions (i.e. components), namely: religious; temporal; and spatial. In other words, the *Hajj* consists of ritual observances and the activities necessarily associated with it which are performed in specific venues. Those observances and activities are well defined and documented. Accordingly, the *Hajj* programme, time, and venues cannot be altered and/or replaced.

The next chapter will explore the *Hajj* organisation and management at the present time. It will also deal with other related subjects including: numbers of pilgrims; land use in Makkah during the *Hajj*; and the *Hajj* economical impacts.

CHAPTER 4

The Organisation and Management of the *Hajj*

4.1 Introduction

In chapter three the *Hajj* as a typical mega-event was discussed. The *Hajj* purpose, history, various components, and programme were reviewed in detail. Chapter 4 concerns the organisation and management of this large-scale event. The aspects to be considered in planning and managing the *Hajj* event are multiple and inter-related which require a number of governmental and private organisations to manage. This chapter will review the function of the two main governmental committee: the Supreme *Hajj* Committee, and the Central *Hajj* Committee which both have important roles in organising the *Hajj* event. The non governmental bodies such as *Mutawifeen*, and *Adellaa* also contribute in the *Hajj* management, as can be seen in the following sections.

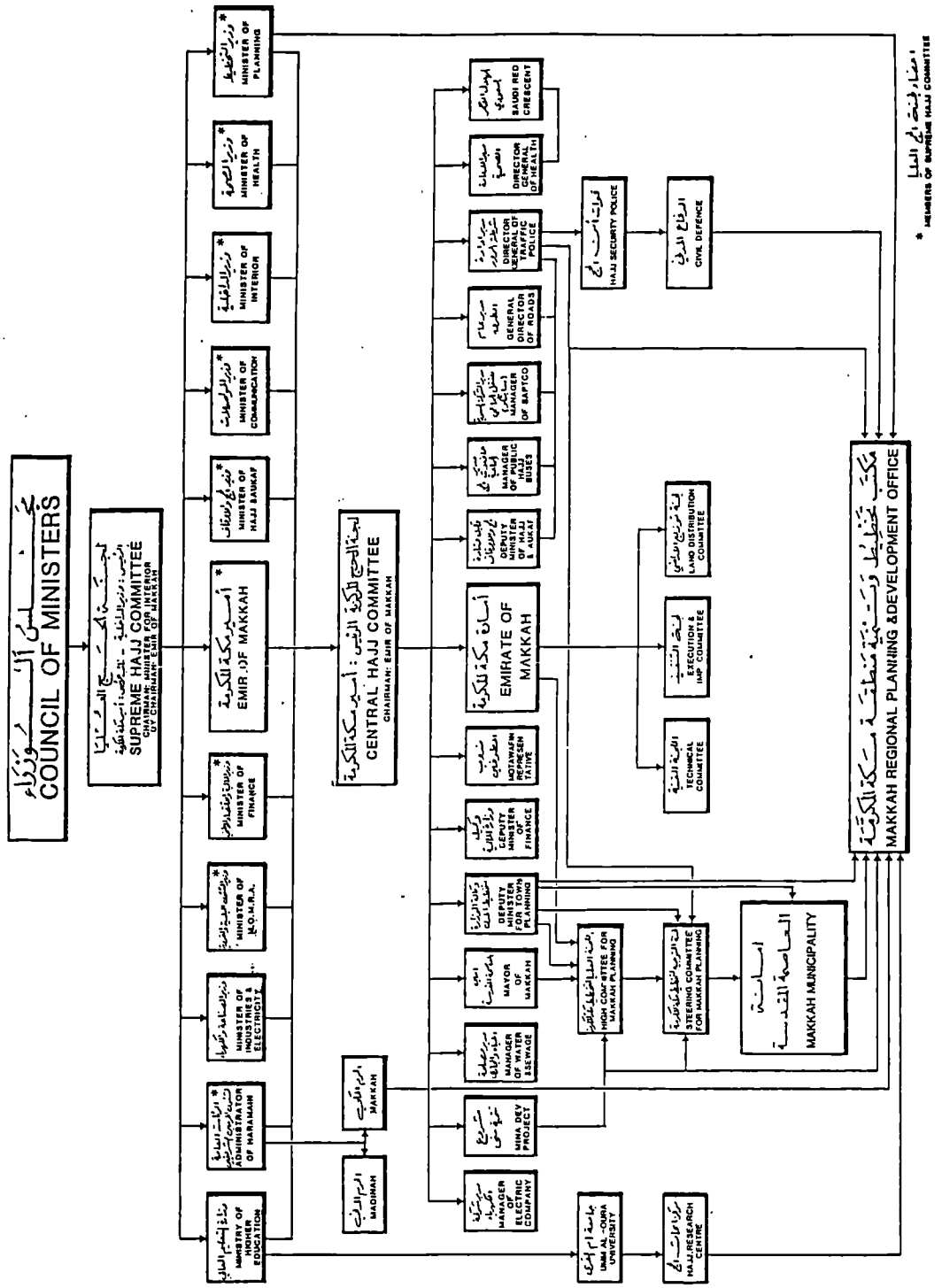
Moreover, chapter 4 discusses some important subjects which are necessary for readers to fully understand the *Hajj* event, and thus to understand the remaining chapters of this thesis. These subjects comprise: number of pilgrims; seasonal change in land use in Makkah and in the other *Hajj* venues; land use pattern and facilities available in the involved sites; etc. This chapter also reviews the economical impacts of the *Hajj* and their affects on both the public sector, and the private sector. Based on the information provided in the previous chapters and in this chapter the research hypothesis will be derived, as will be shown in chapter five.

4.2 The Organisation and Management of the *Hajj*

The administration of the *Hajj* is an extremely complex exercise, one with which both private and public institutions are deeply involved. Whereas the *Hajj* period lasts for nearly three months, reaching its climax on the first and second weeks of Dhul-Hijja, the planning and organisation behind it runs throughout the year. The sheer number of pilgrims demands many types of Facilities and Services (FS), the preparation and delivery of which demands skilled administration. On the one hand, the *Mutawifeen* (i.e. couriers, see below) are the principal organisers of the *Hajj* affairs handled by private sector. On the other hand, a two tier government body manage public affairs, the Supreme *Hajj* Committee at the national level and the Central *Hajj* Committee at the local level. An understanding of the complex interrelationship between these two committees may be facilitated by an examination of the *Hajj* administrative structure presented in Fig 4.2.1.

Figure 4.2.1: The Hajj Administration

Source: MOMRA (1984)



4.3 Government Bodies

There are two Governmental Committee who organise and manage the *Hajj* season:

4.3.1 The Supreme *Hajj* Committee

Since it was set up in 1966, the supreme *Hajj* committee has been chaired by the Minister of the Interior, who is deputised by the Governor (*Emir*) of Makkah Province (MOMRA, 1985f). Other members of the committee include the Ministers of Finance, Communication, *Hajj*, Municipal and Rural Affairs, Industry and Electricity, the Directory of the two Sanctuaries (the two Sacred Mosques), and the Chief Constable. At this level: a) policies are formulated on all *Hajj* matters, b) necessary funds are requested from the Council of Ministers, and allocated, and c) a time schedule of implementation is worked out. Moreover, the Supreme Committee formulates rules and regulations to which government bodies adhere, and supervises thereafter the implementation of these rules.

4.3.2 The Central *Hajj* Committee

The Central *Hajj* Committee is the primary vehicle of policy implementation. The Committee is presided over by the Governor of the Makkah Province and includes most of the government departments and the *Hajj* Research Centre (HRC). It co-ordinates the individual plan of the different agencies and forwards proposals to the Supreme Committee for approval and allocation of funds. The head of the Committee wields considerable power, and is assisted by a Secretariat which puts together, in collaboration with other authorities, a detailed report on the previous *Hajj* along with proposals for the forthcoming one. Moreover, the Central *Hajj* Committee co-ordinates activities with a similar committee in Al-Madinah Al-Monwarah. It also supervises the work of other sub-committees convened in Jeddah and Yanbu, the ports and airports at which pilgrims come through. In addition to his role as a chairman of the Central *Hajj* Committee, the Governor of the Makkah Region chairs the High Committee for the Planning of Makkah. This Committee examines the effects of the *Hajj* on the urban development process. One of the leading members in this Committee is the permanent Mayor of Makkah, who advises the Governor of the technical affairs.

4.4 Non Government Bodies

There is no doubt that the government renders a wide range of services to the pilgrims, yet the most crucial is that of *Mutawifeen*, a group of people in Makkah who since the eighth century have been accorded the honour of serving the pilgrims (Rafi'i, 1981). Since that time the service itself and the rules and regulations governing the operation of *Mutawifeen* have been evolving. Again Rafi'i (1981) maintains that the majority of *Mutawifeen* originate or have forebears from the countries represented by the pilgrims to whom they extend their services. Turks for instance are served by *Mutawifeen* who are Turkish in Origin. It is no surprise that this relationship facilitates communication between pilgrims and their guides. Indeed, the immediate family of the couriers used to participate by assisting female pilgrims. While the couriers services formally started in the eighth century, their roots are very deep in history. In fact, the residents of Makkah even before Islam had the tradition of serving pilgrims (Al-Kurdi, 1965). At the beginning of this century up until 1965, *Mutawifeen* were grouped into three classes specialising in the service of pilgrims from: 1) the far east - Indonesia, Malaysia, the Philippines etc.; 2) the Indian Sub-Continent; and 3) the rest of the world (Al-Milibary, 1985).

The tradition was that each *Mutawif* (plural: *Mutawifeen*) within his group specialised in pilgrims from a particular area in the country. In 1965, the government - the Ministry of *Hajj* - began to play a more active role in controlling the operation of *Mutawifeen* and serious measures have been taken to improve the *Hajj* Facilities and Services (HFS). For example, in 1976 the Ministry of *Hajj* imposed limits on the scale of operation of all *Mutawifeen*, on the basis of individual performance throughout the year i.e it allocated a fixed number of pilgrims to each *Mutawif*. Five years later, this measure was followed by the formulation of groups of *Mutawifeen* operating under six organisations. They are:

1. The Establishment for Turkish and Muslim pilgrims in Europe and America.

2. The Iranian Pilgrims Establishment.

3. The Southern Asia (India, Pakistan, and Bangladesh) Pilgrims Establishment.

4. The south-eastern Asia (Indonesia, Malaysia, Singapore, etc.) Establishment.

5. The (non-Arab) African pilgrims Establishment.

6. The Arab Pilgrims Establishment (Al-Madinah, 1987).

Bogis (1984) views the basic functions of *Mutawifeen* at present as follows:-

a) reception - including the provision of free meals on arrival,

b) making arrangements for accommodation according to financial condition, age, sex, fitness, preference etc.,

c) religious guidance as regards *Hajj* rituals, *Tawaf*, *Sai'i* etc. A guide accompanies each group when such rites are performed,

d) provision of transportation facilities on arrival, departure to Jeddah and during the *Hajj* days, to and from their residence in both Makkah and the Holy Places (*Al-Masha'er*),

e) holding and organising personal records for each pilgrim such as name, age, sex, nationality, dates of arrival and departure etc.,

f) construction of temporary camps to be used for accommodation during the *Hajj* on the lots allocated by the Ministry of *Hajj* in both Mina and Arafat in accordance with the health and safety codes laid down by the Ministries of Health and Interior,

g) provision of food and drink on the Day of Arafat, and drinking water throughout the rests of the *Hajj*,

h) co-ordination with and assistance to all personnel of other government departments involved in the *Hajj* service such as the police, health and religious authorities.

In the absence of a written code of practice, the Ministry of *Hajj* enforces the Laws and Orders of the Council of Ministers and also passes on circulars to the

headquarters of the above *Mutawifeen* organisations. The Ministry of *Hajj* has enforced the collection of a set amount (SR 294) as a service charge to *Mutawifeen*, and their different agents in Makkah (i.e *Al-Zamazama* office), Jeddah (i.e the *Wukala'*), and Madinah (i.e the *Muzawireen*). The service charge is collected on arrival to the kingdom by the agents of *Mutawifeen* in Jeddah, the *Wukala'*. Only SR 185 go to the *Mutawifeen*, the remainder is paid to the other agents. A pilgrim who does not want to go to Madinah only pays SR 259 (MOP, 1995/96).

It is noticed that the changes introduced by the state to the services rendered by *Mutawifeen* aim to achieve a quiet revolution. The basic advantages of the new system particularly the establishment for pilgrims are:-

1. Collective work of *Mutawifeen* is directed by a highly educated elite from within the same families. This in turn leads to better services as it allows for division of work, specialisation and hence efficiency. Some take over the job of reception, others handle financial affairs or the arrangement of accommodation etc. Such activities used to be performed and or supervised by one *Mutawif.*

2. Grouping of *Mutawifeen* has made it easy for co-ordination with other government agencies to take place. Advanced computer systems and radio-phone facilities were installed in the headquarters and branches of the six major pilgrim establishments. An investment such as this could be beyond the reach of individual *Mutawif.*

3. Tight controls by the Ministry of *Hajj* and other government department over the operation of *Mutawifeen.* Supervision is on the whole beneficial even though there are covert disadvantages (e.g. due to this control *Mutawifeen* become as government agents and they do not consider the *Hajj* work as a business).

Chapter 3, and the above sections have dealt with the *Hajj* various components, programme, and administration. These factors are major determinants in shaping types and volumes of the FS required in the *Hajj* venues. These HFS are subject to constant change - temporary and permanent. One of the prime reasons for such

changes is the ever increasing numbers of pilgrims and their demands concerning FS. The number of pilgrims is treated in the following section.

4.5 Number of Pilgrims

Bakr (1981) maintains that until 1945, pilgrims used to travel in convoy through unpaved routes. The journey which used to take a month was both difficult and dangerous. Between 1950 and 1986, Saudi Arabia spent SR 100 billion on road projects, an investment that increased the total length of inter-city roads from 327 km in 1954 to 81,500 km in 1986 (MOC, 1986). The City of Makkah has thus become very accessible to all parts of the country and the rest of world. The number of pilgrims arriving through inland routes reached an all time high in 1975, since then the number has been decreasing, eventually reaching its low of 169,000 in 1984 (see Fig 4.5.1). While the number of the external pilgrims has been decreasing, the number of pilgrims from within Saudi Arabia (internal pilgrims) has been rising until 1983.

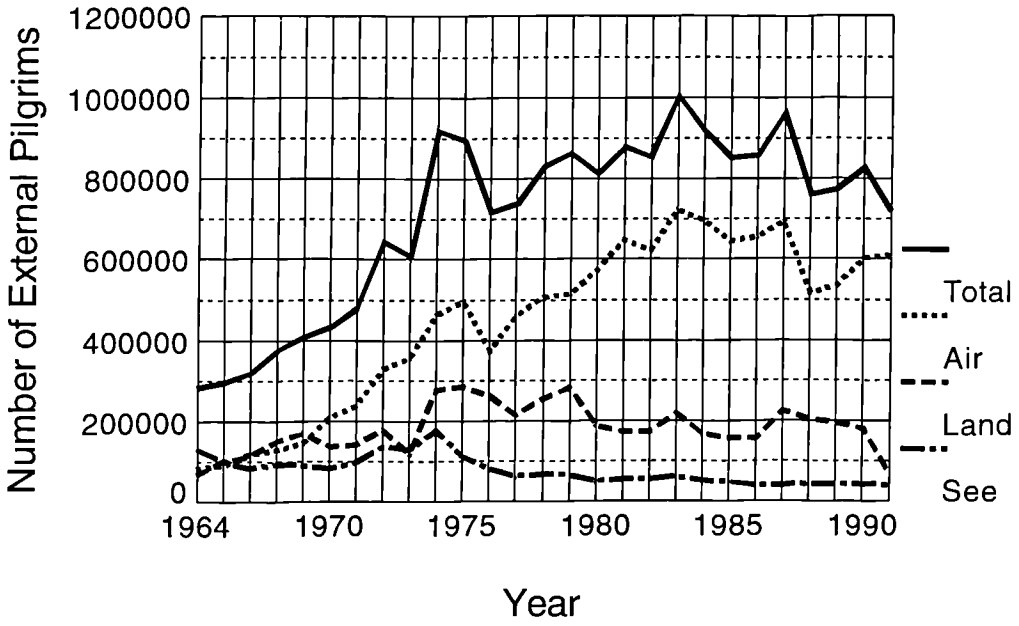
As shown in Figure 4.5.1 the number of people arriving at airports is consistent in that it has been rising ever since aeroplanes have been used. In 1970 for instance, some 208,000 pilgrims arrived by air, a figure that rose to nearly 700,000 in 1986. In marked contrast, the number of pilgrims travelling by sea showed a slow increase reaching an all time high of 180,000 in 1974, followed by a steady decrease to as low as 50,000 in 1984.

The total number of pilgrims irrespective of the mode of transportation has been steadily rising. An exception to this is the number of pilgrims in a) 1933, 1951, the years of economic recession, and b) throughout World War Two, during which numbers dropped to 20,000 and 10,000 respectively. Exponential growth began as early as 1970, when the number reached 150,000 giving an increases of 50% on the former year. Since then the number has been rising until it reached a high of 2.5 million of which nearly a million came from outside Saudi Arabia, then dropped below the two million mark (MOMRA, 1985f).

The rise of 1983 is due to the fact that the *Hajj* of that year (Day of Arafat) was on a Friday. It is a common belief that *Hajj* performed on such a Holy Day is equivalent to

seven performance of *Hajj*. However, there is nothing in the Holy Qura'an or the *Sunnah* that support this belief.

Figure 4.5.1: Modes of Travel of Foreign Pilgrims, 1385H to 1404H



Source: (1) Central Department of Statistics, Total Statistics of Al-Hajj 1404H (1984)
(2) MOMORA (1985f), Makkah Region: Comprehensive Development Plans, Rep. No 2, Vol. 8, The Hajj. Ministry of Municipal and Rural Affairs, Riyadh.

The increasing number of pilgrims especially after the second half of this century is due to the following:-

1. The granting of Independence of most Islamic countries which made it possible for a great number of pilgrims to perform *Hajj*.

2. The economic growth which followed such independence (e.g. in Pakistan, per capita income bordered $215 in 1978 the figure reached $363 in 1983 (EAW, 1987).

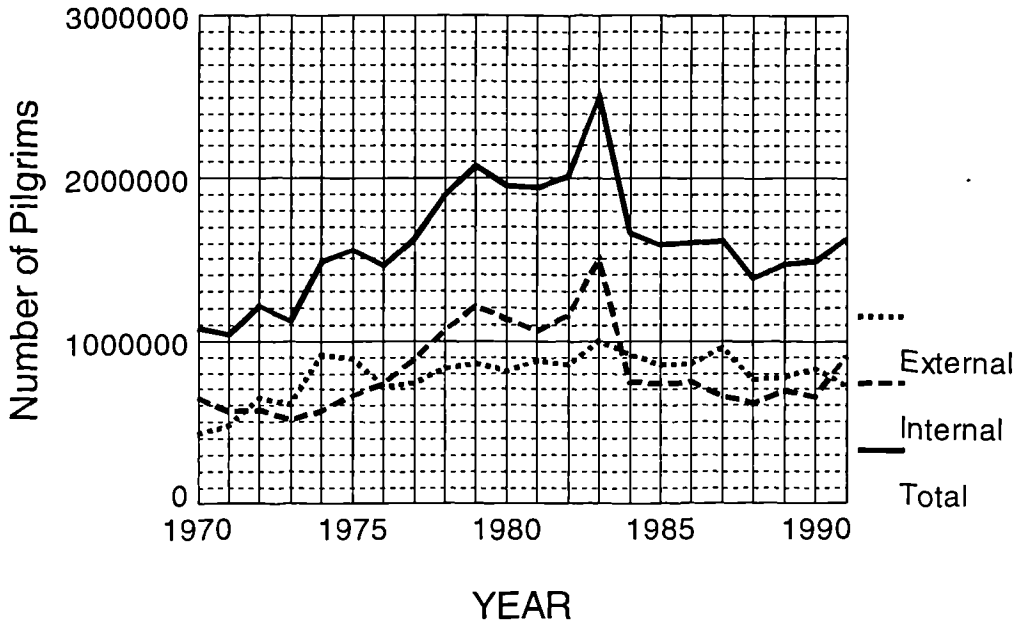
3. The development and on-going improvement of fast modes of transport most especially jet planes (Ezzedin, 1979).

4. The construction, development and maintenance thereafter of physical infrastructure in Saudi Arabia, particularly transport facilities, roads,

ports and airports. An indication of this heavy investment by the Saudi Government, is the impressive *Hajj* terminal at King Abdul Aziz Airport at Jeddah, comprised of 24 gates each of which accommodates a Jumbo Jet. The *Hajj* Terminal is only used during the period of *Hajj* (Montgomery, 1986).

A careful examination of the number of both internal and external pilgrims gives some cause for concern. Internal pilgrims are equal in number and may possibly outnumber external pilgrims (Fig 4.5.2). In 1983 for instance, the number of internal pilgrims was 1.5 million compared with 1 million external. An imbalance in these two proportions is alarming especially when visualised in the context of the population of Saudi Arabia contrasted to the rest of the world. Whereas the population of Saudi Arabia at that time slightly exceeds 11 million (World Bank, 1986).

Figure 4.5.2: Internal and External Pilgrims 1390H to 1400H



Source: MOMORA (1985f), Makkah Region: Comprehensive Development Plans, Rep. No 2, Vol. 8, The Hajj. Ministry of Municipal and Rural Affairs, Riyadh.

The number of pilgrims from within the country accounts for at least the same number of external pilgrims of the entire Islamic world with a population of over one billion. The ratio of the respective populations is 1:100. It must be appreciated however, that thousands of Muslim workers who live in Saudi Arabia take advantage of their presence in the country to perform the *Hajj* more than once. Saudis also display the same behaviour. Improvement of transport and other facilities has made it easy for internal pilgrims to repeat the performance more than once. In a survey conducted on a sample basis by MOMRA (1985f), it was found that 44% of all pilgrims had repeated the performance of the *Hajj* at least once before.

Since 1983, the government has seriously attempted to control the number of internal pilgrims. Campaigns were launched requesting residents as well as expatriates not to repeat performance of the *Hajj*. Furthermore, permission for the *Hajj* was restricted. These two measures have successfully brought down the number of internal pilgrims. Other similar attempts have been made to control the number of external pilgrims.

The other aspect of the increase in number of pilgrims may be appreciated when reference is made to the number of Muslims world wide. When 90,000 pilgrims performed the *Hajj* in 1927, the number of Muslims was 330 million i.e 0.027% of all Muslims. Fifty years later, the proportion rose to 0.1% for a population of nearly one billion (Ezziden, 1979). While the proportions by themselves are marginal, the difference between 1977 and 1987 which witnessed the *Hajj* of nearly 1.8 million pilgrims. If this trend continues, the number of pilgrims might exceed four million by the turn of the century. Indeed HRC (1983) projects the number of pilgrims at 3.7 million by the year 2005.

The implication is that the general rise in the number of pilgrims requires the planning and provision of all sorts of facilities, services, religious, residential, financial, etc. In other words, the pilgrims must not be seen as numbers only. They ought to be treated as people with different needs and requirements. However, because the *Hajj* venues are of limited area and capacity, pilgrims number must be controlled. The measures which have been taken by Saudi Arabia are proved to be effective in controlling the number of pilgrims, yet other measures such as employing the visitor management concepts can be employed during the *Hajj* event to improve the provision of the FS available. The visitor management includes security measures

and a number of site designs and operational factors that do not entail force. These measures should enhance the services provided to the participants, and the overall event experience (Getz, 1997).

4.6 The *Hajj* Impacts on Land Use

During the *Hajj*, the population of Makkah increases two to three-fold from some 700,000 to two million or more. Such an increase inevitably leads to changes in Land Use. Observation and assessment of these changes is extremely difficult. One of the very few attempts to examine the effect of the Hajj event on the Land Use in Makkah was made by MOMRA (1985f). A land use survey in Makkah Al-Mukkaramah was conducted in two periods, the first was carried out one week before the *Hajj* and the other one week after it. Another Land Use survey was conducted in Mina between the eighth and thirteenth day of Dhul-Hijja.

Seasonal changes in Land Use take place on both vacant plots and incidental locations such as streets, squares, median strips, footpaths, entrances of tunnels, spaces over and under bridges etc. As the *Hajj* week approaches, these spaces become heavily used for various purposes mostly residential and commercial. Within the 124 hectares surveyed on a sample basis, 321 vacant plots of various sizes were identified. It was clear, that the use of vacant plots was concentrated on two areas, the central area, i.e the area surrounding the Sacred Mosque and Al-Adl. Areas within easy reach of the Sacred Mosque are desirable and those in Al-Adl are prized for their proximity to Mina. Almost all vacant plots including public parks and ornamental gardens particularly those lying on major routes are occupied by pilgrims. Unfortunately, these pilgrims become a major source of nuisance to other people, both pilgrims and residents. The survey conducted by MOMRA (1985f), however, shows that the Hajj event has a clear environmental impact on the host city.

No serious attempt has been made to uncover the roots of this problem. It is believed that the occupation of streets and other vacant spaces is the result of the high cost of accommodation (Al-Madina, 1987), but no concrete evidence supports this claim. It must be pointed out that 'sound financial position' is a curricula pillar of Hajj. One of the measures taken to control this unhealthy, unpleasant scene was the advance collection of a set amount of money by *Wukala* in Jeddah, to cover the

accommodation costs. While this policy has curtailed the problem, some pilgrims, through their embassies, protested that this has resulted in lowering standard of accommodation. The government was forced to abandon this policy (Al-Milibary, 1985).

However, the HRC (1993) conducted a study recently which shows that several factors (that mainly concern facilities and services) cause such a problem. For example, the lack of adequate information available to the pilgrims is found to be one major reason for the unpleasant phenomenon. Pilgrims who cannot get adequate information regarding accommodation facilities and how to find these facilities will definitely get tired and use public spaces. The results of the HRC study emphasise the importance of information and other FS for the Hajj season. However, it reveals that although great efforts have been dedicated in providing the HFS, problems still exist, and further research are needed to solve such problems.

Moreover, the *Hajj* has a very clear economical impact that affects every aspect of living in Makkah. The next section aims to discuss this particular issue.

4.7 Economic Aspects of the *Hajj*

Hajj generates economic activities, trade and business not only for Makkah, but also for the Kingdom of Saudi Arabia as a whole. Uniform arrival Levies used to be collected by the government up until 1953 when this policy was abolished (Long, 1973). The affluence of the country especially after the exploitation of oil-fields in the Eastern Province of Saudi Arabia was the underlying reason. Over the past decades, the government has poured out huge sums of money in development programmes to lay down and subsequently improve and maintain basic facilities for the rising numbers of pilgrims. The facilities include air and see ports, roads, public utilities, health, welfare security and logistics etc. Despite the diminished role of *Hajj* as a source of income to the government, the *Hajj* season remains a fundamental source of income for the City of Makkah especially. The effect of *Hajj* on both the public and private sectors is dealt with below.

4.7.1 Effect on the Public Sector

At present, government expenditure far outweighs income generated by the *Hajj*. Despite the expenditure increasing, *Hajj* revenues have been rising for both the public and private sectors. While *Hajj* revenue accounted for nearly SR 180 million in 1963 and SR 3,516 million in 1978, the corresponding figures as a proportion of the expenditure fell from 3.6% to 2.4% throughout the same period (MOF, 1979).

The Municipality and the Ministry of Communication built inter-city roads as well as roads within the *Hajj* venues. The Makkah-Madinah motor-way, opened in 1984, cost some SR 2508 million. Moreover, the Ministry of Housing and Public Works through its local office the 'Mina Development Project' invested nearly SR 3400 million in laying down the infrastructures at the Holy Places. Major water, drainage and sewerage systems are built by Makkah Water and Sewerage Authority. The share of this institution in the budget of 1981/82 was SR 119 million, an amount that rose to SR 440 million per annum. In addition to these water and sewerage facilities, the Ministry of Agriculture and Water built a flood protection and water conservation dams outside Makkah along with a desalination plant at Al-Shuaibah, 40 km to the south of Jeddah on the Red Sea. Health facilities have been provided in both the City of Makkah and the Holy Places with a view to serving pilgrims and residents. The major facilities include seven general hospitals, two maternity hospitals, and a large number of dispensaries and first aid centres.

It is estimated that expenditure between 1988 and 2005 will total nearly SR 46 billion (MOMRA, 1985g). The point worth emphasising is that most of these facilities have been provided for the convenience of pilgrims only. There exists no real need for such construction as far as residents of Makkah are concerned. The current expenditure attached to the maintenance of these facilities is also appreciable. While the above discussion has demonstrated the cost incurred by the government to facilitate the operation of the *Hajj*, the following shows that the *Hajj* also extends benefit to the public sector.

Since the foundation of Saudia (Saudi Arabian Airlines) in 1945, this government owned corporation has been heavily influenced by the *Hajj*. Optimal use of the fleet of aircraft occurs during the three month period of the *Hajj* as Saudia transports

external pilgrims either to or from the kingdom. The fleet has been steadily expanding with a view to serving not only a sparsely populated country, but also an increasing number of pilgrims. During this period, the cheapest fares throughout the year are offered because the aircrafts have to fly out almost empty of passengers on one of the legs (trips) either to or from the kingdom. The routes of Saudia at present cover 65 destinations in 46 countries, supported by a fleet of more than 100 air craft of which 20 are Jumbo Jets (Saudia World, 1987).

4.7.2 Effect on the Private Sector

The effect of *Hajj* on the private sector is indeed substantial. Not only *Mutawifeen*, but other retailers, commercial and industrial concerns flourish at this time. Cash flows from different countries to Saudi Arabia especially Makkah. No restrictions are imposed on the transfer of money either to or from the country.

Whereas the total expenditure of the pilgrims is great, the spending power per capitum is surprisingly low. A survey conducted by MOMRA (1985f) revealed that the average amount brought by pilgrims is varied. However, it ranges from SR 2100 to SR 2600 nearly £400-450, see Table 4.7.1. This is deemed to be ample to cover the service charge of *Mutawifeen*, transport, housing, food and items of personal need throughout the two to eight weeks. The principal items of expenditure in order of importance are; a) transportation, b) accommodation, c) food, d) souvenirs, as seen in Table 4.7.2. The total amount is estimated at SR 3 billion.

The *Hajj* stimulates much private enterprise, involving small traders who employ people temporarily, and cease business at the end of the *Hajj* season. The volume of business, as a whole, during the *Hajj* period accounts for not less than 40% of the annual trading. Likewise, transport accounts for a major share of the pilgrims budget. At least 15% of the total expenditure of all pilgrims was received by the transport firms. Housing also accounts for a substantial portion of the pilgrims' budget. In Makkah, housing costs are probably the single largest payment a pilgrim has to make in pursuit of the *Hajj* (MOMRA, 1985h).

Table 4.7.1: Estimate of Financial Resources Brought from Point of Origin by Pilgrims

Nationality Group (Pilgrims)	Estimated Resources per Pilgrim	Number of Pilgrims *	Estimated Total Resources ** (millions SR)
All Internal	1570	1492000	2339
Arab Asian	3310	249000	826
Arab African	3400	260000	883
Non Arab African	3600	105000	376
Indo-Pakistani	3000	141000	420
Southeast Asian	2120	90000	191
Other +	3300	161000	531
All External	3200	1006000	3227

* Rounded to nearest thousand.

** Entries may not be the product of first two columns, due to rounding.

\+ Principally Iranian, Turk, and Afghan.

Source:

1. Ministry of Interior, Directorate-General of Passports, Pilgrims Statistics for 1403H (1983), Number of Pilgrims.
2. MOMRA (1985f), Makkah Region: Comprehensive Development Plan, Rep. 2, Vol. 8, *Hajj*, Ministry of Municipal and Rural Affairs, Riyadh.

Table 4.7.2: Estimate of Total Pilgrims' Expenditure in Makkah and the Holy Environs, 1403H (1983)

Expenditure Items	Internal Pilgrims	External Pilgrims	Total	%
Accommodation	205	500	705	23.21
Food	530	270	800	26.34
Transport	229	73	302	9.95
Fees	20	50	70	2.31
Gifts and Shopping	330	500	830	27.33
Miscellaneous	207	123	330	10.86
Total	1521	1516	3037	100.00
Per Capita Expenditure (SR)	1015	1509	1213	

Source:

MOMRA (1985h), Makkah Region: Comprehensive Development Plan, Rep. 2, Vol. 3, The Economy, Ministry of Municipal and Rural Affairs, Riyadh.

4.8 Summary

The administration of the *Hajj* is an extremely complex exercise, one with which both private and public institutions are deeply involved. The great number of pilgrims demands many types of FS, the preparation and delivery of which demands skilled administration. The *Mutawifeen* (i.e. couriers) are the principal organisers of the *Hajj* affairs handled by private sector. On the other side, a two tier government body manage public affairs, the Supreme *Hajj* Committee at the national level, and the Central *Hajj* Committee at the local level. However, it is revealed that although great efforts have been dedicated in planning and providing the HFS, problems still exist, and further research is needed to solve such problems.

A careful examination of the number of both internal and external pilgrims in the last two decades gives some cause for concern. Internal pilgrims are equal in number and may possibly outnumber external pilgrims. An imbalance in these two proportions is alarming especially when visualised in the context of the population of Saudi Arabia contrasted to the rest of the world. Because the Hajj venues are of limited area and capacity number of pilgrims must be controlled.

The survey conducted by MOMRA (1985f), shows that the Hajj event has a clear environmental impact with respect to land-use within the host city. In addition to that, the *Hajj* has a very clear economical impact that affects every aspects of living in Makkah. Over the past decades, the government of Saudi Arabia has poured out huge sums of money in development programmes to lay down and subsequently improve and maintain basic infrastructures and facilities for the rising numbers of pilgrims. Despite the diminished role of *Hajj* as a source of income to the government, the *Hajj* season remains a fundamental source of income for the City of Makkah especially. The most important and daunting task facing the private sector is the provision of accommodation and the services related to it.

CHAPTER 5

The Research Model, Questions, and Hypothesis

5.1 Introduction

Chapter 2 discussed the context of this thesis which relates to the event industry, and the importance of the FS required by the participants in large-scale events. In Chapters 3 and 4, the typical mega-event which has been chosen by this research as a vehicle to meet the study objectives was explained in detail. It concerned the *Hajj* event - the annual Muslim's pilgrimage to Makkah and the Holy Places, Saudi Arabia. In the previous two chapters the *Hajj* components, programme, organisation and management, economical impacts, etc. were explained.

The previous chapters provided the reader with an appropriate background in order to understand the rest of this study. This chapter explains the research model, and presents the research questions and hypothesis. Chapter 5 aims to conclude the first part of this thesis.

5.2 The Research Model

Saleh and Ryan (1993) found in their study regarding 'factors that attract tourists to festivals' that event participants are mostly concerned about, (1) the quality of the programme and, (2) other factors such as: accessibility to the site; information; general hygienic matters; and other supplementary services (i.e. facilities and services). Saleh and Ryan, based on a literature review carried out for the study, argued that determinants of success for events basically relate to the above two factors. Another support to such a proposition has been provided by Hiller (1995) who argued that, concerning large-scale conventions which can be considered as

mega-event (as he assumed), the destination where such an event takes place is less important than the purpose of the participants gathering (i.e. the event's programme, theme, objectives, etc.). He also argued that the required 'tourism product' is the facilities needed to host the event at the destination selected. Based on this, it is assumed by this research that the major components/elements of the event industry are the programme and the FS provided for it, and that the success of an event should be related to these two elements.

Based on an extensive literature review, it was revealed that no research has been conducted concerning the importance of FS required within venues for large-scale events with respect to the users' perceptions. The current study will attempt to investigate this neglected area in order to facilitate further research concerning the mega-event industry, and to help improve the practices of such an ever growing industry.

In Chapter 3 and 4, the *Hajj* event was discussed in detail. It is concluded that the *Hajj* programme is well determined, and according to the teaching of Islam such a programme cannot be altered. It was also noticed that the *Hajj* event is of a great importance to people world-wide because it attracts more than one and half million participants from all over the globe each year, and it is well covered by the international media. The *Hajj* event involves different venues, its programme lasts for a few days only, and therefore it requires extensive planning and organisation (Chapter 3). It is found that although great efforts have been allocated by the governments of Saudi Arabia in managing such an events, problems still exist, and there is room for improvement especially with respect to FS (Chapter 4). It is concluded therefore that the *Hajj* is a typical mega-event which needs to be investigated and researched. Several research have been conducted concerning various HFS and related subjects such as: accommodation and housing (Bodo Rasch, 1977; Makky, 1978; Hariri, 1986; Pasha, 1987); transportation (Bushnak, 1977; Yafi, 1983); services (Yar-Gogandi, and Al-Zaydi, 1988; Koshak, 1992); and planning, architecture, and engineering (Aziz Alrahman, 1988; Barhamain, 1986; Angawi, 1988). However, these researches were either focusing on one type of FS, and/or discussing the FS involved with respect to planners', and/or researchers' opinion. No research has been found concerning the importance of the HFS required in the

different *Hajj* venues with respect to the actual users' perceptions. Bearing in mind these facts, two conclusions have been made:

1. Because the programme element for the *Hajj* event is well determined, research can be concentrated on the other major element (i.e. the FS) which is considered important for the success of such a mega-event.
2. There is a need for research which focuses on issues concerning the importance of the FS required within the *Hajj* venues with respect to the actual users' perceptions.

In light of these assumptions and the information given in the previous chapters, a research model is developed and presented in Figure 5.2.1. The model considers the contexts of the subjects involved, and the procedures that have been taken to answer the research questions, and to formulate the research hypothesis.

In the absence of the information regarding the HFS, it was essential to ask "what are the FS required especially for the *Hajj* event other than those facilities required for other events?". To answer this question a pilot study has been conducted in the *Hajj* season of 1994. The study involved 355 pilgrims and several FS planners, managers, and/or providers. The results obtained from the pilot study show that although there are common FS required for every event, the *Hajj* requires certain FS that are exclusively needed for such an event. The *Hajj* Facilities and Services (HFS) are shown in Table 5.2.1. The information obtained from the pilot study also helped to formulate the research questions and to develop the research hypothesis as will be discussed in the following sections.

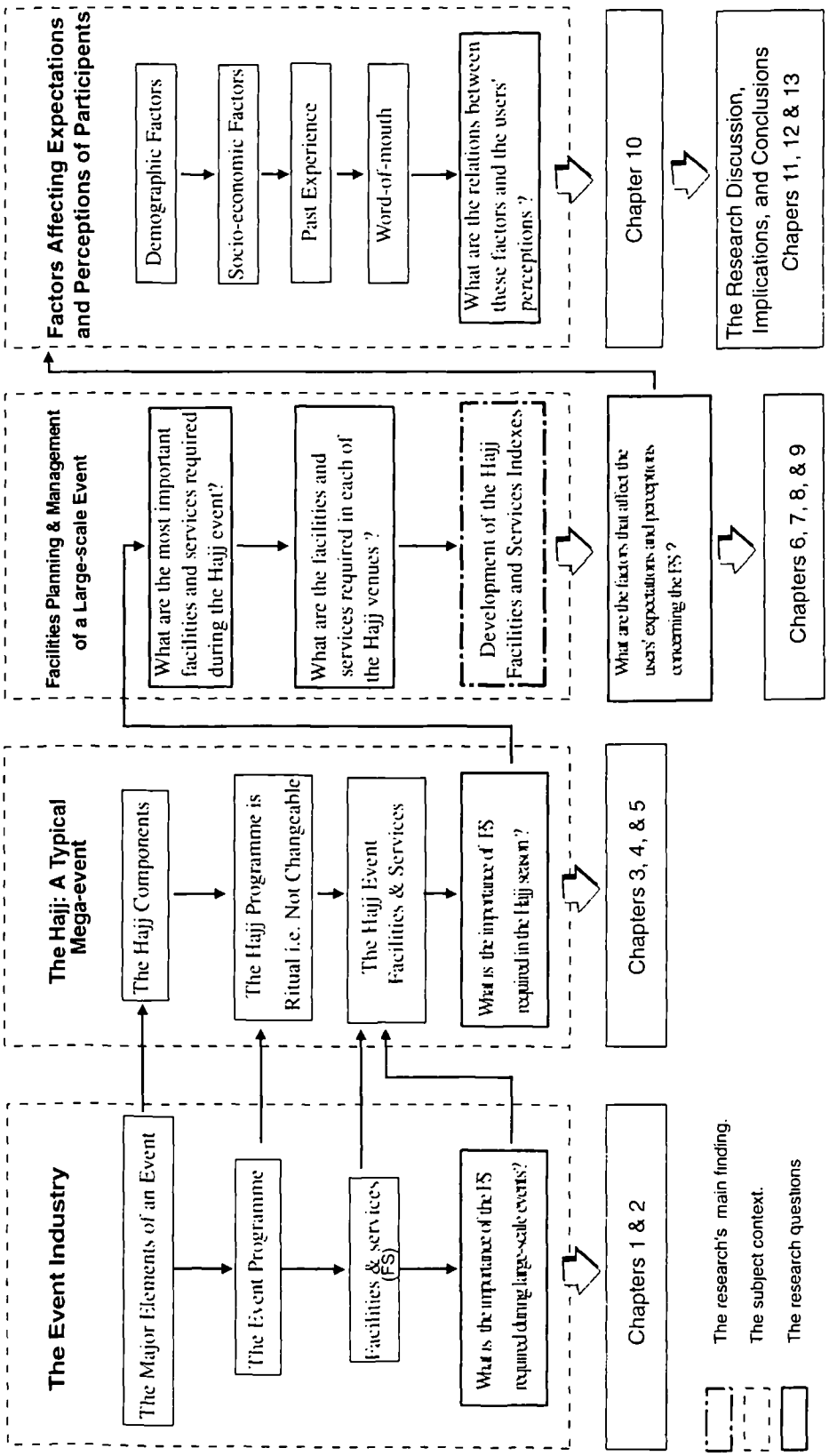


Figure 5.2.1 : The Research Model

Table 5.2.1: A Proposed General Index for the *Hajj* Facilities and Services

Facilities / Services	Service Quality and Essential *Hajj* facilities
Hospitality and principal facilities	Prompt service
Accommodation	Problems are corrected
Restaurants and eating places	Assistant services
Public drinking water	Larger rooms in accommodation
Health services	Attractive public areas
Toilet and washing facilities	Anticipation of pilgrims' needs
Cleanliness of sites	Increased privacy
Transportation, and movement between and within venues	Special requests carried out
Public transportation	Knowledgeable staff
Fewer traffic jams	Treatment by policemen
Freedom of pilgrims' movement	Treatment by Mutawifeen staff
Car parking facilities	Trained employees
Information and communication	***Essential Hajj facilities / services***
General information	Performing the *Hajj* as *Sunah*
Sign posting	General security of the *Hajj* season
Media services	Public toilets
Public telephones	Common safety of pilgrims
Postal services	Cleanliness of sites
Information about historical places	Less crowding
Official / pilgrims, Social Interaction	Transportation & movement
Treatment of pilgrims by governmental officials	Health care
Treatment of pilgrims by policemen	
Treatment of pilgrims by local people	
Treatment of pilgrims by Mutawifeen staff	
Guiding services	
Miscellaneous facilities/services	
Shopping facilities	
Reasonable pricing	
Inexpensive Foods	
Facilities and services required in Makkah	
Travelling to Mina and/or Arafat	
Movement in Tawaf	
Movement in Sa'e	
Parks and recreational facilities	
Money exchanging facilities	
Facilities for washing clothes.	
Facilities and services required in Arafat	
Travelling to Muzdalifah	
Facilities and services required in Muzdalifah	
Travelling from Muzdalifah to Mina	
Facilities and services required in Mina	
Movements in Jamarat	
Travelling to Makkah	
Shops to sell coupons for animal sacrificing	
Barber shops	

5.3 The Research Questions

Based on the proposition that the success of an event relates to its programme and the FS available for it, the present study explores the importance of FS required within venues for large-scale events with respect to the actual users' perceptions. There is a shortcoming in literature and research which concern the users' perceptions regarding the FS required during mega-events. A typical mega-event, i.e. the *Hajj*, will be employed as a vehicle to meet the research objectives. This research will involve a large number of participants who come from different parts of the world. The information provided by this research will be derived from the results of an in-depth empirical study. Such information will enrich the related literature and facilitate further research regarding an ever growing and profitable industry, i.e the large-scale events' industry. In short, the current study tries to answer the following major questions:

1. What is the importance of facilities and services in mega-events with respect to the actual users' perceptions?
2. What aspects of the facilities' are perceived as important by the users during mega-events?
3. What are the factors affecting the users' perceptions concerning the importance of facilities and services during mega-events?

Considering the *Hajj* typical mega-event other questions have been proposed, namely:

1. What are the major facilities and aspects perceived by the participants as being of importance to the *Hajj* event, and within each *Hajj* venue in particular?
2. What is the relative importance of these facilities and aspects with respect to the participants' perceptions?
3. What are the factors that affect the participants' expectations and perceptions concerning these facilities and aspects?

Following the empirical research approach, a special research tool (i.e. a questionnaire), and sampling method will be developed and employed in order to answer the research questions.

5.4 The Research Hypothesis

Considering the research questions, three major research hypothesis have been formulated:

H1. There is a relation between the participants' perceptions with respect to the importance of the FS required within a venue for large scale event and the event's programme. Due to the fact that the *Hajj* programme changes from one venue to another, the facilities and services required by the pilgrims are dissimilar in the different *Hajj* venues. This hypothesis will be tested by comparing the HFS indexes which will be purposely developed by this study. These indexes will be derived by using various advanced statistical techniques such as the reliability testing and factor analysis.

H2. The event's participants who are different with respect to their: age, educational level, place of residence, annual income, etc. perceive the importance of the FS available within a venue for large scale event differently. This hypothesis will be further articulated into sub-hypothesis and each one of them will be tested separately by using the t-test and/or the one way analysis of variances (ANOVA) technique whenever suitable.

H3. Participants who have different experiences with respect to travelling, training, and verbal communication perceive the importance of both the physical (e.g. buildings) and non physical aspects (e.g. social interactions) of the facilities required within a venue differently. This major hypothesis will require testing several sub-hypothesis. They will be tested efficiently by either employing the t-test and/or the ANOVA technique.

CHAPTER 6

The Research Design, and Methodology

6.1 Introduction

The previous chapter sets out hypotheses of interest to be tested. In testing these hypotheses, the research approach must be carefully designed to capture data required to support such testing. An approach is taken depending on its suitability for a particular study. The purpose of this chapter is to review some of the research designs available before deciding on a particular research design. First, the philosophy of research design is briefly discussed, followed by a discussion on the rationale for choosing quantitative rather than qualitative approach for this study. Sampling is discussed in some detail including sample size, determination and sample selection. Apart from questions relating to contextual variables, much of the chapter is devoted to explaining the questionnaire development which is purposely designed to measure the users' perceptions concerning the importance of the HFS. Data collection procedures, response rates, tests of response bias and an overall framework for data analysis are discussed in the latter sections. Finally, the chapter concludes with a discussion on measurement issues leading to the use of measurement methods to be employed for data analysis.

6.2 The Research Design

The research design concerns planning and preparing for both, the data collection method and the data analysis. There is a debate in the social sciences about the most appropriate philosophical position from which methods should be derived. There are mainly two methods of data collection and analysis - qualitative and quantitative - which have been derived from two philosophies - phenomenology and positivism

(Gummesson, 1991; Churchill, 1992). An overview of each method is presented below.

6.2.1 Qualitative Vs Quantitative Methods

Churchill (1992) reports that " In terms of data collection all studies fall into one of two categories - qualitative or quantitative. The difference is in the questioning sequence. Qualitative research is more seeking - we might improvise or change the study as we go along. With quantitative research we detail the questions in advance. Data collection of qualitative studies usually takes one of several forms - most often a series of one-on-one in depth interviews and/or a focus-group discussion with a moderator. On the other hand, quantitative research tends to involve some form of set questionnaire and a much larger group of respondents.

Qualitative research design is usually intended to generate ideas and hypothesis. The aim of qualitative methods of data collection is to probe rather than count. Qualitative research is a disciplined approach of collecting and analysing information because it enables a researcher to use a repertoire of open-ended interviewing techniques and formal and informal analysing methods. On the other hand, Quantitative methods deal with the quantification of respondents' behavioural and personal characteristics. It is concerned with describing and measuring concepts or variables. By using quantitative research, the conceptual approaches to problem solving are explicit and fixed, using an agreed tool for measuring. Statistical tests are usually employed to indicate whether a particular relationship, or the difference between groups is significant. Typically, quantitative research methods seek to test whether a particular hypothesis is true for the whole of the population (Chisnall, 1991).

Both methods have their limitations. However, concerning travel and tourism research, the conclusions from a qualitative research effort must be regarded as informed hypothesis, not as proven facts. The samples that are used are quite small and usually selected in a purposive rather than a probability-sampling procedure. Thus, the findings that are made based on qualitative research are normally subjected to evaluation using quantitative procedures at a subsequent time. Hypothesis, issues, ideas for new product/services, or communications strategies need to be confirmed

on more reliable samples before major decisions are made. In addition, qualitative findings may be limited by the skill, experience, and understanding of the individual gathering the information (Peterson, 1994).

Having reviewed the two research approaches, it was felt that the qualitative method is not suitable for this research because of two major reasons: 1) the duration time of the *Hajj* event is very limited - the pilgrims cannot be involved in the research for a long time, i.e. they travel back home as soon as the *Hajj* rituals are completed, and 2) The study involves a large number of respondents who come from different parts of the world with different languages and cultural background - the researcher is limited to the English and Arabic that he speaks.

Bearing in mind the above points and the fact that the researcher has a good background concerning the *Hajj* event, it was decided that the quantitative method is more appropriate for the present study because of the following points: 1) this study must be able to provide insights into understanding of a construct under study and allow the researcher to develop a measure of the construct based on a large number of respondents - pilgrims; 2) it must be able to test relationships - hypothesis - between variables using statistical means; 3) it must be able to provide conclusions about characteristics of the pilgrims and their needs concerning the HFS during the *Hajj* season, also a sufficient degree of generalisation must be made about the population. 4) It should allow the researcher some degree of control over who and what to measure without having to interfere with the natural setting of both the event and the subjects under investigation; and finally, 5) the chosen research design must meet cost, technical, and time considerations in view of the types of information required and the availability of resources (Sproull, 1988).

Before deciding on a particular research design for this study, it is important to review briefly some of the commonly used - quantitative - research designs and explain their advantages and limitations in general as they relate to this research.

Churchill (1988) defines research design as simply 'a framework or plan for a study used as a guide in collecting and analysing data, a blueprint followed in completing the study'. It includes the elements to be examined and the procedures used to examine them. As a plan, it's purpose is to have appropriate methods for testing hypotheses or answering research questions (Sproull, 1988).

Depending on the degree of control researchers have over who and what to measure, research designs can be broadly categorised into three types, each differs in the amount of control a researcher can have. They are: historical design, experimental design, and non-experimental design.

6.2.2 Historical Design

Historical design is a method of studying the past in order to explain present events or anticipate future events. Sproull (1988, p.152) defines historical design as 'a research design for which the data and physical artefacts already exist and thus cannot be changed or manipulated'. One of the reasons a researcher would choose this type of design is because the researcher finds it more reliable to depend on public and official sources such as official manuscripts, newspapers, government reports and a variety of other sources rather than on accounts of a selected number of people (Dane, 1988). Relying too much on official documents, however, has its disadvantages. One of the main criticisms of historical design is the authenticity and accuracy of recorded data. It has been suggested that because these documents often contain confidential or sensitive information (which is the case in this study about the *Hajj*), they may be distorted, or incomplete, hence, their authenticity is questionable.

Historical design was also ruled out because, facilities types and features are changing very quickly as the time passes (e.g. in the past pilgrims used to travel by camels and donkeys, while now they travel by jets and motor vehicles). The pilgrims' needs have also been changed accordingly. Determining how modern facilities are important for the *Hajj* season and how to plan and manage them, required up to date information. There was no previous research that studied the *Hajj* facilities in a comprehensive form. However, several studies have been carried out regarding some major facilities such as transportation, accommodation and communication (HRC, 1992). These studies were looking at one particular facility at a time and did not

discuss how different facilities interact to create the complete *Hajj* package for the pilgrims (e.g. Yar-Gogundi and Al-Zaydi, 1988; and Koshak, 1992). The present research will refer to any past study whenever it is appropriate, but according to the above discussion the historical form of design cannot be used in this thesis.

6.2.3 Experimental Design

Dane (1988) defined experimental design as a type of research design, that is used to test cause and effect relationships between dependent and independent variables. Typically, it takes the form of an experiment, where a variable is strictly controlled to determine its effect on another variable. The independent variable, suspected to be the cause for the variations in the dependent variable, is manipulated under strict control of other deliberately-held-constant variables to see the effect on the dependent variable. The advantage of an experimental design is the ability to freely control and manipulate the independent variable. The effect of the independent variable on the dependent variable can then be separated and because of that, the researcher can draw directly conclusions about its effect on the dependent variable. This type of design, however, is limited to research where it is possible to control or manipulate the independent variable at the discretion of the researcher. A laboratory setting is ideal for experimental design. It is a popular method used in pure sciences where laboratory experiments are conducted under strict controls and where the variables (e.g., temperature, pressure) can be manipulated to analyse the causal effect of such manipulation on the dependent variable.

However, in social science research which involves human beings action and the related issues such as how people make decisions, how they evaluate different management styles, and how they feel about certain provided services, cannot be controlled, or manipulated from the rest of the variables in an experiment. It is therefore impractical to impose the laboratory situation upon pilgrims' perception and feeling regarding the HFS especially in situations like the *Hajj* season where time is very limited and different venues are involved in the study. For these reasons, experimental research design is ruled out.

6.2.4 Non-experimental Design

Non-experimental design is another type of research design in which the researcher systematically tests and makes inferences about relationships among variables without directly manipulating them. Non-experimental design is also called survey design. Unlike experimental design, non-experimental research does not have highly-controlled elements which allow a researcher to assume cause and effect relationships. Experimental variables are not introduced by the researcher in non-experimental design, but measures can be taken. According to Sproull (1988), in this type of design, the researcher normally has control over who or what to measure, when the measurement can take place, and what to ask or observe.

The purpose of non-experimental design is to observe or measure the relationship between or among variables. It does not require an experiment and can be carried out in a natural setting. This type of research design is most appropriate in research where the researcher cannot alter the natural setting of events, i.e. the running of the *Hajj* season. The researcher is not able to modify or control the independent variables because of their nature, such as number of previous *Hajj* the respondents performed in the past and cultural background, are such that they cannot be manipulated (Kerlinger, 1986).

The disadvantage of the non-experimental research design is its results lead only to conclusions about association or relationships, not cause and effect (Sproull, 1988). The researcher can only make inferences about the relationships between these variables without being able to conclude whether one independent variable is the cause or effect of the dependent variable (Bryman, 1989).

There are two relevant approaches in obtaining data using non-experimental design. They are, survey and case study methods. Although the distinction between the two is not very clear, there are, however, practical differences between them and each is discussed briefly below.

6.2.4.1 Sample Survey Research

Sample survey research looks at a particular phenomena or observation by means of a questionnaire or interview (Leedy, 1974). It involves obtaining information directly from participants by posing questions to them. The researcher's task is to collect information relating to the variables and based on the information gathered, to examine the patterns of relationship between the variables based on the responses presented at the time the question is asked (Dane, 1988). Survey research normally deals with studies on how people feel, perceive, and how they behave, the object is to determine how these variables are related (Wiersma, 1991).

The advantage of survey research is that its results can be generalised to represent the views of the population because it involves a large number of respondents, representative of the population. This method tends to satisfy the objective of this research that attempts to seek information from a proper statistical sample in order to generalise findings across the pilgrims population. The disadvantage of this type of data collection method is that it could involve too much time and effort (Dane, 1988).

6.2.4.2 Case Study Research

Case study research involves a small number of samples or 'cases'. It involves in-depth analysis through interviews or group discussions, of a number of cases from which conclusions are drawn. Case study research is very relevant in studies that focus on the understanding of areas of organisational functioning that are not well documented and which are amenable to investigation through contact with the organisation (Brymen, 1989). It is best used in studies that require deeper understanding of how things happen rather than testing relationships between them (Gordon and Langmaid, 1988). The main drawback with case study research is that it is often accused of lack of generaliseability. This form of data collection is deemed not practical for this research, because this study investigates many pilgrims and facilities, in order that generalisations about the population as a whole can be drawn.

6.3 The Chosen Research Design

According to the above explanation it was found that the most appropriate research design that would best serve the purpose of this research was the non-experimental research design - the quantitative approach. In non-experimental design, the pilgrims and facilities would behave and be allowed to operate without the researcher intruding or changing the day-to-day running of the events. There are no external elements being introduced by the researcher whilst conducting this study that would change the way the *Hajj* season is being run.

In tourism and travel research which *Hajj* research is similar to, there are three units of measurement in surveys. They are in short:

1. Household surveys that collect information on the travel experience of individuals over a given recall period.
2. Location (on site) surveys that obtain counts of visitors (travellers), or information from them about their current visit.
3. Business surveys that mainly provide general information on travel and tourism business operations, but sometimes also collect traveller or visitor customer information (Chadwick, 1994).

The data for the present research was gathered by following location survey techniques. Using this style, data will be expected to give more accurate results than the other two units of measurement, because of the elimination of much of the recall problem. However, information collected from travellers is liable to be incomplete if they have to supply their answers under time pressures. Since it is the intention of this study to describe the way things are happening rather than trying to change the *Hajj* organisation at the same time, the non-experimental research design seemed to be the most satisfactory.

The choice of a non-experimental design also allows the researcher a degree of control over who and what to measure, control over the selection of the different stakeholders to participate in the study, and therefore the ability to manipulate the likely choice of participants. This kind of design is necessary in order to be able to focus only on HFS and what pilgrims need out of them, which will satisfy the scope

of the study. In this research information will be gathered from a representative sample of pilgrims. It is going to be carried out in the various *Hajj* venues using a questionnaire that will be completed by trained personnel who speak different languages.

Sample survey research is deemed the most suitable form of data collection for this study, not only because it enables the researcher to reach a large number of pilgrims who come from all corners of the globe, but it is also the least time-consuming and the most effective administration data collection procedure (Dane, 1988). Non-experimental design's main disadvantage, however, as indicated earlier, lies in its inability to manipulate the subject under study. The conclusions derived from non-experimental research reflects this shortcoming, in that, its conclusions cannot be as strong as if the study was conducted in a true experimental laboratory situation where cause and effect relationship can be established.

It would be ideal if this study was able to generate conclusions about the cause and effect relationship between different groups of pilgrims and other variables, however the aim of this research is to investigate the pilgrims' perceptions concerning the importance of the HFS. So there is no great need for cause and effect analysis. The conclusions derived under this non-experimental approach, however are based on multivariate analysis procedures and other adequate statistical tests which reflect the association or relationship, but never that one variable 'causes' another (Sproull, 1988).

6.4 Sample Design

Sample design is about how to select a particular sampling method that meets the research objectives. In deciding on a sampling plan the researcher should consider three factors (Cannon, 1994).

1) The type of information needed - if the questionnaire does not include the right questions to generate the needed information, then the primary goal of the survey gets lost amongst side issues that are introduced. Also the selected sample frame must contain the proper individuals or businesses that the study is about.

In this study the type of information needed was discussed in detail earlier in Chapter 5. It concerns with pilgrims who perform the *Hajj* and their perceptions concerning the importance of the HFS during their stay in the various *Hajj* venues.

2) The quality of data needed - how reliable the data needs to be. In other words, how confident of the data the researcher needs to be in order to make conclusions based on the results. In general, the definition of data accuracy varies from one field of study to another. For example, scientific research requires very reliable data when testing a new medicine that is to be used by mankind, while the accuracy of the data required for exploratory marketing research does not need to be accurate to the same degree.

The nature of the present research is exploratory, however the reliability and quality of the information is up to the social research standards. A proper research methodology and procedures is followed in order to get the information that fulfils the research goal.

3) The resources available - money, staff, and time. These factors are important resources which are required to carry out any research. These resources affect both the quality and the quantity of the information gathered. The researcher should not decide sample size and types, unless he or she has considered the resources available to the study.

In *Hajj* research the resources issued are critical because of the nature of the event itself. *Hajj* research involves dealing with people of different nationalities/languages, within time constraints (5 days to one week), at certain places. People are also busy during that time, because they want to perform the *Hajj* which has a special programme to follow. The staff who will help in collecting the information from the pilgrims should be very carefully selected in order that they can communicate and deal well with the people, in addition to their ability to extract the right information and record it properly on site. The budget available for the field work of this research was limited to SR30,000 (£5000). One more important time consideration is that, this is a Ph.D. three years course, and not a piece of continuous research.

6.5 Sampling

Sampling is about describing the activity of selecting a few from the total, in order to use characteristics of the few to estimate the characteristics of the total. How to select these few from the total, basically determines the accuracy of the estimates derived from the sample. There are several types of sampling which are included in most statistics books, but four major types are discussed below in brief :

1) Simple random sampling and systematic sampling. Simple random sampling is a method in which any object in the universe of the study i.e., pilgrims, has the same chance, or probability, of being selected as any other object in the universe. When the size of the study universe is large, this method is not workable. An alternative is systematic sampling that requires the sample to be drawn from the universe in an orderly fashion, which considers both the sample size and the number of units in the universe.

2) Stratified random sampling: This kind of sampling is similar to systematic sampling, because it also follows an order. Stratification means (a) separating the universe into small groups of units so that the units within each group have similar characteristics, (b) making each of the groups as dissimilar as possible, and (c) placing the units within each group together on a list before selecting the sample. Stratification overcomes the problem of uniqueness of certain elements within the universe but does require a prior knowledge of key characteristics of the elements.

3) Cluster sampling: In this method of sampling the universe is divided into distinct geographic areas such as counties and townships. Cluster sampling overcomes the cost problems of geographic dispersion and reduces the size of the list one needs to develop or work with in selecting a sample. For example in the case of mail or telephone surveys, the area might be determined by postcode boundaries or by telephone area codes or exchanges. By first selecting a sample of areas and then selecting a sample of elements within the sample areas, the number of areas that must be contacted is reduced, and the number of sample cases is concentrated in fewer geographic areas. This procedure is also called two-stage sampling. At each stage, the sample is selected randomly or systematically.

4) Quota sampling: quota sampling requires the enumerators to interview a fixed number of elements with certain characteristics; that is, a quota is established for the number and type of elements to be selected. Selecting a sample in this fashion is simple, it insures that elements with selected characteristics are represented, and in certain instances, may be the only way that a sample of the population can be drawn (Cannon, 1994).

6.6 The Chosen Sampling Method

The above discussion explains each sample type individually, however in large surveys, two or more of these methods may be used in combination to select the sample. Examples of these surveys, that relate to the field of travel and tourism are: 1) the 1977 National Travel Survey (NTS) conducted by the US Bureau of the Census. This survey used stratification and cluster sampling techniques. 2) The Canadian Travel Survey (CTS) organised by Statistics Canada. In this case stratification, clustering, and random sampling methodology had been implemented. 3) The 1980 US Travel Data Centre National Travel Survey (NTS).

This study was carried out by following stratification and systematic sampling approaches. Using two or more sampling methods is not only suitable for large surveys, but it is also recommended whenever high representation of information is required for a study. For example, Mihalik and Ferguson (1994) used stratification and random sampling techniques in their contract research project about the South Carolina Fair. The sample size for that research was approximately 400 persons. For this research two factors that affect the chosen sampling method have been taken into account in order to collect quality data. These factors are:

A) The study attempts to obtain information that represents the pilgrims opinion in general, however, pilgrims come from different countries and speak many languages. This factor raised two questions concerning how to make sure that the sample included pilgrims from different nationalities and how to overcome the problem of languages. The technique of using a translated questionnaire, that was to be given to pilgrims with a pre-paid envelop was not workable in this research for many reasons. Firstly, it is not feasible, according to the available resources, to translate and write the questionnaire in several languages. Secondly pre-paid envelops cannot be used,

because we do not how the cost of posting the envelops in different countries. Thirdly, the researcher cannot determine or control the response rate from the various nationalities, and thus the sample may not be representative. Finally time cannot be controlled by using this method, especially concerning the period of waiting for the pilgrims' reply.

B) The *Hajj* venues are numerous, they are not surrounded by physical boundaries and do not have controlled gates. In *Hajj* studies - unlike other events research - questionnaires cannot be distributed and/or gathered at certain gates. In addition to that pilgrims are busy in these venues and engrossed in performing the exact *Hajj* rituals - the programme of this event is religious and not recreational in nature like in many other tourism events, also the programme itself is varied from one venue to another. These composed factors force the researcher to think carefully about where and when to meet and interview the people who are going to represent the pilgrims' population.

In order to overcome the above difficulty concerning the sampling method, following procedures have been taken:

The pilgrim population was firstly stratified into exterior and interior pilgrims. Secondly, the exterior group subdivided into five subgroups in which each of these groups or stratums represents one of the five *Mutawifeen* establishments. The interior pilgrims are going to be chosen from different interior *Hajj* establishments. By applying this step we can assume that most of the pilgrims' nationality are going to be represented in one of these six establishments, i.e. using stratums technique.

1. According to previous *Hajj* statistics and after consulting two senior researchers in the *Hajj* Research Centre, a quota was suggested for each of the two main stratums. The quota for interior pilgrims was decided to be from 30% to 40% of the total respondents, while the rest of the pilgrims who represent 60% to 70% were going to be selected from the five exterior *Mutawifeen* establishments.
2. Because this research is about the perceived importance of the FS needed during the *Hajj* event, it is important that all of the pilgrims involved have finished the majority of the *Hajj* rituals before they are interviewed.

This step was aimed to make sure that respondents are already conscious of the importance of the HFS. In order to consider this point it was decided to conduct the survey after the pilgrims come from Arafat and stay for two days in Mina. By that time the *Hajj* programme approaches its end, and pilgrims are about to finish their *Hajj* activities. However, most of the pilgrims only stay three days in Mina, which means that the available time for the survey is only one day at that place, accordingly one more decision was taken, and that was to start interviewing the internal pilgrims first, because they leave Makkah as soon as they finish from Mina while other pilgrims stay in the Holy City for some time after they finish their *Hajj*.

3. A list that includes names of the interior pilgrims establishments, their locations in Mina, and their pilgrims nationality was prepared. After that, three different locations - in which to conduct the survey - were chosen, according to certain criteria which are; a) the location should be among several internal pilgrims camps in Mina, b) it is preferable that those establishments contains pilgrims from different nationalities who are working in Saudi Arabia in addition to Saudi pilgrims, c) the locations should be well located so that interviewer can watch and count the pilgrims passing in front of them, each location was provided with an adequate number of light foldable chairs to be used by both the interviewer and the pilgrims. A similar technique for choosing different locations to conduct a survey was suggested by Taylor (1994).

4. Another list which contained similar information to the previous list was prepared for the exterior pilgrims establishments, but with a little modification, this list contained addresses of the pilgrims housing buildings in Makkah instead of Mina. This list followed similar criteria to the ones mentioned above, again six different locations, that include the six exterior pilgrims establishments were selected. The survey was carried out at these places. Pilgrims were randomly selected and interviewed on site.

6.7 Sample Size

When determining the sample size for a survey, it is important to establish the number of samples which is neither too low to avoid the risk of inadequate information, nor too high to avoid the risk of being inefficient (Scheaffer, et al., 1986). A balance between obtaining data with great precision and cost, also should be considered. There are many ways in deciding the sample size required to represent a given population. Some of which by using tables or charts particularly designed to determine the sample size. It could be achieved also by selecting a specific number of the population as a sample, or to apply statistical formula in the light of sample size that was used in previous research. Almost every marketing research book has a chapter or a section that discusses how to calculate the sample size.

This study adopted the method developed by Krejcie and Moragan (1970). They constructed a table and a diagram that show both, the given population and the required sample size that the researcher should consider for a representative data which used for research purposes (see Table 6.7.1, and Figure 6.7.1).

According to Krejcie and Moragan, this method was developed based on a formula approved by the National Education Association USA. The formula reads as the following:

$$s = X^2 N P (1 - P) / d^2 (N - 1) + X^2 P (1 - P).$$

s = required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the

desired confidence level (3.841).

N = the population size.

P = the population proportion (assumed to be 0.50 since this would

provide the maximum sample size).,

d = the degree of accuracy expressed as a proportion (0.05).

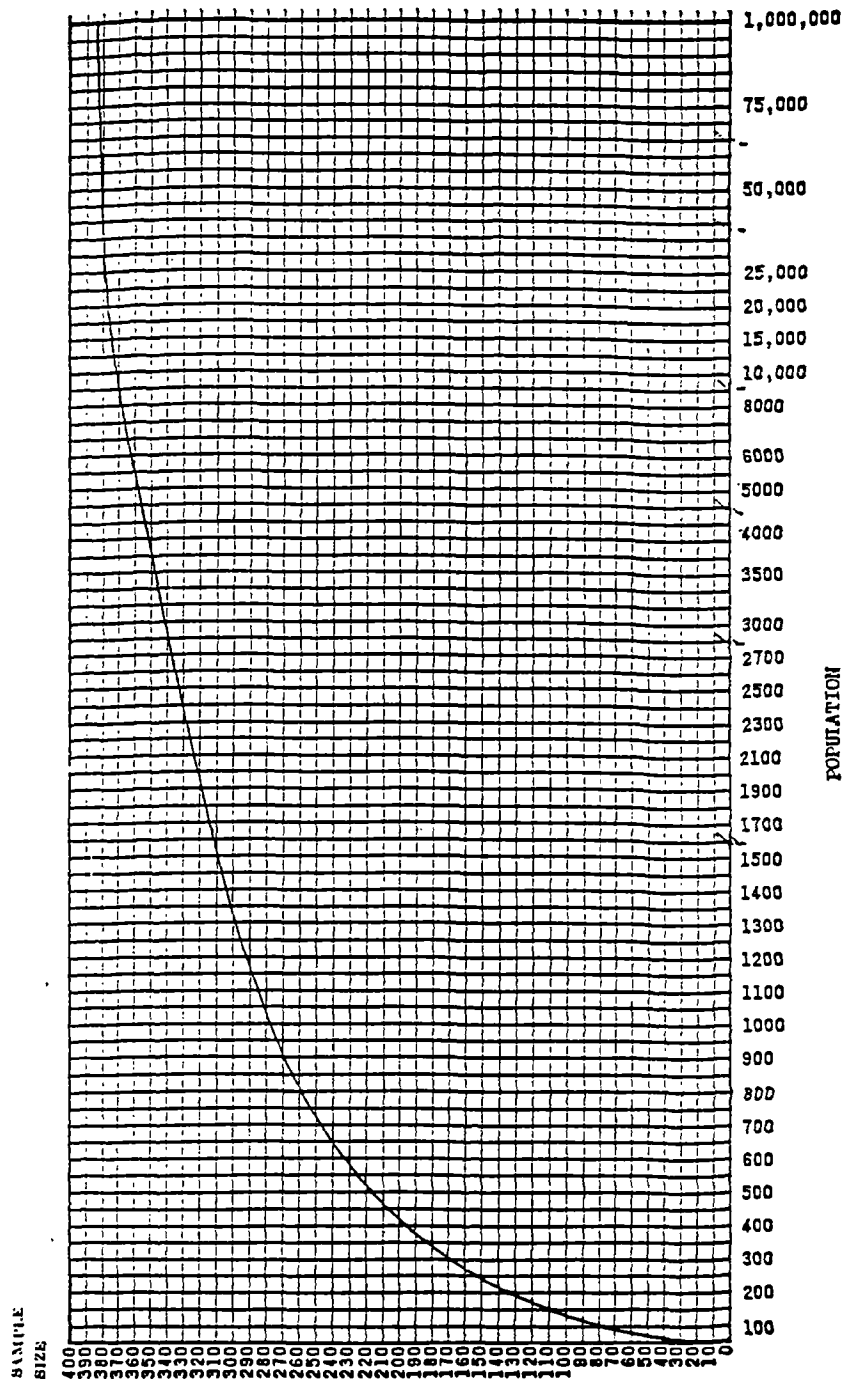
Table 6.7.1: Table for Determining Sample Size from a Given Population

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	580	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

N = Population, S = Sample Size
Source: Krejcie and Moragan (1970).

Figure 6.7.1: Relationship between Sample Size and Total Population

Source: Krejcie and Moragan (1970).



This method and/or formula for determining sample size is accepted in social science research and has been used recently by researchers (see Al-Abdulmunim, 1995). For this study the population of the survey is the number of all pilgrims who perform the *Hajj* in 1995. From available statistical reports it was found that for the last five years, the average number of pilgrims was 1,400,000 persons (HRC, 1995). Using the above formula, the sample size for this research (n) is equal to 384 pilgrims.

It may be noticed that this sample size (n = 384) is almost the same for the population of 1000,000 persons. Krejcie and Moragan wrote that, as the population increases the sample size increases at a diminishing rate, and remains relatively constant at slightly more than 380 cases. This fact was also confirmed by Churchill (1992). He said that the size of the population has no direct effect on the size of the sample, however what directly affects the size of the sample is the variability of the characteristics in the population. For this reason it was very important - for this research which involves a complex event and participants who come from all parts of the world - to design a sampling method that covers most of the pilgrims characteristics, in order to obtain representative information from the selected sample size, i.e. the respondents (see the related issue in the above discussion).

Although each questionnaire was going to be completed by a well trained interviewer as will be mentioned later (see Chapter 7), the researcher estimated that only 80% of the questionnaires were going to be completed, and 20% may not be used in the analysis for any expected reason. Considering these percentages the required sample size is 480 pilgrims. This decision was taken to act as a safety factor concerning the field data collection. The size appears appropriate considering time, cost, and efficiency factors.

6.8 The Research's Tool Development

As mentioned earlier in this Chapter, this is a sample survey research that looks at a particular phenomena or observation by means of an interview-based questionnaire (Leedy, 1974). It involves obtaining information directly from participants by posing questions to them. The researcher's task is to collect information relating to the variables and based on the information gathered, to examine the patterns of relationship between the variables based on the responses presented at the time the

question is asked (Dane, 1988). Survey research normally deals with studies on how people feel, perceive, how they behave, and the object is to determine how these variables are related (Wiersma, 1991). This research uses a questionnaire as an effective tool to collect the required information, and because of this reason a great deal of care was taken in developing both (a) the measures and (b) the questions that were used in this questionnaire. The following discussion explains how the present research tool was developed.

6.8.1 Development of Measures

Treacy (1986) argued that measurement is central to research and a foundation of empirical testing. Measurement is defined as a way of assigning numerical values to judgement on attributes of products, ideas, or institutions (Oppenheim, 1992). It is a process through which the kind and intensity of something is determined (Adams, 1964). Measurement is also an assignment of points for responses, or the summing of numerals assigned to responses of two or more items to provide meaning to the attribute in question (Wiersma, 1991). Measures development proposes that numerical values are assigned from observation of objects, on the assumption that the numbers are analogous to the properties or attributes of the object to be measured (Luck and Rubin, 1987).

Measurement is used to represent theoretical concepts. It is not a substitute for the concept itself. In social science research, measurement can be used to represent only part of the actual theoretical concept. It might be incomplete, because concepts in behavioural sciences are inherently multi-dimensional (Dane, 1988). A good example from the field of management for the multi-dimensionality of a concept is the performance measure of a company. Some of the dimensions of a performance measure may include returns on capital, sales growth, financial strength, public image, employee commitment, export performance and so on. Because of its multi-dimensional nature, any attempt to capture all these dimensions in one measure is almost impossible. Similarly, issues of a multi-dimensionality exists in measuring the importance of different HFS. While efforts are made to cover the most relevant issues concerning the facilities importance, admittedly not all dimensions have been included. However, the task of the researcher is to develop a measurement which attempts to capture key elements to reflect the attributes of the object that best

represent the concept and to use a scale to assign a numerical value to reflect the respondents' perceptions and/or attitude about the concept.

Generally speaking, there are four types of measurement scales. They are nominal scale, ordinal scale, interval scale and ratio scale (Kerlinger, 1986; Nachimas, and Nachimas, 1991; McDouglas and Munro, 1994). Each of these is reviewed briefly below as a basis for which measurement scales for the study are constructed.

1) Nominal Scale. The nominal scale is the weakest scale of measurement. Numbers are used as 'labels' and carry no mathematical meaning other than classifying attributes into categories to designate differences in characteristics. For example, numbers are used merely to designate gender (male = 1, female = 2), or status (married = 1, single = 2) and have no other mathematical connotations. Statistical tools that can be used for this scale are restricted to lower level statistics such as percentages, mode and chi-square test.

2) Ordinal Scale. In addition to indicating difference, the ordinal scale provides information about whether an object has more of a certain attribute than another, such as low score to high score, or least to most. The scale orders the scores and indicates a relative difference. For example, one's attitude towards advertising is more positive than another's, or, one is more superior than the other. The ordinal scales do not, however, indicate the difference between the intervals in absolute terms. With ordinal scales, the statistical tool is restricted to percentiles, median test and rank order correlation plus other statistical tests applicable for nominal scale.

3) Interval scale. Unlike the previous two scales, the interval scale is able to rank-order a set of observations and to measure the exact equal distance between each of the observation. In this measurement scale, the perceived distance between rank position 1 and 2 is the same as the distance between 3 and 4. Hence, the difference between the two intervals can be said to be equal. An interval scale provides a measure of intensity and the researcher will not only be able to say that the object is greater than another, but will also be able to specify by how many units the former is greater that the latter. It can determine how much of an attribute exists. A higher and more rigorous statistical tool can be used with interval data, such as range, means, standard deviation, t-test and z-test, and regression analysis.

4) Ratio Scale. It is the highest level of measurement. It possesses characteristics of nominal, ordinal, and interval scales, and has a meaningful absolute or zero value. A zero value represents an object that has none of the properties being measured. Properties that have zero value can be age, costs, sales, and experience. In addition to the statistical tools applicable for the other scales, ratio scale enables use of other higher level statistical tools such as geometric means and coefficient of variation.

In this study, attitudes and opinion (perceptions) towards the HFS are explored. Since questions are asked about the pilgrims' perceptions regarding the importance of these HFS and about their characteristics in the *Hajj* event, an attitudinal scale is considered appropriate. Because of that, it was necessary to design a scale for the instrument that can employ a high level of statistics which is powerful enough to produce information and/or data eligible to be statistically interpreted. Once this is achieved, it will be easier to draw maximum meaning from them.

One important issue that has been considered in designing this research tool is to understand the differences between the participants' attitude and perceptions. Many studies appear to use the term 'attitude' when in fact, they have measured 'perceptions' as Getz (1994) noticed. Perceptions is 'the meaning attributed to an object' (Ap, 1990), where attitudes is defined by Allport (1966) as 'a state of mind of the individual toward a value'. Several researchers believe that attitudes are structured along three dimensions: the cognitive (perceptions and beliefs); the effective - likes and dislikes (based on evaluation); and behavioural (actions or expressed intent) (see McDougall, and Murno, 1988 for more detail). Based on this, it seams that perceptions which might be affected by some factors such as the individual own experience and age (Gibson, 1950) contribute in forming the attitude of such an individual regarding an object. This study considers these points while designing the research tool (questionnaire). Appropriate scales were employed to measure the participants' attitudes and perceptions separately as discussed below.

In determining the type of scales that to be used in this study, the level of measurement, and desired statistical tools are considered. Measurement scales are constructed to measure the level of agreement or disagreement to certain items concerning Pilgrims' degree of satisfaction (i.e. the participants' attitude) regarding the available HFS and their willingness to pay more money for better HFS. Likert

scale is considered appropriate and hence employed for this section of the questionnaire. Important service quality studies that carried out by Parasurman, Zeithaml, and Berry (1988) used this kind of scale. Each item that uses Likert scale in the questionnaire is scored arbitrarily on 1 (strongly disagree) to 5 (strongly agree) so that the greater the score, the more positive the attitude or agreement.

Another scale that was employed in this research is the itemised-rating scale to measure the pilgrims' perceptions regarding the importance (value) of different HFS. This type of scale is a well established perception-scaling technique for social science research. It is easy to construct, to use, and it produces reliable ratings (Churchill, 1992). A question that uses the itemised-rating scale is scored arbitrarily on 1 (not important) to 5 (extremely important) so that the greater the score, the more important the item.

In both scales, 5 points classification works best in that they permit fine distinctions and yet seems to be readily understood by pilgrims. When the item scores are summed (by adding the numerals assigned to responses) the sum represents a meaning that can be assigned to a perceived attitude and/or perceptions toward that item. Once the level of measurement has been established, appropriate statistical tools can then be applied to produce data useful for drawing meaningful conclusions.

Two essential characteristics of a measurement that must be considered to establish whether an instrument is appropriate or useful are reliability and validity. Reliability means consistency of the instrument in measuring whatever it intends to measure. A reliable measure is one which, when replicated in other contexts, produces consistent results when applied at different times and on different individuals. To have a reliable measure of the HFS, the instrument developed should be able to withstand replication when used in other contexts and be able to produce consistently similar results. Procedures for retaining and omitting items in reliability testing are discussed in greater detail in Chapter 9.

Furthermore, for a measure to be valid it must be able to accurately measure what it is supposed to measure. It must measures the characteristics, traits and attributes for which it is intended. In this thesis, the instrument should mainly measure the degree of the different HFS's importance. There are a number of ways to test the validity of

the measure. The main ones are content and construct validity (see Price and Mueller, 1986; Churchill, 1988). In this study, the validity of the instrument can be supported from three perspectives.

The first is by way of an extensive review of the literature to ensure that most relevant HFS required by pilgrims for their *Hajj* journey in Makkah and the Holy Places, Saudi Arabia, are present and consistent with the research concept developed earlier in the thesis. In the absence of a proper measure of the HFS' importance in the past, subjective judgement is used to gauge the adequacy of elements forming a construct, hence supporting content validity.

The second is based on the fact that many of the variables concerning different HFS used in the instrument are adapted from several well established references in related fields of study, i.e. tourism, travel, events, festivals, and hospitality. These references are quoted whenever it is appropriate. Moreover, the preliminary study that was carried out in the *Hajj* season of 1994 by the researcher helped in tuning-up the overall understanding regarding the HFS required.

The third evidence of validity - construct validity - is statistically supported using factor analysis, an approach suggested by Mason and Bramble (1989). According to them, factor analysis can be used to support construct validity because it allows sets of highly correlated variables to be grouped into 'factors' that determine the structure of a concept and into groups which the instrument is designed to measure. A factor consists of sets of variables that correlate highly among themselves but not with other variables, and by virtue of that, factor analysis is able to isolate those variables which are irrelevant to the group. As explained in the later chapters, factor analysis is widely used in formulating the measure of this study and in the process allows construct validity to be verified. The next step is about designing and developing the research tool - the questionnaire.

6.9 Development of the Questionnaire

A copy of the questionnaire used in this survey is shown in Appendix (A). Although the questionnaire was developed so that it could be completed by the interviewers, it has been designed to be as respondent friendly as possible to avoid imposing too

much time upon the two individuals involved, 1) the interviewer, and 2) the pilgrim. A number of questions used in this questionnaire were taken from established research because they had been shown to possess high reliability and validity. The decision to adopt these questions was also in line with the advice given by Balian (1982).

Previous studies have shown that the number and quality of responses is positively correlated with the format and the layout of the questionnaire (Berdie, et al., 1986). Several steps have been taken to ensure a satisfactory response rate. For example, the interviewers were trained to explain the purpose of the research, and the questionnaire to the pilgrims, and the benefit one would get by answering the questions. The respondents were informed and reminded that by participating in this study, they would be greatly rewarded from Allah. It was made clear to the respondents that their co-operation was a must since Allah said in the Holy Qura'n:

> 'Help ye one another in righteousness and piety, But help ye not one another In sin and rancor'
> (Surah 5: Al Ma'idah, Verse. 2).

It was also clear to them that this research will help to improve the planning and organising of the *Hajj* event in the future, and that would make life easier for their fellow pilgrims. The respondents were assured of the confidentiality of the information. This point plus the deliberate structure of the questions made the answering easier.

Neither the respondents nor the interviewers were required to write any long answers in the questionnaire. It was designed to enable the pilgrims to select an answer that best described their situation/feeling, and the interviewers then ticked the appropriate box. The five-point Likert scale and five-point itemised-rating scale have been used throughout the questionnaire whenever it is appropriate as mentioned above. Respondents were asked to indicate their agreement or disagreement with a statement on a continuum. They were also asked to indicate their perceptions regarding the importance of a particular HFS in a similar way. For example, one of the questions asked the pilgrims to state how important safety and security was to them. A respondent then choose possible responses ranging from 1 (not important) to 5 (extremely important). A score of (5) infers the highest magnitude of importance of

the HFSF to the respondent, while a score of (1) infers that this item has no importance in this particular pilgrim's point of view.

The questions were structured in such a way that it was easy for interviewers to ask and respondents to answer. The flow of questions, began with general personal information, then progressed gradually to those more specific to the HFS, and finally ended by interesting comparisons regarding FS in the different *Hajj* venues. This structure was designed following Hoinville and Jowell's (1978) suggestion that the first few questions should be simple and relevant to encourage the recipient to start. The more difficult question should come in the middle, and the last questions should be of high interest to encourage them to complete the questionnaire. This suggestion appeared to have worked in this data collection exercise judging from the number of questionnaires completed and returned.

The questionnaire was divided into five sections, each of which was designed to provide certain information for the research. The order of appeared of each section in the questionnaire was decided after lengthy discussion and revision with several specialists from both, the University of Strathclyde in Glasgow, UK, and Umm Al-Qura University in Makkah, Saudi Arabia. Table 6.9.1 briefly shows each section and its content.

Table 6.9.1: Subjects of Questionnaire's Sections

The section	The subject
Section 1	Main Pilgrim characteristics and information concerning past *Hajj* and/or *Umrah* experience
Section 2	Issues concerning the major HFS, and service quality during the *Hajj* event.
Section 3	Pilgrims' degree of satisfaction regarding the FS available and their willingness to pay more money for better FS.
Section 4	More information regarding factors that might affect the pilgrims' expectations and perceptions concerning the HFS.
Section 5	Importance of HFS as perceived by pilgrims in the different *Hajj* venues.

6.9.1 (Section 1) Characteristics of Pilgrims

This section includes questions concerning some basic demographic information such as; respondents' age, level of education, and nationality. These questions are commonly presented in most of the social study survey, and are used in later analysis to check for any existing relation between them and other variables. The section also provides information about whether the pilgrim came from inside Saudi Arabia or from outside of it, i.e. internal or external pilgrims. Other questions in this part of the questionnaire were regarding where pilgrims live at home, number of previous *Hajj* or *Umrah*, and a description of the group that pilgrim came with. These questions are believed to afford information about other factors that may affect the pilgrims'

perceptions or expectations regarding the HFS. Similar data was recommended, obtained and/or used in tourism, travel, festivals and events research (McWilliams and Mills, 1985; Inskeep, 1991; Saleh and Ryan, 1993).

6.9.2 (Section 2) *Hajj* Major Facilities, and Service Quality (HFSQ)

This section contains questions concerning the participants' perceptions with respect to the importance of the major HFS, including: cleanliness of the *Hajj* venues, transportation and movement, health care, security, safety, and public toilets. In the tourism industry the same FS are required (Inskeep, 1991). Other questions in this section are regarding the importance of the service quality during the *Hajj* season. The researcher adopted the five dimensions of service quality that are suggested by Parasurman, Zeithaml, and Berry (1988) as a guide for designing questions that are applicable for the *Hajj* season. Carman (1990) recommended that the dimensions of service quality must be customised to different service setting, and according to that the five dimensions are:

Tangibility - refers to the physical characteristics associated with the service encountered. In this study, it includes questions concerning room sizes and public area.

Reliability - means performing the service right the first time. It is about how employee can be depended on to accomplish services correctly and consistently. In this questionnaire the pilgrim is asked about the importance of having the service on time.

Responsiveness - the willingness of employees to help customers and solve their problems. Two questions were developed for this dimension. They read as: problems are quickly corrected and assistant services are available.

Assurance - the knowledge and courtesy of employees and their ability to inspire trust and confidence. For this research assurance issues were included in two questions: knowledgeable staff, and trained/experienced employees.

Empathy - is expressed through a sense that service providers care about pilgrims needs. The respondents were asked about how important it is to them that their needs be anticipated and/or their special requests carried out.

The variables in this section of the questionnaire are going to be analysed and crossed checked with the other dependent variables. Furthermore, the information from the service quality questions will be used in the research discussion.

6.9.3 (Section 3) Satisfactions and Needs

Section three contains questions that test the pilgrims' degree of satisfactions (attitude) regarding the available FS in the *Hajj* season. The satisfaction issue is important in the services industry, because the main goal of service providers is to have a satisfied customer. However, it should be noticed that "service quality" and customer satisfaction are not identical concepts, as quoted by Johns (1992), but one should also consider that people-in-charge cannot claim that they provide quality *Hajj* services while the majority of the pilgrims might be found to be dissatisfied. In this section of the questionnaire, pilgrims were asked to express their attitude via degree of satisfaction regarding the present HFS. Five different questions were designed to measure this important subject that would provide the researcher with appropriate information to better understand the pilgrims' attitude regarding the HFS available.

Moreover Lewis and Nightingale (1991) argued that service must be defined in relation to customers' needs, and should be designed considering their willingness to pay for it. In this research context that means; firstly, it is not practical to provide pilgrims with HFS that they do not need. Secondly, it is not practical to deliver facilities that pilgrims are not willing, or not able to pay for. In reference to this, a question was proposed to investigate for the pilgrims willingness and/or ability to pay more for better HFS during the *Hajj* season. Another question was designed to examine whether or not, the availability of the FS is more important than their quality within the *Hajj* season. The information from this last question will facilitate the discussion regarding the planning, availability, and quality of some HFS.

6.9.4 (Section 4) Factors Influencing Pilgrims' Expectations and Perceptions

Parasurman, et al. (1990) in their exploratory study about service quality found that there are four key factors that influence customers expectations, they are: 1) word-of-mouth (i.e. verbal) communications, 2) personnel needs, 3) past experience, and 4) external communications. It was hypothesised that these factors affect the pilgrims' perceptions regarding the importance of the HFS. In this section of the questionnaire the four factors were expressed using different forms of questions that were customised to suit the nature of the study subject.

For word-of-mouth (i.e. verbal) communications, pilgrims were asked whether or not they talked to somebody about the *Hajj* before coming, and if they did they were requested to tell the interviewer about the subject of the discussion. In order to investigate personal needs, three questions were proposed to cover issues that affect different pilgrims' personal needs. The issues included the way that the pilgrim performed the *Hajj* (i.e. individually, with an agent and/or with an official agency), personal annual income, and the purpose - if there is any - for coming during the present season other than performing the *Hajj*. The pilgrim's past experience and communication were the subject of two questions that asked about any travelling experience, and any lessons that might have been attended by the pilgrim regarding the *Hajj*.

6.9.5 (Section 5) Importance of HFS in the Different *Hajj* Venues.

This section of the questionnaire contains valuable information for the study. Because, 1) the major HFS required by pilgrims in the *Hajj* trip are mentioned in this section, 2) the importance of those FS in particular *Hajj* venues (Makkah, Arafat, Muzdalifah, and Mina) are investigated, and 3) the FS required at certain venues to fulfil special *Hajj* rituals are presented for later analysis in this part of the questionnaire. The notion of studying the HFS required within the different *Hajj* venues was hypothesised based on the fact that each *Hajj* venue accommodates its own programme and activities, in other words pilgrims have to perform a special act of worship in each venue (see Chapter 3). Accordingly, it is expected that pilgrims might need dissimilar, or alternating FS in each of the *Hajj* venue.

One reason that the researcher is encouraged to continue in this way is what Saleh and Ryan (1993) found in their study regarding factors that attract tourists to festivals. According to their article, festival-goers are mostly concerned about, (1) the quality of the programme and, (2) other factors such as accessibility to the site and information, general hygienic matters, and other supplementary services. Saleh and Ryan, based on a literature review carried out for the study, argued that determinants of success for events and festivals are basically the program and other factors (i.e. access, flexibility, media promotion, using the historic landmarks as potential locations, etc.). The author adopted this idea and developed it to conclude that events' participants evaluate the success of an event according to two elements. They are: 1) the event's programme, and 2) the FS available for such an event.

The *Hajj* is a typical large-scale event, however, its programme is very well defined and cannot be altered (see Chapter 3). Keeping in mind this fact, it can be argued that pilgrims evaluate the success of the *Hajj* season in reference to available facilities, and how they are planned, provided, and presented. In this section of the questionnaire the author listed all relevant FS and related aspects in order to ask the pilgrims (1) how they perceive their importance, and (2) how they evaluate the relative importance of these FS. The information from this part of the survey can be used in discussing several related issues which include: a) the FS needed by pilgrims in different *Hajj* venues, b) are these facilities available and perceivable by the users or not, c) how they are planned and presented, and d) how the people in-charge of the *Hajj* can improve their performance regarding planning, designing, managing, and offering HFS to pilgrims.

In the service industry the facilities designers', and managers' main concern is to provide a quality service to satisfy their customers. According to several researches as Barsky (1992) noticed, the service quality is linked to the customer satisfaction which is the function of the customers' expectations and perceptions with respect to a product, a service, and/or a facility. However, building on another study (e.g., Westbrook & Oliver, 1991), consumer satisfaction is defined as a post-consumption evaluative judgement concerning a specific product or service. In other words, satisfaction can be linked to performance evaluations alone, making inclusion of the dis-confirmation process as an intervening variable in measuring satisfaction

unnecessary (Churchill & Suprernant, 1982; Cronin & Taylor, 1992; Olshavsky & Miller, 1972; Westbrook & Oliver, 1981). Keeping in mind these facts and in order to create a quality event, the facilities' providers should understand what aspects of the facilities the actual users perceive as important. Once the users are satisfied with the FS that have been provided according to their requirement they will (arguably) judge that the event is of a high quality. The present study adopted the notion of the post-consumption evaluative judgement to obtain reliable information with respect to the most important HFS required during the *Hajj* event in order to provide information that can help to improve the quality of the built environment of the *Hajj* venues, and before that to facilitate further studies concerning FS planning for mega-events.

6.10 Pilot Testing and Non-Response Bias

6.10.1 Pilot Testing

The questions were subjected to a series of interviews, testing, and vetting by professors, lecturers, and PhD students in different departments at the University of Strathclyde, Glasgow, UK. These departments include: the Department of Architecture and Building science, the Scottish Hotel School, the Strathclyde Graduate Business School, and the Centre for Facilities Management. A copy of the questionnaire was also send to the *Hajj* Research Centre (HRC) at Umm Al-Qura University, Makkah, Saudi Arabia, in order to be reviewed by expert *Hajj* researchers who come from different Muslim countries. The principal aim was to ensure quality, unbiased, unambiguous questions with high reliability for this fundamental data gathering instrument. Many valuable suggestions have been incorporated in the final questionnaires including the layout, the wording, and the order of the questions to enhance the design and quality of this research tool.

The questionnaires were then pre-tested by several students who had previously performed *Hajj* or Umrah. This step was done by the help of some members of Strathclyde University Muslim Students Association (SUMSA). The aim for all that procedures was to verify the relevance of the content and the wordings used in the questionnaires to achieve a sufficient standard of construct validity. In this pre-testing

phase, the respondents were asked to comment on the questionnaires for clarity of questions and the length and ease of completing the questionnaires. The general opinion was that the questionnaires were easy to understand and were of reasonable length.

6.10.2 Non-Response Bias

Non response bias, or non response error, in a survey arises when the required statistical information is not secured from all those were contacted. It occurs when a researcher fails to obtain information from a sufficiently large portion of the population for various reasons (e.g., lack of ability or knowledge to respond, or inaccessibility to the researcher).

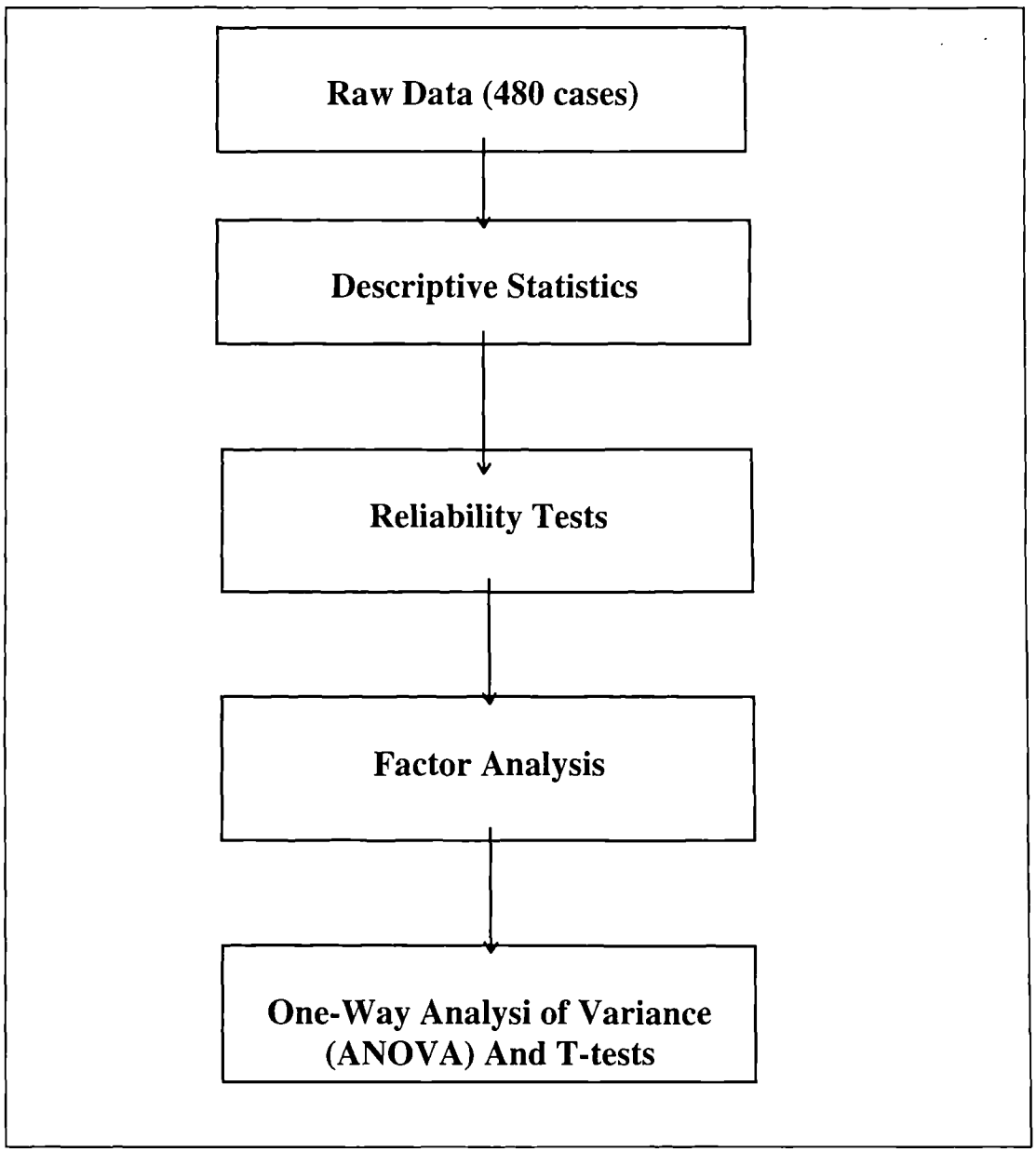
In this research non-response bias are expected to be high, because of factors like: a) pilgrims speak different languages and may not understand the questions very well, b) pilgrims may not have used all available FS by the time they were interviewed, so they may not answer all related question, and c) pilgrims were busy doing the *Hajj* rituals and this might affect their willingness to answer the questionnaire.

In order to overcome these factors or to reduce their effects, the author decided to carry out the survey considering the following plan, 1) employing some well trained interviewers who could speak most of the pilgrims languages to help the researcher in conducting the field survey, 2) the survey was going to be carried out after the pilgrims had finished most of the *Hajj* rituals to make sure that they had used most, or all available HFS, and 3) the interviews would be held at night time when pilgrims were free and not involved in any religious activity. It is believed that this plan was appropriate for this research according to the results obtained from the field survey as will be explained in the following Chapters.

6.11 Framework for Data Analysis

Having satisfied the non response issue, the next stage of the research design is the data analysis stage. The process of data analysis began with data coding and data entry involving 480 cases with 152 variables for each case. The overall sequence of data analysis is shown in the flowchart below (Figure 6.11.1).

Figure 6.11.1: The Process of Data Analysis



Raw data was analysed using SPSS for Windows 6.1 software. Descriptive statistics such as frequency and means were carried out to understand basic characteristics of respondents and their profiles. Also to investigate the major HFS needed for the *Hajj* event, and in each of the *Hajj* venues in particular. In this process, anomalies due to data entry errors were corrected.

The next step in data analysis begun with a reliability measure using reliability procedures for the multi-item scales. This step helped to ensure that only items with high reliability would be retained and used in subsequent analysis. Items that have a low reliability score were going to be eliminated, while those items that were going to be retained would be those which have a sufficiently high reliability for factor analysis.

In using factor analysis, the aim was to condense a large amount of data into a smaller set of factors with minimum loss of information, i.e. important variables were grouped into a manageable number of factors (Scholarios, 1993). These factors represented an index for the important HFS. The items included in the index were going to be used as variables in the one-way ANOVA and t-tests.

Once the factor analysis has been completed, obtained variables would be cross checked with the relevant independent variables using the one-way analysis of variance (ANOVA), and t-test techniques to test for the rest of the proposed research hypotheses. Conclusions were subsequently drawn from the results of the above analysis.

Similar frameworks of data analysis to the one used in this thesis were either recommended and/or utilised by several researchers in related fields of study, among those researchers are: Saleh and Ryan, (1992); Wicks and Fesenmaier, (1993); Mihalik and Ferguson, (1994); and Pyo, (1995).

6.12 Summary

This chapter describes the overall methodology and approach of the study to test hypotheses of interest between variables, and to develop a measurement instrument to investigate the importance of the HFS. The nature of the study is broadly categorised as non-experimental with exploratory and descriptive bias. Because of the extensive nature of information required in this large scale empirical work, data was collected via the sample survey research method, i.e. a quantitative approach. A questionnaire was designed to measure the pilgrims' perceptions concerning the importance of the FS which are available within the *Hajj* venues, and to explore the service quality issues which relate to the *Hajj* business. The questionnaire will be completed by well trained interviewers who are going to meet the respondents and fill the questionnaires on site. A total of 480 pilgrims were to be randomly selected after employing stratification and quota sampling techniques in order to get a representative sample. The data that was going to be gathered would be analysed firstly to obtain descriptive statistics, secondly the data reliability would be tested, thirdly, factor analysis was going to be utilised in order to develop the HFS indexes, and lastly the association among variables would be investigated by t-test and ANOVA technique. Conclusions were going to be subsequently drawn from the results of the above analysis.

CHAPTER 7

Sample Profile, and Data Summary

7.1 Introduction

Chapter six discussed the research design and methodology. This chapter explains two major subjects: 1) the implementation of the data collection plan, and 2) the results obtained from the descriptive statistical analysis of the collected data. Chapter 7 firstly, explains the administrative and technical procedures that have been taken in order to acquire the data required from the field. Secondly, it demonstrates the steps which have been followed to analyse the data by employing the SPSS computer program. Thirdly, the results obtained from the descriptive statistical tests are listed in tables and explained in detail. Fourthly, information concerning the respondents' demographic characteristics such as: nationality, participants' age, educational level, family size, and annual income are provided. Finally, factors which might affect the pilgrims' perceptions concerning the importance of HFS are investigated and explained.

7.2 Field-Work Procedure

Social surveys are usually time consuming and unless a procedure is well prepared, it can take two or three times the time and effort required (Hariri, 1986). The timing of the *Hajj* is critical for all the activities especially in the data collection job. To obtain adequate data, all sorts of administrative and financial problems should be settled before the survey begins. In other words, proper planning for data collection during the *Hajj* event is necessary. It was assumed that the field-work planning and procedures should consider the following points:

1. Obtaining governmental agreement and financial support.
2. Preparing, printing and photocopying the required number of questionnaires, forms - for the field work, and letters to whom it may concerned - to explain the purpose of the research.
3. Selecting the interviewers who are going to assist the researcher in carrying out the field survey, and train them for the task.
4. Choosing and preparing the appropriate maps, aerial photographs, and lists of locations that help in selecting the sample and in explaining the work to the interviewers.
5. The plan for the main-field work and data collection.
6. Checking and coding all questionnaires.
7. Entering the data into computers.
8. Preparing and submitting the financial papers, and the technical report required by Umm Al-Qura University which supports this research.

Considering the above points and implementing them as practical steps, the researcher succeeded in conducting the survey on time. These steps are described in detail as shown below:

1. Early communication was made with both, the Saudi Arabian Cultural Bureau, London, UK, and the *Hajj* Research Centre (HRC) at the Umm Al-Qura University, Makkah, Saudi Arabia, to obtain the required official agreement, financial support, and governmental permission. The communication started while the questionnaire was being developed (approximately six months prior to the *Hajj* time which was May 8, 1995). Official agreement was confirmed on February, 1995, that was ten weeks before the *Hajj*. On the fifteenth of April, the researcher travelled to Saudi Arabia to carry out the field work. Financial support and governmental permission was finalised in the third week of April, and the field survey started in the second week of May, 1995. It lasted for two weeks.

2. The final draft of the questionnaire was translated and printed in Arabic. Letters to explain the research and asking for co-operation was written and sent to different officials and to whom it was concerned. Different forms that described the daily

progress, time tables for interviewers working hours, and lists for the survey locations were all produced to organise the field work. The questionnaire was photocopied and sorted out at HRC. Five hundred copies of five pages each were made ready one week before the survey started. Each copy had a serial number and a space for the interviewer's name. This technique helped the researcher during the daily checking to trace any mistakes, and contact the person responsible in order to discuss and clarify the matter. The questionnaires were subdivided into packages that included the exact number of copies to be used by the interviewers in the different locations. At the same time the researcher continued visiting several locations in Makkah and Mina to select the places of where the survey might be conducted and to investigate any changes in circumstance that might require adjustments to the plan.

3. Selecting the ten postgraduate university students to be employed in data collection was arranged with Umm Al-Qura University earlier. The selection of the students was based on their ability to speak certain languages (i.e. English, French, Ordo, Turkey, Beshto, Malay, Persian, and Falata) in addition to good Arabic, and passing a personal interview with the researcher. The researcher was keen to select postgraduate students who came from different Muslim countries to study in Saudi Arabia and who had been involved (preferably) in survey work before. Interviewers from the same ethnic origins as the interviewed pilgrims were believed to obtain data easily and properly. After selecting the interviewers, they joined a short course which was offered by the HRC. The course included lectures and training in different related subjects, especially in how to interview pilgrims and how to select samples. Moreover, the researcher met the interviewers several times in which he explained to them in detail the nature of the study, the questionnaire, and their roles in data collection. They were instructed to explain the purpose of the study to the interviewed pilgrims and listen to their complaints and comments which were taken down, and the pilgrims were assured they would be passed on to the right departments. This was aimed to free the respondents from pressure and made them concentrate in answering the questions. Each interviewer had an identification card that included the governmental permission number regarding this study. The cards were signed by the director of the HRC and stamped by the Principality of Makkah.

4. Choosing and preparing the appropriate maps, aerial photographs, and lists of locations that helped in selecting the sample and in explaining the work to the interviewers. As discussed in the previous Chapter, the pilgrim's population was firstly stratified into exterior and interior pilgrims. Secondly, the exterior group was subdivided into six subgroups in which each of these groups or stratums represented one of the six *Mutawifeen* establishments. The interior pilgrims were chosen from different interior *Hajj* establishments. This last step also considered the proposed quota mentioned in Chapter 6. The next step was to contact the *Mutawifeen* establishments and preparing several lists of addresses for the camps and/or buildings that were used by their pilgrims, and then looked at all the available, up-to-date aerial photographs and maps for Makkah, and Mina to locate the obtained addresses. A computer was used to randomly select, and propose places for the survey. Considering that the structures used in Mina are temporary in nature (i.e. tents and light shelters), and therefore changeable, places were not selected until several visits had been made to them in order to make sure that the chosen sites were suitable for the survey work. By applying these procedures, it was assured that the majority of the nationalities of pilgrims were going to be represented in the sample as planned.

5. The planning for the field work and data collection had also to consider many factors. Pilgrims are busy and keen to perform the exact *Hajj* rituals. The programme of the *Hajj* event is religious i.e. obligatory, and not recreational in nature, also the programme itself is varied from one venue to another. These factors combined, forced the researcher to carefully design a plan for the field-work. The plan took into account that this research was concerning FS needed by pilgrims during the *Hajj* event, so it was important that all involved pilgrims had finished most of the *Hajj* rituals before they were interviewed. This decision was aimed at assuring that respondents were already conscious of the importance of the HFS. The survey was carried out after the pilgrims had come from Arafat and had stayed for two days in Mina. By that time the *Hajj* programme was approaching its end, and pilgrims were about to finish their *Hajj* activities. Since most of the pilgrims remain in Mina for three days (the first day is excluded because it is full of activities, resulting in the available time for the survey at that place being less than two days), one more decision was taken, and that was to start interviewing the internal pilgrims first,

because they leave Makkah as soon as they finish from Mina, while other pilgrims stay in the Holy City for some time after they finish their *Hajj*. The interviewing of external pilgrims were planned to be held after the Mina days, and to last for 12 days. The survey was mostly carried out between *A'ssr* and *Maghrib* prayer (4 to 7 PM), and after *Isha* prayer (8:30 PM) when the pilgrims were not involved in any other activities. The researcher interviewed 102 pilgrims on different days and in different locations, and spent the rest of the time supervising the interviewers and solving on-site problems. The field-work during the *Hajj* season proved to be difficult. There were many interruptions, especially from the heavy crowds, and the pilgrims asking about addresses and/or wanting to have information about certain things. However, the interviewer did their best to do the work properly. They interviewed 420 pilgrims. The total number of questionnaires collected was 522. However, such questionnaires were subjected to different checking.

6. Checking the collected questionnaires was necessary before coding them to make sure that all questionnaires were completed correctly and to exclude any defective ones. This work has been done by the researcher and some of the interviewers during the day time. From this stage it was decided that about 496 questionnaires were suitable to be kept for further analysis, the rest were proved to be useless. After checking, the approved questionnaires were coded according to a pre-designed document (a code book). Coding is a system of writing in which numbers or letters are used to condense lengthy data. All verbal replies in any questionnaire must be coded before any computer analysis can be performed (Churchill, 1992). Coding and designing the data entry program was completed early by the researcher before he left Glasgow for Saudi Arabia on April 15, 1995. The powerful statistical computer program SPSS version 3.1 for windows on PC, was used for both the data entry, and later in the data analysis.

7. Entering the data into computers began six days after the survey started. Only checked questionnaires were entered using the HRC computer laboratory. Two HRC staff helped the researcher with this work which was extremely time consuming. Data entry was not completed in Makkah, instead all questionnaires were shipped to the UK in four medium size boxes, the entered data was carefully stored in several computer disks and carried separately by the researcher, back-up disks were also

made available in different bags. The data entry process took about two months in Makkah, and six weeks, in Glasgow to be completed. After completion the data entry was printed. The hard copy was used to check for any entry mistakes, this was done by comparing the printed data on the hard copy with the original data in the questionnaires. Some mistakes were found and amended directly on the computer. This step took three weeks to complete. A final check for each case (i.e. questionnaire) was done after transferring all the data into SPSS data files and running a frequency test. This final check resulted in the elimination of some cases that had a lot of missing values. A total number of 481 cases were considered adequate and made ready for further statistical analysis.

8. Preparing and submitting the financial papers and technical report required by Umm Al-Qura University that supported this research was the last official task to be carried out by the researcher before he left Saudi Arabia. On submission of the financial papers and the technical report there needed to be evidence that the allocation of the research grant funds was appropriate and within the limits, and that the field work had been carried out correctly. This task took the final week of the three month field-trip to Saudi Arabia that started on April 15, 1995 and ended on July 15, 1995.

7.3 Computer Analysis

The computer analysis of the data started in October 1995, using the powerful package SPSS that is available in the computer laboratory of the Strathclyde Graduate Business School at the University of Strathclyde, Glasgow, UK. The SPSS Version 6.1 for Windows was used in determining all necessary descriptive statistics such as the means, frequency distribution, standard deviations, and so on. The same computer package was also used in more advanced analysis such as testing for reliability, factor analysis, t-tests, and one-way ANOVA tests. The following Sections discuss the main results of the descriptive statistical analysis. The information obtained from this analysis is important. It provides fundamental background to the research subject matter. It includes some social, economical, and demographic data concerning the respondents. Some data from this stage of analysis will be employed as independent variables in further analysis.

7.4 Nationality of the Pilgrims

The nationality of the pilgrims was categorised into eight groups that represented the six Mutawifeen establishments plus the pilgrims who came from within Saudi Arabia, and other pilgrims of different nationalities that do not fall in the above categories. Table 7.4.1 shows that Arabian pilgrims represent 10.6% of the sample. African pilgrims who came from non Arabic countries were 5.0%, and Iranians were 3.5%. The pilgrims who came from America, Europe and Turkey were 9.4% of the sample. Pilgrims from India, Pakistan, Bangladesh, and other South Asian countries were about 17.3% of the respondents. 22.7% of the respondent were from South East of Asia, i.e Indonesia, Malaysia, Singapore, the Philippines, Thailand, and Dar Assalam Bronai. The sample also includes 25.4% of the pilgrims who came from within Saudi Arabia, and 6.2% of the sample had a nationality other than those mentioned before. It is clear that the sample covers most of the pilgrims nationalities, and therefore the result of the questionnaire represents the pilgrims views.

Table 7.4.1: Pilgrims' Nationality

Nationality	Frequency	Percent	Valid %	Cumulative %
Arabic Countries	51	10.6	10.6	10.6
African Countries	24	5.0	5.0	15.6
Iran	17	3.5	3.5	19.1
America, Europe and Turkey	45	9.4	9.4	28.5
South Asia	83	17.3	17.3	45.7
South East Asia	109	22.7	22.7	68.4
Interior	122	25.4	25.4	93.8
Other nationality	30	6.1	6.1	100.0
Total	481	100.0	100.0	

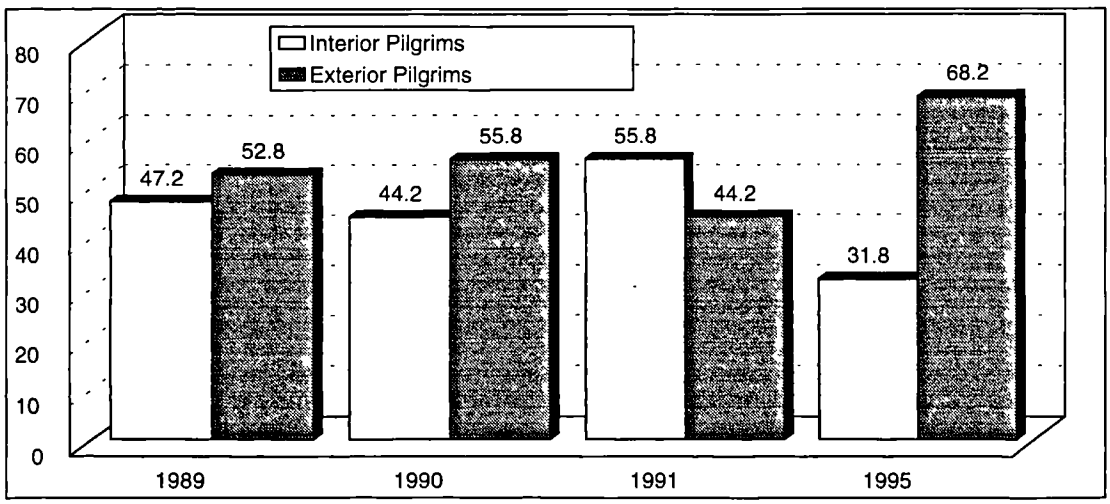
7.5 Living in Saudi Arabia

The question, regarding living in Saudi Arabia was designed to establish how many pilgrims are from the interior and exterior, and to determine later whether this factor affects the respondents' perceptions (the two groups) regarding the FS provided. Table 7.5.1 shows that 31.2% of the sample live in Saudi Arabia (interior pilgrims) whereas 66.7% live outside (exterior pilgrims). From previous records it was found that the percentage of the interior pilgrims varied, and can be more than 50.0% of the total pilgrim number (HRC, 1995). Figure 7.5.1 illustrates the percentage of the interior and exterior pilgrims in different years.

Table 7.5.1 Interior And Exterior Pilgrims

living in Saudi Arabia	Frequency	Percent	Valid %	Cumulative %
Yes	150	31.2	31.8	31.8
No	321	66.7	68.2	100.0
Missing	10	2.1	Missing	
Total	481	100.0	100.0	

Figure 7.5.1: Percentage of Interior and Exterior Pilgrims in Different Years



Source: HRC (1995), and the Author

7.6 Where Pilgrims Live at Home

It is hypothesised that pilgrims who live in cities perceive the importance of FS differently to pilgrims who live in villages and small towns. For this reason the pilgrims were asked to describe where they live at home, i.e. a city, a town, and/or a village. Table 7.6.1 shows that 16.3% of the pilgrims live in villages, 26.9% live in towns, and 56.8% live in cities. Abu Alfotoh and Nojom (1988) found that an average of 29.1% of the pilgrims in three separate years were living in villages and about 70.9% were living in cities. In their studies they used two categories (village and city) while the present study used three as discussed above. However, the results of both studies may give the same result if the present study considers half of the pilgrims who live in towns live in villages and the other half live in cities.

Table 7.6.1: Where Pilgrims Live at Home

Where pilgrims live at home	Frequency	Percent	Valid %	Cumulative %
Village	77	16.0	16.3	16.3
Town	127	26.4	26.9	43.2
City	268	55.7	56.8	100.0
Missing	9	1.9	Missing	
Total	481	100.0	100.0	

7.7 The Pilgrims' Age

The result of the questionnaire analysis shows that the majority of the pilgrims can be considered to be of young age. It was found that about 67.2% of the respondents were aged between 16 and 45 years old with an average age of 36 to 45 years old, which represents 30.7% of the sample. In contrast about 26.0% of the respondents' ages are between 46 and 64 years old. The pilgrims who are more than 65 years old represents about 6.1% of the sample. The exact number of frequency and percent of the pilgrims ages are shown in Table 7.7.1

Studies in previous years also showed that most of the pilgrims who were performing the *Hajj* were less than 50 years old, as illustrated in Table 7.2.2. This information confirms the validity of the present study regarding the pilgrims' age.

Table 7.7.1: Pilgrims' Age

Pilgrims age in years	Frequency	Percent	Valid %	Cumulative %
16 to 25	46	9.6	9.7	9.7
26 to 35	131	27.2	27.5	37.2
36 to 45	146	30.4	30.7	67.9
46 to 55	68	14.1	14.3	82.1
56 to 64	56	11.6	11.8	93.9
65 or more	29	6.0	6.0	100.0
Missing	5	1.1	Missing	
Total	481	100.0	100.0	

Table 7.7.2: Pilgrims' Age in Different Years

Value Label	% in 1983	% in 1986	% in 1988
Under 16 years	2.6	0.3	0.1
16 to 25 years	13.5	12.2	12.6
26 to 35 years	36.0	36.1	33.0
36 to 50 years	31.4	31.1	35.0
51 to 65 years	12.8	17.3	16.5
Over 65 years	3.7	3.0	2.8

Source: Abu Alfotoh and Nojom, 1988

7.8 Number of Previous *Hajj*

Although *Hajj* is required only once in a lifetime, many Muslims love to perform it more than once. As mentioned in Chapter 4, interior pilgrims would like to use the opportunity of being in Saudi Arabia to perform *Hajj* each year, some exterior pilgrims also perform many *Hajj* in different years. It is useful to investigate whether pilgrims who come for *Hajj* for first time perceive the importance of FS in different ways to pilgrims who have come for *Hajj* before. This data will also be employed to check whether Parasuraman, Zeithmal and Berry (1988) comments, regarding the services - that past experience is important in forming informed perception of the service - is applicable to this study or not.

Pilgrims were asked this question in the survey, and the result is shown in Table 7.8.1. More than one half of the respondents were performing the *Hajj* as their first time, 17.6% of the sample had performed the *Hajj* once before, and about 30.5% of the pilgrims had been to the *Hajj* twice or more in addition to their present visit. The study that conducted by Abu Alfotoh and Nojom (1988) showed similar result for several previous years as illustrated in Table 7.8.2.

Table 7.8.1: Number of Previous *Hajj*

No of Previous *Hajj*	Frequency	Percent	Valid %	Cumulative %
Non	246	51.1	51.7	51.7
Once	85	17.6	17.9	69.5
Twice or more	145	30.1	30.5	100.0
Missing	5	1.0	Missing	
Total	481	100.0	100.0	

Table 7.8.2: Percentage of Pilgrims Who Performed *Hajj* in Different Years

No. Of Previous *Hajj*	% in 1983	% in 1986	% in 1988	% in 1995
Non	45.4	51.2	57.7	51.7
Once	25.4	19.3	18.5	17.9
Twice or more	29.2	29.5	23.8	30.5

Source: Abu Alfotoh and Nojom, 1988

7.9 Number of Previous *Umrah*

A pilgrim may have never been to the *Hajj* before, but he may have performed *Umrah* previously and experienced some of the places and the overall environment in Makkah. This pilgrim is expected to be different to the one who has never been to Makkah before, in terms of his perceptions regarding FS needed by him.

It is found as listed in Table 7.9.1 that a total of 55.1% of the sample have performed *Umrah* in previous years, 13.8% have done it once, and 41.3% of the pilgrims declared that they had performed *Umrah* twice or more in the past. The respondents who answered that they had never been to *Umrah* before were 44.9% of the sample. The result showed that while the percentage of people who have never performed *Hajj* and *Umrah* before are similar (from 45 to 50%), the people who had been for *Umrah* twice or more were at least 10.0% more than those who had performed *Hajj* for the same number of times. This finding suggested that people come for *Umrah* more than they come for *Hajj*, a fact that can be used in the *Hajj* planning, and organisation as will be discussed later in Chapter 11. For example, *Umrah* seasons can be used to train people how to perform *Hajj* correctly, and what to expect regarding FS during the *Hajj* season.

Table 7.9.1: Number of Previous *Umrah*

No. of Previous *Umrah*	Frequency	Percent	Valid %	Cumulative %
Non	212	44.1	44.9	44.9
Once	65	13.5	13.8	58.7
Twice or more	195	40.5	41.3	100.0
Missing	9	1.9	Missing	
Total	481	100.0	100.0	

7.10 Educational Level

Information concerning the educational level of pilgrims is important for this study in different ways. Firstly it tells us more about the people we are dealing with, which means a better understanding of the principal customer, secondly we can test whether better educated pilgrims differ from average or less educated persons regarding their needs and perceptions of FS, and thirdly we can use the data from the present study to compare it with the other available studies in order to check for any changes in educational level which could help in organising improved FS in the future.

The pilgrims were to choose one answer that best described their level of education which was categorised into five different sub-levels. They are: 1) do not read or write at all, 2) read and write but do not have a formal degree, 2) have studied in an elementary and/or in a middle school, 3) have studied in a high school, and 4) have received a university education. This method of categorisation was used by the HRC, and selected for this study to facilitate the comparisons among the different available data.

Table 7.10.1 shows that 58.6% of the pilgrims either completed high school or received some sort of university education, 32.5% of the respondent at least have attended some sort of formal education, and in contrast 8.9% of the pilgrims in the sample could not read or write at all.

Table 7.10.1: Educational Level

Educational level	Frequency	Percent	Valid %	Cumulative %
Don't read or write	42	8.7	8.9	8.9
Read and write	67	13.9	14.1	23.0
Elementary or middle	87	18.1	18.4	41.4
High school	128	26.6	27.0	68.4
University education	150	31.2	31.6	100.0
Missing	7	1.5	Missing	
Total	481	100.0	100.0	

From Table 7.10.2, it is noticed that education level has improved over time especially during the last seven years where the percentage of the pilgrims who do not read or write has decreased from 20.7% to 8.9%. This resulted in an overall increase of the percentage of those who receive some kind of school education. The percentage of pilgrims who had some sort of university education after high school also increased from 18.1% in 1983 to 31.6% in 1995. This is good news for human welfare in general, however, the effect of this factor on the pilgrims' perceptions concerning the importance of FS will be investigated in Chapter 10.

Table 7.10.2: Educational Level In Different Years

Educational level	% in 1983	% in 1986	% in 1988	% in 1995
Don't read or write	25.9	24.7	20.7	8.9
Read and write	11.4	7.6	17.3	14.1
Elementary or middle	25.1	16.4	18.9	18.4
High school	19.5	26.4	18.2	27.0
University degree	18.1	24.9	24.9	31.6

Source: Abu Alfotoh and Nojom, 1988

7.11 Accompanied Persons

As discussed in Chapter 3, although *Hajj* is required of both men and women, but not obligatory for children, many parents prefer to bring the whole family with them. It is assumed that pilgrims who are accompanied by their family might perceive the importance of the *Hajj* FS in a different way to single pilgrims. For this reason a question was asked to ascertain whether or not the respondent was single, accompanied by women, or/and had come with women and children, i.e a family.

Table 7.11.1: Accompanied Persons

Accompanied persons	Frequency	Percent	Valid %	Cumulative %
Single	273	56.8	60.7	60.7
Women only	128	26.6	28.4	89.1
Women and children	49	10.2	10.9	100.0
No answers	31	6.4	Missing	
Total	481	100.0	100.0	

As can be seen in Table 7.11.1, single pilgrims are the majority in the sample with a percentage of 60.7%. The respondents who came with women were 28.4% , and those who brought women and children with them represented 10.9% of the sample. This result is going to be used later to test whether there is a relationship between pilgrims accompanied by women and family, and their perceptions regarding the importance of FS during the *Hajj* season (see Chapter 10).

Table 7.11.2: Number of Accompanied Women

No. of women	Frequency	Percent	Valid %	Cumulative %
No women	343	71.3	71.3	71.3
One	97	20.2	20.2	91.5
Two	18	3.7	3.7	95.2
Three or more	23	4.8	4.8	100.0
Total	481	100.0	100.0	

Table 7.11.3: Number of Accompanied Children

No. of children	Frequency	Percent	Valid %	Cumulative %
No children	396	82.3	82.3	82.3
One	43	8.9	8.9	91.3
Two	18	3.7	3.7	95.0
Three or more	23	4.8	4.8	99.8
Missing	1	.3	.3	100.0
Total	481	100.0	100.0	

7.12 How Pilgrims Managed to Perform *Hajj*

This part of the questionnaire was designed to investigate how pilgrims managed to do the *Hajj*, in other words had they organised themselves or did they join an organisation to perform the *Hajj*. By experience, most people who live in Makkah and in the surrounding area come for *Hajj* by themselves i.e. they do not join any kind of *Hajj* organisation. On the other hand pilgrims who come from far away, and particularly from outside Saudi Arabia are involved with some *Hajj* organisations (i.e. Mutawifeen, establishments, or/and tour operators). Some official agencies - like Ministries and Embassies - organise their own *Hajj* and invite some people as guests in addition to their own staff.

The way a pilgrim performs his *Hajj* is expected to affect his personal perceptions regarding the importance of FS in the *Hajj* season. This hypothesis will be tested later in this research. For the time being it is noticed from Table 7.12.1 that 31.0% of the respondents organised their own *Hajj* trip, where the majority of the sample (66.2%) were involved with a Mutawif, and the rest of the pilgrims who represent 2.8% were members of an official agency during this *Hajj* season. In general it can be concluded that where 31.0% of the pilgrims in the sample performed the *Hajj* by themselves, 69.0% of the respondents were managed by some sort of organisation.

Table 7.12.1: How Pilgrims Managed to Perform *Hajj*

By / With	Frequency	Percent	Valid %	Cumulative %
Myself	122	25.4	31.0	31.0
An agent or a Mutawif	260	54.1	66.2	97.2
An official agency	11	2.3	2.8	100.0
Missing	88	18.2	Missing	
Total	481	100.0	100.0	

7.13 Pilgrims' Annual Income

In the present survey an attempt has been made to gather some information about the pilgrims' annual income. The reasons for this course of action were to have a better impression of the pilgrims' socio-economical profile, and to see whether we can use this information to investigate any existing relationship between this information and other variables in the questionnaire.

Obtaining information concerning the annual income of the pilgrims was a very difficult task due to several obstacles such as: a) the respondents were from more than 50 different countries with all kinds of currencies, b) many pilgrims could not calculate their annual income even with the help of the surveyors, and c) some people were not willing to declare their annual income at all. In addition to all of this we faced a lot of difficulty in changing different currencies into Saudi Riyals (SR) since that required us to know the exchange rate of each different currency before answers are coded.

As can be seen from Table 7.13.1 the annual income for the majority of the respondents was 12000 SR or less. The pilgrims who earned between 12001 SR and 24000 SR per year represented 12.1% of the sample. From the same table it can be noticed that the annual income of 7.5% of respondents was an amount between 24001 SR and 48000 SR. The pilgrims who earned an annual income of 48000 SR or more, were 4.1% of the sample.

Although it seems that most of the pilgrims in the sample were of a comparatively low income, this result was anticipated since the majority of Muslim Countries are categorised as underdeveloped Countries that have a very low national income. It is important to point out that to the best of the author's knowledge no study has been conducted to examine pilgrims' annual income, because of this reason it was difficult to judge how accurate this result was keeping in mind the factors mentioned above that might affect this particular finding.

Table 7.13.1: Pilgrims' Annual Income

Annual income in SR*	Frequency	Percent	Valid %	Cumulative %
12000 or less	296	61.5	76.3	76.3
12001-24000	47	9.8	12.1	88.4
24001-36000	22	4.6	5.7	94.1
36001-48000	7	1.5	1.8	95.9
48001 or more	16	3.3	4.1	100.0
Missing	93	19.3	Missing	
Total	481	100.0	100.0	

* £1.0 = SR 5.6 (approximately)

7.14 Had Talked About the *Hajj* to Somebody (Verbal Communication)

In the questionnaire there was a question that investigated whether the respondent had talked about the *Hajj* issues with somebody who had been to the *Hajj* in previous years. The results from this part of the survey will help us to understand what concerns the pilgrims about the *Hajj* trip, and also to know what subjects they had discussed, and how that will affect the pilgrim's perceptions regarding the importance of FS during the *Hajj* event.

As shown in Table 7.14 1, 14.7% of the pilgrims in the sample had not talked about the *Hajj* before, 85.3% of the respondents had talked to people about the *Hajj* before they came this season. Pilgrims who had done so were later asked to explain in more detail the subjects of discussion that had taken place.

Table 7.14.1: Had Talked about the *Hajj* to Somebody

Talked	Frequency	Percent	Valid %	Cumulative %
Yes	395	82.1	85.3	85.3
No	68	14.1	14.7	100.0
Missing	18	3.8	Missing	
Total	481	100	100	

The respondents were to choose from the following subjects: 1) the problems pilgrims face during the *Hajj* season, 2) the positive aspects of the *Hajj* trip, and 3) both subjects. From Table 7.14.2, it is found that 16.9% of the respondents discussed just the problems, another 9.0% of them just talked about positive *Hajj* aspects, and the majority of the pilgrims (74.1%) discussed both the negative and positive experiences of the *Hajj* trip.

Table 7.14.2: Subjects of Discussions

Subjects	Frequency	Percent	Valid %	Cumulative %
Negative aspects	70	14.6	16.9	16.9
Positive aspects	37	7.7	9.0	25.9
Both	306	63.6	74.1	100.0
Missing	68	14.1	Missing	
Total	481	100.0	100.0	

7.15 Travelling Experience

One more factor which was considered to affect the pilgrim's perceptions regarding the importance of the *Hajj* facilities and services, was whether he had travelled outside their country of residence before. It was assumed that due to the fact that a person had travelled before, he would have certainly been exposed to some FS that travellers usually need and/or use, thus he would have different experiences than those who had never travelled before. Furthermore, an international traveller, i.e. the person who has travelled outside his country, is more familiar with matters like passport control, arrangement of accommodation and transportation, dealing with foreign people, etc. On the other hand a national or local traveller has limited experience, but this knowledge is better than that of a person who has never travelled outside his place of residence at all.

Table 7.15.1 shows that 12.1% of the pilgrims in the sample had never travelled outside their place of residence before they came to the *Hajj*, and 35.5% of the respondents had some travelling experience but only within their countries. The pilgrims who had travelled outside their place of residence to other countries were 52.5% of the sample. This result concludes that about half of the pilgrims were expected to have at least some experience of international travel, nearly one third of the respondents did travel but inside their countries, and the rest of the pilgrims did not have any travelling experience.

Table 7.15.1: Travelling Experience

Travelled before	Frequency	Percent	Valid %	Cumulative %
Never	51	10.6	12.1	12.1
Inside the country	150	31.2	35.5	47.5
Inside and outside	222	46.2	52.4	100.0
Missing	58	12.0	Missing	
Total	481	100.0	100.0	

7.16 Past Training or Lessons about the *Hajj*

The data obtained from this part of the survey will enable us to better understand three important points. Firstly, it helps to know more about pilgrim expectation, since those who have had training are better informed about the *Hajj* than the others. Secondly, it describes what sorts of training and/or orientation courses other

countries offer to their pilgrims before they come to Makkah, and what the chances are of employing this training to improve the usage of FS in the *Hajj* season. Thirdly, it provides the means to investigate any possible relation between training and/or orientation, and other variables employed in the study.

From Table 7.16.1, it is noticed that 83.5% of the pilgrims have had some sort of training/orientation about the *Hajj* before they came this season. In contrast 16.5% of the respondents did not attend any training/orientation regarding the *Hajj* prior to this season. As can be seen in Table 7.16.2, the pilgrims who were involved in such training (59.0%) stated that they attended religious courses and/or lectures about the *Hajj*, 7.4% of the same people had some training about the *Hajj* facilities and services only, and the rest of the group (33.6%) had received some teaching in both religious and facility matters. These results indicate that very few pilgrims had had training and/or orientation before they came to Saudi Arabia (for the *Hajj*) with respect the different aspects of the *Hajj* journey.

Table 7.16.1: Past Training or Lessons about the *Hajj*

Any training or lessons	Frequency	Percent	Valid %	Cumulative %
Yes	375	78.0	83.5	83.5
No	74	15.4	16.5	100.0
Missing	32	6.6	Missing	
Total	481	100.0	100.0	

Table 7.16.2: Subjects of the Training or the Lessons

Subjects	Frequency	Percent	Valid %	Cumulative %
Religious subjects	239	49.7	59.0	59.0
About facilities and services	30	6.2	7.4	66.4
Both subjects	136	28.3	33.6	100.0
Missing	76	15.8	Missing	
Total	481	100.0	100.0	

7.17 The Purpose of Coming to this *Hajj* Season

Although it seems obvious that people come to Makkah in the *Hajj* season for the aim of performing the *Hajj*, it is proposed that it would be useful to investigate reasons other than that one. Hence, after asking the pilgrims about the other reasons, and testing that result against various variables, any particular needs regarding FS required by different groups can be identified. The pilgrims were asked to choose

from five answers the one that best described the purpose of coming to this *Hajj* season. Of course most of the people who were interviewed were pilgrims, that is why each answer was started by a sentence that reads ' for *Hajj* and .....'.

Generally speaking, pilgrims are categorised into two groups: 1) those who come for the *Hajj* only, and 2) those who come for the *Hajj* and business. Business may include any kind of trading, and/or services. Trading during the *Hajj* season involves clothes, foods, light furniture, etc. Service businesses are about working for official agencies, money exchanging, pilgrims guiding, etc. In Islam pilgrims are allowed to perform *Hajj* and do business at the same time, according to what is written in the Holy Qura'n:

> " It is no crime in you if ye seek of the bounty Of your Lord (during pilgrimage)...." (Surah 2: Al Baqarah, Verse 198).

Ali (1989, p. 81) commented about this Verse as the following:

> "Legitimate trade is allowed (during the *Hajj* season), in the interests both of the honest trader, who can thus meet his own expenses, and of the generality of pilgrims, who would otherwise be greatly inconvenienced for the necessaries of life. But the profit must be sought as from the "the bounty of Allah." There should be no profiteering, or trade "tricks." Good honest trade is a form of service to the community. And therefore to Allah."

The result of this question is shown in Table 7.17.1. The majority of the pilgrims (71.1%) come just to perform the *Hajj*. The rest of the respondents come to do *Hajj* and business. In detail 12.2% of the pilgrims come for *Hajj* and trading, 3.4% were involved in official work in addition to the *Hajj*, 10.3% come for *Hajj* especially to escort (as a volunteer) a person who needs help, and 3.0% come to perform the *Hajj* in addition to other reasons.

Table 7.17.1: The Purpose of Coming to this *Hajj* Season

The purpose	Frequency	percent	Valid %	Cumulative %
For *Hajj* only	310	64.4	71.1	71.1
For *Hajj* and trading	53	11.0	12.2	83.3
For *Hajj* and official work	15	3.1	3.4	86.7
For *Hajj* and to escort somebody	45	9.4	10.3	97.0
For other reasons	13	2.7	3.0	100.0
Missing	45	9.4	Missing	
Total	481	100.0	100.0	

7.18 Pilgrims' Degree of Satisfaction

As mentioned in Chapter 6 before, this study investigates the pilgrims' degree of satisfaction regarding the facilities and services available within the *Hajj* venues. The satisfaction issue is important in the services industry, because the main goal of the service provider is to have a satisfied customer. However, it should be noticed that "service quality" and customer satisfaction are not identical concepts (Johns, and Nick, 1992), nevertheless the people-in-charge cannot claim that they provide quality *Hajj* services while the majority of the pilgrims might be found to be dissatisfied. In an effort to examine the pilgrims' level of satisfaction they were asked to answer five different questions which were designed using different wording to measure the same important subject.

Moreover, as underlined by Lewis's and Nightingale's (1991) argument that the service must be defined in relation to customers' needs, it also should be designed with consideration to their willingness to pay for it. A question was proposed to investigate the pilgrims willingness and/or ability to pay more for better FS during the *Hajj* season. This subject is worth investigation because: firstly, it is not practical to provide pilgrims with FS that they do not need; and secondly, it is not practical to prepare and/or deliver FS that pilgrims are not willing and/or not able to pay for.

The descriptive statistic analysis was conducted to test these questions. A five-point Likert scale has been employed where: 5 = strongly agree; 4 = very much agree; 3 = agree; 2 = disagree; and 1 = strongly disagree. The respondent has to choose an answer that best describes his opinion with respect to a feature and/or an aspect of a facility and/or a service, the evaluation of that feature/aspect/item is evaluated according to that scale. For example: a) if an item has a mean of 4.50 or above it is concluded that pilgrims strongly agree with the sentences concerning that item; b) if items have means ranging from 4.00 to 4.49 it indicates that pilgrims very much agree with the sentences concerning that item; and finally c), if an item has a mean = 3.99 or less it shows that pilgrims agree with the sentences concerning that item.

The descriptive statistics results for the related questions mentioned above are shown in Table 7.18.1 below. It is found that the statement "I want better facilities and services" has an average mean equal to 4.04 indicating that pilgrims agree very much

that they require better facilities and services during the *Hajj* season. The result of the other statement "I feel that present HFS are satisfactory" confirms the above finding since it is represented by a mean = 3.639 which indicates that the present facilities and services available within the *Hajj* venues are satisfactory but could be improved. In contrast to that finding, pilgrims agree to an improvement but are not willing to pay very much for better FS (the mean for the related statement = 3.38). It is understandable that people always want to enjoy better FS as far as they can pay the price. However, considering the low pilgrims' income (as discussed above), and the fact that they do not want to pay for better FS, the only way to solve this dilemma and provide better FS would be through improving the quality of the existing FS, such a process does not necessarily require extra money.

The descriptive statistics results in Table 7.18.1 also suggest that pilgrims enjoy the *Hajj* as a unique experience since they agree very much that it was fulfilling, and accordingly they are willing to do it again in a short time, as well as encouraging others to perform the *Hajj* soon. These finding will be subjected to reliability analysis in Chapter 9.

Table 7.18.1: Pilgrims' Opinion Concerning the Facilities and Services Available within the *Hajj* Venues.

Pilgrims' Opinion	Cases	Means	Std. Dev.
I want better facilities and services	473	4.040	1.015
I may pay more money for better facilities	458	3.380	1.488
I feel that present HFS are satisfactory	474	3.639	1.205
I think the *Hajj* experience was fulfilling	470	4.172	.906
I would like to perform the *Hajj* again soon	475	4.394	.811
I would encourage others to perform *Hajj* soon	475	4.448	.839

7.19 Summary

The results of the descriptive statistics in Chapter 7 indicates that the study covers most of the pilgrims' nationalities, and therefore the research results is assumed to represent sufficiently the diverse participants population. It is found that about one third of pilgrims live in Saudi Arabia (interior pilgrims) whereas the other live outside (exterior pilgrims). The results show that most of the pilgrims live in cities. The majority of the pilgrims can be considered to be of a young age. More than one half of the respondents were performing the *Hajj* as their first time, 17.6% of the sample had performed the *Hajj* once before, and about 30.5% of the pilgrims had been to the *Hajj* twice or more in addition to the present occasion. On the other side, it is found that about half of the respondents have performed *Umrah* in previous years. The results indicate that people come for *Umrah* more than they come for *Hajj*, a fact that can be used in the *Hajj* organisation.

The analysis results show that the pilgrims' education level has improved over time. Single pilgrims are found to be the majority in the sample. Furthermore, about one third of the respondents organised their own *Hajj* trip, where the rest of the pilgrims were involved with some sorts of *Hajj* organisation. In relation to this, the results show that the majority of the pilgrims (71.1%) come just to perform the *Hajj* while the rest of the respondents come to perform the *Hajj* and do business. Obtaining information concerning the annual income of the pilgrims is proved to be a difficult task for several factors as mentioned earlier in this chapter. Nevertheless, the results indicate that the annual income for the majority of the respondents was 12000 SR or less. In other words, most of the pilgrims in the sample were of a comparatively low income.

The results reveal that most of the respondents had talked to other people about the *Hajj* before they came to this season, the majority (74%) of pilgrims discussed both the negative and positive aspects of the *Hajj* season. Moreover, it is found that about half of the pilgrims have at least some experience of international travel. The results indicate that very few pilgrims had had training and/or orientation before they came to Saudi Arabia with respect the different aspects of the *Hajj* journey.

It is found that pilgrims are satisfied with the available facilities and services. However, they feel that these facilities and services can be improved. The results also indicate that pilgrims are not willing to pay extra money for better facilities and services. These results suggest that improving the quality of the existing facilities and services ought to be by some processes that do not necessarily require extra costs, e.g. effective management.

CHAPTER 8

Analysis of the *Hajj* Facilities and Services (HFS)

8.1 Introduction

In Chapter seven the field-work procedures, computer analysis, sample profiles, and results obtained from earlier statistical analysis were discussed. The main concern of chapter eight is to present and discuss the results of the data analysis regarding the *Hajj* facilities, and services (HFS) that are required by pilgrims in the different *Hajj* venues. The discussion in this chapter is based on the results of the descriptive statistics that have been conducted using data available from the field survey.

Chapter eight is divided into sections, each section discusses the importance of the HFS - as perceived by the respondents - in a specific *Hajj* venue. For a particular venue, firstly, the HFS required are explored. Secondly, a table that shows average means and standard deviation for each HFS item is presented. Finally, an attempt is made to explain the results obtained from the analysis. The information obtained from this chapter will give a general overview of what pilgrims expect and require with regard to FS during the *Hajj* season. This information is also required for further analysis.

8.2 The Major *Hajj* Facilities and Service Quality

This section contains information concerning the major HFS and related aspects in order to investigate their importance with respect to the pilgrims' perceptions. Those HFS and aspects include subjects such as: security and safety; transportation and movement; health care and hygiene; and service quality.

The descriptive statistics results for this part of the study is shown in Table 8.2.1. Bearing in mind that a five-point Likert scale is employed, where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; and 1 = not important, the HFS are listed in order of importance, where the item placed at the top of the list is the most important. In order to simplify the explanation, an item which has a mean of 4.50 or above is considered as a highly important HFS, where those with a mean ranging from 4.00 to 4.49 are considered important. Less important HFS are those whose means are 3.99 or less.

8.2.1 Highly Important *Hajj* Facilities and Services

As indicated in Table 8.2.1, four items are perceived by pilgrims as being highly important HFS. They are in order, safety (average mean = 4.62), performing the *Hajj* properly as explained by the prophet, i.e. following the *Hajj* programme properly (average mean = 4.60), adequate number of public toilets (average mean = 4.52), and appropriate security for pilgrims (average mean = 4.50). This result is very meaningful and logical because it includes some of the most fundamental requirements for performing the *Hajj*.

Safety and security is a prerequisite for the *Hajj*. It is declared by many Muslims gurus. According to them the *Hajj* is not obligatory if pilgrims' safety and security is not reasonably guaranteed not only in the different *Hajj* venues but also in the way to Makkah, and on their way back home. Pilgrims safety includes many issues, some of these are: protection against fire, minimising road accidents, and maintaining personal safety in crowded places. On the other hand, security includes all kinds of arrangements that aim to guard pilgrims and their property from acts of theft; violence; and vandalism.

In addition to that, it is observed that pilgrims want to perform the *Hajj* as *Sunah.* This result is understandable because pilgrims come to Makkah to do the *Hajj* correctly, and this cannot be done except by following the instructions (*Sunah*) of the prophet Mohammed (peace be upon Him). This finding proves that performing a perfect *Hajj* (i.e. following its programme) is a priority for pilgrims, and accordingly all efforts should be directed towards satisfying this vital need.

Furthermore, the importance of providing an adequate number of public toilets to be used by pilgrims is also understandable since Muslim pilgrims use toilets differently to other people. Pilgrims have to wash their hands, faces, and feet for *wodo'a* before they pray five times a day. Also, a Muslim has to wash his/her body (i.e. take a shower) each time after he/she has had sexual intercourse with his/her wife or husband. This ritual shower is also recommended before each Friday prayer and before entering the state of *Ihram* for the *Hajj* or *Umrah.* According to these reasons facility planners/designers should consider constructing a sufficient number of public toilets in the different *Hajj* venues. International standards regarding the number of public toilets and kinds of their interior furniture should be customised before being adapted for the *Hajj* event.

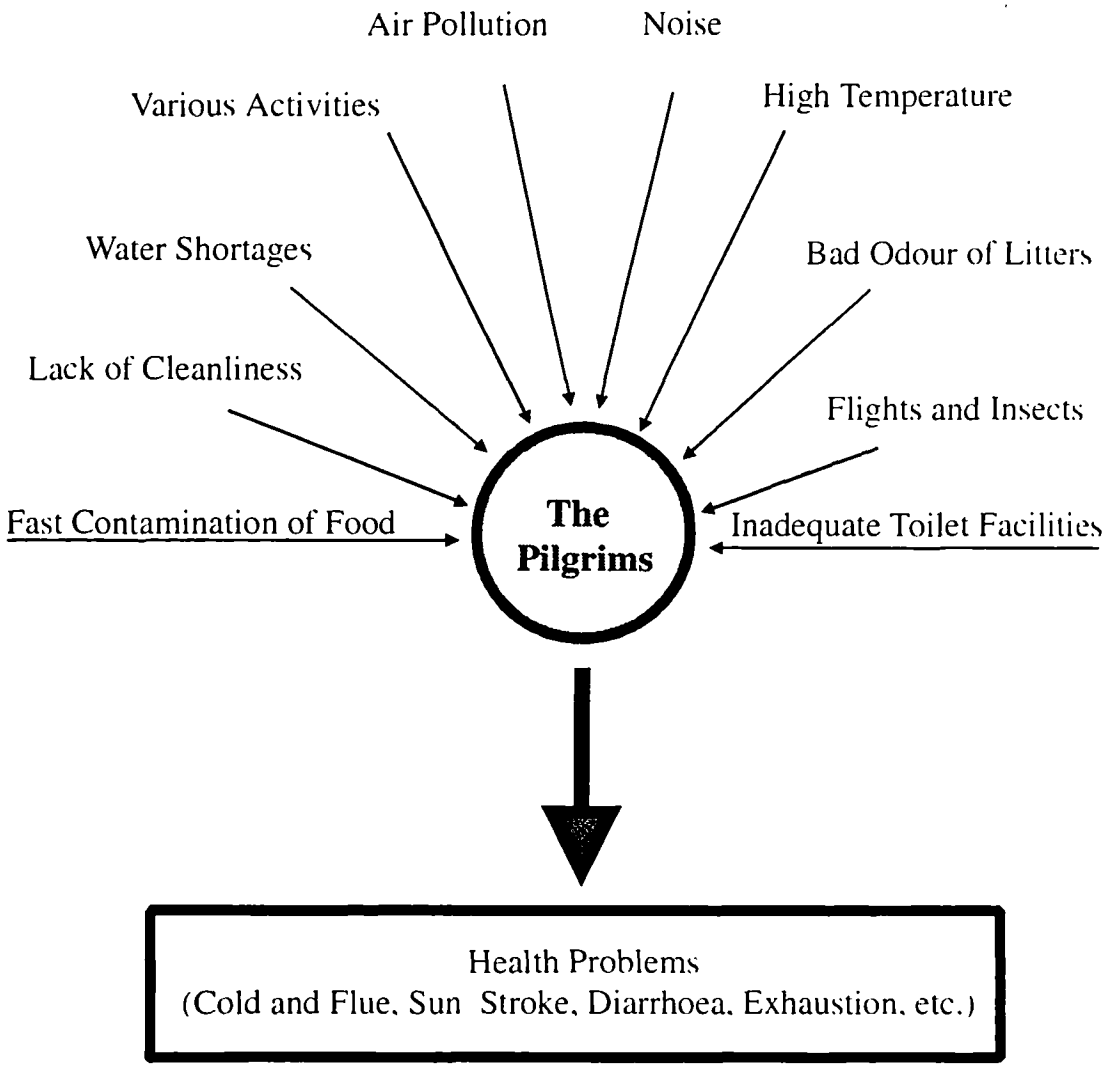
8.2.2 Important *Hajj* Facilities and Services

Under this category, issues concerning the service quality during the *Hajj* season are found with the exception of 'the needs for more privacy' and 'better trained employees'. Among the included quality issues are: problems to be corrected, prompt services, availability of assistant services, and anticipating the pilgrims' needs. These items have average means that are between 4.46 and 4.31. Other features of service quality such as those concerning the physical characteristics associated with service encounters, knowledgeable staff, and provision of special services have less average means but are still presented as listed in Table 8.2.1. The results indicate that the important points of the service quality dimension (e.g. tangibility; reliability; responsiveness; assurance; and empathy) that are found the literature review are applicable for the service provided during the *Hajj* event.

Health care is perceived to be an important facility by pilgrims, with an average mean of 4.46. During the *Hajj* season many pilgrims face some health problems, i.e. diarrhoea, exhaustion, sun stroke, etc., factors affecting the pilgrims' health are displayed in Figure 8.2.1. The figure suggests that mismanagement of other HFS such as: cleanliness; drinking water; toilets; and catering contribute to escalate the health problems of pilgrims, in general. In other words, to improve the health services during the *Hajj* season other HFS must be improved. Nevertheless, it is observed that the majority of pilgrims suffer from colds and flu symptoms such as coughing, high temperatures, and headaches. Many factors help in distributing the cold viruses such as changing weather, crowded places, and tired pilgrims. Cold symptoms are not recovered from easily, during the *Hajj* season. They make people feel uncomfortable, and thus pilgrims may overestimate their need for health care. However, it is understandable that proper health care should be a priority in facility planning and management for the *Hajj*. Special attention should be paid in order to protect pilgrims from sun stroke during hot *Hajj* seasons, and to minimise the risks of the spreading of different infections at such a crowded event.

Cleanliness of sites is among the important needs of pilgrims with an average mean of 4.40. Although cleaning services are one of the main functions of facility management, in mega-events such as the *Hajj*, cleaning becomes a very complicated job for many reasons such as: a) the amount of litter increases as the number of people increases, b) traffic jams delay the movement of the cleaning vehicles, c) large crowds make the task of the cleaning labourers and staff very difficult, and d) some event's participants do not co-operate in depositing litter in proper places. Another important issue that relates to cleansing and should be carefully considered is waste management which concerns the disposal of a large amount of garbage with minimum affect to the environment. Better cleansing services are necessary to maintain pilgrims' health and maintain a clean environment.

Figure 8.2.1: Factors Affecting the Pilgrims' Health



Adopted from MOMRA (1984), and Modefied by the Author.

Less crowding and better transportation and movement have average means of 4.23 and 4.22 respectively. They correlate with each other. However, less crowding is a matter that may concern the pedestrian more than pilgrims who use vehicles as discussed below. During the *Hajj* event, four types of movement/travel/transport can be recognised: 1) International - concerning pilgrims travelling from their countries to Saudi Arabia, 2) National - representing the transportation between different *Hajj* cities inside Saudi Arabia (i.e. Jeddah, Madinah, and Makkah), 3) Local transportation - concerning the pilgrims movement among Makkah and the different *Hajj* venues (i.e. Arafat, Muzdalifah, and Mina), and 4) Special pilgrim movement - occurring while they perform particular ritual activities such as in *Tawaf, Sa'e, and Jamarat.* International, and national transportation does not have problems that are perceived by pilgrims since they, unlike the other two remaining kinds of movement, are not restricted by time and/or places. In local movement where pilgrims have to travel from Makkah to Mina, from Mina to Arafat, from Arafat to Muzdalifah and from Muzdalifah to Mina, and finally from Mina to Makkah, pilgrims face some difficulties because of the traffic jams due to the tremendous numbers of vehicles used in moving such a vast number of people (1.5 million) in a very short time. Another time where pilgrims experience similar difficulties is when they perform *Tawaf, Sa'e*, and the throwing at *Jamarat.* In these places pilgrims perform the ritual activities on their feet where they may feel uncomfortable due to the huge crowds continuously present. Many studies have been carried out regarding transportation and movement issues during the *Hajj* season (see Bushnak, 1977; yafi, 1983; and HRC, 1992). However, the discussion of this subject is out of the scope of the present study.

One important subject with which the pilgrims are also concerned is the appropriate treatment from responsible people who deal with pilgrims directly. These people are mainly police officials and Mutawifeen personnel. Police officials include people who wear police uniforms in different concerned departments such as: passports, fire and safety, traffic, and general security. Pilgrims deal with police officials on many occasions and at different places. They meet passport officials on arrival in Saudi Arabia. Traffic and general security police officials are available at all the *Hajj* venues. Many pilgrims ask these policemen about various kinds of information

especially regarding directions to different places. policemen are very busy and working in very tough environments. These factors place them under great pressure. They may not be very kind to pilgrims. Moreover, If a pilgrim who speaks an African language, for example, tries several times to ask a policeman about something and he does not get an answer because of the language, the pilgrim may consider that as mistreatment from that policeman. Regardless of these factors a need for appropriate treatment from policemen, with an average mean of 4.33, was perceived as beening an important factor required by pilgrims during the *Hajj* season. On the other hand appropriate treatment from *Mutawifeen* personnel with an average mean of 4.16, was also considered as an important requirement by pilgrims in the *Hajj* season. As explained in Chapter 4 *Mutawifeen* have direct contact with the pilgrims. They are responsible for managing the *Hajj* trip in Makkah and the Holy Places.

8.2.3 Less Important *Hajj* Facilities and Services

Pilgrims perceive having improved privacy while performing the *Hajj* as of lesser concern issue with an average mean of 3.99. Privacy is a subject included in the service quality dimensions. In this research context, privacy relates to the isolation of women from non-relative men as prescribed in Islamic *Shari'ah.* It also includes the privacy of families while performing of the *Hajj.* In Saudi Arabia, a country that follows the Islamic *Shari'ah,* women are respected, and a maximum level of privacy is provided for them. Private waiting areas especially designed for women only are available in most of the religious, residential, commercial, and public buildings. Officials give women and families a priority when providing different services and in crowded streets and/or places policemen try their best to create a special path for women. The level of privacy provided would appear to be satisfactory. However, pilgrims perceive the need for improved privacy as a factor of concern which have to be maintained during the *Hajj* season.

Trained employees are required to deliver a quality service. Unfortunately, until recently the majority of the employees who work for private establishments during the *Hajj* season were not trained staff, i.e. they had never attended any course about

the *Hajj* services. One clear example is the Mutawifeen personnel who have direct relations with pilgrims, and who usually start the work with some experience learned from members of their family who have worked in the *Hajj* services field. The main reason for not having enough qualified staff to work during the *Hajj* season is that there are no agencies providing such training.

In the last five years however, the Ministry of *Hajj* started an intensive short course for the Mutawifeen staff where they received information concerning the *Hajj* services. The *Hajj* Research Centre at Umm Al-Qura University also gives training sessions about similar subjects, but mainly for the policemen who are going to participate in the *Hajj* season. Although the item 'trained employees' is perceived as a factor with the lowest average mean of 3.96 in Table 8.2.1, this factor should not be under estimated. The highly important HFS discussed above in Section 8.2.1 cannot be properly planned and delivered unless trained employees are made available.

Table 8.2.1: Means and Standard Deviations Showing the Importance of HFS

Facilities / Services		Cases	Means	Std. Dev.
1. Common safety	(H. Impt)	478	4.62	.73
2. Performing *Hajj* as *Sunah*		478	4.60	.76
3. More public toilets		474	4.52	.73
4. Reasonable security		467	4.50	.92
5. Problems are corrected	(Impt)	477	4.46	.87
6. Adequate health care		480	4.46	.80
7. Prompt Services		477	4.44	.90
8. Cleanliness of sites		480	4.40	.99
9. Appropriate treatment of pilgrims by police officials		476	4.33	.89
10. Assistant services		479	4.31	.87
11. Less crowding		480	4.23	.92
12. Better transportation and movement		479	4.22	.99
13. Anticipation of pilgrims' needs		475	4.17	.92
14. Appropriate treatment of pilgrims by *Mutawifeen*		460	4.16	1.01
15. Larger rooms for accommodation		471	4.16	1.00
16. Knowledgeable staff		480	4.15	1.27
17. Attractive public areas in buildings		479	4.06	1.06
18. Special requests carried out		474	4.03	1.02
19. Improved privacy	(less Impt)	463	3.99	1.08
20. Trained employees		478	3.96	1.28

Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

8.3 *Hajj* Facilities and Services in Makkah

Makkah is the main *Hajj* city. It contains the sacred mosque that includes the *ka'ba* which pilgrims perform *Tawaf* around, and the Safa and Marwa where *Sa'e* is done. Makkah is the place where most pilgrims start their *Hajj* journey. It is also the place they end their *Hajj*. The majority of pilgrims like to take their time and stay in Makkah for as long as their travelling programme allowes. A study conducted by MOMRA (1984) shows that the average time exterior pilgrims spend in Makkah is 21 days. On the other hand interior pilgrims stay there for 8 days on average.

Makkah is a very important city for Muslims world-wide, and has been developed by time to function as a city that provides FS for both visitors (e.g. in the *Hajj* and *Umrah* season) and residents. The Saudi Arabian government generously spent hundreds of billions of SR in order to construct all types of infrastructures. Although necessary facilities, utilities, and services are made available in the city, it is not the aim of this study to evaluate the existing FS. This research investigates how pilgrims perceive the importance of major HFS and related aspects in an effort to provide researchers and planners with information which will improve the FS during the *Hajj* event.

In this stage of data analysis descriptive statistics techniques have been conducted to explore the overall picture of the HFS that are perceived by pilgrims as important in Makkah. As in the previous section the items were categorised according to their average means into highly important, important, and less important. Table 8.3.1 shows these FS in order of their importance. The following explanation is based on the information mentioned in that table. Figures 8.3.1- 8.3.8 show some examples of the FS available in Makkah.

8.3.1 Highly Important *Hajj* Facilities and Services in Makkah

At this stage of the data analysis eight items were found under the category 'highly important FS'. The most important item with an average mean of 4.7 as shown in Table 8.3.1 is 'the need for adequate signposting'. Finding the way is vital for anyone visiting strange places. One clear and dominant problem of signposting in Makkah and in the other *Hajj* venues is mainly the languages used on these signs. Most signs

are written in Arabic and in three or four other languages such as: English, French, Ordo, and/or Persian. Taking into consideration such factors as: a) pilgrims come from different countries and speak different languages, and b) the fact that some of them cannot read at all, one can understand the difficulties that face pilgrims in finding their way during the *Hajj* season. It is not practical to write signs in each pilgrim's national language. Signs that contain graphics can help, but graphics do not mean the same for every nation and for everybody. Although it seems that the existing signposts available in Makkah are adequate, the number of signposts, their locations, and the places they cover are still important issues that should be considered in planning and managing the *Hajj* event.

Pilgrims perceive health services (average mean = 4.65) as a highly important facility needed in Makkah. As previously explained in Section 8.2.2, pilgrims suffer mostly from cold and flu symptoms especially after they come back from the *Hajj*. This particular reason may be why pilgrims feel that health services are highly important in the holy city. There are six general hospitals and several private ones, as well as tens of primary health care centres in Makkah, however, a better understanding of this need is required in order to prepare and deliver adequate health services to the pilgrims. The next item after health service is 'the cleanliness of different places'. It has an average mean of 4.65 which made it the third most highly important FS required in Makkah.

Money exchanging facilities has an average mean of 4.58 which indicates how seriously this item is required. Only high class hotels, few restaurants, and some large shops in Makkah accept payment by means other than cash such as: travellers' checks, and credit cards. The majority of businesses deal with cash only. Major currencies are accepted, but a lot of pilgrims bring their national currency with them that needs to be changed into Saudi Reyal (SR), the local currency used in Saudi Arabia. Banks only exchange certain types of currency, other exchange bureaus provide the same service but for various currencies brought by pilgrims. It is noticeable that the number of these exchange agencies are limited and most of them are located in the city centre. This study suggests that adequate money exchanging facilities should be available as required by pilgrims in Makkah, and other means of payment should also be encouraged by traders and service providers.

Communication and guiding facilities are among the highly important items needed during the *Hajj* season. In particular the adequate number of public telephones and postal services with average means of 4.58 and 5.53 respectively, were required by the respondents. One other service that has similar degree of importance (average mean = 5.53) was the need for adequate guiding services, i.e. staff who lead pilgrims, who have lost their way, to the correct destinations. These two aforementioned HFS are understandable since pilgrims stay for some time in Makkah where they need to communicate with their countries and want to walk around the city in their spare time.

8.3.2 Important *Hajj* Facilities and Services in Makkah

As can be seen from Table 8.3.1, most of the listed HFS on the table are perceived to be important, had an average mean which started at 4.44 and ended at 4.10. The differences among the means are small and some of the HFS are similar in their importance as their average means suggest.

The movement to different places within the city, and from there to the Holy Mosque is perceived as being important (average means = 4.44) by the respondents. However, the movement in *Tawaf* and *Sa'e* with average means = 4.31, 4.29 respectively appears to be less important than the general movement in Makkah. Other items that relate to movement and transportation are the need for 'adequate public transportation', 'adequate parking facilities', and 'fewer traffic jams'. As explained earlier, transportation affects the provision and delivery of other HFS during the *Hajj* season. There are many HFS that might be affected, among those are: health care (i.e. movement of ambulances), cleaning of places (i.e. removing of garbage), catering (i.e. distribution of food and drinks), accommodation (i.e. movement of people from different locations), and so on. Transportation as a facility must be considered as a priority in *Hajj* planning.

The kind of treatment people in Makkah give pilgrims is an important issue as perceived by the respondents. As shown in Table 8.3.1, pilgrims expect to be well cared for particularly by policemen and other officials (average means = 4.43). The respondents also required the same kind of treatment from local people and Mutawifeen officials (average means = 4.29 and 4.25, in order). People in Makkah

work under great pressure during the *Hajj* season. This situation may reflected in their behaviour with others. However, it is recommended that pilgrims should be treated with patience and without any tensions, because they are the guests of Allah.

The provision of free drinking water for pilgrims is among the services that have a high average mean (4.43). It seems that the hot weather in Makkah might affect the pilgrims' perceptions with respect to drinking water. It makes them feel that drinking water is more important than other necessary HFS such as: restaurants; accommodation; and shopping facilities. Another FS which are listed under the category 'very important' are: clothes' washing. Information, and media services.

8.3.3 Less Important *Hajj* Facilities and Services in Makkah

Only one item (average mean of 3.96) was found to be of lesser concern to pilgrims in Makkah. It regards 'public parks and recreational areas'. Makkah in general has very few public parks and recreational areas. There are three main factors that affect the construction and maintenance of parks and green areas. They are: 1) water shortages in the city, i.e. there is not enough natural water supply, 2) very hot and dry weather most of the year, and 3) the extremely high price of land especially in the city centre and at areas adjacent to it, sites that are further away and have easy access to the Holy Mosque are also very expensive. Although Makkah people do not enjoy many public parks and green areas in their city, they do go for the same purpose to other cities such as Al-Taif and Jeddah. Both cities have good recreational facilities and public gardens. The main function of Makkah is remain as a holy city, i.e. a location chosen by Allah to be a place for worshipping. The city environment and its function has been described in the Holy Quran, by the prophet Abraham, peace be upon Him who prayed for Allah saying:

> "O our Lord! I have made Some of my offspring to dwell In a valley without cultivation, By Thy Sacred House; In order, O our Lord, that they May establish regular Prayer: So fill the hearts of some Among men with love towards them, and feed them with Fruits; So that they may give thanks." (Surah 14: Ibrahim, verse 37).

Table 8.3.1: Means and Standard Deviations Showing the Importance of HFS in Makkah

Facilities / Services		Cases	Means	S. D.
1. Adequate signposting	(H. Impt)	456	4.70	.69
2. Adequate health services		454	4.65	.74
3. Adequate cleanliness of different sites		455	4.59	.74
4. Adequate money exchange bureaus		445	4.58	.80
5. Adequate public telephones		455	4.58	.80
6. Adequate toilet facilities		459	4.54	.80
7. Adequate guiding services for pilgrims		450	4.53	.81
8. Adequate postal services		449	4.53	.82
9. Freedom of movements	(Impt)	464	4.44	.89
10. Adequate public drinking water		458	4.43	.89
11. Appropriate treatment by police officials		449	4.43	.83
12. Appropriate treatment by different official		445	4.43	.85
13. Adequate car parking facilities		462	4.41	.87
14. Adequate restaurants and eating places		465	4.37	.93
15. Conservation of historical Islamic places		440	4.36	.92
16. Adequate accommodation facilities		460	4.36	.92
17. Adequate shopping facilities		449	4.34	.96
18. Public transportation		470	4.31	.89
19. Movement in *Tawaf*		464	4.31	.97
20. Inexpensive food		460	4.30	.97
21. Appropriate treatment of pilgrims by local people		447	4.29	.89
22. Movement in *Sa'e*		464	4.29	.97
23. Fewer traffic jams		469	4.28	.90
24. Adequate general information		441	4.26	.97
25. Appropriate treatment of pilgrims by Mutawifeen		427	4.25	.99
26. Reasonable pricing		450	4.19	.98
27. Adequate clothe washing facilities		445	4.19	1.07
28. Adequate media services		425	4.10	1.26
29. Adequate recreational facilities	(less Impt.)	424	3.96	1.35

Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

Figure 8.3.1: A Signpost in a Hajj Venue

Figure 8.3.2: A Genral Hospital in Makkah

Figure 8.3.3: An Aerial Photograph of the Holy Mosque in Makkah

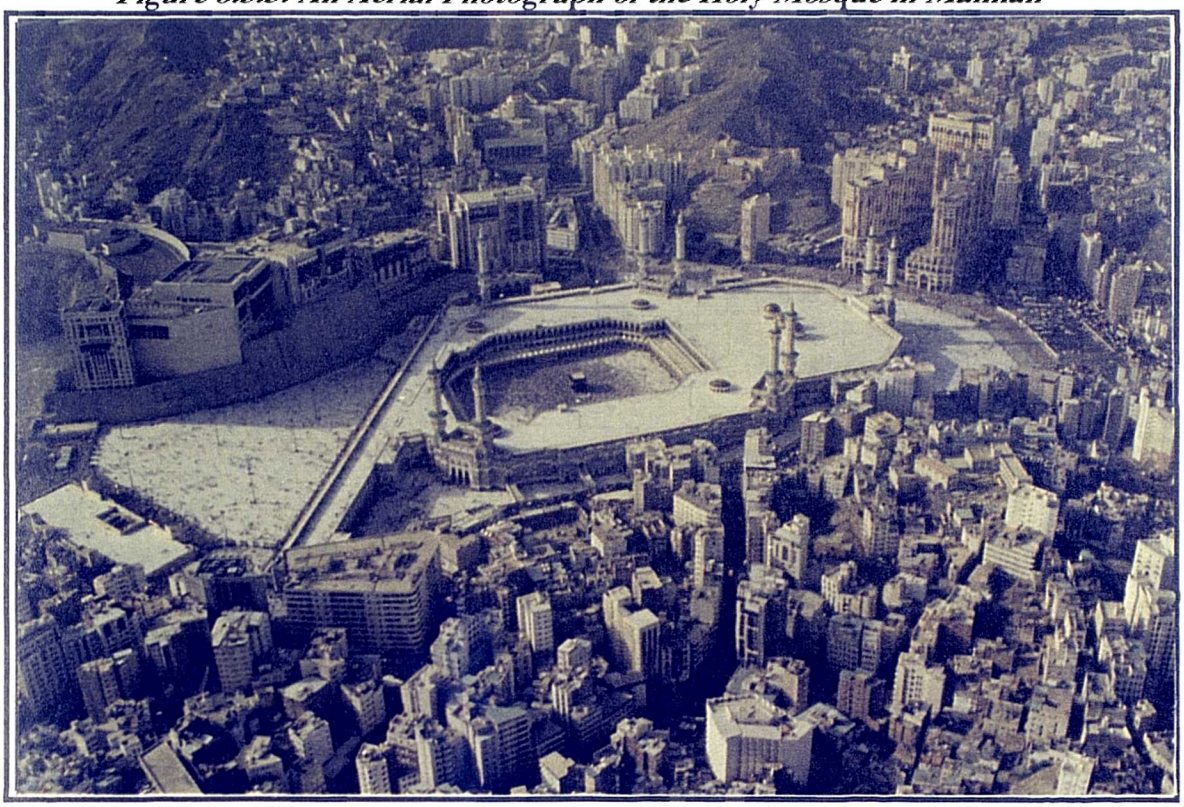


Figure 8.3.4: Crowdness Outside of the Holy Mosque

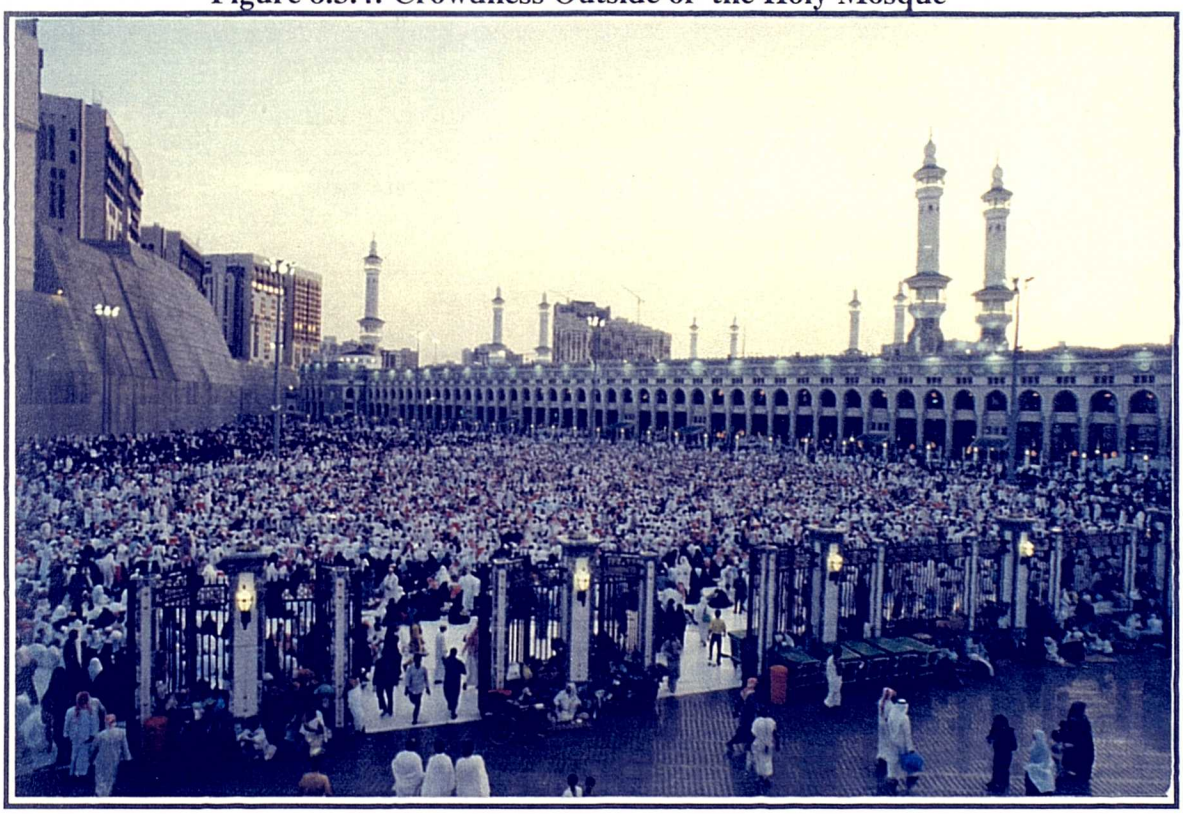


Figure 8.3.5: An Example of Accommodation Facility in Makkah

Figure 8.3.6: Restaurants and Eating Places in Makkah

Figure 8.3.7: A Shoping Centre in Makkah

Figure 8.3.8: Money Exchanging Facilities in Makkah

8.4 *Hajj* Facilities and Services in Arafat

Arafat is located 20 kilometres to the Southwest of the Holy Mosque, makkah. It is the venue where the grand assembly of Muslims takes place (see Chapter 3). At this stage of data analysis the importance of the FS required in Arafat - as perceived by pilgrims - are investigated and discussed. Employing the same techniques used previously. The FS arranged in order according to their average means as shown in Table 8.4.1. Following explanation is based on the results obtained from early stages of the descriptive statistical analysis. Figures 8.4.1- 8.4.4 show some examples of the FS available in Arafat.

8.4.1 Highly Important *Hajj* Facilities and Services in Arafat

Having an average mean of 4.67, the need for 'adequate signposting' is perceived by pilgrims as the most important facility needed in Arafat. Many pilgrims prefer to stay in their tents and do not leave them, those who do move usually go from their camps to Namirah mosque, then to Al-Rahmah mountain, and finally, come back to their camps. Pilgrims who are not involved with any *Mutawifeen* establishment or other *Hajj* agency however, need to move from one place to another looking for toilets, food, health centres, etc.. Although pilgrims' movement is limited in Arafat, 'path finding' proved to be a highly important facility required in that place.

Adequate health services were again perceived as the second highly important item in Table 8.4.1 with and average mean of 4.59 followed by the need for proper 'water facilities' (average mean = 4.53) in Arafat. The health care facilities are available in this *Hajj* venue and the number of units providing these kind of services are believed to be reasonable considering the limited time pilgrims spend in Arafat (see Chapter 3). However, according to pilgrims the 'health services' is a facility that should be at the top of any priority list concerning the HFS. Moreover, the need for an adequate number of locations where pilgrims can get free drinking water is understandable since the weather is hot and sunny in general at the *Hajj* venues causing people to lose a lot of their body liquid and feel very thirsty. Doctors keep advising pilgrims to drink a lot of water during the *Hajj* season to avoid sun stroke and kidney problems. Pilgrims can get free drinking water from different sources and places in Arafat such

as: public toilets, special distribution points, and/or from special refrigerated trailers that are hired by some rich people to give free drinking water as a kind of charity during the *Hajj* season.

8.4.2 Important *Hajj* Facilities and Services in Arafat

As can be seen from Table 8.4.1, fifteen items are categorised as 'important HFS in Arafat, their average means range from 4.47 (adequate cleanliness of sites) to 4.02 (public transportation). Guiding services for pilgrims who lose their way has an average mean of 4.44 followed by the need for adequate toilet facilities. Items relating to the need for good treatment of pilgrims by responsible officials and local people and are all presented in this part of the list.

Issues regarding movement and transportation inside Arafat and from there to Muzdalifah are also perceived as important factors by pilgrims. It is interesting at this stage of data analysis to find that, according to pilgrims, movement inside Arafat is more important than travelling from there to Muzdalifah. This last trip is the most critical for every *Hajj* planner since Arafat must be fully evacuated of pilgrims between the sunset of the ninth day of Dhul Hijja and before early morning of the next day. Approximately 1.5 million people have to leave Arafat to Muzdalifah using a limited roads system by a certain time. This last finding confirms the fact that users' needs, i.e. pilgrims' perceptions, should not be taken alone as a correct indication with regard to the required HFS. The opinion of professionals is also important and should be considered in such a subject. Catering facilities such as take away food shops and temporary cafeterias are important in Arafat since pilgrims are in a hurry and want to have something inexpensive to eat during their stay there. Some *Mutawifeen* establishments and *Hajj* operators serve meals and drinks to their pilgrims, and as in the case of the drinking water, there are some charity agencies that offer free meals to the needy pilgrims on the day of Arafat. However, it seems that catering as a facility in Arafat needs extra attention by the *Hajj* organisers.

8.4.3 Less Important Facilities and Services in Arafat

because pilgrims spend less than one day in Arafat, they do not have time to shop, and therefore do not care about the prices of goods. Similarly due to the limited duration time in Arafat, FS such as accommodation; information; and telephone facilities are perceived as less important items by pilgrims with average means that vary from (3.90) and (3.61). In addition to this 'postal services' and 'media services' are found to be the least important items in Table 8.4.1. This last finding is justifiable because pilgrims can wait for sometime until they require such services.

Table 8.4.1: Means and Standard Deviations Describing the Importance of HFS in Arafat

Facilities/ Services		Number of Cases	Means	S.D.
1. Adequate signposting	(H. Impt)	456	4.67	.71
2. Adequate health services		450	4.59	.82
3. Adequate public drinking water		458	4.53	.79
4. Adequate cleanliness of sites	(Impt)	454	4.47	.81
5. Adequate guiding services for pilgrims		446	4.44	.94
6. Adequate toilet facilities		460	4.43	.90
7. Appropriate treatment of pilgrims by police officials		448	4.41	.84
8. Reasonable freedom of movements		463	4.38	.92
9. Appropriate treatment of pilgrims by different officials		445	4.37	.90
10. Conservation of historical Islamic places		435	4.23	1.04
11. Adequate car parking facilities		460	4.21	.92
12. Appropriate treatment of pilgrims by local people		447	4.19	.98
13. Fewer traffic jams		468	4.18	.95
14. Appropriate treatment of pilgrims by Mutawifeen		427	4.16	1.04
15. inexpensive food		459	4.13	1.08
16. Easy movement from Arafat to Muzdalifah		463	4.10	1.06
17. Adequate restaurants and eating places		464	4.09	1.06
18. Public transportation		470	4.02	1.05
19. Reasonable pricing	(Impt.)	434	3.92	1.15
20. Adequate accommodation facilities		459	3.90	1.07
21. Adequate general information		435	3.67	1.26
22. Adequate public telephones		444	3.61	1.30
23. Adequate shopping facilities	(L. Impt.)	427	3.10	1.35
24. Adequate postal services		416	3.02	1.42
25. Adequate media services		418	2.70	1.39

Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

Figure 8.4.1: An Information and Guiding Services Centre in Arafat

Figure 8.4.2: An Example of Social Interaction in Arafat

Figure 8.4.3: Pilgrims' Movement within Arafat

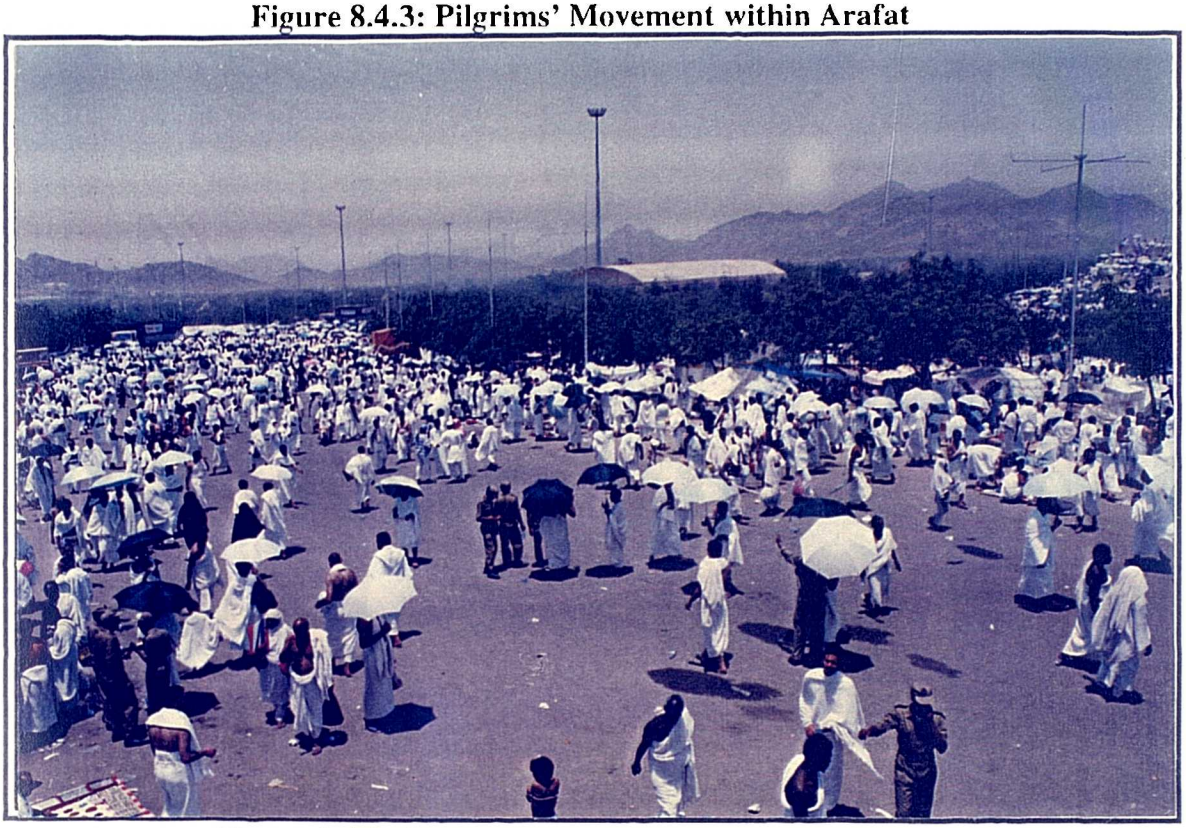


Figure 8.4.4: Crowdness at Toilet Facilities in Arafat

8.5 *Hajj* Facilities and Services in Muzdalifah

Pilgrims should only leave Arafat for Muzdalifah after sunset. Here pilgrims perform the two prayers of Sunset and Night-time. It is also desirable to pick up pebbles from Muzdalifah. Pilgrims should spend the night in Muzdalifah. However, women, children and the weak can leave for Mina after midnight. Those who spend the night should also offer the Dawn Prayer (Chapter 3). The legally defined area of Muzdalifah encompasses some 963 hectares, slightly more than half the area of Arafat (MOMRA, 1985). Because the duration of stay in Muzdalifah is short, very few permanent structures have been erected. The area is left open, even tents for pilgrims are not erected. Obviously, the need for shelter during the night in Muzdalifah is not great because protection from the sun is not required. Also the duration of the stay in Muzdalifah lasts for a maximum of eight to ten hours starting after sunset up to the dawn of the tenth day of Dhul-Hijja. Muzdalifah is serviced with electricity, water and sanitation, and parking facilities. Retail trades housed in temporary structures and mobile caravans, offer many kinds of goods especially food and drink.

8.5.1 Highly Important *Hajj* Facilities and Services in Muzdalifah

Table 8.5.1 presents the different HFS and shows their degrees of importance as perceived by pilgrims. There are only two items that have average means larger than (4.50) and that are considered as highly important HFS needed in Muzdalifah. They are: 1) signposting, and 2) health services. Pilgrims do not move from place to place so much in Muzdalifah. However, adequate signposting is still needed to let pilgrims know where to find other facilities and services, i.e. toilets, sleeping areas, food shops, and routes to Mina. Similarly pilgrims want adequate health services in Muzdalifah to be available in case they need them, due to exhaustion etc. after coming from Arafat. The results indicate that FS must not only be available, but also presentable and accessible.

8.5.2 Important *Hajj* Facilities and Services in Muzdalifah

The first item under this category is the need for adequate 'drinking water'. It has an average mean of (4.42). Although pilgrims arrive in Muzdalifah at night time when the weather is cooler than during the day, they feel that it is important for drinking water to be available there. As can be noticed in Table 8.5.1, there are three items that have the same degree of importance according to their average means which equal (4.39). They are: a) guiding services, b) treatment by policemen, c) sanitation (i.e cleanliness of sites). These three items are related to the activities that pilgrims practice in this *Hajj* venue. The relation might be: firstly, when pilgrims arrive to Muzdalifah, they want some body to guide them to sleeping places; secondly, if policemen prevent pilgrims from sleeping in particular areas (i.e. roads and paths) they should do so in a kind way; and finally' when they find a place they want it to be clean, and that it has adequate numbers of public toilets.

Car parks are among the important facilities required in Muzdalifah. It is believed that if an appropriate number of car is parks made available and managed well, several problems might be solved. For example, 1) traffic jams that usually exist in the roads between Arafat and Muzdalifah will be reduced, 2) pilgrims' movement inside Muzdalifah will be easier, and 3) responsible officials will not become as tired, thus providing a better service to pilgrims. Furthermore, the respondents are also concerned with the following two items: a) the conservation of the historical Islamic places' in Muzdalifah, and b) that the food prices should not be expensive.

8.5.3 Less Important *Hajj* Facilities and Services in Muzdalifah

Table 8.5.1 reveals that the journey from Muzdalifah to Mina is a factor of lesser concern as perceived by pilgrims (average mean = 3.98). In the *Hajj* planners' opinion, this journey is only one section in the completed *Hajj* trip. After pilgrims leave Arafat to Muzdalifah some of them do not sleep in Muzdalifah as explained in Section 8.4.4. These pilgrims stop for few hours in Muzdalifah and continue their journey to Mina. If the roads between Muzdalifah and Mina are full, then the journey from Arafat to Muzdalifah is affected, because Muzdalifah is located in the middle between Arafat and Mina. Generally speaking, the traffic flow during the *Hajj* season is affected by any form of traffic congestion at any part of the whole roads' system. It

is not feasible to solve transportation problems in one particular site with out considering other involved sites.

The factors which are of lesser concern to pilgrims are listed in Table 8.5.1. They include other HFS that pilgrims need in Muzdalifah. General information is one such an item. At this *Hajj* venue, pilgrims want to know more about what they will do next in Mina. Many pilgrims although well educated, prefer to ask about the *Hajj* rites concerning Mina by questioning local people. At this stage of the *Hajj* journey (i.e. after standing in Arafat which is the major pillar of the *Hajj*, see Chapter 3), some pilgrims feel that they have almost completed their *Hajj*, and want to talk to their relatives and friends about it. The telephone is the best means of communication with others outside Muzdalifah. This may explain why pilgrims perceive telephone facilities as being more important than postal services in Muzdalifah. The less important HFS are considered to be shops and media services.

Table 8.5.1: Means and Standard Deviations Describing the Importance of HFS in Muzdalifah

Facilities/ Services		Number of Cases	Means	S. D.
1. Adequate signposting	(H. Impt.)	456	4.62	.76
2. Adequate health services		448	4.53	.90
3. Adequate public drinking water	(Impt.)	458	4.42	.91
4. Adequate guiding services for pilgrims		446	4.39	.97
5. Appropriate treatment of pilgrims by police officials		448	4.39	.87
6. Reasonable cleanliness of sites		454	4.39	.91
7. Reasonable freedom of movements		464	4.36	.94
8. Adequate toilet facilities		457	4.35	.95
9. Appropriate treatment of pilgrims by different officials		445	4.34	.92
10. Conservation of the historical Islamic places		433	4.18	1.07
11. Adequate car parking facilities		462	4.17	1.02
12. Appropriate treatment of pilgrims by local people		446	4.15	1.00
13. Fewer traffic jams		469	4.12	1.03
14. Appropriate treatment of pilgrims by *Mutawifeen*		428	4.12	1.07
15. Inexpensive food prices		457	4.06	1.13
16. The journey from Muzdalifah to Mina		464	3.98	1.13
17. Adequate restaurants and eating places		462	3.95	1.20
18. Reasonable pricing		434	3.86	1.20
19. Public transportation		469	3.83	1.19
20. Adequate accommodation facilities		457	3.61	1.27
21. Adequate general information		434	3.57	1.32
22. Adequate public telephones		444	3.39	1.35
23. Adequate shopping facilities	(L. Impt)	423	2.94	1.40
24. Adequate postal services		415	2.84	1.44
25. Adequate media services		418	2.45	1.40

Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

8.6 *Hajj* Facilities and Services in Mina

Mina is located 6 km to the centre of Makkah, and covers an area of approximately 812 hectares, 52% of which is flat land (MOMRA, 1985). The hilly part is comprised of very steep slopes which are difficult for most pilgrims to use. Mina is very central to the urban system of the *Hajj* places *(Al-Masha'ir Al-Muqadasah).* In Mina, pilgrims have to perform three religious rites. They are: a) spending at least three nights, b) pelting the *Jamarat,* and c) sacrificing the animals (see Chapter 3).

Next sections will explain how pilgrims perceive the importance of the different HFS in Mina. The discussion is based on the results of the descriptive statistical analysis shown in Table 8.6.1. Figures 8.6.1- 8.6.6 show some examples of the FS available in Mina.

8.6.1 Highly Important *Hajj* Facilities and Services

Again the same three items shown to be the most important HFS needed by pilgrims in Mina, are in order, according to their means: 1) adequate signposting (average mean = 4.67), 2) adequate health services (average mean = 4.63), and 3) adequate drinking water (average mean = 4.53). This result suggests that regardless of how much time pilgrims spend in any *Hajj* venue, they perceive these three items as the most highly important HFS.

Animals' sacrificing is a unique religious rite to be performed by pilgrims during Mina days. In 1985 the government of Saudi Arabia began to make very efficient and effective use of sacrificial animals, *Haddey* and *Adhahi.* Pilgrims participating in the scheme pay the set price of the required animal (i.e. sheep, cow, camel) in advance. They can order any of these animals by buying a certain type of coupon from selling points that are found in Makkah and Mina, untill the twelfth day of Dhul-Hijja. Animals are then sacrificed on the tenth, eleventh, and twelfth night of Dhul-Hijja in accordance with the requests of pilgrims, some are locally consumed others are frozen and prepared for shipment to poor Islamic nations. Pilgrims perceive the shops which sell the coupons of the sacrifices as being a highly important facility required in Mina.

The last highly important item to appear in Table 8.6.1 concerns 'guiding services'. Pilgrims travel frequently in Mina. Examples of travelling are: a) the daily trip from the accommodation camps to the Jamarat area, b) travelling to Makkah to perform *Tawaf* and *Sa'e*, c) walking around in Mina to look for shops that sell sacrificing coupons, barbers' shops, and other facilities. During these trips some pilgrims lose their way, and naturally they need two things: 1) effective signposting, and/or 2) adequate guiding services, i.e. someone to guide them to the required places. Both of these HFS are perceived as highly important items, as presented in Table 8.6.1.

8.6.2 Important *Hajj* Facilities and Services in Mina

The need for an adequate number of barber shops in Mina is an important requirement as perceived by pilgrims (average mean = 4.44). As discussed in Chapter 3, after arriving in Mina pilgrims must have their hair either cut or shaved in order to finish the state of *Ihram*. Most of the pilgrims do so in Mina after they finish pelting the capital Jamarah on the tenth of Dhul-Hijjah. Temporary spaces are made available to be used by barbers in Mina for the whole period of three days. These shops become overcrowded during that time. However, pilgrims are also permitted to have their hair cut in Makkah.

Another item which has an average mean of 4.44 is regards ease of movement in Mina. As previously mentioned pilgrims have to walk to different places in order to perform the *Hajj* rites in Mina. Pedestrians usually dislike overcrowded streets. They prefer to walk freely with no interruptions. Because pilgrims stay for three days in Mina, and travel on foot from one location to another, they want to be able to locate the following HFS (with the minimum of effort): public toilets; restaurants; telephones; and public transportation (to be used if tired).

Table 8.6.1 includes other HFS that pilgrims perceived as very important in Mina such as: accommodation facilities, cleanliness of sites, and appropriate treatment of pilgrims by policemen, Mutawifeen officials, and local people. The results show also that pilgrims want to obtain these HFS at reasonable prices, i.e. the HFS should be affordable. Moreover, the analysis indicates that pilgrims are aware of the historical Islamic places in Mina as well as in the other *Hajj* venues.

8.6.3 Less Important *Hajj* Facilities and Services in Mina

Under this category, we find few items that their average means vary from 3.96 to 3.64, as shown in Table 8.6.1. They concern the need for: general information services; shops that sell goods with reasonable prices; and postal services. The requirement for different media services in Mina is minimum (average mean = 3.20) as perceived by the respondents in this study.

Table 8.6.1: Means and Standard Deviations Describing the Importance of HFS in Mina

Facilities/Services		Number of Cases	Means	S. D.
1. Adequate signposting	(H. Impt.)	457	4.67	.72
2. Adequate health services		452	4.63	.76
3. Adequate public drinking water		459	4.53	.82
4. Adequate selling points for animal sacrificing		442	4.51	.88
5. Adequate guiding services for pilgrims		448	4.48	.90
6. Adequate barbers shops	(V. Impt.)	448	4.44	.88
7. Reasonable freedom movements		463	4.44	.87
8. Adequate toilet facilities		461	4.43	.94
9. Appropriate treatment of pilgrims by police officials		449	4.42	.85
10. Adequate cleanliness of different sites		456	4.42	.95
11. Appropriate treatment of pilgrims by different official		445	4.39	.89
12. Movement in Jamarat		465	4.32	1.00
13. Conservation of the historical Islamic places		440	4.28	1.00
14. Adequate restaurants and eating places		465	4.28	.93
15. Fewer traffic jams		471	4.25	.95
16. Inexpensive food prices		461	4.22	1.04
17. Adequate accommodation facilities		460	4.22	.92
18. Appropriate treatment of pilgrims by local people		447	4.22	.94
19. Appropriate treatment of Mutawifeen with pilgrims		429	4.20	1.04
20. Adequate car park		474	4.18	1.20
21. Public transportation		471	4.16	.97
22. Movement from Mina to Makkah		463	4.06	1.02
23. Adequate public telephones		451	4.04	1.11
24. Reasonable pricing	(L. Impt.)	449	3.96	1.16
25. Adequate general information		442	3.83	1.22
26. Adequate shopping facilities		435	3.67	1.20
27. Adequate postal services		424	3.64	1.34
28. Adequate media services		419	3.20	1.49

Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

Figure 8.6.1: An Aerial Photograph of Mina - the Tent City

Figure 8.6.2: Tents to Accommodate Pilgrims in Mina

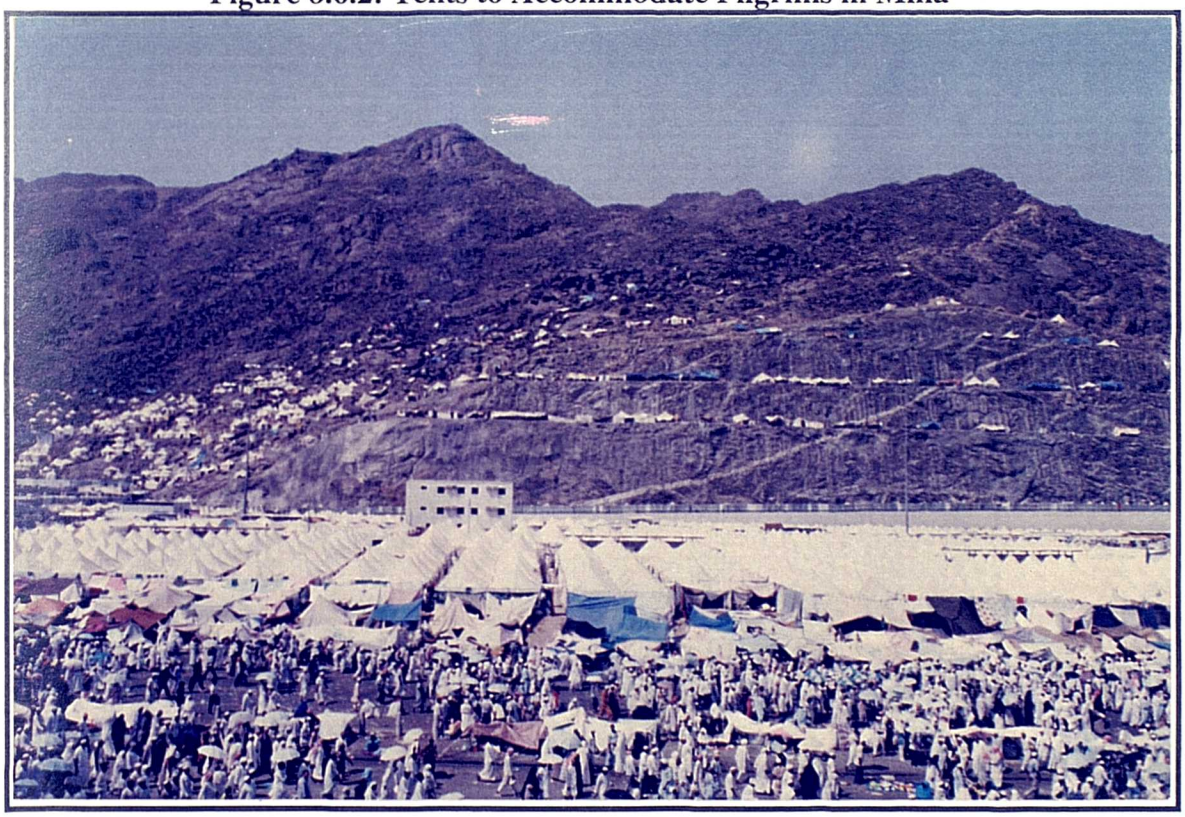


Figure 8.6.3: An Aerial Photograph of the Jamarat Area

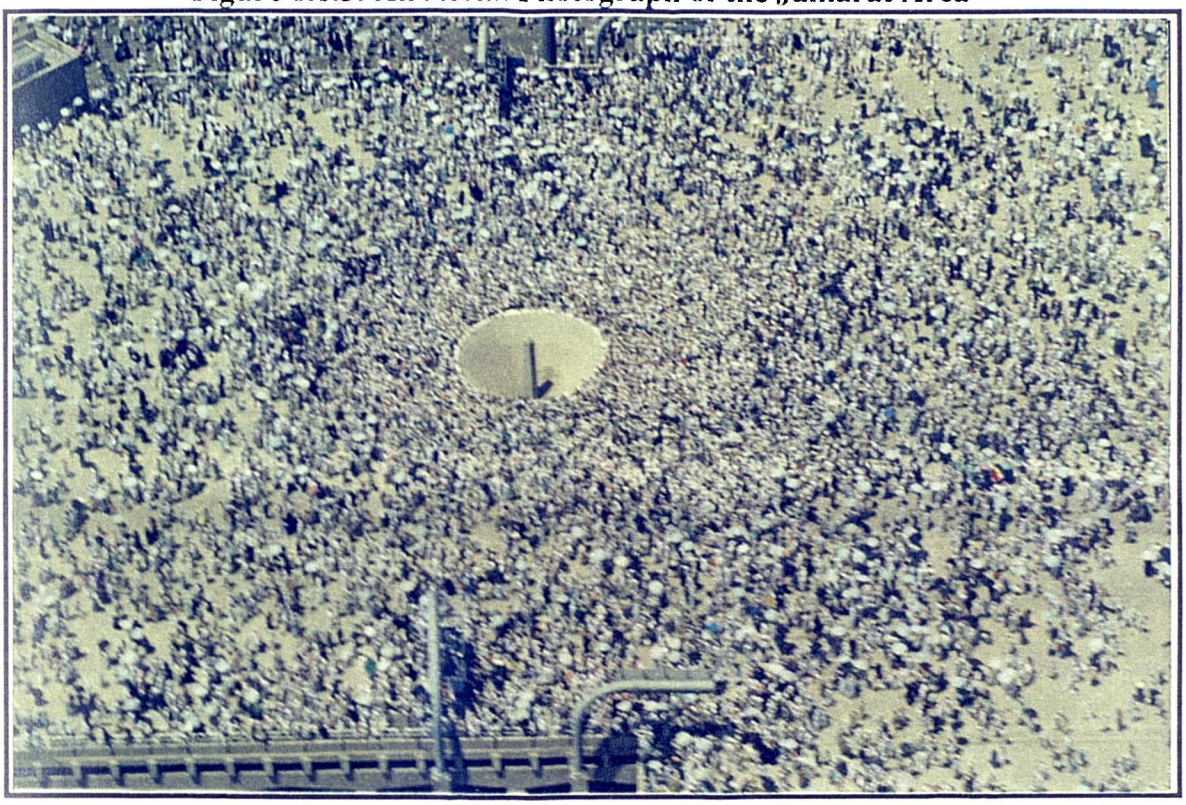


Figure 8.6.4: Pilgrims' Movement at the Jamart Area

Figure 8.6.5: Telephone Facilities in Mina

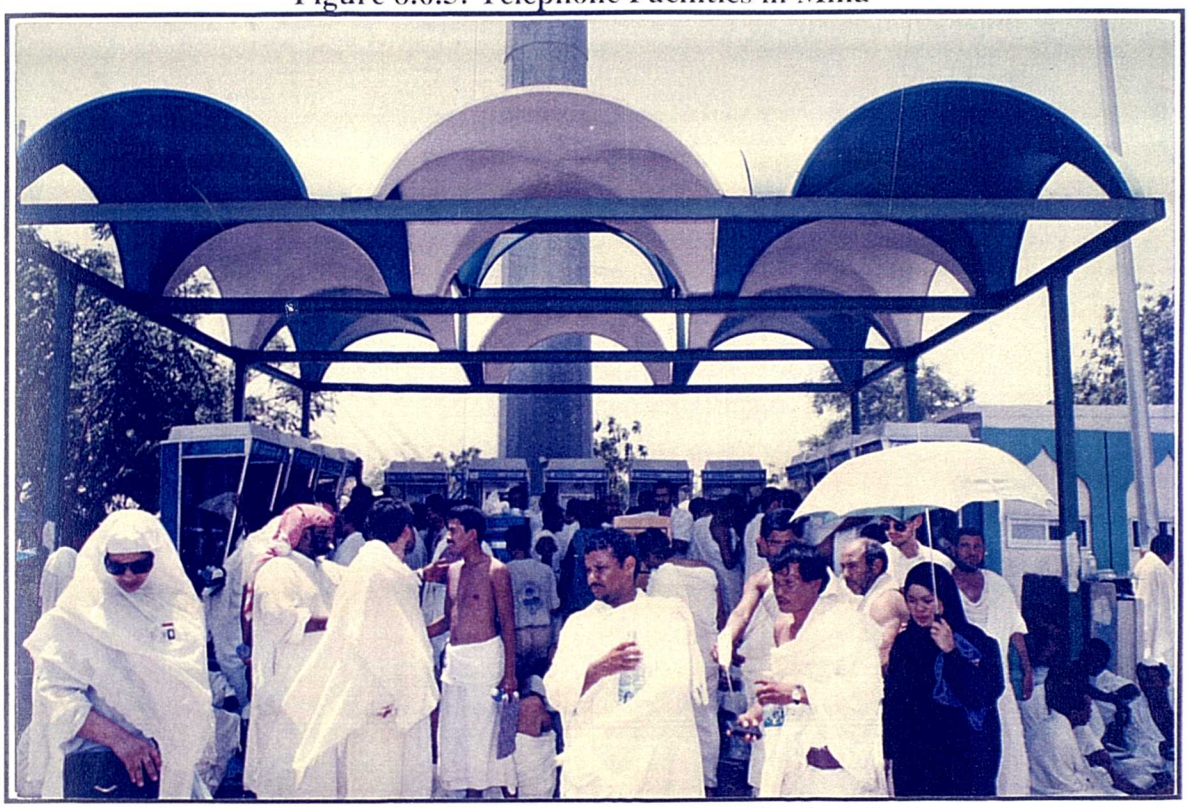


Figure 8.6.6: Animal Sacrificing Facility in Mina

8.7 Summary

In an effort to identify the importance of facilities and services for a typical mega-event, this Chapter investigates the major *Hajj* facilities and services in order to explore their importance with respect to actual users' perceptions. Those HFS concern: cleanliness of the *Hajj* venues; transportation and movement within and between the *Hajj* places; health care; security; safety; public toilets; etc. Other aspects that have been considered concern the importance of the service quality during the *Hajj* season.

As indicated by the results of the descriptive statistics, four items are perceived by pilgrims as being highly important HFS. They are in order: safety; performing the *Hajj* programme correctly; an adequate number of public toilets; and general security for pilgrims. The important HFS required in the *Hajj* event include issues concerning the service quality during the *Hajj*. Furthermore, health care and cleanliness of sites, less crowding, and better transportation and movement within and between the *Hajj* venues are perceived to be an important facility by pilgrims. The analysis results show that one factor with which the pilgrims are also concerned is the appropriate treatment of pilgrims by responsible people who deal with pilgrims directly.

In Makkah, eight items were found under the category 'highly important facilities'. The most important factor is 'the need for adequate signposting'. The results show that pilgrims perceive health services as a highly important facility needed in Makkah. The next item after health services is 'the cleanliness of sites'. This item is followed by the need of adequate 'money exchanging facilities'. The results show that communication and guiding facilities are among the highly rated factors needed in the holy city during the *Hajj* season. The movement to different places within the city, and from there to the Holy Mosque is perceived as being important. The movement in *Tawaf* and *Sa'e* however, appears to be less important than the general movement in Makkah. Other factors which relate to movement and transportation are the need for 'adequate public transportation', 'adequate parking facilities', and 'fewer traffic jams'. The kind of treatment people in Makkah give pilgrims is an important issue. The provision of free drinking water for pilgrims is among the HFSF that have a notable importance. The results also show other factors that are listed under the

category 'important' such as: clothes' washing, information, and media services. One factor was found to be of lesser concern to pilgrims in Makkah. This is 'public parks and recreational areas'.

In Arafat the analysis results show that the need for 'adequate signposting' is perceived by pilgrims as the most important HFS needed. The results also indicate that adequate health services were perceived as the second highly important factor followed by the need for proper 'drinking water facilities'. The results of the descriptive statistics analysis show that fifteen factors are categorised as 'important' HFS in Arafat. Guiding services for pilgrims who lose their way is the first, followed by the need for adequate toilet facilities. Factors relating to the need for appropriate treatment of pilgrims by responsible officials and local people are all presented in this part of the list. Furthermore, issues regarding movement and transportation inside Arafat and from there to Muzdalifah are also perceived as important items by pilgrims. According to pilgrims - movement inside Arafat is more important than travelling from there to Muzdalifah. Moreover, the results of the descriptive statistics analysis indicate that catering facilities such as take away food shops and temporary cafeterias are also important in Arafat. Due to the limited time duration in this venue, facilities such as accommodation, information, and telephone are perceived as important - but not very - factors by pilgrims. The results show that 'postal services' and 'media services' are found to be the least important items in Arafat.

In Muzdalifah, there are only two factors that are considered as highly important facilities needed: signposting, and health services. Under the 'very important facilities' category, the need for adequate 'drinking water' is found in addition to: guiding services, appropriate treatment by policemen, and cleanliness of sites. Moreover, the results indicate that car parks are among the very important factors required in Muzdalifah. The journey from Muzdalifah to Mina is perceived by pilgrims as an important factor followed by the items concerning 'general information' and 'public telephones". The results show that shops and media services are less important HFS in this venue.

Again as in Muzdalifah, the results show that the same three factors shown to be the most important HFS needed by pilgrims in Mina, are in order: 1) signposting; 2) health services; and 3) drinking water. Moreover, the analysis results indicate that pilgrims perceive the shops which sell the coupons for the sacrifices as being a highly important facility required in Mina. The last highly important factor concerns 'guiding services'. It is found that the need for an adequate number of barber shops in Mina is an important requirement in this venue. Other very important items are with regard to: ease of pilgrims' movement in Mina; accommodation; cleanliness of sites; and appropriate treatment of pilgrims by policemen, *Mutawifeen* officials and local people. The results also indicate that pilgrims want to obtain the facilities and services easily, and at reasonable prices, i.e. the facilities and services must be accessible and affordable. The analysis indicates that pilgrims are aware of the historical Islamic places (i.e. the environment) in Mina as well as in the other *Hajj* venues. However, under the 'important' category, a few factors have been found concerning the need for: general information; shops that sell goods with reasonable prices; and postal services. The requirement for different media services in Mina is at a minimum.

CHAPTER 9

The Data Purification, and Development of the HFS Indexes

9.1 Introduction

In Chapter 8 the importance of *Hajj* Facilities and Services (HFS) as perceived by pilgrims in the various *Hajj* venues was explained. The information obtained from the descriptive statistics in that chapter was useful in giving a general overview of pilgrims' expectations and requirements regarding the HFS required within the *Hajj* venues.

In Chapter 9 further analysis will be carried out. Because the types and aspects of the FS required in such a typical mega-event are varied, this study will develop indexes that comprise the most important FS perceived as being important in the various event venues. In order to develop the HFS indexes a sophisticated data purification process - which is commonly used in social science research - will be employed. The process depends mainly on reliability, and factor analysis, as discussed in the following sections.

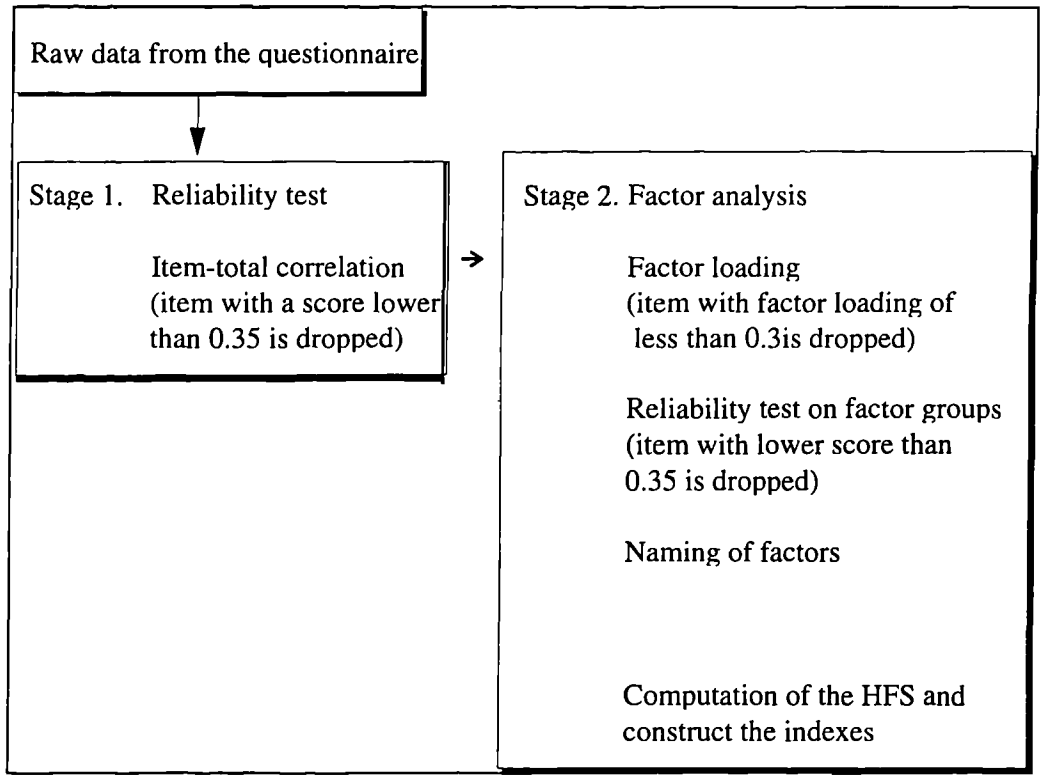
This Chapter is divided into sections. The first few sections discuss the data purification process in detail. The rest of the sections explain the different stages of analysis required to develop the HFS indexes for each *Hajj* venue. These indexes are considered to be a major finding of this study since they provide vital information for future research concerning the large scale event industry, and it will help *Hajj* planners to provide improved services. The HFS indexes will be used to test whether similar HFS are required in the different Hajj venues or not. The variables in these indexes will also be used in further analysis concerning the testing of the current research hypothesis.

9.2 The Purification Process

Having finished the preliminary analysis of the HFS, the next step is to purify the data. A general outlook of the sequence of the purification process leading to the formulation of the HFS indexes is outlined in Figure 9.2.1. This process is well known and used in hospitality studies for scaling perceptions of people regarding importance, expectation, and quality of the provided services (Getty and Thomson, 1994). Raw data from the questionnaire was first subjected to a reliability test available in the 'SPSS for Windows' package. From the reliability analysis, 'corrected item-to-total correlation' scores were obtained. Item-to-total scores indicate how consistent a variable is within a set of indicators which 'share' the degree to which they measure a construct. The higher the score, the greater the confidence that the individual indicators are consistent in their measurement of a construct (Hair et al., 1992). In determining the starting point score, the study has adopted Edgett's (1991) suggestion that items having a score of 0.35 and higher shall be retained for further computation. Items which score below 0.35 will be removed. Such removal helps in making a construct more reliable and ensures a high reliability of the used instrument.

The next stage in the purification process is the factor analysis. At this stage, only those items which possessed a high factor loading were retained. A factor loading is a correlation between an item and a given factor (Norusis, 1992) and is commonly used by factor analysts as a preliminary examination of the significance of an item in interpreting the factor matrix. The higher the factor loading value of an item, the better it is in enhancing the reliability, significance and robustness of the measuring instrument. Because a factor loading is a correlation between an item and a given factor, (Norusis, 1992), thus the higher the loading, the more significant an item is in explaining the meaning of each factor. As a general rule, Hair, et al., (1992) suggest that if the factor loadings are (+0.50) or greater, they are considered very significant, loadings of (+0.40) are considered more important and loadings greater than (+0.30) are considered significant. In this study, only items that have a factor loading less than (+0.30) are terminated.

Figure 9.2.1: Purification of Raw Data



(adapted from Hair, et al., 1992)

The above sequence of the purification process was also employed in measuring all the constructs concerning the HFS in the different *Hajj* venues that were used in this thesis. To illustrate the process in details, we are going to show step by step how to develop the HFS index for Makkah. Thereafter, the other indexes for the rest of the *Hajj* venues will be also presented.

9.3 Development of the HFS Index for Makkah

In Table 9.3.1 a proposed HFS index for Makkah is listed, reproduced dimensions of the HFS, and the corresponding thirty questions formulated in the earlier chapters to measure the degree of the HFS importance, are shown. Like all the other constructs used in this study, the questions underwent the two stages of data purification process described above to ensure a high degree of reliability and robustness.

Table 9.3.1: A Proposed Index for the HFS in Makkah

Dimensions	Question number	Code	Measurement Variables
Hospitality and principal facilities			
	55M	AF	1. Accommodation
	56M	RC	2. Restaurants and eating places
	58M	DW	3. Public drinking water
	64M	HS	4. Health services
	59M	TF	5. Toilet and washing facilities
	65M	LP	6. Cleanliness of sites
Transportation, and movement between and within venues			
	44M	PT	1. Public transportation
	45M	TJ	2. Fewer traffic jams
	46M	PM	3. Freedom of pilgrims' movement
	47	MA	4. Travelling to Mina and/or Arafat
	51	TM	5. Movement in *Tawaf*
	52	SM	6. Movement in *Sa'e*
	54M	CP	7. Car parking facilities
Information and communication			
	67M	GI	1. General information
	66M	DS	2. Signposting
	69M	MS	3. Media services
	60M	PH	4. Public telephones
	61M	PS	5. Postal services
	74M	IP	6. Information about historical places
Official / pilgrims, Social Interaction			
	70M	TO	1. Treatment of pilgrims by governmental officials
	71M	TP	2. Treatment of pilgrims by policemen
	72M	TL	3. Treatment of pilgrims by local people
	73M	MP	4. Treatment of pilgrims by Mutawifeen staff
	68M	GS	5. Guiding services
Miscellaneous facilities/services	75M	PR	1. Parks and recreational facilities
	62M	SP	2. Shopping facilities
	63M	PG	3. Reasonable pricing
	57M	FP	4. Inexpensive Food
	76M	ME	5. Money exchanging facilities
	77M	WF	6. Facilities for washing clothes.
Total number of dimensions = 5			Total number of dimensions = 30

9.3.1 The Reliability analysis

The reliability technique is one of the most widely used techniques employed by researchers to ensure high reliability of their multi-scale item questionnaire (Churchill, 1979). This technique is suitable to the HFS measure as the latter comprises multi-scale item questions. For the HFS construct in Makkah, all 30 questions were subjected to reliability analysis based on five dimensions. These are: hospitality and principal facilities, transportation and movements, information and communication, treatment and personal caring, and miscellaneous HFS. Items with a 'corrected item-total correlation' score of 0.35 and higher were retained while items with a score lower than 0.35 were removed to increase the consistency and reliability of the measurement (Edgett, 1991).

Details of the reliability analysis are presented in Appendix B, a summary of which is reproduced in Table 9.3.2. As the table shows, all the items produced good correlation scores (higher than 0.35). Thus, the 30 items were retained for subsequent analysis.

The determination of high item-to-total score items completes the first stage of data purification. Next, is the factor analysis on the thirty items that were retained. It is worthwhile noting that reliability analysis will be conducted again to determine the overall reliability score for all constructs after factor analysis is conducted.

Table 9.3.2: The Reliability Analysis, Corrected Item - Total Correlation and Cronbach Alpha Values for the HFS in Makkah

Dimensions and the HFS Variables (Items)	Question number	Code	Corrected Item - Total Correlation	Cronbach Alpha
Hospitality and principal facilities				
1. Accommodation	55M	AF	.7149	.8824
2. Restaurants and eating places	56M	RC	.6810	
3. Public drinking water	58M	DW	.7143	
4. Health services	64M	HS	.6359	
5. Toilet and washing facilities	59M	TF	.7786	
6. Cleanliness of sites	65M	LP	.6549	
Transportation, and movement between and within venues				
1. Public transportation	44M	PT	.6129	.8692
2. Fewer traffic jams	45M	TJ	.5830	
3. Freedom of pilgrims' movements	46M	PM	.5299	
4. Travelling to Mina and/or Arafat	47	MA	.6600	
5. Movement in Tawaf	51	TM	.7401	
6. Movement in Sa'e	52	SM	.7545	
7. Car parking facilities	54M	CP	.6270	
Information and communication				
1. General information	67M	GI	.5158	.7680
2. Signposting	66M	DS	.5827	
3. Media services	69M	MS	.3530	
4. Telephones	60M	PH	.6358	
5. Postal services	61M	PS	.6713	
6. Information about historical places	74M	IP	.4707	
Social interaction and pilgrim care				
1. Treatment by governmental officials	70M	TO	.7109	.8478
2. Treatment by policemen	71M	TP	.6967	
3. Treatment by local people	72M	TL	.7161	
4. Treatment by Mutawifeen staff	73M	MP	.5419	
5. Guiding services	68M	GS	.6406	
Miscellaneous facilities/services				
1. Parks and recreational facilities	75M	PR	.3678	.7268
2. Shopping facilities	62M	SP	.4529	
3. Reasonable pricing	63M	PG	.5214	
4. Inexpensive foods	57M	FP	.4389	
5. Money exchanging facilities	76M	ME	.6322	
6. Facilities for washing clothes	77M	WF	.4514	

9.3.2 Factor analysis

Factor analysis is conducted on the HFS construct comprising a total of 30 items with item-total correlation scores higher than 0.35 as identified in the previous section. The main objective of factor analysis is to reduce the wide ranging number of variables into more manageable groups of factors (Lehmann, 1989). However, factor analysis is also an important step to purify multi-item scales (Getty and Thomson, 1994). In factor analysis, the researcher assumes that there are only a few basic dimensions that underlie attributes of a certain construct to be measured, and it then correlates the attributes to identify these basic dimensions (Churchill, 1988). Factor loadings produced from factor analysis are used to indicate the correlation between each attribute and each score. The higher the factor loading, the more significant that attribute is in interpreting the factor matrix (Hair, et al., 1992).

To use factor analysis, a number of requirements need to be met. For factor analysis to be appropriately applied, variables under study have to be at least of interval scale (Sproull, 1988). In this study, almost all of the variables used are of ordinal scale. However, this does not preclude the use of factor analysis because there is supporting evidence in the literature which suggests that an ordinal scale can be treated as an interval scale, if one assumes that the distortion introduced by assigning numeric values to ordinal categories are not very substantial (Kim and Mueller, 1978). They indicate that many ordinal variables may be given numeric values without distorting the underlying properties. In this study, it is assumed that the distortion effect as a result of assigning numeric values to ordinal data is not significant and that they pass the test described above.

The second requirement is that the ratio of respondent to the number of variables should be four-to-one (Edgett,1991). Depending on the nature of the study, Hair, et al., (1987) argues that a two-to-one ratio is acceptable if the research is exploratory in nature. In this study, the useable sample size was more than 400. Based on the number of variables used in the HFS construct for the different *Hajj* venues, which is not more than 30 for each venue, the ratio of respondent to variable is greater than 10:1, far exceeding the recommended ratio. The sample size requirement is therefore satisfied.

In testing whether factor analysis is appropriate in this study, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy test is employed. The KMO test would indicate whether it is appropriate to proceed with factor analysis. A small value on the KMO test indicates that the factor analysis may not be a good option, but the higher the value, the better. Kinnear and Gray (1994) suggest that the KMO value should be greater than 0.50 for factor analysis to proceed. Norusis (1992) quoted Kaiser (1974) as suggesting that The KMO measures in the 0.90's is considered as 'marvellous' sample adequacy for factor analysis purposes, in the 0.80's as 'meritorious', in the 0.70's as 'middling', in the 0.60's as 'mediocre', in the 0.50's as 'miserable', and below 0.50's as 'unacceptable'.

In addition to the KMO test, the Bartlett Test of Sphericity is also used. The Bartlett Test of Sphericity and its significance level indicate a relationship among variables in an identity matrix and it determines whether factor analysis is a suitable technique to use. If the Bartlett test value is not significant (that is, its associated probability is greater than 0.05), then there is a danger that the correlation matrix is an identity matrix (where the diagonal elements are 1 and the off diagonal elements are 0) and is therefore unsuitable for further analysis (Kinnear and Gray, 1994). What is required is that the value for sphericity is large and the associated significance is small; that is, less than 0.05. Norusis (1992) suggested that if the observed significance level is large, the use of factor analysis should be reconsidered. In other words, the larger the value of sphericity, and the smaller its associated significance, the better it is. When these criteria are present, further use of factor analysis is suitable.

In testing whether factor analysis was appropriate for the HFS instrument for Makkah, KMO and Barlett tests were conducted. The result is reproduced in Table 9.3.3, details of which are presented in Appendix B.

Table 9.3.3: KMO and Barlet Tests for the HFS, Makkah

------- FACTOR ANALYSIS ------	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy =	0.93902
Bartlett Test of Sphericity =	7716.4837
Significance =	0.0000

Kaiser-Meyer-Olkin measure for HFS-Makkah variables showed a value of (0.93902). This indicates a 'meritorious' adequacy according to the Kaiser's scale (1974), and hence is very appropriate for use in further factor analysis. The observed value of Bartlett sphericity is also very large (7716.4837) and its associated significance level is very low (0.0000). Combining the results of the KMO measure and the Bartlett test of sphericity, the variables used in the HFS measure in Makkah clearly meet the conditions for subsequent tests of factor analysis. Overall, the result shows that factor analysis is suitable and can be appropriately applied for the HFS variables.

Factor analysis technique also produces final statistics which show communality figures, Eigenvalue and percentage of variance. The result for the HFS-Makkah analysis is shown in Table 9.3.4.

Communality is the amount of variance an original variable shares with all other variables included in the analysis (Hair, et al., 1987). It shows how much of the variance in the variables has been accounted for by the factors. For example, Q55M (Accommodation facilities in Makkah) accounted for 73% of the variance whereas Q60M (public telephone facilities in Makkah) accounted for 58% of the variance. The higher the observed communality value also means that there is a higher degree of 'commonness' among factors to explain the variance. In other words, the variables making up a common factor explains the variance more than the ones with a lower communality value. With this result, all the variables, except item Q74M, have values greater than (0.5). This indicates that there is a high degree of confidence in the factor solution for the variables used in the HFS measure concerning Makkah as one of the *Hajj* venues.

Table 9.3.4: Factor Analysis, Final Statistics, HFS-Makkah (1st run)

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
Q55M	.73042	*	1	3.09125	43.6	43.6
Q56M	.69496	*	2	1.82958	6.1	49.7
Q58M	.63927	*	3	1.52491	5.1	54.8
Q64M	.57103	*	4	1.35108	4.5	59.3
Q59M	.70773	*	5	1.04824	3.5	62.8
Q65M	.62934	*				
Q44M	.53575	*				
Q45M	.57666	*				
Q46M	.51391	*				
Q47	.54572	*				
Q51	.71186	*				
Q52	.68875	*				
Q54M	.56351	*				
Q67M	.58075	*				
Q66M	.56819	*				
Q69M	.57884	*				
Q60M	.58288	*				
Q61M	.62479	*				
Q74M	.48972	*				
Q70M	.71305	*				
Q71M	.70168	*				
Q72M	.71774	*				
Q73M	.57321	*				
Q68M	.65312	*				
Q75M	.61509	*				
Q76M	.75303	*				
Q77M	.68389	*				
Q62M	.64086	*				
Q63M	.69538	*				
Q57M	.56391	*				

In order to determine the minimum number of factors, principal component analysis (PCA) is used and has been suggested in research that is concerned with determining the minimum number of variables to account for the maximum number of variance in the data (Hair, et al, 1987). PCA with an Eigenvalue of greater than 1.0 is considered significant (Everitt and Dunn, 1983) and can be used to determine the factors to extract. From the result of this analysis, it was observed that the number of factors extracted is 5, and they explained 62.8 percent of the variance.

After the number of factors was determined, the factors were rotated using Varimax rotation in order to transform the variables into groups of factors. Varimax method attempts to minimise the number of variables that have high loadings on a factor, for easier interpretation. This method is the most commonly used method in social researches (Norusis, 1992).

As observed in Table 9.3.5, the Varimax rotation produced five groups of factors, most of which seemed to have large factor loadings. A factor loading is a correlation between an item and a given factor (Norusis, 1992) - the higher the loading, the more significant an item is in explaining the meaning of each factor. In general, Hair, et al., (1992) suggest that if the factor loadings are +0.50 or greater, they are considered very significant, loadings of +0.40 are considered more important and loadings greater than +0.30 are considered significant.

For the case presented in Table 9.3.5, the results showed that most of the items have a factor loading more than 0.50, implying that the items making up each of the factors very significantly correlated to the factor itself. Although, only four items have a factor loading less than 0.50, but greater than 0.30, they are still considered significant as explained above.

Subsequently, reliability tests were conducted for each of the factors to determine good (or poor) indicators of internal consistency based on item-total correlation. Details of this stage of the reliability test are produced in Appendix B, a summary of which is reproduced in Table 9.3.6.

Table 9.3.5: Rotated Factor Matrix, HFS Makkah (1st run)

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q45M	.71119	.12458	.12462	.17677	-.09260
Q52	.68465	.11528	.41210	-.00125	.19204
Q51	.66845	.13986	.46992	.02306	.15528
Q54M	.63850	.29583	.16028	.20163	.04435
Q59M	.63427	.41874	.26135	.05965	.24128
Q44M	.63208	.34045	.07055	.11870	.03536
Q47	.61964	.20567	.33343	.03143	.08545
Q58M	.60522	.44760	.20032	.08642	.15825
Q46M	.60214	.00079	.16869	.17179	.30556
Q64M	.53181	.29464	.12949	.07386	.42330
Q57M	.50950	.45414	.30217	.08177	-.00912
Q56M	.34318	.72614	.12671	.08477	.16332
Q62M	.15053	.71645	.22466	.06927	.22277
Q63M	.20216	.70088	.37715	.14499	-.00458
Q55M	.49647	.65743	.15739	.05306	.15539
Q67M	.13398	.64719	.27157	.23587	.12068
Q72M	.21659	.15762	.77513	.13349	.16535
Q73M	.19928	.17831	.69393	.08955	-.11017
Q70M	.22356	.40813	.68555	.08413	.13943
Q71M	.22913	.38704	.67040	.01144	.22321
Q74M	.29118	.14189	.52656	.30536	.11956
Q65M	.36120	.28572	.51368	.16254	.35630
Q68M	.47079	.27232	.47215	.07348	.35915
Q77M	-.04511	.15899	.18136	.78587	.07811
Q75M	.27525	.03701	-.04869	.73088	.03744
Q76M	.15063	.16306	.23957	.71345	.37061
Q66M	.35326	.25560	.32456	.39618	.34025
Q69M	.00937	.08595	.03224	.16883	.73609
Q60M	.26682	.42277	.24340	.15441	.49986
Q61M	.33628	.42854	.27150	.11398	.49128

Table 9.3.6: Reliability Analysis, Corrected Item - Total Correlation and Cronbach Alpha Values for the HFS Makkah, (2nd run)

Dimensions and Measurement Variables (Items)	Question number	Code	Corrected Item - Total Correlation	Cronbach Alpha
Factor number 1				
1. Fewer traffic jams	Q45M	T J	.6050	.9090
2. Movement in *Sa'e*	Q52	Sa'e	.7532	
3. Movement in *Tawaf*	Q51	Tawaf	.7409	
4. Car parks	Q54M	C P	.6537	
5. Toilet facilities	Q59M	T F	.7632	
6. Public transportation	Q44M	P T	.6238	
7. Travelling (Makkah or Mina to Arafat)	Q47	MMA	.6626	
8. Drinking water	Q58M	D W	.6795	
9. Freedom of pilgrims' movements	Q46M	P M	.5548	
10. Health services	Q64M	H S	.6022	
11. Inexpensive food	Q57M	F P	.6018	
Factor number 2				
1. Restaurants and eating places	Q56M	R C	.7271	.8607
2. Shopping facilities	Q62M	S P	.6899	
3. Reasonable pricing	Q63M	P G	.6342	
4. Accommodation facilities	Q55M	A F	.7249	
5. General information	Q67M	G I	.6203	
Factor number 3				
1. Treatment by local people	Q72M	T L	.7562	.8800
2. Treatment by Mutawifeen staff	Q73M	M P	.5573	
3. Treatment by officials	Q70M	T O	.7213	
4. Treatment by policemen	Q71M	T P	.7073	
5. Information / historical places	Q74M	I P	.5742	
6. Cleanliness of sites	Q65M	L P	.6951	
7. Guiding services	Q68M	G S	.6790	
Factor number 4				
1. Facilities for washing clothes	Q77M	W F	.5652	.7298
2. Parks & recreational facilities	Q75M	P R	.4492	
3. Money exchanging facilities	Q76M	M E	.7196	
4. Signposting	Q66M	D S	.4926	
Factor number 5				
1. Media services	Q69M	M S	.3389*	.6397
2. Public telephones	Q60M	P H	.5508	
3. Postal services	Q61M	P S	.5526	

* item is removed due to poor item-total correlation (< 0.35).

It is observed that all the items have item-total correlation scores of greater than 0.35, with an exception of one variable (Q69M), whose score is 0.3389. Item Q69M was subsequently removed, according to Edgett's suggestion (1991). After deleting this variable, all other variables which were retained are expected to have a very significant factor loading. Because of the omission of item Q69M, the factor analysis and the reliability cycles have to be run again until no more low factor loading items are presented, and also until no low item-total correlation scores exist (Parasuraman, et al., 1988). Having carried out the factor analysis again, without the item Q69M, the result showing the final statistics and rotated factor matrix are reproduced in Table 9.3.7 and Table 9.3.8, details of this are in Appendix B.

Table 9.3.7: Final Statistics For the HFS Makkah, (2nd run)

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
Q55M	.72952 *	1	12.83197	44.2	44.2
Q56M	.69518 *	2	1.77976	6.1	50.4
Q58M	.61379 *	3	1.52295	5.3	55.6
Q64M	.66854 *	4	1.35504	4.7	60.3
Q59M	.71824 *	5	1.01881	3.5	63.8
Q65M	.69758 *				
Q44M	.54829 *				
Q45M	.53700 *				
Q46M	.53539 *				
Q47	.57981 *				
Q51	.72543 *				
Q52	.70049 *				
Q54M	.54237 *				
Q67M	.58183 *				
Q66M	.59343 *				
Q60M	.54314 *				
Q61M	.57521 *				
Q74M	.58339 *				
Q70M	.69774 *				
Q71M	.74516 *				
Q72M	.71681 *				
Q73M	.52530 *				
Q68M	.62604 *				
Q75M	.68261 *				
Q76M	.76160 *				
Q77M	.65272 *				
Q62M	.65854 *				
Q63M	.69454 *				
Q57M	.57883 *				

Table 9.3.8: Rotated Factor Matrix, The HFS-Makkah, (2nd run)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1					
Q45M	.69447	.10579	.10549	.12547	.12900
Q52	.68429	.13211	.41585	.20197	.03258
Q51	.66487	.14629	.47175	.19168	.05180
Q47	.63498	.21709	.33527	.12719	.03001
Q44M	.63252	.34889	.05934	.11406	.09976
Q54M	.59090	.26354	.11269	.27975	.18110
Q59M	.56016	.39914	.20855	.44524	.05854
Q58M	.53223	.41056	.16731	.36216	.05297
Q46M	.52838	-.00948	.10211	.45230	.20276
Q57M	.51843	.44933	.31609	.07406	.05255
Factor 2					
Q62M	.13523	.74648	.21394	.15863	.10991
Q56M	.30569	.72101	.09103	.25568	.09067
Q63M	.21716	.69277	.39417	.03798	.10314
Q55M	.44860	.65547	.11589	.28622	.05737
Q67M	.10341	.64859	.24367	.17748	.24413
Factor 3					
Q72M	.20036	.16682	.76043	.21175	.16041
Q73M	.19593	.16655	.67442	.05589	.03476
Q70M	.16960	.37075	.63576	.34617	.08660
Q71M	.12695	.34390	.58786	.51479	.01396
Q74M	.33193	.20295	.55386	-.01953	.35339
Factor 4					
Q64M	.40834	.25191	.04014	.65504	.08745
Q65M	.24721	.25164	.42062	.60221	.18321
Q60M	.19583	.43126	.19954	.48352	.21258
Q61M	.26986	.45000	.22286	.46276	.18993
Q66M	.27571	.24089	.26322	.46025	.42223
Q68M	.40584	.26245	.42933	.44786	.08688
Factor 5					
Q77M	-.07824	.13590	.13249	.17432	.76170
Q75M	.31862	.08344	-.02852	-.10866	.74934
Q76M	.09374	.15588	.18527	.39301	.73467

In Table 9.3.8, five groups of factors are reproduced. Since all the items now possess high factor loadings (> 0.4), no more items are deleted and the factor determination is complete. As observed, there are 5 factors making up the HFS index for Makkah, comprising 29 elements (out of the original 30 elements). Following the factor determination, another reliability test was conducted to determine the overall reliability of the factors, or the Cronbach Alpha value. The result is represented in Table 9.3.9.

According to Nunnally (1967), an instrument can be considered to possess an acceptable reliability standard if the reliability scores are around 0.60. For basic or exploratory research, a reliability score of 0.50 is also acceptable. Scores greater than 0.70 indicates a high reliability standard. Hair et al. (1992), meanwhile, suggest a threshold value of 0.70, although values below 0.70 have been deemed acceptable if the research is exploratory in nature, which this study is. The result above showed that despite being exploratory in nature, the observed Alpha values of the factors in this HFS measure range from 0.7006 to 0.9029, suggesting a high reliability. It also suggests that the HFS Index for Makkah confirms a high internal reliability.

9.3.3 Naming the Factors of HFS Index, Makkah

Naming of the factors is carried out next when a satisfactory factor solution is derived. Naming is based on a subjective opinion of the researcher to represent the underlying nature of the factors (Hair et al., 1992). For example, Factor 1 is called 'movements and basic facilities', because it comprises of two main issues. They are: 1) movements which include; a) movement of pedestrians (i.e. pilgrims), b) movement in *Sa'e*, c) movement in *Tawaf*, d) travelling from Makkah to Mina and/or Arafat, e) public transportation, and f) car parks; and 2) some basic facilities which include; a) availability of free drinking water, b) inexpensive food, and c) public toilets.

Another example, Factor 3, comprises of items concerning the pilgrims' requirement for appropriate treatment by the people they come into contact with during their stay in Makkah. In addition to this, pilgrims want to have access to more information about the Holy City. Hence, Factor 3 was called 'pilgrim care'. The naming of the factors and their descriptions are summarised in Table 9.3.9. This table also shows the average mean (i.e. the importance) of each item, its standard deviation, its corrected item-total correlation, and the Alpha value for each of the five Factors.

Clearly, the index has captured principal dimensions of the HFS needed by pilgrims in Makkah, and represents fundamental aspects of what has been widely mentioned in the literature on the tourism, events, and festivals industries regarding facilities, services, and aspects. This result suggests that the HFS index for Makkah can be employed in further studies concerning facilities planning, design and management for the *Hajj* typical mega-event.

Table 9.3.9: The Hajj Facilities and Services Index for Makkah

Q. #	Items	Mean	St Dev*	CI-TC**	Alpha
Factor 1:	***Movements and basic facilities***				
Q45M	Fewer traffic jams	4.2896	.8818	.6042	.9029
Q52	Movement in *Sa'e*	4.2760	.9740	.7447	
Q51	Movement in *Tawaf*	4.3054	.9686	.7490	
Q47	Travelling (Makkah, Mina - Arafat)	4.3507	.8942	.6681	
Q44M	Public transportation	4.3100	.8839	.6207	
Q54M	Car parking facilities	4.4027	.8681	.6422	
Q59M	Toilet facilities	4.5475	.7904	.7425	
Q58M	Public drinking water	4.4367	.8712	.6626	
Q46M	Freedom of pilgrims' movements	4.4321	.8889	.5456	
Q57M	inexpensive foods	4.3371	.9437	.5970	
	Average mean	**4.3688**			
Factor 2:	***Hospitality facilities***				
Q62M	Shopping facilities	4.3179	.9710	.6899	.8607
Q56M	Restaurants and cafeterias	4.3573	.9487	.7271	
Q63M	Reasonable pricing	4.2088	.9779	.6342	
Q55M	Accommodation facilities	4.3735	.9135	.7249	
Q67M	General information	4.2784	.9652	.6203	
	Average mean	**4.3072**			
Factor 3:	***Pilgrim care***				
Q72M	Treatment by local people	4.2936	.8897	.7459	.8346
Q73M	Treatment by Mutawifeen staff	4.2840	.9674	.5281	
Q70M	Treatment by officials	4.4057	.8681	.7060	
Q71M	Treatment by policemen	4.4057	.8344	.6707	
Q74M	Information / historical places	4.3819	.9031	.5462	
	Average mean	**4.3542**			
Factor 4:	***Health care and communication***				
Q64M	Health services	4.6370	.7461	.6214	.8658
Q65M	Cleanliness of sites	4.5822	.7481	.7041	
Q60M	Public telephones	4.5708	.8023	.6685	
Q61M	Postal services	4.5183	.8304	.6856	
Q66M	Signposting	4.6872	.6968	.6472	
Q68M	Guiding services	4.5479	.7868	.6470	
	Average mean	**4.5906**			
Factor 5:	***Miscellaneous***				
Q77M	Facilities for washing clothes	4.1486	1.0759	.5488	.7006
Q75M	Parks & recreational facilities	3.9623	1.3452	.4397	
Q76M	Money exchanging facilities	4.5613	0.8113	.6536	
	Average mean	**4.2241**			

* Standard Deviation, ** Corrected Item-Total Correlation, Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

9.4 Development of the HFS Index for Arafat

Having finished developing the HFS Index for Makkah, the next step is to construct another HFS Index for Arafat following the same procedure of data purification. In Table 9.4.1 a proposed HFS index for Arafat is listed, reproduced dimensions of HFS and the corresponding twenty five questions formulated in the earlier chapters to measure the degree of the HFS importance in Arafat are shown. Like all the other constructs used in this study, the questions underwent the two stages (reliability and factor analysis) of the data purification process described above to ensure a high degree of reliability and robustness.

9.4.1 Reliability Analysis for the HFS Arafat

For the HFS construct in Arafat, all the 25 questions were subjected to reliability analysis based on five dimensions. They are: hospitality and principal facilities, transportation and movements, information and communication, treatment and personal caring, and miscellaneous HFS. Items with a 'corrected item-total correlation' score of 0.35 and higher will be retained while items with a score lower than 0.35 will be removed in order to increase the consistency and reliability of the measure (Edgett, 1991).

The reliability analysis is similar to the one carried out for Makkah, a summary of which is reproduced in Table 9.4.2. As the table shows, some items produce good correlation scores (higher than 0.35). However 6 items score less than 0.35; three of which are the items forming the information and communication dimension. They are: signposting; media services; and information about the historical places in Arafat. The other three items relate to the miscellaneous HFS. They include: shopping facilities; reasonable pricing; and inexpensive food. These six items are omitted in subsequent analysis. The other 19 items are retained for further examinations. The next step is to conduct factor analysis using the 19 items.

Table 9.4.1: A Proposed HFS Index for Arafat

Dimensions	Ques. #	Code	Measurement Variables
1. Hospitality and principal facilities	55A	AF	1. Accommodation
	56A	RC	2. Restaurants and eating places
	58A	DW	3. Public drinking water
	64A	HS	4. Health services
	59A	TF	5. Toilet and washing facilities
	65A	LP	6. Cleanliness of sites
2. Transportation and movement between and within the *Hajj venues*	44A	PT	1. Public transportation
	45A	TJ	2. Fewer traffic jams
	46A	PM	3. Freedom of pilgrims' movements
	47	MA	4. Travelling to Muzdalifah
	54A	CP	5. Car parking facilities
3. Information and communication	67A	GI	1. General information
	66A	DS	2. Signposting
	69A	MS	3. Media services
	60A	PH	4. Public telephones
	61A	PS	5. Postal services
	74A	IP	6. Information about historical places
3. Pilgrim care	70A	TO	1. Treatment by officials
	71A	TP	2. Treatment by policemen
	72A	TL	3. Treatment by local people
	73A	MP	4. Treatment by Mutawifeen staff
	68A	GS	5. Personal guiding services
4. Miscellaneous facilities/services/features	62A	SP	1. Shopping facilities
	63A	PG	2. Reasonable pricing
	57A	FP	3. inexpensive food
Total number of dimensions = 5			Total number of items = 25

Table 9.4.2: Reliability Analysis, Corrected Item - Total Correlation and Cronbach Alpha Values for the HFS Arafat (1st run)

Dimensions and HFS Variables (Items)	Question Number	Code	Corrected Item - Total Correlation	Cronbach Alpha
Hospitality and principal facilities				
1. Accommodation	Q55A	AF	.4639	.8253
2. Restaurants and eating places	Q56A	RC	.5464	
3. Public drinking water	Q58A	DW	.6551	
4. Health services	Q64A	HS	.6097	
5. Toilet and washing facilities	Q59A	TF	.7094	
6. Cleanliness of sites	Q65A	LP	.6587	
Transportation and movement between and within the Hajj venues				
1. Public transportation	Q44A	PT	.5425	.7817
2. Fewer traffic jams	Q45A	TJ	.6276	
3. Freedom of pilgrims' movements	Q46A	PM	.5361	
4. Travelling to Muzdalifah	Q48	AM	.5581	
5. Car parking facilities	Q54A	CP	.5263	
Information and communication				
1. General information	Q67A	GI	.3975	.6616
2. Signposting	Q66A	DS	.3033*	
3. Media services	Q69A	MS	.2838*	
4. Public telephones	Q60A	PH	.5817	
5. Postal services	Q61A	PS	.4796	
6. Information about historical places	Q74A	IP	.3410*	
Pilgrim care				
1. Treatment by officials	Q70A	TO	.7255	.8474
2. Treatment by policemen	Q71A	TP	.7240	
3. Treatment by local people	Q72A	TL	.6537	
4. Treatment by Mutawifeen staff	Q73A	MP	.5902	
5. Personal guiding services	Q68A	GS	.6047	
Miscellaneous facilities/services/features				
1. Shopping facilities	Q62A	SP	.0939*	.3945
2. Reasonable pricing	Q63A	PG	.3125*	
3. Inexpensive food	Q57A	FP	.3386*	

Items marked * have scored lower than 0.35 and are omitted in subsequent analysis.

9.4.2 Factor Analysis for the HFS-Arafat

As before, factor analysis is conducted on the HFS for Arafat construct comprising a total of 19 items with item-total correlation scores higher than 0.35, as identified in the previous section.

In testing whether factor analysis was appropriate for the HFS Arafat instrument, KMO and Barlett tests were conducted. The result is reproduced in Table 9.4.3. Using the criterion applied in Section 9.3, the result shows that factor analysis is suitable and can be appropriately applied for the HFS variables in Arafat. Factor analysis is employed, the final statistics which shows communality figures, Eigenvalue and percentage of variance for the HFS in Arafat, are also shown in Table 9.4.3. Rotated factor matrix and reliability analysis (1st run) are reproduced in Table 9.4.4.

Table 9.4.3: Factor Analysis for the HFS, Arafat (Final Statistics, 1st run)

Factor analysis Arafat 1st run

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .90784
Bartlett Test of Sphericity = 3797.9318, Significance = .00000

Final Statistics:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct
	*				
Q55A	.53431 *	1	7.77401	40.9	40.9
Q56A	.72180 *	2	1.74862	9.2	50.1
Q58A	.63436 *	3	1.33874	7.0	57.2
Q64A	.51207 *	4	1.07406	5.7	62.8
Q59A	.69504 *				
Q65A	.63510 *				
Q44A	.54004 *				
Q45A	.61484 *				
Q46A	.51380 *				
Q48	.56050 *				
Q54A	.49019 *				
Q67A	.70318 *				
Q60A	.74316 *				
Q61A	.74851 *				
Q70A	.72966 *				
Q71A	.74901 *				
Q72A	.65410 *				
Q73A	.56159 *				
Q68A	.59416 *				

Table 9.4.4: Rotated Factor Matrix and Reliability Analysis, HFS-Arafat (1st run)

Factor Analysis					Reliability Analysis	
Rotated Factor Matrix:						
	Factor 1	Factor 2	Factor 3	Factor 4	Corrected Item-Total Correlation	Alpha
Factor 1						
Q71A	**.83081**	.21410	.08966	-.06990	.7753	.8913
Q70A	.81600	.24027	.07645	.01519	.7643	
Q72A	.75712	.05909	.18215	.21022	.6291	
Q68A	.69599	.31556	-.00092	-.10094	.6591	
Q73A	.65415	.19265	-.00601	.31069	.5743	
Q65A	.64107	.45560	.12471	-.03190	.7266	
Q58A	.56656	.53653	.03634	-.15553	.6607	
Q64A	.50306	.48071	.08139	-.14591	.5828	
Factor 2						
Q45A	.11885	**.76256**	.10789	.08707	.6253	.8270
Q44A	.10082	.68660	.12539	.20670	.5468	
Q48	.28027	.66543	-.16475	.10960	.5646	
Q59A	.56137	.60479	.02209	-.11683	.6353	
Q46A	.37940	.59715	.06389	-.09582	.5635	
Q54A	.39577	.54629	.16189	-.09443	.5985	
Q55A	.19571	.52754	.38859	-.25826	.4963	
Factor 3						
Q61A	-.01723	-.06858	**.85299**	.12615	.5869	.7378
Q60A	.13212	.18309	.83172	-.02045	.5869	
Factor 4						
Q67A	.30649	.27568	.32228	**.65527**	.0830*	.1515
Q56A	.36373	.30826	.43919	-.54918	.0830*	

Items marked * are removed (< 0.35) and factor analysis is going to be conducted again.

As observed in Table 9.4.4, the Varimax rotation produced four groups of factors, most of which seemed to have large factor loadings (> 0.5). However, after running the reliability test again to the last produced factors, two more items proved to have a low correlation value (< 0.35). These items are deleted and factor analysis carried out once more using the 17 items remaining from the previous table. This time only 3 factors have been generated as can be seen from the final statistics shown in Table 9.4.5. The items in this table have to be rotated in order to create the related factors.

The results of the final rotation and the reliability analysis for the reproduced factors are represented in Table 9.4.6. It is found that all of the items have factor loadings larger than 0.50. The reliability analysis is conducted again; the results of which are shown in the same table. The seventeen items scored high values (> 0.5) in 'corrected item-to-total correlation' analysis; also the Cronbach alpha for each of the three factors is more than 0.7. These results indicate that the developed HFS measure for Arafat is highly consistent and reliable. The next step is to name the factors resulting from the above process.

Table 9.4.5: Factor Analysis, Final Statistics for HFS-Arafat (2nd run)

Final statistics						
Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
Q71A	.74099	*	1	7.27899	42.8	42.8
Q70A	.73029	*	2	1.62712	9.6	52.4
Q72A	.62990	*	3	1.31562	7.7	60.1
Q68A	.58022	*				
Q73A	.49243	*				
Q65A	.64753	*				
Q58A	.61900	*				
Q64A	.49924	*				
Q45A	.58189	*				
Q44A	.46065	*				
Q48	.52568	*				
Q59A	.69063	*				
Q46A	.50829	*				
Q54A	.48805	*				
Q55A	.47581	*				
Q61A	.77228	*				
Q60A	.77885	*				

Table 9.4.6: Rotated Factor Matrix and Reliability Analysis for the HFS-Arafat (2nd run)

Factor analysis Arafat 2nd run				Reliability Analysis	
Rotated Factor Matrix:				Corrected Item-	Alpha Value
	Factor 1	Factor 2	Factor 3	Total Correlation	
Factor 1					
Q71A	**.81692**	.26136	.07293	.7430	.8706
Q70A	.80629	.27688	.05936	.7431	
Q72A	.77332	.07020	.16416	.6559	
Q73A	.68058	.17094	-.00388	.6038	
Q68A	.67230	.35608	-.03785	.6239	
Q65A	.62529	.49049	.12634	.6761	
Factor 2					
Q45A	.10110	**.75241**	.07446	.6143	.8628
Q44A	.10037	.66039	.12024	.5448	
Q48	.26395	.65057	-.18102	.5764	
Q59A	.52579	.64355	-.00446	.7115	
Q46A	.35702	.61609	.03542	.5892	
Q54A	.36294	.58433	.12201	.6181	
Q58A	.53002	.58139	.00778	.6602	
Q55A	.16418	.57509	.34371	.4961	
Q64A	.46697	.52748	.05425	.5749	
Factor 3					
Q61A	.00745	-.04740	**.87749**	.5869	.7378
Q60A	.13652	.22544	.84225	.5869	

9.4.3 Naming the Factors of the HFS Index, Arafat

The naming of the factors is carried out when a satisfactory factor solution is derived. As explained before, naming is based on the subjective opinion of the researcher to represent the underlying nature of the factors (Hair et al., 1992). As can be seen in Table 9.4.7, the HFS Index for Arafat is presented. Factor 1 is called 'pilgrim care and site up-keeping', because it includes five items that relate to the pilgrims' requirement for appropriate treatment by people in position of authority such as: policemen and governmental officials; and also by the Mutawifeen staff, and ordinary citizens. It also includes the need for particular consideration to be shown to pilgrims who lose their way in Arafat. The other subject in factor 1 refers to 'cleanliness of sites' and this item is perceived as being very important in Arafat. It is clear that although most pilgrims only stay for a few hours in this *Hajj* venue, they still require clean sites for this period.

Factor 2 is about 'movements and basic facilities', and comprises two main issues. They are: 1) movements which include: freedom of pilgrims' movements; travelling from Arafat to Muzdalifah; public transportation; and car parks, and 2) some basic facilities which include: provision of free drinking water; public toilets; accommodation facilities; and health services.

Factor 3 consists of items with regard to the pilgrims' need to be kept in touch with the rest of the world by various means of communication such as: postal services, and telephone facilities. The naming of the factors and their description is summarised in Table 9.4.7. The same table also shows the average mean (i.e. the importance) of each item, its standard deviation, its corrected item-to-total correlation, and the Cronbach Alpha value for each of the three factors.

The HFS index for Arafat has captured principal dimensions of the HFS required by pilgrims in Arafat, and represents fundamental aspects of what pilgrims need and expect in this *Hajj* venue. The next step is to develop the HFS Index for Muzdalifah.

Table 9.4.7: The Hajj Facilities and Services Index for Arafat

Q. #	Items	Mean	St Dev*	CI-TC**	Alpha
Factor 1:	***Pilgrim care and site-upkeeping***				
Q71A	Treatment by policemen	4.3819	0.8541	.7430	.8706
Q70A	Treatment by officials	4.3437	0.9131	.7431	
Q72A	Treatment by local people	4.1862	0.9922	.6559	
Q73A	Treatment by Mutawifeen staff	4.2005	1.0085	.6038	
Q68A	Guiding services	4.4558	0.9254	.6239	
Q65A	Cleanliness of sites	4.4606	0.8273	.6761	
	Average mean	**4.3381**			
Factor 2:	***Movements and basic facilities***				
Q45A	Fewer traffic jams	4.2133	0.9087	.6143	.8628
Q44A	Public transportation	4.0390	1.0242	.5448	
Q48	Travelling to Arafat & Muzdalifah	4.1376	1.0303	.5764	
Q59A	Toilet facilities	4.4587	0.8687	.7115	
Q46A	Freedom of pilgrims' movements	4.3716	0.9145	.5892	
Q54A	Car parking facilities	4.1950	0.9302	.6181	
Q58A	Public drinking water	4.5390	0.7706	.6602	
Q55A	Accommodation facilities	3.8968	1.0703	.4961	
Q64A	Health services	4.5849	0.8247	.5749	
	Average mean	**4.2707**			
Factor 3:	***Communication***				
Q61A	Postal services	3.0289	1.4224	.5869	.7378
Q60A	Public telephones	3.5904	1.2988	.5869	
	Average mean	**3.3097**			

* Standard Deviation, ** Corrected Item-Total Correlation, Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

9.5 Development of the HFS Index for Muzdalifah

Having finished developing the HFS Index for Makkah and Arafat, the next step is to construct another HFS Index for Muzdalifah using the same methods in purifying the data. In Table 9.5.1, a proposed HFS index for Muzdalifah is listed, reproduced dimensions of the HFS, and the corresponding twenty five questions formulated in the earlier chapter to measure the degree of the HFS importance in Muzdalifah, are shown. Similarly, as with all the other constructs used in this study, the questions will be tested using the two stages (reliability and factor analysis) of data purification process described above to ensure a high degree of reliability and robustness.

9.5.1 Reliability Analysis for the HFS, Muzdalifah

For the HFS construct in Muzdalifah, all the 25 questions were subjected to reliability analysis based on five dimensions. They are: 1) hospitality and principal facilities, 2) transportation and movements, 3) information and communication, 4) treatment and personal caring, and 5) miscellaneous HFS. Items with a 'corrected item-total correlation' score of 0.35 and higher will be retained while items with a score lower than 0.35 will be removed in order to increase the consistency and reliability of the measure (Edgett, 1991).

The reliability analysis is similar to the one carried out for Makkah and Arafat, a summary of which is reproduced in Table 9.5.2. As the table shows, some items produce good correlation scores (higher than 0.35), however 6 items score less than 0.35. These are the three items forming the dimension that are related to information and communication. They were: signposting, media services, and information provision about the historical places in Muzdalifah. The other three items represented some miscellaneous facilities and/or features such as: shopping facilities and reasonable pricing of goods and food. These six items were left out in subsequent analysis. The other 19 items were retained for further tests. The next step is to conduct factor analysis using the remaining items.

Table 9.5.1: A Proposed HFS Index for Muzdalifah

Dimensions	Ques. #	Code	Measurement Variables
1. Hospitality and principal facilities	55Z	AF	1. Accommodation
	56Z	RC	2. Restaurants and eating places
	58Z	DW	3. Public drinking water
	64Z	HS	4. Health services
	59Z	TF	5. Toilet and washing facilities
	65Z	LP	6. Cleanliness of sites
2. Transportation and movements between and within Hajj venues	44Z	PT	1. Public transportation
	45Z	TJ	2. Fewer traffic jams
	46Z	PM	3. Pilgrims movements
	49	MA	4. Travelling from Muzdalifah to Mina
	54Z	CP	5. Car parking facilities
3. Information and communication	67Z	GI	1. General information
	66Z	DS	2. Signposting
	69Z	MS	3. Media services
	60Z	PH	4. Public telephones
	61Z	PS	5. Postal services
	74Z	IP	6. Information about historical places
4. Pilgrim care	70Z	TO	1. Treatment by officials
	71Z	TP	2. Treatment by policemen
	72Z	TL	3. Treatment by local people
	73Z	MP	4. Treatment by Mutawifeen staff
	68Z	GS	5. Personal guiding services
5. Miscellaneous facilities/services	62Z	SP	1. Shopping facilities
	63Z	PG	2. Reasonable pricing
	57Z	FP	3. Inexpensive food
Total number of dimensions = 5			Total number of items = 25

Table 9.5.2: Reliability Analysis, Corrected Item - Total Correlation and Cronbach Alpha Values for the HFS, Muzdalifah (1st run)

Dimensions and HFS Variables (Items)	Question Number	Code	Corrected Item - Total Correlation	Cronbach Alpha
Hospitality and principal facilities				
1. Accommodation	Q55z	AF	.4801	.8051
2. Restaurants and cafeterias	Q56z	RC	.5310	
3. Public drinking water	Q58z	DW	.6401	
4. Health services	Q64z	HS	.6019	
5. Toilet and washing facilities	Q59z	TF	.6418	
6. Cleanliness of sites	Q65z	LP	.5683	
Transportation and movements between and within the Hajj venues				
1. Public transportation	Q44z	PT	.5365	.7748
2. Fewer traffic jams	Q45z	TJ	.6184	
3. Pilgrims movements	Q46z	PM	.5089	
4. Travelling to Mina	Q49	AM	.5487	
5. Car parking facilities	Q54z	CP	.5388	
Information and communication				
1. General information	Q67z	GI	.3812	.6477
2. Sign posting	Q66z	DS	.3197*	
3. Media services	Q69z	MS	.2070*	
4. Public telephones	Q60z	PH	.5785	
5. Postal services	Q61z	PS	.4974	
6. Information about historical places	Q74z	IP	.3318*	
Pilgrim care				
1. Treatment by officials	Q70z	TO	.7391	.8492
2. Treatment by policemen	Q71z	TP	.7072	
3. Treatment by local people	Q72z	TL	.6525	
4. Treatment by Mutawifeen staff	Q73z	MP	.5811	
5. Guiding services	Q68z	GS	.6332	
Miscellaneous facilities/services				
1. Shopping facilities	Q62z	SP	.0737*	.3848
2. Reasonable pricing	Q63z	PG	.3025*	
3. Inexpensive food	Q57z	FP	.3488*	

* Standard Deviation, ** Corrected Item-Total Correlation, Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

9.5.2 Factor Analysis for the HFS Muzdalifah

As previously carried out, factor analysis is conducted again on the HFS-Muzdalifah construct comprising a total of 19 items with item-total correlation scores higher than 0.35 as identified in the previous section.

KMO and Barlett tests were conducted to check whether factor analysis was appropriate for the HFS Muzdalifah instrument. The result is reproduced in Table 9.5.3. In Accordance with the criterion used in Section 9.3 and 9.4, the result shows that factor analysis is suitable and can be appropriately applied for the HFS variables in Muzdalifah. Factor analysis is conducted, and the final statistics, which show communality figures, Eigenvalue, and percentage of variance for the HFS-Muzdalifah, are also shown in Table 9.5.3. Rotated factor matrix and reliability analysis (1st run) are reproduced in Table 9.5.4.

As observed in Table 9.5.4, the Varimax rotation produced four groups of factors, most of which seemed to have significant factor loadings (> 0.4). The next test is to conduct a reliability analysis for the produced factors. The results of this last analysis is shown in the same table. It is found that all items in Table 9.5.4 scored satisfactory high values (> 0.4) in 'corrected item-to-total correlation' analysis, also the Cronbach alpha for each or the four factors is more than 0.7. These results indicate that the developed HFS measure for Muzdalifah is frequently consistent and reliable. The next step is to name the factors resulting from the above process.

Table 9.5.3: Factor Analysis, Final Statistics for the HFS, Muzdalifah, 1st run

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .90324
Bartlett Test of Sphericity = 3505.3388, Significance = .00000

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
Q55Z	.54610	*	1	7.29223	38.4	38.4
Q56Z	.70557	*	2	1.89435	10.0	48.4
Q58Z	.62544	*	3	1.40643	7.4	55.8
Q64Z	.50882	*	4	1.18912	6.3	62.0
Q59Z	.63490	*				
Q65Z	.57309	*				
Q44Z	.60244	*				
Q45Z	.57262	*				
Q46Z	.54136	*				
Q49	.51700	*				
Q54Z	.50260	*				
Q67Z	.68346	*				
Q60Z	.74050	*				
Q61Z	.76103	*				
Q70Z	.74028	*				
Q71Z	.70388	*				
Q72Z	.67043	*				
Q73Z	.53016	*				
Q68Z	.62244	*				

Table 9.5.4: Rotated Factor Matrix and Reliability Analysis for Muzdalifah

Factor analysis Muzdalifah 2nd run:					Reliability Analysis:	
	Factor 1	Factor 2	Factor 3	Factor 4	Corrected Item-Total Correlation	Alpha
Q70Z	**.80324**	.15701	.26329	.03341	.7543	.8682
Q72Z	.78842	.08979	.02506	.20033	.6453	
Q71Z	.77230	.12751	.30193	.00379	.7184	
Q73Z	.69900	.19697	.05076	.01388	.6073	
Q68Z	.67727	.21036	.34558	-.00847	.6466	
Q65Z	.56895	.30674	.39234	.03690	.6400	
Q44Z	.07929	**.73298**	.05223	.23700	.5520	.7468
Q45Z	.07679	.68539	.29808	.09008	.5416	
Q49	.23505	.61539	.24351	-.15411	.4923	
Q54Z	.34116	.59984	.15998	.02857	.5717	
Q67Z	.44404	.52456	-.28785	.35814	.4326	
Q56Z	.14630	-.02249	**.74547**	.35769	.5596	.8075
Q58Z	.39387	.37410	.57476	-.00173	.6446	
Q59Z	.38730	.44849	.53163	-.03342	.6004	
Q64Z	.36790	.31861	.52026	.03571	.5784	
Q46Z	.31214	.43387	.50562	-.00587	.5794	
Q55Z	.07560	.33909	.48617	.43479	.5107	
Q61Z	.01200	-.01240	.00283	**.87219**	.6191	.7640
Q60Z	.09525	.13418	.22499	.81413	.6191	

9.5.3 Naming the Factors of the HFS Index, Muzdalifah

After a satisfactory factor solution is derived, naming the generated factors is carried out. As explained before, naming is based on a subjective opinion of the researcher to represent the underlying nature of the factors (Hair et al., 1992). In the HFS Index for Muzdalifah Table 9.5.5, Factor 1 is similar to the one in the Arafat Index, and it is also called 'pilgrim care and site-upkeeping' because, it includes five items that relate to one issue. These relate to the respondents' requirement for appropriate treatment by the people in position of authority i.e. policemen, governmental officials and the Mutawifeen staff, and local community. It also involves the need for special attention to be given to pilgrims who lose their way in Muzdalifah. The other subject in factor 1 is regards the cleanliness of sites in Muzdalifah. This item is perceived by pilgrims as being very important. It appears that although most pilgrims only stay for few hours in this *Hajj* venue, they still want clean sites for their overnight stays.

Factor 2 concerns 'transportation and information'. It comprises of two main issues. They are: 1) transportation which include: a) car parks; b) public transportation; c) travelling from Muzdalifah to Mina; and c) free traffic flow, and 2) the need for general information services in Muzdalifah.

Factor 3 comprises of items concerning 'basic facilities and freedom of movement'. It includes: restaurants and eating places; drinking water; toilet facilities; health services; accommodation; and easy movement for pilgrims whenever they are looking for HFS in Muzdalifah.

Factor 4 is called 'communication', because it concerns the pilgrims' requirement to be in touch with the rest of the world via telephones. The naming of the factors and their description is summarised in Table 9.4.5. The same table also shows the average mean (i.e. the importance) of each item, its standard deviation, its corrected item-to-total correlation, and the Cronbach Alpha value for all four factors.

The HFS index for Muzdalifah has captured the principal dimensions of the HFS required by pilgrims in this *Hajj* venue, and represents fundamental aspects of what pilgrims need and expect during their short stay there. The next step is to develop the HFS index for Mina.

Table 9.5.5: The Hajj Facilities and Services Index for Muzdalifah

Ques. #	Items	Mean	*St Dev	**CI-TC	Alpha
Factor 1:	***Pilgrim care and site-upkeeping***				
Q70Z	Treatment by officials	4.3079	0.9297	.7543	.8682
Q72Z	Treatment by local people	4.1456	0.0097	.6453	
Q71Z	Treatment by policemen	4.3652	0.8765	.7184	
Q73Z	Treatment by Mutawifeen staff	4.1647	1.0372	.6073	
Q68Z	Guiding services	4.4057	0.9597	.6466	
Q65Z	Cleanliness of sites	4.3795	0.9237	.6400	
	Average mean	**4.2948**			
Factor 2:	***Transportation and information***				
Q44Z	Public transportation	3.8279	1.1740	.5520	.7468
Q45Z	Fewer traffic jams	4.1419	0.9875	.5416	
Q49	Travelling (Muzdalifah-Mina)	4.0209	1.1060	.4923	
Q54Z	Car parking facilities	4.1628	1.0203	.5717	
Q67Z	General information	3.5767	1.3195	.4326	
	Average mean	**3.9460**			
Factor 3:	***Basic facilities and freedom of movement***				
Q56Z	Restaurants and eating places	3.9400	1.2176	.5596	.8075
Q58Z	Public drinking water	4.4388	0.8906	.6446	
Q59Z	Toilet facilities	4.3857	0.9386	.6004	
Q64Z	Health services	4.5219	0.9053	.5784	
Q46Z	Freedom of pilgrims' movements	4.3557	0.9220	.5794	
Q55Z	Accommodation facilities	3.5912	1.2753	.5107	
	Average mean	**4.2055**			
Factor 4:	***Communication***				
Q61Z	Postal services	2.8430	1.4387	.6191	.7640
Q60Z	Public telephones	3.3623	1.3580	.6191	
	Average mean	**3.1026**			

* Standard Deviation, ** Corrected Item-Total Correlation, Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

9.6 Development of the HFS Index for Mina

Having finished developing the HFS Index for Muzdalifah, the next step is to set up another HFS Index for Mina applying the same procedure of data purification. In Table 9.6.1 a proposed HFS index for Mina is shown, reproduced dimensions of the HFS and the corresponding twenty eight questions formulated in the earlier chapter to measure the degree of the HFS importance in Mina are listed. There are three unique variables applied in Mina only. They are: 1) movements in Jamarat, 2) shops that sell coupons for animals' sacrificing, and 3) barber shops. These variables derived from the pilgrims' requirements in Mina which are based on the *Hajj* rites performed in this *Hajj* venue (see Chapter 3). Like all the other constructs used in this study, the questions underwent the two stages (reliability, and factor analysis) of the data purification process described in earlier sections to ensure a high degree of reliability and robustness.

9.6.1 Reliability Analysis for the HFS, Mina

For the HFS construct in Mina, all the 28 questions were subjected to reliability analysis based on five dimensions. They are: 1) hospitality and principal facilities, 2) transportation and movements, 3) information and communication, 4) pilgrim care, and 5) miscellaneous HFS. Items with a 'corrected item-total correlation' score of 0.35 and higher will be retained while items with a score lower than 0.35 are going to be removed in order to increase the consistency and reliability of the measure (Edgett, 1991).

The reliability analysis is similar to the one carried out for Makkah, Arafat, and Muzdalifah, a summary of which is reproduced in Table 9.6.2. As the table shows, most of the items produce good correlation scores, i.e. higher than 0.35. However, 2 items will be omitted as they score less than 0.35. These items are: 1) information about the historical places, and 2) shopping facilities. The other 26 items are retained for further examination. After the reliability analysis, a factor analysis will be conducted to test the 26 items.

Table 9.6.1: A Proposed Index for HFS in Mina

Dimensions	Ques. #	Code	Measurement Variables
Hospitality and principal facilities			
	55I	AF	1. Accommodation facilities
	56I	RC	2. Restaurants and eating places
	58I	DW	3. Public drinking water
	64I	HS	4. Health services
	59I	TF	5. Toilet and washing facilities
	65I	LP	6. Cleanliness of sites
Transportation and movements between/within the Hajj venues			
	44I	PT	1. Public transportation
	45I	TJ	2. Fewer traffic jams
	46I	PM	3. Freedom of Pilgrims' movements
	53	JMR	4. Movements in Jamart
	50	MA	5. Travelling to Makkah
	54I	CP	6. Car parking facilities
Information and communication			
	67I	GI	1. General information
	66I	DS	2. Signposting
	69I	MS	3. Media services
	60I	PH	4. Public telephones
	61I	PS	5. Postal services
	74I	IP	6. Information about historical places
Pilgrim care			
	70I	TO	1. Treatment by officials
	71I	TP	2. Treatment by policemen
	72I	TL	3. Treatment by local people
	73I	MP	4. Treatment by Mutawifeen staff
	68I	GS	5. Personal guiding services
Miscellaneous facilities/services/features	62I	SP	1. Shopping facilities
	63I	PG	2. Reasonable pricing
	57I	FP	3. Inexpensive Foods
	78I	SAC	4. Shops to sell coupons for animals sacrificing
	79I	BRS	5. Barber shops
Total number of dimensions = 5			Total number of items = 28

Table 9.6.2: Reliability Analysis, Corrected Item - Total Correlation and Cronbach Alpha Values for the HFS, Mina (1st run)

Dimensions and HFS Variables (Items)	Ques. Number	Code	Corrected Item - Total Correlation	Cron. Alpha
Hospitality and principal facilities				
1. Accommodation	55I	AF	.6065	.8778
2. Restaurants and cafeterias	56I	RC	.6978	
3. Public Drinking	58I	DW	.7076	
4. Health services	64I	HS	.6248	
5. Toilet and washing facilities	59I	TF	.7754	
6. Cleanliness of sites	65I	LP	.7032	
Transportation and movements B/W Hajj venues				
1. Public transportation	44I	PT	.6009	.8191
2. Fewer traffic jams	45I	TJ	.6161	
3. Freedom of pilgrims' movements	46I	PM	.5180	
4. Movements in Jamart	53		.5655	
5. Travelling to Makkah	50	MA	.5731	
6. Car parking facilities	54I	CP	.6297	
Information and communication				
1. General information	67I	GI	.4294	.7103
2. Signposting	66I	DS	.4170	
3. Media services	69I	MS	.3512	
4. Public telephones	60I	PH	.6357	
5. Postal services	61I	PS	.5597	
6. Information about historical places	74I	IP	.3475*	
Pilgrim care				
1. Treatment by officials	70I	TO	.7407	.8524
2. Treatment by policemen	71I	TP	.7027	
3. Treatment by local people	72I	TL	.6861	
4. Treatment by Mutawifeen staff	73I	MP	.6398	
5. Personal guiding services	68I	GS	.5653	
Miscellaneous facilities/services/features				
1. Shopping facilities	62I	SP	.3381*	.6660
2. Reasonable pricing	63I	PG	.4801	
3. Inexpensive Foods	57I	FP	.4705	
4. Shops which sell coupons for animals sacrificing	78	SAC	.4417	
5. Barber shops	79	BRS	.4032	

Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

9.6.2 Factor Analysis for the HFS, Mina

As applied previously, factor analysis is conducted on the HFS for Mina construct comprising a total of 26 items with item-to-total correlation scores higher than 0.35 as identified in the previous section.

In testing whether factor analysis was appropriate for the HFS-Mina instrument, the KMO and Barlett tests were conducted. The result is reproduced in Table 9.6.3. Using the criterion of Section 9.3, the result shows that factor analysis is suitable and can be appropriately applied for the HFS variables in Mina. Factor analysis is employed, the final statistics which show communality figures, Eigenvalue and percentage of variance for the HFS-Mina are also shown in Table 9.6.3.

As observed in Table 9.6.4, the rotated matrix using Varimax rotation technique produced five groups of factors, most of which seemed to have significant factor loadings. The subsequent step was to investigate the reliability of the created factors and related variables.

The results of the final rotation and the reliability analysis for the reproduced factors are represented in Table 9.6.4. It is found that all of the items have factor loadings larger than 0.50, i.e. very significant, except two items that scored lower factor loadings, these relate to: 1) reasonable pricing (0.436), and 2) general information (0.372). According to Hair, et al., (1992) factor loadings greater than +0.30 are still considered significant. The reliability analysis is conducted again, the results of which are shown in the same table. The 26 items scored satisfactory values (> 0.35) in 'corrected item-to-total correlation' analysis. Furthermore, the Cronbach alpha for each of the three factors is high. These results indicate that the developed HFS measure for Mina is highly consistent and reliable. The next step is to name the factors resulting from the above process.

Table 9.6.3: Factor Analysis, Final Statistics for the HFS, Mina

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .92118
Bartlett Test of Sphericity = 5543.1314, Significance = .00000

Final Statistics

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
Q55I	.55081 *	1	10.19644	39.2	39.2
Q56I	.58974 *	2	2.11229	8.1	47.3
Q58I	.70677 *	3	1.62902	6.3	53.6
Q64I	.62891 *	4	1.35237	5.2	58.8
Q59I	.77295 *	5	1.02932	4.0	62.8
Q65I	.62330 *				
Q44I	.57972 *				
Q45I	.58341 *				
Q46I	.55560 *				
Q53	.61600 *				
Q50	.50931 *				
Q54I	.66780 *				
Q67I	.37002 *				
Q66I	.58847 *				
Q69I	.50719 *				
Q60I	.69350 *				
Q61I	.74038 *				
Q70I	.76315 *				
Q71I	.71638 *				
Q72I	.70578 *				
Q73I	.72160 *				
Q68I	.61687 *				
Q63I	.48053 *				
Q57I	.60687 *				
Q78I	.72554 *				
Q79I	.69882 *				

9.6.3 Naming the Factors of the HFS Index, Mina

The naming of the factors is carried out thereafter when a satisfactory factor solution is derived. As explained before, naming is based on a subjective opinion of the researcher to represent the underlying nature of the factors (Hair et al., 1992). In the HFS Index for Mina, as shown in Table 9.6.5, Factor 1 is called 'hospitality and site-upkeeping', because it includes nine items that are mostly required by pilgrims in Mina. These HFS with regard to the hospitality facilities which are considered fundamental to people who want to spend few days in a particular place. They are: toilet facilities; drinking water; health services; signposting; cleanliness of sites; guiding services; restaurants and eating places; inexpensive food; and reasonable pricing.

Factor 2 is called 'movements and accommodation', because it comprises two main issues. The first - 'movements' - includes: fewer traffic jams; freedom of pilgrims movements; public transportation; car parks; travelling from Mina to Makkah; and movements in Jamarat. The second is the need for appropriate accommodation facilities in Mina. Factor 2 is influenced by the main ritual activities that pilgrims do during their stay in this particular *Hajj* venue. The activities include pelting the Jamarat, travelling to Makkah for *Tawaf*, and sleeping inside the Mina territory during night time (see Chapter 3).

The name of factor 3 is 'pilgrim care and information', because it reflects the pilgrims' requirement for: a) appropriate treatments by the service providers, and b) correct information whenever they need it in Mina. Factor 4 comprises of items concerning the pilgrims' requirement to be kept in touch with the rest of the world through means of communication such as postal services, telephones, and media services. The last factor concerns the two items which are exclusively required in Mina, i.e. 'hair cutting, and animals sacrificing facilities'.

The naming of the factors and their description are summarised in Table 9.6.5. The same table also shows the average mean (i.e. the importance) of each item, its standard deviation, its corrected item-to-total correlation, and the Cronbach Alpha value for each of the five factors. The HFS index for Mina has clearly captured principal dimensions of the HFS required by pilgrims in Mina, and represents

fundamental aspects of what pilgrims expect in this *Hajj* venue. The next step is to develop a general index for the *Hajj* facilities, and service quality (HFSQ).

Table 9.6.4: Factor Analysis, Rotated Matrix for the HFS, Mina

Factor analysis Mina:						Reliability Analysis:	
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Corrected Item-Total Correlation	Alpha
Q59I	**.78224**	.34153	.14971	.09725	.11199	.8005	.9011
Q58I	.75467	.29011	.22029	.05960	.03151	.7407	
Q64I	.69526	.32165	.16303	.01870	.12304	.6318	
Q66I	.64308	.21636	.14700	.18482	.26897	.5834	
Q65I	.61062	.27518	.31486	.20067	.18793	.7504	
Q68I	.59518	.18983	.46890	-.03642	.07358	.6815	
Q57I	.59104	.34094	.30916	-.08546	.19600	.6972	
Q56I	.53272	.39981	.21969	.30615	-.06409	.6439	
Q63I	.43683	.05791	.38794	.32974	.16472	.5715	
Q45I	.19119	**.70300**	.03556	-.02108	.22570	.6042	.8366
Q46I	.13878	.67177	.23533	.10416	.13723	.5427	
Q44I	.23162	.66386	.08522	.27921	.01190	.6221	
Q54I	.41650	.64988	.26158	.05632	.01991	.6676	
Q50	.25213	.62479	.13131	-.05538	.18726	.5772	
Q53	.40445	.62130	.23344	-.09670	.05064	.5900	
Q55I	.36332	.52500	.14349	.32780	-.12306	.5078	
Q73I	.05999	.20701	**.81326**	.02622	.11437	.5742	.8192
Q72I	.21238	.15235	.76847	.19506	.09418	.6696	
Q70I	.39117	.18034	.75217	.09683	.04976	.7444	
Q71I	.44344	.14782	.69496	.11688	-.03553	.6994	
Q67I	.26027	.16333	.37219	.33822	.15062	.4545	
Q61I	.07450	.05924	.12403	**.84268**	-.07634	.6407	.7103
Q60I	.17855	.27356	.15717	.74972	.00029	.5679	
Q69I	-.04472	-.10629	.00497	.69258	.11918	.4164	
Q79I	.11506	.16446	.10814	-.03554	**.80348**	.5281	.6911
Q78I	.20866	.12912	.09268	.11754	.80182	.5281	

Table 9.6.5: The Hajj Facilities and Services Index for Mina

Ques. #	Items	Mean	*St Dev	**CI-TC	Alpha
Factor 1:	***Hospitality and site-ukeeping***				
Q59I	Toilet facilities	4.4506	.9353	.8005	.9011
Q58I	Public drinking water	4.5333	.8122	.7407	
Q64I	Health services	4.6299	.7581	.6318	
Q66I	Signposting	4.6621	.7237	.5834	
Q65I	Cleanliness of sites	4.4529	.9256	.7504	
Q68I	Guiding services	4.5172	.8622	.6815	
Q57I	Inexpensive food	4.2713	1.0092	.6972	
Q56I	Restaurants and eating places	4.2828	.9311	.6439	
Q63I	Reasonable pricing	3.9701	1.1506	.5715	
	Average mean	**4.4189**			
Factor 2:	***Movements and accommodation***				
Q45I	Fewer traffic jams	4.2748	.9194	.6042	.8366
Q46I	Freedom of pilgrims' movements	4.4414	.8598	.5427	
Q44I	Public transportation	4.1869	.9352	.6221	
Q54I	Car parking facilities	4.3423	.8939	.6676	
Q50	Travelling to Makkah	4.0833	.9965	.5772	
Q53	Movements in Jamarat	4.3761	.9409	.5900	
Q55I	Accommodation facilities	4.2500	.8647	.5078	
	Average mean	**4.2793**			
Factor 3:	***Pilgrim care and information***				
Q73I	Treatment by Mutawifeen staff	4.2286	1.0248	.5742	.8192
Q72I	Treatment by local people	4.2024	.9521	.6696	
Q70I	Treatment by officials	4.3667	.9028	.7444	
Q71I	Treatment by policemen	4.3929	.8604	.6994	
Q67I	General information	3.8357	1.2259	.4545	
	Average mean	**4.2053**			
Factor 4:	***Communication***				
Q61I	Postal services	3.6780	1.3221	.6407	.7103
Q60I	Public telephones	4.0533	1.1178	.5679	
Q69I	Media services	3.2010	1.4913	.4164	
	Average mean	**3.6441**			
Factor 5:	***Hair cutting and animal sacrificing***				
Q79I	Barber shops	4.4467	.8803	.5281	.6911
Q78I	Shops selling coupons of animals' sacrificing	4.5193	.8688	.5281	
	Average mean	**4.4830**			

* Standard Deviation, ** Corrected Item-Total Correlation, Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

9.7 Testing the Hajj Facilities and Service Quality Measure

After developing the HFS Index for Mina. The next step is to test the reliability of other measurements concerning the *Hajj* major facilities, and service quality (HFSQ) in general, applying the same procedure of testing data reliability. In Table 9.7.1 a proposed HFSQ index is shown, two dimensions are reproduced for HFSQ. These dimensions include the corresponding twenty questions formulated in the earlier chapter to measure the degree of the HFSQ importance in general.

The first dimension is about the service quality issues that were discussed earlier in Chapter 6. The second dimension concerns some essential *Hajj* facilities, services, and/or features. It includes three important requirements for the *Hajj* trip: 1) common safety of pilgrims, 2) general security of the *Hajj* season, and 3) performing the *Hajj* perfectly as explained by the prophet Mohammed - peace be upon Him - i.e. as *Sunah*. The questions in Table 9.7.1 will be tested using reliability analysis described in earlier sections to ensure a high degree of reliability and robustness.

Table 9.7.1: A Proposed Hajj Facilities and Service Quality Index

Dimensions	Ques. #	Measurement Variables
Service Quality		
	Q9	1. Prompt service
	Q10	2. Problems are corrected
	Q11	3. Assistant services
	Q12	4. Larger rooms in accommodation
	Q13	5. Attractive public areas
	Q17	6. Anticipation of pilgrims' needs
	Q18	7. Increased privacy
	Q19	8. Special requests carried out
	Q22	9. Knowledgeable staff
	Q26	10. Treatment by policemen
	Q27	11. Treatment by Mutawifeen staff
	Q28	12. Trained employees
Essential Hajj facilities / services / features		
	Q14	1. Performing the *Hajj* as Sunah
	Q15	2. General security of the *Hajj* season
	Q16	3. Public toilets
	Q20	4. Common safety of pilgrims
	Q21	5. Cleanliness of sites
	Q23	6. Less crowding
	Q24	7. Transportation & movement
	Q25	8. Health services

9.7.1 Reliability Analysis of the HFSQ Index

For the HFSQ construct, all the 20 questions were subjected to reliability analysis based on the two dimensions. Items with a 'corrected item-total correlation' score of 0.35 and higher will be retained while items with a score lower than 0.35 will be removed in order to increase the consistency and reliability of the measure (Edgett, 1991).

The reliability analysis is similar to the one carried out for Makkah, Arafat, Muzdalifah, and Mina. A summary of which is reproduced in Table 9.7.2. As can be seen in the table, all the items produce high correlation scores, i.e. greater than 0.5. Furthermore, dimension 1 scored a Cronbach Alpha value equals to 0.919, and dimension 2 scored 0.886.

The analysis results indicate high consistency and reliability of the measure employed. In other words, the questions used in each dimension are making substantial contribution to the measuring of that particular dimension. This conclusion is derived from the high corrected item-to-total correlation scores, and the high Alpha values of the two dimensions. Hence, factor analysis is not going to be employed for the HFSQ index because of three reasons: 1) the analysis results discussed above showed high reliability scores, 2) most of the facilities, services, and/or features included in dimension (2) were included in previous analysis concerning the various *Hajj* venues, and they were proved to be valid for this study, and 3) the number of the variables in the HFSQ index are manageable, and according to Lehmann's (1989) argument there is therefore no need for factor analysis.

Table 9.7.2: The Hajj Facilities and Service Quality (HFSQ) Index

Ques. #	Items	Mean	*St Dev	**CI-TC	Alpha
	Dimension 1: Service Quality				
Q9	Prompt service	4.4513	.9032	.7330	.9191
Q10	Problems are corrected	4.4690	.8715	.7219	
Q11	Assistant services	4.3186	.8659	.7496	
Q12	Larger rooms in accommodation	4.1549	.9913	.6345	
Q13	Attractive public areas	4.0420	1.0678	.5306	
Q17	Anticipation of pilgrims' needs	4.1615	.9218	.6742	
Q18	Increased privacy	3.9912	1.0696	.6445	
Q19	Special requests carried out	4.0265	1.0096	.6776	
Q22	Knowledgeable staff	4.2588	1.1579	.6575	
Q26	Treatment by policemen	4.3186	.8911	.5885	
Q27	Treatment by Mutawefeen staff's	4.1681	1.0069	.7631	
Q28	Trained employees	4.0509	1.1892	.6971	
	Average means	**4.2010**			
	Dimension 2: Essential facilities / services / features				
Q14	Performing the *Hajj* as Sunah	4.6302	.7017	.6167	.8664
Q15	General security of the *Hajj* season	4.5295	.8658	.5139	
Q16	Public toilets	4.5252	.7039	.7123	
Q20	Common safety of pilgrims	4.6586	.6602	.6776	
Q21	Cleansing services of sites	4.4508	.9166	.7300	
Q23	Less crowding	4.2932	.8412	.5798	
Q24	Transportation & movement	4.2516	.8836	.5591	
Q25	Health care	4.4923	.7437	.6146	
	Average means	**4.4789**			

* Standard Deviation, ** Corrected Item-Total Correlation, Scale: a five-point Likert scale where: 5 = highly important; 4 = very important; 3 = important; 2 = slightly important; 1 = not important.

9.8 The *Hajj* Experience and Pilgrims' Satisfaction

For the questions concerning the pilgrims' satisfaction with respect to the available HFS, all the 4 questions were subjected to reliability analysis in order to investigate the most reliable questions which can explain the pilgrims' degree of satisfaction. As explained previously, items with a 'corrected item-total correlation' score of 0.35 and higher will be retained while items with a score lower than 0.35 will be removed in order to increase the consistency and reliability of the measure (Edgett, 1991).

The reliability analysis is similar to the one carried out for Makkah, Arafat, Muzdalifah, and Mina, a summary of which is reproduced in Table 9.8.1. As can be seen in the table, all the items produce high correlation scores greater than 0.5 except the item concerning Q32 "I feel that present HFS are satisfactory" which scores 0.3074, i.e. less than 0.35. The four questions scored a Cronbach Alpha value equals to 0.6544. However, as shown in Table 9.8.2, if Q32 is removed the analysis result indicates that the remaining questions form a dimension which is of a high consistency and reliability. In other words, the questions used in the dimension presented in Table 9.8.2 are making a substantial contribution to the measuring of that particular dimension "The *Hajj* experience". This conclusion is derived from the high corrected item-to-total correlation scores, and the high Alpha values of the dimension which is equal to 0.714.

Moreover, the results can also be interpreted as showing that although pilgrims were satisfied in the main with the spiritual *Hajj* experience, they felt that there was room for improvement in some areas with respect to the HFS. The *Hajj* season organisers must appreciate this finding because it shows that pilgrims' opinions and judgements concerning the HFS quality might be affected by the high quality spiritual experience of the *Hajj* event. In other words pilgrims may ignore problems and shortages in the HFS because *Hajj* has great ritual meaning to them. However the *Hajj* organisers must investigate any problems and shortages before they affect the organising of the *Hajj* and/or the safety and security of the pilgrims.

Table 9.8.1: The Pilgrims' Level of Satisfaction (1st run)

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1.	Q33	The *Hajj* experience is excellent
2.	Q34	Would like to perform *Hajj* again soon
3.	Q35	Would encouraging others to do *Hajj* soon
4.	Q32	Present HFS are satisfactory

		Mean	Std Dev	Cases
1.	Q33	4.1713	.9081	467.0
2.	Q34	4.3919	.8147	467.0
3.	Q35	4.4454	.8432	467.0
4.	Q32	3.6467	1.2068	467.0

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q33	12.4839	4.3404	.5323	.2977	.5216
Q34	12.2634	4.6708	.5238	.4159	.5391
Q35	12.2099	4.8014	.4510	.3514	.5800
Q32	13.0086	4.2016	.3074	.1404	.7148

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 4 items

Alpha = .6544 Standardized item alpha = .6842

Table 9.8.2: The Pilgrims' Level of Satisfaction (2nd run)

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)
The *Hajj* experience

1.	Q33	The *Hajj* experience is excellent
2.	Q34	Would like to perform *Hajj* again soon
3.	Q35	Encouraging others to do *Hajj* soon

		Mean	Std Dev	Cases
1.	Q33	4.1709	.9072	468.0
2.	Q34	4.3932	.8143	468.0
3.	Q35	4.4466	.8427	468.0

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q33	8.8397	2.1777	.4460	.2148	.7388
Q34	8.6175	2.0568	.6314	.4161	.5092
Q35	8.5641	2.1565	.5366	.3509	.6218

Reliability Coefficients 3 items

Alpha = .7146 Standardized item alpha = .7194

9.9 Summary

In developing the HFS indexes for the various *Hajj* venues, the data collected from the survey was subjected to a purification process to ensure the resultant instrument and other measures possess sound reliability and robustness. The process depended on reliability analysis (i.e. Cronbach Alpha Model), and factor analysis. The empirical analysis results show that the developed indexes have a high degree of internal reliability and robustness.

The HFS index developed for Makkah includes 29 items which represent the HFS which were mostly required by pilgrims during their stay in the Holy City for the *Hajj*. These 29 items were categorised into five dimensions, such as movement and basic facilities, hospitality facilities, pilgrim care, health care and communication, and a dimension for miscellaneous HFS. In Arafat, where pilgrims only stay for a few hours, it was found that 17 kinds of HFS were required. They were grouped into three dimensions, such as pilgrim care and cleansing services, movement and basic facilities, and communication. The HFS index for Muzdalifah included four dimensions which covered pilgrim care and cleansing services, movement and information, hospitality and freedom of movement and communication. There were 19 kinds of HFS presented in the Muzdalifah index. Furthermore, the analysis results showed that in Mina, *Hajj* planners and service providers ought to be concerned with the five factors of 1) hospitality facilities and tidiness of sites; 2) movement and accommodation; 3) pilgrim care and information; 4) communication; and 5) the facilities concerning hair cutting and animal sacrificing. These five dimensions comprised 29 various items of HFS that were required by pilgrims in Mina. Moreover, an index concerning the major HFS, and the service quality issues during the *Hajj* season was also developed in this chapter. It was found that pilgrims' perceptions concerning the importance of HFS during the *Hajj* trip varied from one venue to another. These results indicated that each *Hajj* venue was unique, i.e. it required exclusive provisions of HFS for that particular site. It is also found that the spiritual experience created during and after performing the *Hajj* is of a high quality despite the fact that pilgrims are not completely satisfied with the available HFS.

Using the HFS indexes, the next step is to analyse their relationships with other factors that might affect the pilgrims' perceptions and expectations concerning the HFS provided during the *Hajj* season. The discussion on the relationships with other factors, and the testing of these hypotheses will be the subject of the next chapter.

CHAPTER

10

Factors Influencing the Participants' Perceptions: the Hypothesis Testing

10.1 Introduction

After having finished developing the HFS indexes for the different *Hajj* venues in Chapter 9, this chapter attempts to explore factors that might affect the pilgrims' perceptions concerning the importance of the HFS during the *Hajj* season. The factors include: nationality; home of residence; age; annual income; previous experiences; etc. The present chapter's main goal is to test the research hypothesis proposed earlier in Chapter 5 by investigating the relationship that might exist between these factors and the variables available in the HFS indexes. The information produced from this exercise will provide the researchers in the large-scale industry, and the *Hajj* planners with information regarding the actual users/customers of the FS in mega-events, and it also provides them with the necessary knowledge required to identify the *Hajj* market segmentation. Hence, market segmentation is concerned with grouping people with similar needs, wants, and characteristics together so that an organisation can use greater precision in serving and communicating with its customers (Mill and Morrison 1992: 423).

Chapter 10 is divided into sections. The first section discusses briefly the factors that might influence the pilgrims' perceptions and expectations. The second and third sections explain the two statistical techniques (i.e. t-test, and ANOVA) which are used in testing the research hypothesis. The remaining sections concern presentation and explanation of the analysis results obtained for each *Hajj* venue.

10.2 Factors Influencing Pilgrims' Expectations and Perceptions

Demographic information such as: pilgrims' age; level of education; nationality; etc. are generally presented in most social study surveys to determine any existing relation between them and other variables. Similar data/methods was also recommended, obtained, and/or used in previous tourism, travel, festivals and events research (McWilliams and Mills, 1985; Inskeep, 1991; Saleh and Ryan, 1993). In this study the demographic information was considered in addition to other factors such as: whether the pilgrims came from inside Saudi Arabia or from outside of it, i.e. internal or external pilgrims; types of urban sites where pilgrims live at home; number of previous *Hajj* or *Umrah*; the size of the group that the pilgrim accompanied, etc. These factors were believed to affect the pilgrims' perceptions and/or expectations regarding the HFS.

Moreover, Zeithaml, Parasurman, and Berry (1990) in their exploratory study about service quality found that there are four key factors which influence users' expectations. They are: 1) word-of-mouth communications, 2) personal needs, 3) past experience, and 4) external communications. It was hypothesised that these factors also affect the pilgrims' perceptions regarding the importance of the HFS. In this study the four factors were considered and expressed using different forms of questions and/or statements that were customised to suit the nature of the study subject. For example, with regard to the word-of-mouth communications, pilgrims were asked whether they had talked to somebody about the *Hajj* before they came to this *Hajj* season. In order to investigate personal needs, three questions and/or statements were proposed. They included the way that the pilgrim managed to perform the *Hajj* (i.e. individually, with an agent and/or with an official agency), personal annual income, and any purpose they may have for coming to the present season other than performing the *Hajj*. The pilgrim's past experience and communication were the subject of two questions that asked about any travelling experiences, and any pre-training the pilgrim had undertaken or any lectures they had attended regarding the *Hajj*.

In the subsequent sections any significant relationship between the factors mentioned above, and the variables included in the HFS indexes which have been developed in Chapter 9, will be investigated. Before this however, the T-test, and the ANOVA test

techniques which will be employed in the statistical analysis will be discussed. These tests are commonly used in social science studies, and they are found adequate for the present study.

10.3 The t-test

The t-test technique is used to test the hypothesis that two population means are equal, for any two independent samples. For example, to investigate whether the interior pilgrims perceive the importance of facility x equally as the exterior pilgrims do or not. In the t-test analysis the hypothesis that there is no difference between the two population means is called the null hypothesis. To test the null hypothesis, we must calculate the probability of seeing a difference at least as large as the one we have observed in our samples, if there is no difference in the population. The probability of seeing a difference at least as large as the one we have observed, when the null hypothesis is true, is called the observed significance level. If the significance level is small, usually less than 0.05, we reject the null hypothesis (Norusis, 1990).

Generally speaking, each statistical test requires different assumptions than others. For the t-test, we need to assume that the distribution of the means is approximately normal, which can happen in one of two ways. The variable itself is normally distributed, so the means will automatically be normally distributed. The sample size must be large enough so we can rely on the Central Limit Theorem to consider that the means are distributed normally. For the present study the sample size is large (> 400 cases), so this assumption is satisfied.

Furthermore, the computation of the t-test differs depending on whether we assume that in the involved population the two groups that we wish to examine have the same variances or not. Using the Levene test that is available in the SPSS computer program, we can investigate the equality of the population variances. In this test, if the observed significance level is small (< 0.05), we should use the t-test marked unequal variances. If the observed significance level in the Levene test is large we should use the t-test marked equal variances (Norusis, 1990). For an example refer to Figure 10.3.1 which represents a typical data output of a t-test analysed by the SPSS program.

Figure 10.3.1: An Example of a t-test Analysis

t-tests for Independent Samples of Q2 LIVING IN SAUDI ARABIA

Variable	Number of Cases	Mean	SD	SE of Mean
Q59I T F MI (Toilet Facilities In Mina)				
YES	146	4.5616	.813	.067
NO	305	4.3705	.995	.057

Mean Difference = .1912

Levene's Test for Equality of Variances: F= 8.976 P= .003

t-test for Equality of Means					95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	2.02	449	.044	.095	(.005, .377)
Unequal	2.17	343.21	.031	.088	(.018, .365)

In the above example, the first part of the output is familiar; it shows the statistics of the concerned variable, in our case it is (yes) for the internal pilgrims who live in Saudi Arabia, or (no) for exterior pilgrims who live outside Saudi Arabia. In this part of the output, the SPSS program lists the data concerning: number of cases; means; standard deviation; and standard error of means. The numbers at the bottom, where equal and unequal are shown under the label variances, contain the information required. In order to decide which numbers to use (the numbers in front of equal or unequal variances), the Levense test result is implemented. In this example, the observed significance level is 0.003. As it is less than 0.05, the variances are therefore unequal and thus we should use numbers that belong to unequal variances. The column labelled t-value is the standardised score; it represents how unlikely the observed difference is, if the null hypothesis is true. Furthermore, the entry in the column labelled (df) means degree of freedom and that is based on the number of observations in each of the two groups minus two.

In the example shown in Figure 10.3.1, the degrees of freedom are used together with the t-value to determine how likely it is to produce a score as great as 2.17 if the mean value of the facility's importance is the same in the population. We find this probability value in the column labelled 2-tail prob. The probability given is 0.031, it is also called the observed significance level. In the present example, it is very small (< 0.05). Therefore, **it appears unlikely** that the exterior pilgrims in the population perceive the importance of this facility as much as the interior pilgrims do. For more details about t-test, see Marija J. Norusis (1990, P. 211-223).

10.4 One-way Analysis of Variance

The one-way analysis of variance (ANOVA) test is used to test the null hypothesis that several population means are equal, or in other words to compare the mean values of three or more groups. It is called one-way ANOVA because cases fall into different groups based on their values for one variable. For example, ANOVA is used to examine whether there are differences among pilgrims performing the *Hajj* for the first time, second time, and/or more than twice with respect to their perceptions concerning the importance of facility x.

By analogy, the one-way ANOVA might be considered an extension of the t-test when more than two groups are used in an experimental study (Kaplan, 1987). In the *t*-test the numerator of the test statistic is the difference between the means. In ANOVA, the numerator is the variance across treatment means. The logic of the analysis of variance requires two independent estimates of variance. One is obtained from the variance between group means (the variation of cell means around the grand mean) while the other is an independent estimate obtained from variance within groups (the variation of individual cases around their cell means). The ratio of these two variances is used to obtain the *F*-statistic (*F* = between-groups estimated variance / within-groups estimated variance). If the null hypothesis is true, the two numbers - between-groups estimated variance and within-groups estimated variance - should be close to each other, i.e. the ratio should be close to one. The statistical test for the null hypothesis that all of the groups have the same means in the population is based on computing such a ratio. It is also called an *F* statistic.

To use ANOVA test, the data must meet two conditions (Norusis, 1990): 1) each of the groups must be a random sample from a normal population, and 2) within the population, the variances in all groups must be equal. Although analysis of variance is known to be relatively robust and is unaffected by violations of these assumptions as Kaplan (1987) explained, the present study fulfils the assumptions by two means. Firstly, the sample was drawn randomly (as discussed in Chapter 6), and based on the Central Limit Theorem. It was considered normally distributed since the number of cases was large (more than 400 cases). Secondly, the main population of the study was all the pilgrims who performed *Hajj* in 1995 (more than one and half million people). In such a population, the variances in all groups are assumed to be equal. Therefore, the data collected for this research is adequate to be used in the ANOVA test.

The SPSS program is employed to calculate the ANOVA test. A typical example of the ANOVA table is shown in Figure 10.4.1. The example concerns the variable of question number 45 (fewer traffic jams) and the variable of question 4 (the pilgrims' age, that were categorised into 6 groups). The results table has six columns. The first column is for the source of variation: between, within, and total. The next three columns are for the degree of freedom (D.F.), the sums of the squares, and the means squares. For each of these columns, there is an entry for both the between- and within-groups' value. The total raw is used only for sums of squares and degree of freedom. The means square can be obtained from the preceding two columns, since $MS = ss/df$.

Figure 10.4.1: An Example of the ANOVA Result

----- ONEWAY -----

Variable Q45M Fewer traffic jams (T J)
By Variable Q4 Age

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	5	9.5954	1.9191	2.4062	.0360
Within Groups	458	365.2818	.7976		
Total	463	374.8772			

The last two columns are for the *F*-Ratio and the probability level. The *F*-Ratio is obtained from the information in the *MS* column ($F = MS_B/MS_W$). To find the *F*-Probability level we can use the *F*-table in Appendix C. *F*-Ratios are always reported with their degrees of freedom. In our example *df = 5/458,* so we go down the column labelled " Degrees of Freedom" for Denominator until we reach the nearest number to 458. Then we go across the row to the fifth column, which is associated with 5 *df* for the numerator. We set the significance level for this study as ≤ .05. According to the table, an *F*-Ratio must exceed 2.39 to be statistically significant. The obtained value in the example was 2.4062, and it was greater than 2.39. Thus, we reject the null hypothesis of no differences among the groups of pilgrims having different age in perceiving the importance of retaining fewer traffic jams in Makkah. Moreover, we may conclude that the observed differences among the six groups of age are statistically significant.

Testing the research hypothesis in various *Hajj* venues by employing the t-test and ANOVA techniques is the subject of the next sections.

10.5 Exploring the Relationship between Pilgrims' Nationality and the HFS Indexes

The nationalities of the pilgrims were categorised into eight groups which represented the six Mutawifeen establishments, the pilgrims who came from within Saudi Arabia, and other pilgrims of different nationalities who did not fall into the above categories see Table 7.4.1. The ANOVA test will be employed to explore the relationship between the nationality and the pilgrims' perceptions concerning the importance of the HFS.

10.5.1 The HFS Index of Makkah

As can be seen from Table D1 and Table D2 in Appendix D, the ANOVA test results show significant differences among pilgrims holding different nationalities with respect to their perceptions concerning the importance of HFS in Makkah. The results support the hypothesis that pilgrims who come from various countries perceive the importance of the HFS differently in Makkah.

10.5.2 The HFS Index of Arafat

The ANOVA test results presented in Table D11, and Table D12 in Appendix D show significant differences among pilgrims of different nationalities with respect to their perceptions concerning the importance of HFS in Arafat. However, one item in the HFS-Arafat list does not have a link with the pilgrims' nationalities. This concerns the need for adequate public transportation in Arafat.

10.5.3 The HFS Index of Muzdalifah

The test results show a significant relationship between the pilgrims' nationality and the pilgrims' perceptions regarding the importance of the HFS in Muzdalifah (for most of the HFS variables). Two items however, in the HFS-Muzdalifah index do not have any link with the nationality variable. They concern the treatment of pilgrims by officials, and local people. The information regarding the above finding is shown in Appendix D in Table D22, and Table D23.

10.5.4 The HFS Index of Mina

The analysis results for the HFS-Mina indicate a significant relationship between the nationality variable and the pilgrims' perceptions with respect to the importance of the HFS variables, as shown in Appendix D, Table D33 and Table D34. The results however, show that the item concerning the animals' sacrifices does not have a link with the pilgrims' nationality.

10.5.5 The *Hajj* Facilities and Service Quality (HFSQ) Index

The ANOVA test results presented in Appendix D, Table D76 and Table D77, show significant differences among pilgrims coming from various countries with respect to their perceptions regarding the importance of the HFSQ index variables.

10.5.6 The Effect of 'Nationality Variable' on the Pilgrims' Perceptions

The analysis results discussed above support the hypothesis that pilgrims who come from various countries perceive the importance of HFS differently in the different *Hajj* venues. Furthermore, by looking at the statistics, it would appear that pilgrims who come from Southeast Asia perceive the importance of the HFS more highly than other pilgrims. There is also a tendency that Arabian pilgrims perceive the importance of the HFS in Makkah to be less than the rest of the pilgrims. This result may be related to three factors, such as language, cultural background, and the *Hajj* organisation in different Muslim countries.

Arabian pilgrims speak Arabic, so they are able to find the facilities, use the services available, and ask for any information easily. Their cultural background is similar to the Saudis', i.e. Arabian pilgrims are generally familiar with the social customs and the way people treat each other in Saudi Arabia. However, unfortunately, most of the Arabic countries do not have *Hajj* organisation that provides comprehensive services for their pilgrims. Conversely, countries such as Indonesia, Malaysia, and Singapore have an exclusive *Hajj* program that covers all *Hajj* issues. The pilgrims who come from these countries must be involved in this program. They take intensive courses and training concerning not only the religious aspects of the *Hajj*, but including all subjects that pilgrims require in their *Hajj* journey. These courses and training start early in the pilgrims' home before they go to Saudi Arabia for the *Hajj*. The pilgrims

coming from Southeast Asia face less difficulties and do not cause problems to the service providers during the *Hajj* season. On the other hand however, they expect to find better HFS and services in the *Hajj* venues.

This research does not intend to explain how and why the factors mentioned above (and other factors which will be analysed below) affect the pilgrims' perceptions regarding the HFS, because such discussion must be based on extensive study which is out of the scope of the present research. The researcher however, based on his own experience concerning the *Hajj* - i.e. being a researcher in the HRC since 1984 - will attempt to explain the critical results in an effort to clarify them to the readers.

In conclusion, the current research proves by empirical evidence that nationality is an important factor to be considered in further research concerning mega-events, and in facilities, design and management for the *Hajj* event.

10.6 Exploring the Relationship between the 'Home of Residence' Variable and the HFS Indexes

The question about whether pilgrims live in Saudi Arabia or not was designed to ascertain how many pilgrims are from the interior and exterior, and to know later whether this factor affects the respondents' perceptions (the two groups) concerning the HFS and services provided in the *Hajj* venues. Table 7.5.1 shows that about one third of the sample live in Saudi Arabia (interior pilgrims) whereas the rest of the respondents live outside (exterior pilgrims). The t-test analysis is found to be adequate for investigating the relationship between this variable and the HFS indexes variables.

10.6.1 The HFS Index of Makkah

The results presented in Table 10.6.1.1 show that there are significant differences between interior and exterior pilgrims with respect to their perceptions regarding the importance of four items of the HFS index of Makkah. The four items concern the need for; easy travelling from Makkah to Mina and Arafat, better public transportation, adequate clothes washing facilities, and additional parks and recreational facilities in Makkah. For the first three variables, the results show that interior pilgrims' perceptions are higher than the exterior pilgrims. The possible reason is that interior pilgrims usually do not deal with the transportation companies who usually take care of the whole *Hajj* trips rather, they prefer to travel between *Hajj* venues by using the public transportation facilities. Furthermore, interior pilgrims only stay for a short time in Makkah, i.e. they do not have time to wash their clothe by themselves, therefore they need laundry services to be available. The time factor also prevents the interior pilgrims from visiting and using the parks and recreational facilities in Makkah.

Table 10.6.1.1: Importance of Hajj Facilities and Services in Makkah as Perceived by Different Groups of Pilgrims Using t-test Analysis

Facilities and services		Live In Saudi Arabia				Have Had Training or Lesson				Had Talked About Hajj			
Qus #	Items In Makkah	Yes Mean	No Mean	t-value	Prob.	Yes Mean	No Mean	t-value	Prob	Yes Mean	No Mean	t-value	Prob.
Q45M	Fewer traffic jams	4.40	4.22	1.93	.055	4.30	4.09	1.76	.079	4.28	4.35	-.61	542
Q52	Movement in Sae's	4.27	4.28	-.10	.921	4.33	3.95	2.55	.013	4.28	4.33	-.35	730
Q51	Movement in Tawaf	4.27	4.32	-.50	.617	4.34	3.97	2.41	.018	4.29	4.34	-.41	684
Q47	Travelling to Mina & Arafat	4.50	4.25	3.01	.003	4.34	4.25	.78	.433	4.32	4.38	-.47	.635
Q44M	Public transportation	4.50	4.22	3.15	.002	4.31	4.20	.93	351	4.29	4.41	-1.02	.308
Q54M	Car parks	4.43	4.39	.47	.639	4.41	4.32	71	.480	4.39	4.52	-1.11	.267
Q59M	Toilet facilities	4.61	4.51	1.42	.156	4.53	4.51	.15	.880	4.51	4.72	-2.74	.007
Q58M	Drinking water	4.48	4.40	.90	.367	4.41	4.45	-.37	.715	4.39	4.66	-2.80	.006
Q46M	Freedom of movements	4.52	4.40	1.24	.214	4.47	4.30	1.47	144	4.43	4.53	-.85	.397
Q57M	Inexpensive food	4.22	4.31	-.85	.394	4.31	4.11	1.34	184	4.27	4.41	-1.04	.301
Q62M	Shopping facilities	4.45	4.29	1.54	.123	4.35	4.17	1.39	.167	4.30	4.58	-2.46	.016
Q56M	Restaurants and eating places	4.39	4.36	.37	.711	4.36	4.36	.05	.961	4.32	4.66	-3.58	.001
Q63M	Reasonable pricing of good	4.30	4.13	1.92	.055	4.14	4.33	-1.49	.138	4.15	4.44	-2.41	.018
Q55M	Accommodation facilities	4.37	4.35	.21	.832	4.36	4.25	.96	337	4.33	4.56	-2.31	100
Q67M	General information	4.27	4.24	.29	.770	4.21	4.40	-1.40	.161	4.18	4.64	-4.82	.000
Q72M	Treatment by local people's	4.27	4.30	-.31	.759	4.31	4.15	1.10	276	4.27	4.40	-1.09	.276
Q73M	Treatment by Mutawifeen	4.18	4.27	-.83	.408	4.20	4.49	-2.05	.041	4.22	4.53	-2.64	.010
Q70M	Treatment by officials	4.44	4.41	29	.769	4.40	4.57	-1.47	142	4.39	4.63	-2.21	.030
Q71M	Treatment by policemen	4.43	4.44	-.11	.913	4.38	4.64	-2.39	.019	4.37	4.78	-5.95	.000
Q74M	Information / historical places	4.26	4.39	-1.35	-1.35	4.41	4.06	2.25	.028	4.40	4.08	1.89	.064
Q64M	Health services	4.68	4.65	42	.675	4.65	4.59	.63	.529	4.63	4.72	-.90	.371
Q65M	Cleanliness of places	4.59	4.60	- 06	.955	4.60	4.54	.65	.514	4.56	4.76	-3.02	.003
Q60M	Telephones	4.63	4.54	1.11	.269	4.58	4.59	-.07	.943	4.54	4.58	-.15	.881
Q61M	Postal services	4.60	4.50	1.22	.225	4.51	4.50	.10	.917	4.50	4.69	-2.35	.020
Q66M	Signposting	4.72	4.68	.68	.500	4.70	4.69	.12	.905	4.66	4.86	-3.50	.001
Q68M	Guiding services	4.50	4.54	-.52	.604	4.52	4.47	.47	.637	4.50	4.66	-1.59	.116
Q77M	Clothes washing facilities	4.33	4.11	2.07	.040	4.15	4.40	-1.88	.063	4.12	4.55	-3.66	.000
Q75M	Parks & recreational facilities	3.76	4.05	-2.06	.040	4.05	3.37	3.17	.002	4.01	3.64	1.69	.095
Q76M	Money exchanging facilities	4.66	4.55	1.51	.132	4.61	4.46	1.22	.225	4.56	4.67	-1.05	.295

Significant statistical difference between the two means occurs when Prob. < .05, and -1.960 > t-value > 1.960

Mean scale is like the following: 1 = not important, 2 = slightly important, 3 = important, 4 = very important, and 5 = extremely important.

10.6.2 The HFS Index of Arafat

The t-test results presented in Table 10.6.2.1 show a significant relationship between the variable concerning the home of residence and three items in the HFS-Arafat list. The rest of the items (i.e. 14 items) do not have such an association. The affected items are: the need for fewer traffic jams, adequate public transportation, and telephone facilities. By looking at the means, we find that internal pilgrims perceive the importance of these three items to be more highly than the exterior pilgrims. The reason for this finding may be because interior pilgrims either use their own cars or the public transportation in Arafat and thus they recognise these two items as being important. Moreover, they want to be in touch with people in Saudi Arabia where telephone calls are cheap.

Table 10.6.2.1: Importance of Hajj Facilities and Services in Arafat as Perceived by Different Groups of Pilgrims Using t-test Analysis

Facilities and services		Live In Saudi Arabia				Have Had Training or Lesson				Had Talked About Hajj			
Qus #	Items In Arafat	Yes Mean	No Mean	t-value	Prob.	Yes Mean	No Mean	t-value	Prob	Yes Mean	No Mean	t-value	Prob.
	Factor 1: Caring and cleaning												
Q71A	Treatment by policemen	4.35	4.44	-1.00	.318	4.38	4.51	-1.14	.114	4.35	4.77	-5.53	.000
Q70A	Treatment by officials	4.39	4.37	.18	.855	4.35	4.44	-.71	.476	4.32	4.63	-2.95	.004
Q72A	Treatment by local people	4.20	4.19	.15	.880	4.20	4.07	.81	.420	4.16	4.28	-.89	.372
Q73A	Treatment by Mutawifeen	4.13	4.16	-.31	.757	4.12	4.40	-1.92	.146	4.13	4.40	-1.76	.079
Q68A	Guiding services	4.40	4.45	-.56	.573	4.43	4.46	-.31	.760	4.38	4.69	-2.72	.008
Q65A	Cleanliness of sites	4.48	4.47	.16	.874	4.46	4.51	-.45	.652	4.42	4.70	-3.66	.000
	Factor 2: Movements and basic facilities												
Q45A	Fewer traffic jam	4.37	4.09	3.17	.002	4.19	4.04	1.23	.218	4.16	4.32	-1.31	.193
Q44A	Public transportation	4.23	3.92	3.02	.003	3.98	4.08	-.70	.482	3.97	4.25	-1.93	.054
Q48	Travelling (Arafat-Muzdalifah)	4.16	4.06	.98	.327	4.09	4.07	.15	.883	4.11	3.95	1.00	.320
Q59A	Toilet facilities	4.50	4.39	1.20	.229	4.43	4.42	.09	.925	4.38	4.64	-2.68	.009
Q46A	Freedom of movements	4.41	4.36	.55	.581	4.39	4.30	.70	.481	4.34	4.53	-1.79	.076
Q54A	Car parks	4.30	4.15	1.68	.094	4.21	4.06	1.10	.275	4.18	4.26	-.60	.551
Q58A	Drinking water	4.62	4.49	1.80	.072	4.51	4.57	-.57	.568	4.49	4.70	-2.59	.011
Q55A	Accommodation facilities	3.90	3.89	.16	.875	3.89	3.83	.36	.718	3.84	4.12	-1.90	.057
Q64A	Health services	4.62	4.58	.58	.565	4.62	4.39	1.71	.092	4.56	4.66	-.79	.432
	Factor 3: Communication												
Q61A	Postal services	3.05	3.01	3.01	.805	2.91	3.31	-2.02	.045	2.91	3.56	-3.15	.002
Q60A	Telephones	3.81	3.51	2.30	.022	3.54	3.66	-.69	.493	3.53	4.03	-2.81	.005

Significant statistical difference between the two means occurs when Prob. < .05, and -1.960 > t-value > 1.960

Mean scale is like the following 1 = not important, 2 = slightly important, 3 = important, 4 = very important, and 5 = extremely important.

10.6.3 The HFS Index of Muzdalifah

Table 10.6.3.1 includes the t-test results which show a significant relationship between the variable concerning the home of residence and two items in the HFS-Muzdalifah index. The rest of the items (17 items) do not have such a relationship. The affected items are the variables of the two dimensions concerning public transportation and telephone facilities. By looking at the means values presented in the results, we find that internal pilgrims perceive the importance of these items more highly than the exterior pilgrims. The possible justification for this finding is discussed above in Section 10.6.2.

Table 10.6.3.1: Importance of Hajj Facilities and Services in Muzdalifah as Perceived by Different Groups of Pilgrims Using t-test Analysis

Facilities and services		Live In Saudi Arabia				Have Had Training or Lesson				Had Talked About Hajj			
Qus #	Items In Arafat	Yes Mean	No Mean	t value	Prob.	Yes Mean	No Mean	t-value	Prob	Yes Mean	No Mean	t-value	Prob
	Factor 1: Caring and cleaning												
Q70Z	Treatment by officials	4.33	4.35	-.18	.856	4.32	4.42	-.87	.386	4.28	4.61	-3.01	.003
Q72Z	Treatment by local people	4.12	4.17	-.40	689	4.16	4.04	.74	460	4.12	4.29	-1.21	227
Q71Z	Treatment by policemen	4.33	4.42	-.99	.322	4.36	4.50	-1.17	.241	4.34	4.68	-3.36	001
Q73Z	Treatment by Mutawifeen	4.04	4.14	-.82	.412	4.07	4.42	-2.33	.020	4.10	4.32	-1.39	.164
Q68Z	Guiding services	4.31	4.43	-1.15	.249	4.38	4.35	.18	861	4.34	4.64	-2.38	020
Q65Z	Cleanliness of sites	4.42	4.37	.55	579	4.38	4.40	-.18	854	4.34	4.58	-2.12	037
	Factor 2: Movements and information												
Q44Z	Public transportation	4.03	3.73	2.50	.013	3.80	3.77	.21	.831	3.78	4.06	-1.76	079
Q45Z	Fewer traffic jam	4.26	4.04	2.10	.036	4.12	3.97	1.16	247	4.09	4.28	-1.40	.162
Q49	Travelling (Muzdalifah-Mina)	3.98	3.97	13	896	3.98	3.83	.87	385	3.98	3.90	53	599
Q54Z	Car parks	4.26	4.12	1.40	.164	4.19	3.95	1.49	.140	4.15	4.22	-.54	591
Q67Z	General information	3.53	3.561	-.17	864	3.54	3.50	.21	.836	3.53	3.89	-1.96	.051
	Factor 3: Hospitality and facilities finding												
Q56Z	Restaurants and eating places	4.07	3.87	1.65	.099	3.88	4.19	-1.91	056	3.83	4.50	-5.31	000
Q58Z	Drinking water	4.45	4.40	.58	.564	4.40	4.41	-.02	987	4.37	4.62	-2.59	011
Q59Z	Toilets' facilities	4.45	4.29	1.83	068	4.35	4.35	.03	.979	4.29	4.59	-2.96	004
Q64Z	Health services	4.58	4.51	.72	.471	4.56	4.33	1.60	.114	4.50	4.59	66	509
Q46Z	Pilgrims' movements	4.40	4.40	84	.840	4.37	4.24	.86	.394	4.31	4.50	-1.48	139
Q55Z	Accommodation facilities	3.53	3.63	-.75	.456	3.58	3.70	-.71	.479	3.52	4.03	-2.91	004
	Factor 4: Communication												
Q61Z	Postal services	2.85	2.84	.05	.961	2.73	3.05	-1.58	114	2.73	3.44	-3.36	.001
Q60Z	Telephones	3.59	3.29	2.16	.031	3.32	3.53	-1.16	.246	3.29	3.93	-3.43	001

Significant statistical difference between the two means occurs when Prob. < .05, and -1.960 > t-value > 1.960

Mean scale is like the following 1 = not important, 2 = slightly important, 3 = important, 4 = very important, and 5 = extremely important.

10.6.4 The HFS Index of Mina

The test results, presented in Table 10.6.4.1, show a significant difference between interior and exterior pilgrims with respect to how they perceive the importance of eight items in the HFS-Mina index. The factor concerning the home of residence, does not influence the rest of the items in Mina index (i.e. 18 items). The eight affected HFS are related to: toilet facilities; health services; traffic jams; public transportation; postal services; telephone facilities; media services; and sacrificing HFS in Mina. The t-test results show that interior pilgrims mark the importance of these items (i.e. HFS) more highly than the exterior pilgrims. Since this finding is in agreement with the previous one, no further explanation is necessary.

Table: 10.6.4.1: Importance of Hajj Facilities and Services in Mina as Perceived by Different Groups of Pilgrims Using t-test Analysis

	Facilities and services	Live In Saudi Arabia				Have Had Training or Lesson				Had Talked About Hajj			
Qus #	Items	Yes Mean	No Mean	t-value	Prob.	Yes Mean	No Mean	t-value	Prob.	Yes Mean	No Mean	t-value	Prob.
Q59I	Toilet facilities	4.56	4.37	2.17	.031	4.45	4.33	.92	.360	4.38	4.66	-2.75	.007
Q58I	Drinking water	4.59	4.50	1.15	252	4.53	4.47	.46	.645	4.48	4.75	-3.36	.001
Q64I	Health services	4.73	4.58	2.27	.024	4.64	4.53	1.10	.274	4.60	4.72	-1.50	.138
Q66I	Signposting	4.74	4.63	1.71	.089	4.69	4.57	1.12	.265	4.64	4.76	-1.57	.120
Q65I	Cleanliness of sites	4.51	4.37	1.57	117	4.40	4.53	-1.02	.306	4.37	4.61	-2.07	.042
Q68I	Guiding services	4.53	4.45	80	424	4.48	4.48	-.02	.984	4.43	4.73	-2.67	.009
Q57I	Inexpensive Food	4.16	4.23	-.63	.527	4.22	4.14	.60	.551	4.19	4.41	-1.57	.118
Q56I	Restaurants & eating places	4.38	4.22	1.65	.099	4.25	4.29	-.29	.776	4.19	4.65	-4.39	.000
Q63I	Reasonable pricing of goods	4.07	3.89	1.69	.092	3.92	4.04	-.78	.437	3.92	4.06	-.86	.392
Q45I	Fewer traffic jam	4.42	4.16	2.73	.007	4.26	4.09	1.37	.172	4.24	4.38	-1.15	.251
Q46I	Freedom of movements	4.44	4.43	16	.873	4.45	4.31	1.01	316	4.42	4.47	-.45	.653
Q44I	Public transportation	4.37	4.05	3.37	.001	4.16	4.02	.97	.336	4.13	4.16	-.22	.828
Q54I	Car parks	4.24	4.15	75	.455	4.33	3.79	2.90	.005	4.26	4.12	.76	.447
Q50	Travelling to Makkah	4.11	4.02	.87	.385	4.04	4.00	.27	.788	4.03	4.14	-.82	.415
Q53	Movements in Jamarat	4.21	4.36	-1.37	.172	4.35	4.13	1.47	.146	4.29	4.46	-1.25	.211
Q55I	Accommodation facilities	4.26	4.20	.69	.490	4.24	4.01	1.50	.137	4.15	4.53	-3.01	.003
Q73I	Treatment by Mutawifeen	4.17	4.21	-.35	.723	4.15	4.50	-2.44	.015	4.18	4.37	-1.28	.202
Q72I	Treatment by local people	4.24	4.20	.35	.725	4.22	4.14	.56	.577	4.19	4.29	-.76	.448
Q70I	Treatment by officials	4.37	4.40	-.23	.815	4.36	4.53	-1.38	.168	4.34	4.63	-2.27	.024
Q71I	Treatment by policemen	4.35	4.46	-1.39	.166	4.38	4.57	-1.67	.096	4.36	4.71	-3.50	.001
Q67I	General information	3.95	3.76	1.52	.128	3.81	3.74	.43	.667	3.80	3.98	-1.05	.296
Q61I	Postal services	3.84	3.55	2.01	.045	3.57	3.81	-1.21	.226	3.54	4.16	-3.67	.000
Q60I	Telephones	4.29	3.91	3.38	.001	4.01	4.00	.11	.911	3.96	4.48	-4.12	.000
Q69I	Media services	3.59	3.06	3.61	.000	3.23	2.98	1.21	.228	3.24	2.77	2.14	.033
Q79I	Barber's shops	4.45	4.42	28	.781	4.44	4.47	-.31	.756	4.43	4.51	-.68	.495
Q78I	Animals sacrificing shops	4.63	4.45	2.13	.034	4.51	4.55	-.30	.767	4.51	4.51	-.05	.958

Significant statistical difference between the two means occurs when Prob. < .05, and -1.960 > t-value > 1.960

Mean scale is like the following 1 = not important, 2 = slightly important, 3 = important, 4 = very important, and 5 = extremely important.

10.6.5 The HFSQ Index

The home of residence, as a factor, proves to have a significant affect on how pilgrims perceive the importance of six HFSQ required by them during the *Hajj* season. The results, presented in Table 10.6.5.1 show, furthermore, that interior pilgrims perceive the importance of: the assistant services; public areas; treatment by Mutawifeen; cleanliness of sites; transportation and movement; and health care more highly than the exterior pilgrims. This result confirms the previous discussion regarding the interior pilgrims.

Table 10.6.5.1: Importance of Hajj Facilities and Service Quality as Perceived by Different Groups of Pilgrims Using t-test Analysis

Facilities and services		Live In Saudi Arabia				Have Had Training or Lesson				Had Talked About Hajj			
Qus #	Items In Arafat	Yes Mean	No Mean	t-value	Prob	Yes Mean	No Mean	t-value	Prob.	Yes Mean	No Mean	t-value	Prob.
	Factor 1: Service Quality												
Q9	Prompt services	4.53	4.38	1.90	.058	4.50	4.27	2.06	.040	4.48	4.21	1.91	.060
Q10	Problems are corrected	4.53	4.41	1.48	.138	4.53	4.23	2.36	.021	4.51	4.17	2.40	.019
Q11	Assistant services	4.42	4.25	2.17	.031	4.36	4.08	2.63	.009	4.35	4.03	2.41	.018
Q12	Larger rooms	4.24	4.10	1.32	.186	4.22	3.83	2.80	.006	4.18	4.06	.90	.369
Q13	Attractive public areas	4.27	3.95	3.12	.002	4.12	3.85	2.07	.039	4.08	4.00	.58	.563
Q17	Anticipation of pilgrims' needs	4.21	4.14	.78	.437	4.24	3.84	3.06	.003	4.22	3.83	2.83	.006
Q18	Have more privacy	4.04	3.96	.69	.494	4.06	1.241	2.73	.008	4.05	3.63	2.52	.014
Q19	Special requests carried out	4.00	4.02	-.21	.837	4.08	3.71	2.96	.003	4.07	3.70	2.76	.006
Q22	Knowledgeable staff	4.12	4.14	-.10	.920	4.26	3.60	3.56	.001	4.24	3.65	3.14	.002
Q26	Treatment by policemen	4.42	4.27	1.65	.099	4.35	4.30	.46	.645	4.34	4.22	1.00	.317
Q27	Treatment by Mutawifeen	4.32	4.08	2.25	.025	4.19	4.01	1.13	.260	4.18	3.94	1.65	.100
Q28	Trained employees	3.99	3.91	.58	.560	4.03	3.48	2.98	.004	4.04	3.48	2.95	.004
	Factor 3: Major HFS & Features												
Q14	Performing Hajj as Sunah	4.68	4.56	1.88	.061	4.65	4.42	2.11	.038	4.61	4.45	1.39	.167
Q15	Reasonable security	4.49	4.48	.04	.970	4.51	4.44	.65	.518	4.52	4.24	2.25	.025
Q16	Public toilets	4.60	4.46	1.91	.057	4.57	4.25	2.86	.005	4.54	4.39	1.45	.152
Q20	Common safety	4.66	4.60	.97	.331	4.67	4.41	2.46	.016	4.66	4.34	2.82	.006
Q21	Cleanliness of sites	4.56	4.32	2.78	.006	4.47	4.16	2.12	.036	4.45	4.04	2.55	.013
Q23	Less crowding	4.25	4.21	.44	.661	4.26	4.08	1.62	.106	4.27	4.04	1.93	.055
Q24	Transportation & movement	4.38	4.13	2.89	.004	4.25	4.00	2.11	.035	4.24	4.01	1.84	.066
Q25	Health care	4.57	4.39	2.51	.012	4.48	4.31	1.73	.084	4.46	4.37	.77	.444

Significant statistical difference between the two means occurs when Prob. < .05, and -1.960 > t-value > 1.960

Mean scale is like the following: 1 = not important, 2 = slightly important, 3 = important, 4 = very important, and 5 = extremely important.

10.6.6 The Effect of 'Home of Residence' Variable on the Pilgrims' Perceptions

The t-test results conducted to investigate the relationship between the HFS indexes' variables and the factor 'home of residence' show that this factor affects some items in the HFS indexes, as discussed above. However, the analysis shows that the factor's influence is clear, consistent, and significant on the indexes of all *Hajj* venues. Therefore, it can be concluded in general, that the test results provide us with empirical evidence to support the research hypothesis that interior pilgrims (i.e. who live in Saudi Arabia) perceive the importance of the HFS differently than exterior pilgrims (i.e. who live outside Saudi Arabia).

10.7 Exploring the Relationship between 'Where the Pilgrim Lives at Home's Variable and the HFS Indexes

It is hypothesised that pilgrims who live in cities perceive the importance of HFS differently to pilgrims who live in villages and small towns. For this reason the pilgrims were asked to describe where they live at home, i.e. in a city, a town, and/or a village. Table 7.6.1 shows that 16.3 % of the pilgrims live in villages, 26.9 % live in towns, and 56.8 % live in cities. To examine the relationship between this variable and the HFS variables the ANOVA test will be employed.

10.7.1 The HFS Index of Makkah

The results in Appendix D Table D3, and in Table 10.7.1.1 show that there are no significant differences among pilgrims who live in villages, towns, and/or cities with respect to their perceptions regarding the importance of the HFS in Makkah, except for five variables. The affected variables concern: 1) car parking facilities, 2) shopping facilities, 3) restaurants and eating places, 4) health care, and 5) postal services. The results indicate that pilgrims who live in villages and towns perceive the importance of these HFS more highly than pilgrims who live in cities. The reason for this may be due to the fact that pilgrims who live in villages and towns are not familiar with crowded places where HFS are busy and subject to great demands.

Table 10.7.1.1: Significant Results of ANOVA Tests Based on HFS-Makkah and Where Pilgrims Live At Home of Residence

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54M Car parking facilities	Grp 1	73	4.3014	.8111	.0949	4.1608	.0162*
	Grp 2	120	4.6083	.6648	.0607		
	Grp 3	260	4.3577	.9621	.0597		
Q62M Shopping facilities	Grp 1	70	4.4571	.8459	.1011	5.6652	0037*
	Grp 2	115	4.5739	.8063	.0752		
	Grp 3	255	4.2353	1 0076	0631		
Q56M Restaurants and eating places	Grp 1	74	4.3919	8886	.1033	4.8856	.0080*
	Grp 2	123	4.5935	7557	0681		
	Grp 3	259	4.2780	1.0000	.0621		
Q64M Health services	Grp 1	71	4.7606	.4918	.0584	6.1471	.0023*
	Grp 2	117	4.8120	.5074	.0469		
	Grp 3	257	4.5486	.8607	.0537		
Q61M Postal services	Grp 1	72	4.6528	.6747	.0795	5.8120	.0032*
	Grp 2	114	4.7193	.6978	.0654		
	Grp 3	254	4.4291	.8940	.0561		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = Village, Grp 2 = Town, Grp 3 = City

10.7.2 The HFS Index of Arafat

The ANOVA test results presented in Appendix D Table D13, for the most variables, show no significant differences among pilgrims living in villages, towns, or cities with respect to their perceptions concerning the importance of the HFS in Arafat. However, the 'place of living at home of residence' variable, affects the pilgrims' perceptions regarding two items such as: travelling from Arafat to Muzdalifah, and health services, as can be seen in Table 10.7.2.1. For the first item, the pilgrims who live in cities recognise the importance of providing easy traffic flows from Arafat to Muzdalifah more highly than pilgrims who live in villages and towns. In contrast, pilgrims who live in villages and towns perceive the importance of the health services in Arafat more highly than pilgrims who live in cities. The reason for this relationship is not easy to determine, and it is out of the present study's scope.

Table 10.7.2.1: Significant Results of ANOVA Tests Based on HFS-Arafat and Where Pilgrims Live At Home

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q48 Travelling (Arafat-Muzdalifah)	Grp 1	73	4.0685	1.0452	.1223	3.1683	.0430*
	Grp 2	123	3.9187	1.0834	.0977		
	Grp 3	258	4.2054	1.0328	.0643		
Q64A Health services	Grp 1	70	4.6143	.7282	0870	3 6255	.0274*
	Grp 2	115	4.7652	.6117	.0570		
	Grp 3	256	4.5234	.8897	.0556		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = Village, Grp 2 = Town, Grp 3 = City

10.7.3 The HFS Index of Muzdalifah

The test results show that there are significant differences among pilgrims living in villages, towns, and cities with respect to their perceptions regarding the importance of four HFS variables in Muzdalifah. Table D24 in Appendix D and Table 10.7.3.1 show that the affected items concern: travelling from Muzdalifah to Mina, restaurant facilities, health services, and public telephone facilities. As can be seen from the means values in the test results, pilgrims who live in villages, towns, and cities perceive the importance of these HFS and services differently. Further research is recommended to better understand the pilgrims' requirements with respect to their place of residence at home.

Table 10.7.3.1: Significant Results of ANOVA Tests Based on HFS-Muzdalifah and where Pilgrims Live at Home

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q49 Travelling (Muzdalifah-Mina)	Grp 1	73	3.9452	1.1534	.1350	3.0265	.0495*
	Grp 2	123	3.7886	1.1033	.0995		
	Grp 3	259	4.0888	1.1257	.0699		
Q56Z Restaurants & eating places	Grp 1	73	3.4658	1.3342	.1562	9.2113	.0001*
	Grp 2	122	4.2213	1.0642	.0963		
	Grp 3	258	3.9535	1.1925	.0742		
Q64Z Health services	Grp 1	69	4.4928	.8849	.1065	3.1923	.0420*
	Grp 2	114	4.7193	.6719	.0629		
	Grp 3	256	4.4727	.9616	.0601		
Q60Z Public telephones	Grp 1	68	3.0000	1.3383	.1623	4.4025	.0128*
	Grp 2	112	3.3125	1.3492	.1275		
	Grp 3	255	3.5294	1.3480	.0844		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = Village, Grp 2 = Town, Grp 3 = City

10.7.4 The HFS Index of Mina

The analysis results in Appendix D Table D36, show that there are no significant differences among pilgrims who live in villages, towns, and/or cities with respect to their perceptions concerning the importance of the HFS in Mina, except for four items, as shown in Table 10.7.4. They are concerning: 1) the need for inexpensive food, 2) restaurants and eating places, 3) appropriate treatment of pilgrims by policemen, and 4) sacrifices facilities. The means values in the test results do not suggest a general conclusion relating to how each group of pilgrims perceive the importance of these HFS. However, it is clear that pilgrims who live in villages, towns, and cities identify the importance of these four HFS items differently.

Table 10.7.4.1: Significant Results of ANOVA Tests Based on HFS-Mina and where Pilgrims Live at Home

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q57I Inexpensive food	Grp 1	72	4.3056	9441	.1113	4.5450	.0111*
	Grp 2	122	3.9754	1.2363	.1119		
	Grp 3	258	4.3062	.9518	.0593		
Q56I Restaurants & cafeterias	Grp 1	73	4.0411	.9195	.1076	3.5381	.0299*
	Grp 2	123	4.4065	.9129	.0823		
	Grp 3	260	4.2885	.9451	.0586		
Q71I Treatment by policemen	Grp 1	70	4.5857	.7893	.0943	3.2563	.0395*
	Grp 2	116	4.5172	.6913	.0642		
	Grp 3	254	4.3386	.9259	.0581		
Q78I Shops selling coupons for animals sacrificing	Grp 1	71	4.5070	.6519	.0774	4 5348	0112*
	Grp 2	112	4.7232	.5728	.0541		
	Grp 3	251	4.4223	1.0339	0653		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = Village, Grp 2 = Town, Grp 3 = City

10.7.5 The HFSQ Index

The ANOVA test results in Appendix D Table D78 show no significant differences among pilgrims who live in various places at home with respect to their perceptions regarding the importance of the HFSQ index, except for three items. They concern: firstly, the need for service providers who can anticipate the pilgrims' needs', secondly, the need for trained employees; and finally, the need for less crowding in the *Hajj* venues. According to Table 10.7.5.1, the means values show that pilgrims who live in villages, towns, and cities at their home of residence perceive the importance of these items differently.

Table 10.7.5.1: Significant Results of ANOVA Tests Based on HFSQ and Where Pilgrims Live at Home

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio Prob.	F
Q17 Anticipation of pilgrims needs	Grp 1	77	4 2727	8528	0972	3.5243	.0303*
	Grp 2	124	3 9919	.8788	.0789		
	Grp 3	265	4.2340	9364	.0575		
Q28 Trained employees	Grp 1	77	3.9351	1.2910	.1471	4.7035	.0095*
	Grp 2	127	3.6772	1 4632	.1298		
	Grp 3	265	4.0981	1 1669	.0717		
Q23 Less crowding	Grp 1	77	4 3247	.7685	.0876	4.3876	.0129*
	Grp 2	127	4 0315	8723	0774		
	Grp 3	267	4.3071	.9633	.0590		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = Village, Grp 2 = Town, Grp 3 = City

10.7.6 The Effect of 'Where Pilgrims Live at Home of Residence' Variable on the Pilgrims' Perceptions

In light of the above discussion, it can be concluded, that the analysis results do not support the hypothesis that pilgrims who live in villages, towns, and cities perceive the importance of HFS differently. The statistical investigation finds that the majority of the HFS item are not affected by the above variable.

10.8 Exploring the Relationship Between the Pilgrims' Age and the HFS Indexes

The results of the questionnaire analysis show that the majority of the pilgrims can be considered to be of a young age (see Chapter 7). It is found that about 67.2% of the respondents are aged between 16 and 45 years old with an average age of 36 to 45 years old, representing 30.7% of the sample. In contrast to this about 26.0% of the respondents are between 46 and 64 years old. The pilgrims who are more than 65 years old represents about 6.1% of the sample. This study proposes that pilgrims perceive the importance of HFS differently according to their age. The ANOVA technique is going to be employed to test this hypothesis.

10.8.1 The HFS Index of Makkah

As can be seen in Table D4 in Appendix D, the results for twelve out of 29 variables, show significant differences among pilgrims of different ages with respect to how they perceive the importance of the HFS in Makkah. From Table 10.8.1.1 we notice that the twelve items concern: transportation and movement; shopping facilities and pricing; accommodation and restaurant facilities; public toilet facilities; treatment by Mutawifeen and government officials; and recreational facilities.

It seems that young pilgrims, i.e. under 36 years old, evaluate the HFS importance more highly than pilgrims who are over 36 years old. This finding looks reasonable considering factors such as: a) young people are active in general, b) they are less patient and have less experience than older people, and c) according to the Islamic teaching, they are responsible for taking care of their elderly relatives. Based on this, it is understandable that young pilgrims use the HFS more frequently than the elderly pilgrims during the *Hajj* season. However, further research should be conducted to investigate the exact pilgrims' requirements considering the age factor. Such investigation is beyond the scope of the present study.

Table 10.8.1.1: Significant Results of ANOVA Tests Based on HFS-Makkah and Pilgrims' Age

Question Number / Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q45M Fewer traffic jams	Grp 1	46	4.5435	.7213	.1064	2.4062	.0360*
	Grp 2	125	4.2480	1.0291	.0920		
	Grp 3	144	4.4028	.7509	.0626		
	Grp 4	65	4.2000	.9715	.1205		
	Grp 5	56	4.0893	.9587	.1281		
	Grp 6	28	4.0357	.8381	.1584		
Q47 Travelling. Makkah - Mina,Arafat	**Grp 1**	**45**	**4.5778**	**.6567**	**.0979**	3.3904	.0051*
	Grp 2	123	4.4797	.7825	.0706		
	Grp 3	144	4.3681	.9368	.0781		
	Grp 4	65	4.0615	.9334	.1158		
	Grp 5	55	4.2727	.9898	.1335		
	Grp 6	27	4.0000	1.1094	.2135		
Q44M Public transportation	**Grp 1**	**46**	**4.4130**	**.9328**	**.1375**	4.1942	.0010*
	Grp 2	126	4.4048	.9049	.0806		
	Grp 3	144	4.4861	.7289	.0607		
	Grp 4	65	4.0615	.9981	.1238		
	Grp 5	56	4.0536	.9228	.1233		
	Grp 6	28	4.0357	.8381	.1584		
Q59M Toilet facilities	**Grp 1**	**45**	**4.6667**	**.7687**	**.1146**	3.8260	.0021*
	Grp 2	121	4.6281	.7318	.0665		
	Grp 3	142	4.6620	.6619	.0555		
	Grp 4	64	4.2656	.9959	.1245		
	Grp 5	55	4.4364	.8769	.1182		
	Grp 6	27	4.2222	.9337	.1797		
Q46M Pilgrims' movements	**Grp 1**	**46**	**4.1957**	**1.1666**	**.1720**	2.8383	.0155*
	Grp 2	123	4.6260	.7830	.0706		
	Grp 3	144	4.5208	.7383	.0615		
	Grp 4	64	4.2656	1.0426	.1303		
	Grp 5	55	4.3455	.9273	.1250		
	Grp 6	27	4.2963	.8689	.1672		
Q62M Shopping facilities	**Grp 1**	**44**	**4.5682**	**.6954**	**.1048**	5.6858	.0000*
	Grp 2	118	4.4492	.9572	.0881		
	Grp 3	140	4.5143	.7726	.0653		
	Grp 4	63	3.8730	1.2114	.1526		
	Grp 5	53	4.1509	.9883	.1358		
	Grp 6	26	4.1154	1.1073	.2172		
Q56M Restaurants and eating places	**Grp 1**	**46**	**4.4130**	**.9563**	**.1410**	2.4035	.0362*
	Grp 2	125	4.4240	.9526	.0852		
	Grp 3	143	4.5245	.8378	.0701		
	Grp 4	64	4.0781	.9808	.1226		
	Grp 5	55	4.2909	.9364	.1263		
	Grp 6	27	4.2222	.9740	.1875		
Q63M Inexpensive pricing	**Grp 1**	**45**	**4.3111**	**.9250**	**.1379**	3.9572	.0016*
	Grp 2	117	4.3248	.8986	.0831		
	Grp 3	141	4.3475	.8863	.0746		
	Grp 4	63	3.9841	1.0548	.1329		
	Grp 5	53	3.8679	1.0926	.1501		
	Grp 6	26	3.8077	1.1321	.2220		
Q55M Accommodation facilities	**Grp 1**	**43**	**4.4651**	**.9089**	**.1386**	2.5685	.0263*
	Grp 2	121	4.3388	.9535	.0867		
	Grp 3	144	4.5278	.7928	.0661		
	Grp 4	65	4.1077	.9862	.1223		
	Grp 5	55	4.3091	.9204	.1241		
	Grp 6	27	4.1111	1.0127	.1949		
Q73M Treatment by Mutawifeen staff	**Grp 1**	**39**	**4.2821**	**.9162**	**.1467**	2.6502	.0225*
	Grp 2	106	4.3962	.9530	.0926		
	Grp 3	135	4.3630	.8945	.0770		
	Grp 4	62	3.9839	1.0938	.1389		
	Grp 5	54	4.2222	1.0581	.1440		
	Grp 6	27	3.8519	1.1335	.2181		
Q70M Treatment by Officials	**Grp 1**	**45**	**4.7333**	**.4472**	**.0667**	2.7746	.0176*
	Grp 2	114	4.4474	.8834	.0827		
	Grp 3	139	4.4676	.8280	.0702		
	Grp 4	62	4.1452	.9382	.1192		
	Grp 5	53	4.3396	.8975	.1233		
	Grp 6	27	4.4815	.9352	.1800		
Q75M Parks & recreational facilities	**Grp 1**	**39**	**3.7949**	**1.5420**	**.2469**	2.4542	.0330*
	Grp 2	107	3.6822	1.5022	.1452		
	Grp 3	134	4.0299	1.2740	.1101		
	Grp 4	62	4.0484	1.2858	.1633		
	Grp 5	52	4.4231	.8482	.1176		
	Grp 6	26	3.8462	1.5151	.2971		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

10.8.2 The HFS Index of Arafat

The ANOVA test results presented in Appendix D Table D14 show that the age factor affects the pilgrims' perceptions with respect to the importance of five items of the HFS index in Arafat. These relate to: treatment by Mutawifeen; cleanliness of sites; avoidance of traffic jams; toilet facilities; and public drinking water. The means values in Table 10.8.2.1 below, show that young pilgrims (who are less than 35 years old) perceive the importance of these HFS more highly than the aged pilgrims. This last result is associated to the one concerning Makkah.

Table 10.8.2.1: Significant Results of ANOVA Tests Based on HFS-Arafat and Pilgrims' Age

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q73A Treatment by Mutawifeen staff	Grp 1	39	4.1795	.9966	.1596	2.7180	.0197*
	Grp 2	106	4.3113	9891	.0961		
	Grp 3	135	4.2593	.9381	.0807		
	Grp 4	62	3 8387	1.1480	1458		
	Grp 5	54	4.2222	1.0581	.1440		
	Grp 6	27	3.7778	1.2506	.2407		
Q65A Cleanliness of sites	Grp 1	46	4 4348	.9810	1446	2.2560	0480*
	Grp 2	118	4.6271	.6511	.0599		
	Grp 3	141	4.5319	.7705	0649		
	Grp 4	64	4.2656	.912?	.1141		
	Grp 5	53	4.3962	.8625	.1185		
	Grp 6	27	4.2963	.8234	.1585		
Q45A Fewer traffic jams	Grp 1	46	4.4565	.8871	.1308	2.5689	.0263*
	Grp 2	124	4 2500	1.0010	.0899		
	Grp 3	144	4.2431	.8042	.0670		
	Grp 4	65	4.0923	1.0417	.1292		
	Grp 5	56	4.0000	.9909	.1324		
	Grp 6	28	3 7857	1.0313	1949		
Q59A Toilet facilities	Grp 1	46	4 5000	.8882	.1310	3.2411	.0069*
	Grp 2	121	4.5537	8461	.0769		
	Grp 3	142	4.5493	.7493	.0629		
	Grp 4	64	4.1563	1.0870	.1359		
	Grp 5	55	4.3273	1 0010	.1350		
	Grp 6	27	4.0741	1.0350	.1992		
Q58A Public drinking water	Grp 1	46	4.6304	.8527	.1257	2.8692	0146*
	Grp 2	121	4.6612	6777	.0616		
	Grp 3	142	4 5845	7649	0642		
	Grp 4	64	4.3438	.8768	.1096		
	Grp 5	54	4.4259	.7673	.1044		
	Grp 6	26	4 1923	9389	1841		

* Significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

10.8.3 The HFS Index of Muzdalifah

The test results in Appendix D Table D25 show significant differences among pilgrims of different ages with respect to their perceptions regarding the importance of two items of the HFS index of Muzdalifah. The two items concern the car parking and restaurant facilities, as shown in Table 10.8.3.1 The means values show that young pilgrims mark the importance of the car parking facilities more highly than the elder pilgrims. However, pilgrims under 25 years old and pilgrims over 65 years old perceive the importance of restaurant facilities more highly than the rest of the pilgrims. Further research is required to understand the pilgrims' exact requirements with respect to their age.

Table 10.8.3.1: Significant Results of ANOVA Tests Based on HFS-Muzdalifah and Pilgrims' Age

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54Z	Grp 1	45	4.3333	.9770	.1456		
	Grp 2	124	4 1935	1 0720	.0963	2 8293	.0158*
	Grp 3	144	4.2986	.9686	0807		
Car parking facilities	Grp 4	64	3 7969	1 0263	.1283		
	Grp 5	53	4.2264	.9536	1310		
	Grp 6	27	3 9259	9971	.1919		
Q56Z	Grp 1	46	4.1957	1.0460	.1542		
	Grp 2	124	4.1855	1.1431	.1027		
	Grp 3	143	3.8881	1.2788	.1069	3.3019	.0061*
Restaurants & eating places	Grp 4	63	3.7302	1.1102	.1399		
	Grp 5	55	3.5273	1.3451	.1814		
	Grp 6	26	4.0385	.8709	.1708		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

10.8.4 The HFS Index of Mina

The ANOVA results show significant differences among pilgrims whose ages are various with respect to their perceptions regarding the importance of the HFS index in Mina. Table D37 in Appendix D show that thirteen items are affected by the age variable. As shown in Table 10.8.4.1 they concern: public toilet and drinking water facilities; cleanliness of sites; restaurants that serve inexpensive food; fewer traffic jams and sufficient car parks; good information and communication services; reasonable treatment by Mutawifeen; and an adequate number of barber shops. The test results show that pilgrims perceive the importance of these items differently according to their age. Based on this finding, age proves to be a very important factor to be considered in any further study concerning the planning and delivering of the HFS during the *Hajj* season.

Table 10.8.4.1: **Significant Results of ANOVA Tests Based on HFS-Mina and Pilgrims' Age**

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q59I Toilet facilities	Grp 1	46	4.5000	1.0274	.1515	3.6984	.0027*
	Grp 2	122	4.5902	.8308	.0752		
	Grp 3	142	4.5493	.7680	.0644		
	Grp 4	64	4.1563	1.0870	.1359		
	Grp 5	55	4.2545	1.1421	.1540		
	Grp 6	27	4.0370	1.0913	.2100		
Q58I Public drinking water	Grp 1	46	4.5000	1.0055	.1483		
	Grp 2	122	4.6639	.7113	.0644	2.7873	.0171*
	Grp 3	142	4.6197	.7412	.0622		
	Grp 4	64	4.2969	.9542	.1193		
	Grp 5	54	4.4259	.7673	.1044		
	Grp 6	26	4.2692	.9616	.1886		
Q65I Cleanliness of sites	Grp 1	46	4.3913	1.0430	.1538		
	Grp 2	119	4.6387	7334	0672	4 1460	0011*
	Grp 3	141	4.5319	.8498	.0716		
	Grp 4	64	4.1719	1.0772	.1347		
	Grp 5	54	4.2037	1 1390	1550		
	Grp 6	27	4.0370	1.0554	.2031		
Q57I Inexpensive food	Grp 1	45	3.9778	1.1964	.1783		
	Grp 2	123	4.3902	.9636	.0869	4.0490	.0013*
	Grp 3	142	4.3451	.8509	.0714		
	Grp 4	64	4.1094	1.0708	.1338		
	Grp 5	55	4.1818	1.1562	.1559		
	Grp 6	27	3.5556	1.3681	.2633		
Q56I Restaurants & eating places	Grp 1	46	4.3913	.8814	.1300		
	Grp 2	125	4.4720	.8479	.0758	4.2414	.0009*
	Grp 3	143	4.3427	.9428	.0788		
	Grp 4	64	3.9219	1.0436	.1304		
	Grp 5	55	4.1273	.8618	.1162		
	Grp 6	27	3.9630	.9799	.1886		
Q63I Reasonable pricing	Grp 1	45	3.8444	1.2424	.1852		
	Grp 2	117	4.1880	1.0499	.0971	2.6344	.0232*
	Grp 3	141	4.0638	1.1289	.0951		
	Grp 4	63	3.7302	1 1529	.1453		
	Grp 5	52	3 7308	1.2543	.1739		
	Grp 6	26	3.6154	1.2673	.2485		
Q45I Fewer traffic jams	Grp 1	46	4 5652	8857	.1306		
	Grp 2	127	4.3465	.9870	.0876	3.7799	.0023*
	Grp 3	144	4.3056	8469	.0706		
	Grp 4	65	4.1077	1 0019	1243		
	Grp 5	56	4.1071	9081	.1214		
	Grp 6	28	3.7143	1 1501	.2174		
Q54I Car parking facilities	Grp 1	45	4.2444	1.1313	.1686		
	Grp 2	129	4.2326	1.2840	.1130	4.3124	.0008*
	Grp 3	143	4.4476	.9320	0779		
	Grp 4	67	3.7761	1.3006	.1589		
	Grp 5	56	4 1250	1.2658	1692		
	Grp 6	29	3.6552	1 3437	.2495		
Q73I Treatment by Mutawifeen	Grp 1	39	4.2821	.9162	.1467		
	Grp 2	107	4.3551	1.0302	.0996	2.6861	.0210*
	Grp 3	136	4.2794	.9790	.0839		
	Grp 4	62	3.9194	1.0909	.1385		
	Grp 5	54	4.2407	1.0449	.1422		
	Grp 6	27	3.7407	1.2888	.2480		
Q67I General information	Grp 1	43	4 1628	1 0896	.1662		
	Grp 2	113	4.0708	1.2444	.1171	3.9606	.0016*
	Grp 3	138	3 8406	1 1915	.1014		
	Grp 4	63	3 4286	1 1738	1479		
	Grp 5	53	3 7547	1.1914	163-		
	Grp 6	27	3 3333	1 2710	2446		
Q60I Public telephones	Grp 1	46	4 0870	1 2261	.180?		
	Grp 2	119	4.2437	1 0574	0969	4.6985	.0003*
	Grp 3	139	4.2158	.9613	0815		
	Grp 4	63	3 6508	1 1799	1487		
	Grp 5	54	3 6852	1 1298	.153-		
	Grp 6	25	3.7600	1.2342	.2468		
Q69I Media services	Grp 1	40	3 4750	1 5687	.2480		
	Grp 2	108	3 3704	1.4699	1414	2 6710	0217*
	Grp 3	134	3.3582	1.4322	.1237		
	Grp 4	61	2 9344	1 4127	.1809		
	Grp 5	50	2.8000	1.5253	.2157		
	Grp 6	21	2 6190	1 5645	3414		
Q79I Barber shops	Grp 1	45	4 1556	1.0435	1556		
	Grp 2	115	4.5826	.8479	.0791	2 4299	0345*
	Grp 3	139	4.4029	.9067	.0769		
	Grp 4	64	4.2969	.9203	.1150		
	Grp 5	53	4.5283	.6681	.0918		
	Grp 6	27	4.6667	.7338	.1412		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

10.8.5 The HFSQ Index

The ANOVA results in Appendix D Table D80 show that the age factor's effects are clear on five items in the HFSQ index. They concern the need for larger rooms in the accommodation available; adequate health services; and trained and knowledgeable staff who treat the pilgrims well. As can be seen in Table 10.8.5.1 pilgrims of various ages perceive the importance of these services and facilities differently.

Table 10.8.5.1: Significant Results of ANOVA Tests Based on HFSQ and the Pilgrims' Age

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio Prob.	F
Q12 Larger rooms in the accommodation	Grp 1	40	3.8000	1.3812	.2184	2.6513	.0224*
	Grp 2	128	4.2422	1.0098	.0893		
	Grp 3	145	4.3103	.8938	.0742		
	Grp 4	68	4.0588	1.0349	.1255		
	Grp 5	56	4.0714	.8498	.1136		
	Grp 6	29	3.8621	.8752	.1625		
Q22 Knowledgable staff	Grp 1	45	3.7111	1.5757	.2349	3.7673	.0024*
	Grp 2	131	4.2137	1.2710	.1110		
	Grp 3	146	4.3356	1.0257	.0849		
	Grp 4	68	4.0882	1.2899	.1564		
	Grp 5	56	4.2679	1.2134	.1622		
	Grp 6	29	3 4483	1.5943	.2961		
Q27 Treatment by Mutawefeen staff	Grp 1	37	4.0000	1.1304	.1858	2.5449	.0275*
	Grp 2	123	4 3577	.8974	0809		
	Grp 3	143	4.2028	9536	.0797		
	Grp 4	68	3.9853	1.1524	.1398		
	Grp 5	56	4 1250	9735	1301		
	Grp 6	29	3.7586	1 1849	2200		
Q28 Trained employees	Grp 1	44	3 5455	1.5768	2377	3.2651	.0066*
	Grp 2	131	4 0229	1.3095	.1144		
	Grp 3	145	4 1586	1.0320	.0857		
	Grp 4	68	3.8971	1.2713	.1542		
	Grp 5	56	3.9643	1.2644	1690		
	Grp 6	29	3.3103	1.6059	.2982		
Q25 Health care	Grp 1	45	4.5778	.7534	.1123	3.4378	.0046*
	Grp 2	131	4.5420	.7469	.0653		
	Grp 3	146	4.5411	.6446	.0533		
	Grp 4	68	4.3088	9184	.1114		
	Grp 5	56	4.3571	8619	.1152		
	Grp 6	29	4 0000	1.1650	.2163		

* Significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

10.8.6 The Effect of 'The Pilgrim's Age' Variable on the Pilgrims' Perceptions

The ANOVA test was employed to investigate the relationship between the pilgrims' age variable and the HFS indexes variables. The test results with regard to all *Hajj* venues supports the research hypothesis that pilgrims with various ages perceive the importance of HFS differently.

10.9 Exploring the Relationship between Previous *Hajj* Experience and the HFS Index

Although *Hajj* is required only once in a life time, many Muslims love to perform it more than once. As shown in Chapter 7, more than one half of the respondents perform the *Hajj* as their first time, 17.6 % of the sample perform the *Hajj* as second time, and about 30.5 % of the pilgrims perform the *Hajj* as third time or more. The ANOVA will be employed to test the relationship between this variable and the HFS indexes variables.

10.9.1 The HFS Index of Makkah

As can be seen in Table D5 in Appendix D, the analysis results for the most variables, do not show significant differences among pilgrims who performed the *Hajj* before, with respect to how they perceive the importance of the HFS index in Makkah. However, the factor concerning the number of previous *Hajj* affects two items of the HFS-Makkah index only, as presented in Table 10.9.1.1 below. They concern car parking facilities, and reasonable pricing. For the first item, pilgrims who come for *Hajj* as their first time perceive the importance of car parking facilities more highly than other pilgrims who came for *Hajj* before. In other words, the results show that first time comers' expectations concerning car parking facilities in Makkah is more highly than the expectation of the other pilgrims who have come for *Hajj* before, i.e. experienced pilgrims expect car parking problems during the *Hajj* season. For the second item (reasonable pricing), it seems that pilgrims who have been for *Hajj* before feel that prices has been risen from previous *Hajj* seasons (which is normal over time). They therefore perceive the importance of keeping reasonable pricing more highly than the first time pilgrims who think that prices are acceptable.

Table 10.9.1.1: Significant Results of ANOVA Tests Based on HFS-Makkah and Number of Previous *Hajj*

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54M Car parking facilities	Grp 1	234	4.5128	.8142	.0532	3.3931	.0345*
	Grp 2	81	4.2716	.9356	.1040		
	Grp 3	142	4.3239	.9035	.0758		
Q63M Reasonable pricing	Grp 1	228	4.0789	.9858	.0653	4.6016	0105*
	Grp 2	80	4.1625	.9993	.1117		
	Grp 3	137	4.3942	.9104	.0778		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = none, Grp 2 = one time, Grp 3 = more than once.

10.9.2 The HFS Index of Arafat

The ANOVA test results presented in Appendix D Table D15 show, for most variables, that there are no significant differences among pilgrims who perform the *Hajj* for the first time, second time, and third time or more with respect to their perceptions concerning the HFS in Arafat. However, one item is excluded from the above conclusion - the accommodation facilities. As shown in Table 10.9.2.1 below, first comers for the *Hajj* perceive the importance of this facility more highly than other pilgrims who had performed the *Hajj* before. The reason for this finding could be that the experienced pilgrims already know that the staying time in Arafat is limited to a few hours; therefore they perceive accommodation problems in Arafat as being less important.

Table 10.9.2.1: Significant Results of ANOVA Tests Based on HFS-Arafat and Number of Previous *Hajj*

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q55A Accommodation facilities	Grp 1	232	4.0172	9757	0641	3.5997	.0281*
	Grp 2	81	3.6667	1.2042	.1338		
	Grp 3	141	3 8369	1 1188	0942		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = none, Grp 2 = once, Grp 3 = two times or more

10.9.3 The HFS Index of Muzdalifah

The test results presented in Appendix D Table D26 show, for most variables, that previous *Hajj* experience does not affect the pilgrims' perceptions regarding the importance of the HFS in Muzdalifah, except for two items such as the accommodation and restaurant facilities. By looking at the means values in Table 10.9.3 below, it is noticed that, as in Arafat, pilgrims who had not been to *Hajj* before, expect better HFS in Muzdalifah regarding these two facilities. However, the other experienced pilgrims perceive the importance of the accommodation and restaurant facilities differently.

Table 10.9.3.1: Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Number of Previous *Hajj*

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q56Z Restaurants and cafeterias	Grp 1	234	4.0855	1.0610	.0694	3.9512	.0199*
	Grp 2	83	3.6867	1.3608	.1494		
	Grp 3	140	3.8571	1.2895	.1090		
Q55Z Accommodation facilities	Grp 1	232	3.7629	1.1658	.0765	3.6040	.0280*
	Grp 2	81	3.5062	1.3704	.1523		
	Grp 3	139	3.4173	1.3454	.1141		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = none, Grp 2 = once, Grp 3 = two times or more

10.9.4 The HFS Index of Mina

The ANOVA test results shown in Appendix D, Table D38 do not provide any evidence that significant differences occur among pilgrims having performed the *Hajj* before and the first time *Hajj* comers with respect to their perceptions concerning the HFS in Mina.

10.9.5 The HFSQ Index

The analysis results presented in Appendix D Table 50 show that the previous *Hajj* experience factor affects four variables in the HFSQ index. They concern: the service quality dimension which comprises the need for larger rooms in accommodation; knowledgeable staff; reasonable treatment by Mutawifeen; trained employees; and adequate health care services during the *Hajj* season. From Table 10.9.5.1 it seems that the group of pilgrims who had performed the *Hajj* more than twice before perceive the importance of these HFS more highly than the other groups of pilgrims. In other words, the results suggest that pilgrims expect improvements in the service quality each time they perform the *Hajj*. However, further research is required concerning the service quality issue during the *Hajj* season.

Table 10.9.5.1: Significant Results of ANOVA Tests Based on HFSQ and the Number of Previous *Hajj*

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q12 Larger rooms in accommodation	Grp 1	242	4.1281	.9490	.0610	4.3882	.0129*
	Grp 2	80	3.9625	1.0243	.1145		
	Grp 3	144	4.3472	.9987	.0832		
Q18 Increased privacy	Grp 1	237	4.0000	1.0292	.0669	3.3911	.0345*
	Grp 2	79	3.7595	1.1460	.1289		
	Grp 3	142	4.1479	1.0715	.0899		
Q22 Knowledgable staff	Grp 1	246	4.0488	1.3694	.0873	6.4375	.0017*
	Grp 2	85	3.9529	1.4050	.1524		
	Grp 3	144	4.4653	.8843	.0737		
Q28 Trained employees	Grp 1	246	3.8171	1.3474	.0859	5.3051	.0053*
	Grp 2	85	3.8941	1.4144	1534		
	Grp 3	142	4.2465	1.0049	.0843		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = none, Grp 2 = once, Grp 3 = two times or more

10.9.6 The Effect of 'The Previous *Hajj* Experience' Variable on the Pilgrims' Perceptions

The ANOVA test was employed to explore the relationship between the factor concerning previous *Hajj* experience and the pilgrims' perceptions with respect to the importance of the HFS indexes. The analysis results, for most of the indexes variables, show no significant difference among pilgrims who come for first time to the *Hajj* and other experienced pilgrims, with respect to their perceptions regarding the importance of the HFS. Therefore, the analysis results do not adequately support the hypothesis that previous *Hajj* experience affects the pilgrims' perceptions concerning the HFS importance during the *Hajj* season.

10.10 Exploring the Relationship between the Pilgrims' Educational Level and the HFS indexes

In Chapter 7, Table 7.10.1 shows that 58.6% of the pilgrims have either completed high school or received some type of university education; 32.5% of the respondents at least have attended some type of formal education, and in contrast 8.9% of the pilgrims in the sample could not read or write at all. The ANOVA test is employed to examine the relationship between this variable and the HFS variables.

10.10.1 The HFS Index of Makkah

The test results do not show any significant differences among pilgrims having different educational levels with respect to their perceptions regarding the HFS importance in Makkah, as shown in Appendix D Table D6. In other words, educational level does not affect how pilgrims regard the importance of the HFS-Makkah index variables.

10.10.2 The HFS Index of Arafat

The ANOVA test results presented in Appendix D, Table D16 show no significant differences among pilgrims having various educational levels with respect to their perceptions concerning the importance of the HFS in Arafat, in general. However, two items are affected; such as the car parking and accommodation facilities in Arafat. The means values in Table 10.10.2.1 show that pilgrims with less educational levels recognise the importance of these facilities more highly than other pilgrims. Further study is required to explore this relationship, however such an exercise is out of the scope of the present research.

Table 10.10.2.1: Significant Results of ANOVA Tests Based on HFS-Arafat and the Pilgrims' Educational Level

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54A Car parking facilities	Grp 1	41	4.4390	.7762	.1212	2.4340	.0467*
	Grp 2	63	4.4127	.7325	.0923		
	Grp 3	84	4.2500	.9167	.1000		
	Grp 4	120	4.1083	.9330	.0852		
	Grp 5	146	4 0890	1.0098	.0836		
Q55A Accommodation facilities	Grp 1	41	4 5122	8100	.1265		
	Grp 2	63	4 0635	1 0140	1277		
	Grp 3	83	3 6386	1 0885	.1195	5.8520	0001*
	Grp 4	121	3.9091	.9916	.0901		
	Grp 5	145	3.7517	1.1458	0952		

* Significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.39
** Grp 1 = don't read or write, Grp 2 = read and write, Grp 3 = middle school, Grp 4 = high school, Grp 5 = university.

10.10.3 The HFS Index of Muzdalifah

The analysis results presented in Appendix D Table D27 show, for the most variables, that educational level does not affect the pilgrims' perceptions regarding the importance of the HFS in Muzdalifah. Yet, the variables concerning the need for fewer traffic jams, good restaurants, and adequate accommodation facilities in Muzdalifah are affected. As the means values presented in Table 10.10.3.1 show that

pilgrims having various educational levels perceive the importance of these items differently, no further explanation can be made from these results.

Table 10.10.3.1: Significant Results of ANOVA Test Based on HFS-Muzdalifah and The Pilgrims' Educational Level

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q45Z Fewer traffic jams	Grp 1	41	4.4634	1.0024	.1566	2.4147	.0481*
	Grp 2	65	4.1231	1.0534	.1307		
	Grp 3	86	3.9186	1.0314	.1112		
	Grp 4	123	4.2033	.9050	.0816		
	Grp 5	148	4.0405	1.0934	0899		
Q56Z Restaurants & eating places	Grp 1	40	4.4000	.9819	.1553	4.6582	.0011*
	Grp 2	63	3.9683	1.2177	.1534		
	Grp 3	84	3.5000	1.2941	1412		
	Grp 4	122	4.0410	1 1164	.1011		
	Grp 5	147	3.9524	1 2012	0991		
Q55Z Accommodation facilities	Grp 1	40	4.3750	1.0786	.1705	5.2581	.0004*
	Grp 2	63	3.6984	1.3986	.1762		
	Grp 3	84	3.3810	1.2114	.1322		
	Grp 4	120	3.6583	1.1846	.1081		
	Grp 5	144	3.4375	1.2994	.1083		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39
** Grp 1 = don't read or write, Grp 2 = read and write, Grp 3 = middle school, Grp 4 = high school, Grp 5 = university.

10.10.4 The HFS Index of Mina

The analysis results presented in Appendix D, Table D39 show that, for most variables, educational level does not affect the pilgrims' perceptions regarding the importance of the HFS in Mina. However, three items in the index are affected. They with regard to: restaurants; public transportation; and accommodation facilities. The means values listed in Table 10.10.4.1 show that pilgrims perceive the importance of these items differently. Nevertheless, it is noticeable that pilgrims who have received no education perceive the importance of these three items more highly than the educated pilgrims. We need further research to understand how educational level affects these HFS.

Table 10.10.4.1: Significant Results of ANOVA Tests Based on HFS-Mina and The Pilgrims' Educational Level

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q56I Restaurants & eating places	Grp 1	41	4.4878	.8695	.1358	2.7123	.0296*
	Grp 2	63	4.2698	.9539	.1202		
	Grp 3	85	3.9882	1.0059	.1091		
	Grp 4	122	4.3033	.8989	.0814		
	Grp 5	148	4.3311	.9139	.0751		
Q44I Public transportation	Grp 1	41	4.3659	.9422	.1472		
	Grp 2	66	4.3788	.7798	.0960	2.8021	0255*
	Grp 3	87	4.0230	9521	1021		
	Grp 4	123	4.2358	.8404	.0758		
	Grp 5	148	4.0135	1.1308	.0930		
Q55I Accommodation facilities	Grp 1	41	4.6341	.6227	.0973	3.1248	.0149
	Grp 2	63	4 2857	.8877	.1118		
	Grp 3	84	4.0952	8448	0922		
	Grp 4	121	4.2314	.8637	.0785		
	Grp 5	145	4.1103	1.0483	.0871		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39
** Grp 1 = don't read or write, Grp 2 = read and write, Grp 3 = middle school, Grp 4 = high school, Grp 5 = university.

10.10.5 The HFSQ Index

The ANOVA results exhibited in Appendix D, Table D51 show no significant differences among pilgrims having various educational levels with respect to their perceptions regarding the importance of the HFSQ index, except for two items. They concern the pilgrim's requirements for larger rooms in their accommodation, and that pilgrims' special requests are carried out. Once more, it is noticeable that pilgrims having no education perceive the importance of these items more highly than the educated pilgrims, as obtained from the means values in Table 10.10.5.1. Further research is recommended to understand how educational level affects these two variables.

Table 10.10.5.1: Significant Results of ANOVA Tests Based on HFSQ the Pilgrims' Educational Level

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q12 Larger rooms in pilgrims' accommodation	Grp 1	42	4 4524	9160	1413	2 9041	0215*
	Grp 2	66	4.166~	869~	1071		
	Grp 3	86	3 9302	1 0034	1082		
	Grp 4	122	4.3033	9171	0830		
	Grp 5	148	4.0878	1.1061	0909		
Q19 Special requests carried out	Grp 1	42	4.3810	8250	.1273	2.5694	03~4*
	Grp 2	67	4.1642	9939	1214		
	Grp 3	87	4.1149	.9453	.1013		
	Grp 4	123	3.9350	1.0060	.0907		
	Grp 5	148	3.9054	1.0901	.0896		

* Significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.39
** Grp 1 = don't read or write, Grp 2 = read and write, Grp 3 = middle school, Grp 4 = high school, Grp 5 = university.

10.10.6 The Effect of 'The Pilgrims' Educational Levels' Variable on the Pilgrims' Perceptions

On the basis of the analysis results discussed above, it is found that, for the most of the indexes variables, the pilgrims' educational levels factor does not affect the pilgrims' perceptions with respect to the importance of the HFS provided during the *Hajj* season. One should notice however, that the educational level for most of the pilgrims involved is high. The few items affected by educational variable although do not provide enough evidence to support the hypothesis concerning the educational level factor, it reveals that the main differences exists between pilgrims who are educated and who are not educated. Yet, this subject will need to be investigated in further studies.

10.11 Exploring the Relationship between Accompanied Pilgrims and the HFS Indexes

As discussed in Chapter 3 *Hajj* is required of both men and women, but not obligatory for children. However, many parents prefer to bring the whole family with them. It is assumed that pilgrims who are accompanied by their family might perceive the importance of the HFS in a different way to single pilgrims. As Table 7.11.1 revealed, single pilgrims are the majority in the sample followed by those who came with women and those who brought women and children with them, in order. This factor is explored to investigate for link between pilgrims who were accompanied by women and their family, and their perceptions regarding the importance of the facilities required during the *Hajj* season. The ANOVA technique will be employed in testing these variables.

10.11.1 The HFS Index of Makkah

The ANOVA test results presented in Appendix D Table D7 do not show any significant differences among pilgrims who are single, accompanied by women, and/or children with respect to their perceptions regarding the importance of the HFS in Makkah. In other words, pilgrims accompanied by their family and single pilgrims recognise the importance of HFS-Makkah correspondingly.

10.11.2 The HFS Index of Arafat

Generally speaking, the statistical analysis presented in Appendix D, Table D17 shows no significant differences among single pilgrims and accompanied pilgrims with respect to their perceptions concerning the HFS in Arafat, except for three items. They with regard to facilities, services, and/or features such as: fewer traffic jams; public transportation; and postal services. The means values in Table 10.11.2.1 below, show that pilgrims who are accompanied by women perceive the importance of these items less highly than both, single pilgrims, and those who are accompanied by women and children. Further study is required to explain this unexpected result.

Table 10.11.2.1: Significant Results of ANOVA Tests Based on HFS-Arafat and Accompanied Pilgrims

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q45A Fewer traffic jams	Grp 1	264	4 2689	9144	.0563	4 6694	0099*
	Grp 2	125	3.9600	1.0426	.0933		
	Grp 3	49	4.2245	.7710	.1101		
Q44A Public transportation	Grp 1	266	4.0977	1.0595	.0650	5.6691	.0037*
	Grp 2	125	3.7440	1.1065	.0990		
	Grp 3	49	4 1837	.7548	.1078		
Q61A Postal services	Grp 1	240	2.9167	1.4952	.0965	4.3553	.0135*
	Grp 2	110	2.8545	1 2254	.1168		
	Grp 3	46	3.5435	1.3451	.1983		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = single, Grp 2 = with women, Grp 3 = with women and children.

10.11.3 The HFS Index of Muzdalifah

The analysis results presented in Appendix D, Table D28 show no significant differences among single pilgrims and accompanied pilgrims with respect to their perceptions concerning the HFS in Muzdalifah, except for three items such as: public transportation; drinking water; and postal services. The means values in Table 10.11.3.1 below, show that the group of single pilgrims and the accompanied pilgrims' group perceive the importance of these three items differently. It seems however, that pilgrims accompanied by women identify the importance of these items as being less than the other two groups, in general. Further research is recommended to better understand this finding.

Table 10.11.3.1: Significant Results of ANOVA Tests Based on HFS-Muzdalifah and Accompanied Pilgrims

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q44Z Public transportation	Grp 1	265	3.8943	1.2139	.0746	5.0108	.0071*
	Grp 2	125	3.5200	1.1954	1069		
	Grp 3	49	4.0000	1.0000	.1429		
Q58Z Public drinking water	Grp 1	260	4.4962	.8632	.0535	3 6176	.0277*
	Grp 2	119	4.2269	1 0451	.095R		
	Grp 3	49	4.4082	.7337	.1048		
Q61Z Postal services	Grp 1	240	2.7375	1.4785	.0954	4.2236	.0153*
	Grp 2	109	2.6514	1.2720	.1218		
	Grp 3	46	3.3478	1.4486	.2136		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = single, Grp 2 = with women, Grp 3 = with women and children.

10.11.4 The HFS Index of Mina

The ANOVA results displayed in Appendix D, Table D40 show no significant differences among pilgrims who are single, accompanied by women, and/or children with respect to their perceptions regarding the importance of the HFS in Mina, in general. Three items however, in the HFS-Mina index are affected. They concern: public transportation; travelling to Makkah at the end of Mina days; and media services. By looking at the means values in Table 10.11.4.1, we notice that pilgrims accompanied by women perceive the importance of the public transportation and the travelling to Makkah less highly than both single pilgrims and pilgrims accompanied by their families. On the other hand, the pilgrims who are accompanied by their families recognise the importance of the media services more highly than both, the pilgrims who are accompanied by women only, and single pilgrims.

Table 10.11.4.1: Significant Results of ANOVA Tests Based on HFS-Mina and Accompanied Pilgrims

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q44I Public transportation	Grp 1	267	4 2135	.9826	.0601	4.4166	.0126*
	Grp 2	125	3 9440	1 01ɔ5	.0904		
	Grp 3	49	4 3469	7514	.1073		
Q50 Travelling to Makkah	Grp 1	262	4 1412	1 0353	0640	4 5901	01 7*
	Grp 2	123	3 8130	9864	0889		
	Grp 3	49	4 1429	1 0000	1429		
Q69I Media services	Grp 1	240	3.0292	1.5427	.0996	3.6215	.01 4*
	Grp 2	109	3.3761	1.4128	.1353		
	Grp 3	48	3.6458	1.1758	.1697		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = single, Grp 2 = with women, Grp 3 = with women and children.

10.11.5 The HFSQ Index

The empirical analysis results presented in Appendix D Table D52 show, for the most items no significant differences among pilgrims who are single, accompanied by women, and/or accompanied by women and children, with respect to their perceptions regarding the importance of the HFSQ index. In other words, pilgrims accompanied by their family and single pilgrims recognise the importance of the HFS in Makkah correspondingly, except for the item concerning common safety. As can be seen in Table 10.11.5.1 below, single pilgrims are less concerned about common safety than the accompanied pilgrims. Conversely, the accompanied pilgrims are responsible for their family members, and thus they want to avoid various risks during the *Hajj* season.

Table 10.11.5.1: Significant Results of ANOVA Tests Based on HFSQ and the Accompanied Pilgrims

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q20 Common safety	Grp 1	273	4.5861	7770	.0470	3.3974	.0343*
	Grp 2	128	4.7578	.5716	.0505		
	Grp 3	48	4.7708	.4722	.0682		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = single, Grp 2 = with women, Grp 3 = with women and children.

10.11.6 The Effect of ' Accompanied Pilgrims' Variable on the Pilgrims' Perceptions

The factor concerning the accompanied pilgrims affects few variables in the HFS indexes. However, and based on the ANOVA test results, for the most involved items, it can be concluded that no significant differences exist among pilgrims who are single, accompanied by women, and/or children with respect to their perceptions regarding the importance of the HFS during the *Hajj* season.

10.12 Exploring the Relationship between the Way Pilgrims Managed their *Hajj* and the HFS Indexes

This research hypothesises that the way a pilgrim performs his *Hajj* affects his personal perceptions regarding the importance of HFS in the *Hajj* season. Table 7.12.1 shows that 31.0 % of the respondents organise their own *Hajj* trip, where the majority of the sample (66.2 %) are involved with a Mutawif, and the rest of the

pilgrims, who represent 2.8 %, are members of an official agency during this *Hajj* season. The ANOVA technique will be employed to test the relationship between this factor and the HFS variables.

10.12.1 The HFS Index of Makkah

As can be seen in Appendix D, Table D8, and in Table 10.12.1.1 below, the analysis results show significant link between the way pilgrims manage their *Hajj* and six items of HFS index for Makkah. The items concern: travelling from Makkah to Arafat and Mina; public transportation; free drinking water; shopping facilities; restaurants and reasonable pricing. The rest of HFS-Makkah items are not affected by the above factor.

Table 10.12.1.1: Significant Results of ANOVA Tests Based on HFS-Makkah and the Way Pilgrims Managed their *Hajj*

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q47 Travelling. Makkah - Mina, Arafat	Grp 1	117	4 5043	7946	.0735	3.6370	0272*
	Grp 2	256	4.2500	.9075	.0567		
	Grp 3	11	4.5455	1.2136	.3659		
Q44M Public transportation	Grp 1	120	4.4833	.7884	.0720	4.3414	.0137*
	Grp 2	258	4 2364	.8656	.0539		
	Grp 3	11	4 6364	.6742	2033		
Q58M Public drinking water	Grp 1	116	4 6121	7315	0679	5 5485	0042*
	Grp 2	250	4 3440	9236	0584		
	Grp 3	11	4 9091	.3015	.0909		
Q62M Shopping facilities	Grp 1	112	4.4911	9104	.0860	3.0828	0470*
	Grp 2	247	4 2713	.9517	.0606		
	Grp 3	11	4.7273	.4671	.1408		
Q56M Restaurants and eating places	Grp 1	118	4.5678	7451	.0686	4.6562	0100*
	Grp 2	255	4.2902	.9731	.0609		
	Grp 3	11	4.7273	.4671	.1408		
Q63M Reasonable pricing	Grp 1	113	4 4336	.8004	.0753	7.8553	.0005*
	Grp 2	246	4.0488	1.0525	.0671		
	Grp 3	11	4 7273	.4671	.1408		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

In general, the test results show that pilgrims who perform the *Hajj* with official agents score the highest means regarding how pilgrims perceive the importance of HFS. They are followed by pilgrims who perform the *Hajj* individually and those who are involved with any sort of *Hajj* organisations, in order. This finding may be explained as the following: pilgrims who perform *Hajj* with official agents are mostly responsible persons, i.e they are involved in the *Hajj* management for other people, therefore they require better HFS. Similar circumstances are experienced by pilgrims who manage to perform *Hajj* independently, because they are responsible to manage

the *Hajj* trip for themselves and the people accompanying them. On the other hand, pilgrims who perform the *Hajj* with a Mutawif or an agent are served, and they are not responsible for arranging the *Hajj* for others. Therefore they perceive the importance of these items less highly than the other two groups of pilgrims.

10.12.2 The HFS Index of Arafat

The empirical analysis for most items of the HFS-Arafat index show no significant differences among pilgrims who manage the *Hajj* by themselves, with Mutawif, or with an official agent with respect to their perceptions concerning the importance of the HFS, except for three items, as shown in Appendix D, Table D18, and Table 10.12.2.1 below. The three items are with regard to: public transportation; free drinking water; and public telephones. The means values in the test results show that pilgrims who perform the *Hajj* with official agents score the highest means, i.e. indicating that they are very much concerned about the HFS. They are followed by pilgrims who perform the *Hajj* individually and those who are involved with any sort of *Hajj* organisations, in order. This result matched with the one discussed above concerning Makkah.

Table 10.12.2.1: Significant Results of ANOVA Tests Based on HFS-Arafat and the Way Pilgrims Managed their *Hajj*

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q44A Public transportation	Grp 1	120	4.2083	1.0603	.0968	3.9334	.0204*
	Grp 2	258	3.9225	.9872	.0615		
	Grp 3	11	4.3636	.9244	.2787		
Q58A Public drinking water	Grp 1	116	4.6552	7114	.0661	3.9050	.0210*
	Grp 2	250	4.4600	.8068	.0510		
	Grp 3	11	4.9091	.3015	.0909		
Q60A Public telephones	Grp 1	112	3.8125	1.3256	.1253	3.9243	.0206*
	Grp 2	241	3.4647	1.2006	0773		
	Grp 3	11	4.0909	1.2210	.3682		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

10.12.3 The HFS Index of Muzdalifah

As can be seen in Appendix D, Table D29, and Table 10.12.3 below, the ANOVA test results, for the most items of the HFS-Muzdalifah index, show no significant differences among pilgrims who manage the *Hajj* by themselves, with Mutawif, or with an official agent, with respect to their perceptions concerning the importance of the HFS, except for three items. They are with regard to: restaurants; free drinking

water; and public telephones. The analysis results show similar tendency with the one in Makkah and Arafat regarding how each group of pilgrims perceive the importance of the HFS.

Table 10.12.3.1: Significant Results of ANOVA Tests Based on HFS-Muzdalifah and The Way Pilgrims Managed their *Hajj*

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q56Z Restaurants and cafeterias	Grp 1	117	4.1880	1.1290	.1044	6.1305	.0024*
	Grp 2	253	3.7866	1.2190	.0766		
	Grp 3	11	4.5455	.8202	.2473		
Q58Z Public drinking water	Grp 1	116	4.5517	.8880	.0825	3.5057	.0310*
	Grp 2	250	4.3600	.8953	.0566		
	Grp 3	11	4.9091	3015	.0909		
Q60Z Public telephones	Grp 1	112	3.6429	1.3547	.1280	3.4674	.0322*
	Grp 2	241	3.2531	1.2609	.0812		
	Grp 3	11	3.4545	1.5076	.4545		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

10.12.4 The HFS Index of Mina

The empirical analysis for most items of the HFS-Mina index show no significant differences among pilgrims who manage the *Hajj* by themselves, with a Mutawif, or with an official agent, with respect to their perceptions concerning the importance of the HFS, except for three items, as shown in Appendix D, Table D41, and Table 10.12.4.1 below. The three items are with regard to: restaurants; free drinking water; and public telephones. The means values in the analysis results show that pilgrims who perform the *Hajj* with official agents score the highest means indicating they are more concerned about the HFS. They are followed by pilgrims who perform the *Hajj* individually and those who are involved with any sort of *Hajj* organisations, in order. This result matched with the one discussed above in the other *Hajj* venues.

Table 10.12.4.1: Significant Results of ANOVA Tests Based on HFS-Mina and the Way Pilgrims Managed their *Hajj*

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q56I Restaurants & cafeterias	Grp 1	1.7	4 4444	8754	0809	6 1155	.4*
	Grp 2	255	4.1569	9385	0588		
	Grp 3	11	4 8182	404[illegible]	1220		
Q63I Reasonable pricing	Grp 1	112	4 1429	9478	0896	7.3181	0008*
	Grp 2	245	3.8122	1.2337	.0788		
	Grp 3	11	4.9091	.3015	.0909		
Q60I Public telephones	Grp 1	113	4.1770	1.0457	.0984	3.2715	.0391*
	Grp 2	246	3.9065	1.1228	.0716		
	Grp 3	11	4.4545	1.2136	.3659		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

10.12.5 The HFSQ Index

As can be seen in Appendix D, Table D53, and Table 10.12.5.1 below, the ANOVA test results, for most items of the HFSQ index, show no significant differences among pilgrims who manage the *Hajj* independently, with Mutawif, or with an official agent with respect to their perceptions concerning the importance of the HFSQ index variables, except for two items. They are with regard to: the requirement for better public areas, and adequate health care. The analysis results for HFSQ show a similar tendency with the results for Makkah, Arafat, Muzdalifah, and Mina regarding how each group of pilgrims perceive the importance of the item concerning health care. However, it seems that individual pilgrims who are not involved with any kind of *Hajj* organisation perceive the importance of the public areas more highly than the other pilgrims. The possible reason for this result is that during the *Hajj* season many individual pilgrims use public areas to live in, i.e. as their accommodation (Chapter 4). This unpleasant phenomenon should not be encouraged.

Table 10.12.5.1: Significant Results of ANOVA Tests Based on HFSQ the Method Pilgrims Managed their *Hajj*

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q13 Attractive public areas	Grp 1	122	4.3852	.9040	.0818	6 8201	0012*
	Grp 2	260	3 9885	1.0341	.0641		
	Grp 3	11	3.9091	1.0445	.3149		
Q25 Health care	Grp 1	122	4 6230	.5652	.0512	3.2379	0403*
	Grp 2	260	4 4115	8313	.0516		
	Grp 3	11	4 5455	9342	281"		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

10.12.6 The Effect of the Variable Concerning 'How Pilgrims Manage their *Hajj*' on the Pilgrims' Perceptions

The analysis results for most items of the HFS indexes show no significant differences among pilgrims who manage the *Hajj* by themselves, with Mutawif, or with an official agent, with respect to their perceptions concerning the importance of the HFS. Therefore, the hypothesis that the method of how pilgrims manage to perform *Hajj* affects their perceptions concerning the HFS is rejected.

10.13 Exploring the Relationship between the Pilgrims' Annual Income and the HFS Index

As discussed in Chapter 7, the present study attempted to gather information about the pilgrims' annual income to investigate any relationship between this factor and other variables of the HFS indexes. The ANOVA method will employ to test the relationship between this factor and other HFS indexes variables.

10.13.1 The HFS Index of Makkah

The test results presented in Appendix D Table D9 do not show any significant relationship between pilgrims earning different annual incomes with respect to their perceptions regarding the importance of the HFS in Makkah. In other words, high and low income pilgrims recognise the importance of the HFS similarly.

10.13.2 The HFS Index of Arafat

The ANOVA results presented in Appendix D Table D19 do not show any significant differences among pilgrims earning various annual incomes with respect to their perceptions concerning the importance of the HFS in Arafat. In other words, high and low income pilgrims recognise the importance of the HFS in Arafat correspondingly.

10.13.3 The HFS Index of Muzdalifah

As can be seen in Appendix D, Table D30, and Table 10.13.3.1 below, the ANOVA test results, for the most items of the HFS-Muzdalifah index, show no significant differences among pilgrims earning various annual incomes with respect to their perceptions concerning the importance of the HFS in Muzdalifah, except for two items. These are: 1) the requirement for better treatment by local people, and 2) the car parking facilities. The analysis results show that low income pilgrims perceive the importance of these items more highly than rich pilgrims. A possible reason for this finding is that high income pilgrims can afford better services and facilities that usually provide polite and trained personnel. Therefore they are not exposed to any difficulties, and thus are not so concerned about these variables.

Table 10.13.3.1: Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Pilgrims Annual Income

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q72Z Treatment by local people	Grp 1	281	4.1174	.9767	.0583	2.6497	.0331*
	Grp 2	47	4.1277	.9916	.1446		
	Grp 3	22	4.5455	.7385	.1575		
	Grp 4	6	4.0000	1 5492	.6325		
	Grp 5	15	3.4667	1.3558	3501		
Q54Z Car parking facilities	Grp 1	289	4.2007	.9544	.0561		
	Grp 2	47	4.0638	1.1113	.1621	2.5200	.0409*
	Grp 3	21	4.6190	.7400	.1615		
	Grp 4	7	3.4286	1 3973	5281		
	Grp 5	15	3.9333	1.0998	.2840		

* Significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.39
** Grp 1 = SR 12000 or less, Grp 2 = SR 12001-24000, Grp 3 = SR 24001-36000, Grp 4 = SR 36001-48000, Grp 5 = >SR 48000.

10.13.4 The HFS Index of Mina

As shown in Appendix D, Table D42, and Table 10.13.4.1 below, the ANOVA results, for most items of the HFS-Mina index, show no significant differences among pilgrims earning various annual incomes with respect to their perceptions concerning the importance of the HFS in Mina, except for the media services. The analysis results show that rich pilgrims perceive the importance of this service more highly than low income pilgrims. This result reflects the rich pilgrims' requirement to be kept informed through the media during their stay in Mina.

Table 10.13.4.1: Significant Results of ANOVA Tests Based on HFS-Mina and the Pilgrims Annual Income

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q69I Media services	Grp 1	261	3.2682	1.4401	.0891	2.5909	.0366*
	Grp 2	44	3 0455	1 4620	2204		
	Grp 3	19	2 6316	1 3000	.2982		
	Grp 4	6	4.6667	.5164	.2108		
	Grp 5	15	3.2667	1.4376	.3712		

* Significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.39
** Grp 1 = SR 12000 or less, Grp 2 = SR 12001-24000, Grp 3 = SR 24001-36000, Grp 4 = SR 36001-48000, Grp 5 = >SR 48000.

10.13.5 The HFSQ Index

The analysis results presented in Appendix D, Table D54 do not show any significant relationship between pilgrims earning different annual incomes with respect to their perceptions regarding the importance of the HFSQ. In other words, high and low income pilgrims recognise the importance of the HFSQ index correspondingly.

10.13.6 The Effect of the Variable Concerning 'The Pilgrims' Annual Income' on the Pilgrims' Perceptions

The analysis results, for the most variables of the HFS indexes, show no significant differences among pilgrims earning various annual incomes with respect to their perceptions concerning the importance of the HFS. Therefore, the hypothesis that the pilgrims' annual incomes affects the pilgrims' perceptions concerning the HFS is rejected.

10.14 Exploring the Relationship between the Effect of 'Word-of-Mouth' and the HFS Indexes

Researchers concerning the service industry argue that word-of-mouth is an important factor affecting clients' expectations. In this study there is a question that aims to investigate whether or not the respondent had discussed the *Hajj* issues with somebody who came to the *Hajj* in previous years, and how that affects the pilgrim's perceptions regarding the *Hajj*. It is found in Section 7.14 that while 14.7 % of the pilgrims in the sample had not talked about the *Hajj* earlier, 85.3 % of the respondents had talked to people about the *Hajj* before they came to this season. The t-test technique will be employed to explore the link between this factor and the HFS variables.

10.14.1 The HFS Index of Makkah

The t-tests results presented in Table 10.6.1.1 above show significant links between the word-of-mouth factor, and the pilgrims' perceptions concerning the importance of ten items of the HFS index of Makkah. The ten items concern: public toilet facilities; free drinking water; shopping facilities; restaurants and eating places; general information services; cleanliness of sites; postal services; signposting; and clothes washing facilities in Makkah.

By looking at the means values in Table 10.6.1.1, it seems that pilgrims who talked with past *Hajj* goers are well informed about the problems that they may face in using the HFS during the *Hajj* season. Therefore, they perceive the importance of the

HFS less than pilgrims who had not talked about the *Hajj* before they came. In other words, it appears that the word-of-mouth factor helps to reduce the pilgrims' perceptions with respect to the importance of the HFS.

10.14.2 The HFS Index of Arafat

The analysis results show significant differences between pilgrims who had talked and those who had not talked about the *Hajj* before, with respect to their perceptions regarding the importance of eight items of the HFS-Arafat index. As can be seen in Table 10.6.2.1 above, the eight items concern: reasonable treatments of pilgrims by policemen and officials; guiding services; cleanliness of sites; toilet facilities; drinking water; postal services; and public telephones. According to the means values it seems, as in Makkah, that pilgrims who had talked with past *Hajj* goers are well informed about the problems that they may face in using the HFS during the *Hajj* season. Therefore, they perceive the importance of these eight HFS to be less than pilgrims who had not talked about the *Hajj* before they came to this season.

10.14.3 The HFS Index of Muzdalifah

The t-test results presented in Table 10.6.3.1 above, show significant differences between pilgrims who had talked and those who had not talked about the *Hajj* before, with respect to their perceptions regarding the importance of ten items of the HFS-Muzdalifah index. The ten items concern: reasonable treatments of pilgrims by officials and policemen; guiding services; cleanliness of sites; restaurants; drinking water; toilets; accommodation; postal services; and public telephones. According to the means values, the pilgrims who had talked with past *Hajj* goers are well informed about the problems that they may face in using the HFS during the *Hajj* season. Therefore, they perceive the importance of these ten HFS less than pilgrims who had not talked about the *Hajj* before they came. This result matches with previous results concerning Makkah and Arafat.

10.14.4 The HFS Index of Mina

The t-test results presented in Table 10.6.4.1 above, show significant differences between pilgrims who had talked and those who had not talked about the *Hajj* before, with respect to their perceptions regarding the importance of eleven items of the

HFS-Mina index. The eleven items concern: toilets; drinking water; cleanliness of sites; guiding services; restaurants; accommodation; reasonable treatments of pilgrims by officials and policemen; postal services; public telephones; and media services. The means values indicate that pilgrims who had talked with experienced persons about *Hajj* before perceive the importance of these eleven HFS items less highly than pilgrims who had not talked about the *Hajj* before they came to the present season. This result matches with the results found above concerning the other *Hajj* venues.

10.14.5 The HFSQ Index

The analysis results presented in Table 10.6.5.1 above, show significant differences between pilgrims who had talked and who had not talked about the *Hajj* before, with respect to their perceptions regarding the importance of ten items of the HFSQ index. Seven items concern the service quality issues, as shown in Table 10.6.5.1. The rest of the items are for example: security, safety, and health services. The means values indicate that pilgrims who had talked with past *Hajj* goers are expecting better service quality during the *Hajj* season. Therefore, they perceive the importance of these ten HFSQ more highly than pilgrims who had not talked about the *Hajj* before they came. This result does not match with the previous results concerning the *Hajj* venues.

10.14.6 The Effect of the Variable Concerning 'The Word-of-Mouth' on the Pilgrims' Perceptions

The empirical analysis results for many important items of the HFS indexes show significant differences between pilgrims who had talked and those who had not talked about the *Hajj* before with respect to their perceptions concerning the importance of the HFS. Therefore, we accept the hypothesis that the word-of-mouth factor affects the pilgrims' perceptions concerning the HFS.

10.15 Exploring the Relationship between the Effect of Travelling Experience and the HFS Index

One more factor that was considered to affect the pilgrim's perceptions regarding the importance of the HFS, was whether he had travelled outside their country of residence before. It was assumed that due to the fact that a person had travelled before, he would have certainly been exposed to some HFS that travellers usually need and/or use; thus he would have different experiences than those who had never travelled before. Furthermore, an international traveller, i.e. the person who has travelled outside his country, is more familiar with matters like passport control, arrangement of accommodation and transportation, dealing with foreign people, etc. On the other hand a national or local traveller has limited experience, but this knowledge is better than that of a person who has never travelled outside his place of residence at all.

The results in Chapter 7 conclude that about half of the pilgrims were expected to have at least some experience of international travel, nearly one third of the respondents did travel but inside their countries, and the rest of the pilgrims did not have any travelling experience. The ANOVA will be employed to investigate the link between this factor and the HFS variables.

10.15.1 The HFS Index of Makkah

As can be seen in Table D in Appendix D9a, the analysis results show that for ten items, there are significant differences among pilgrims who have different travelling experiences with respect to their perceptions regarding the importance of the HFS index in Makkah. The ten affected items concern the following facilities, services, and/or features: car parks; toilet; shopping; reasonable pricing; general information; treatment by local people; treatment by Mutawifeen; treatment by officials; health services; and parks and recreational facilities. As can be seen in Table 10.15.1.1 below, the means values indicate that pilgrims who had never travelled before have greater expectations than others, and thus they score the highest means, i.e. they perceive the importance of the HFS-Makkah more highly than pilgrims who have been exposed to travelling experience.

Table 10.15.1.1: Significant Results of ANOVA Tests Based on HFS-Makkah and Travelling Experience

Question Number / Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54M Car parking facilities	Grp 1	51	4.5098	.7035	.0985	3.6077	.0280*
	Grp 2	145	4.5310	.7733	.0642		
	Grp 3	216	4.2917	.9851	.0670		
Q59M Toilet facilities	Grp 1	50	4.6800	.7126	.1008		
	Grp 2	147	4.6054	.6678	.0551	3.4992	.0311*
	Grp 3	212	4.4151	.9274	.0637		
Q62M Shopping facilities	Grp 1	48	4.6042	.9394	.1356		
	Grp 2	142	4.3592	.9404	.0789	4.0766	.0177*
	Grp 3	209	4.1818	1.0169	.0703		
Q63M Reasonable pricing	Grp 1	48	4.5625	.7693	.1110		
	Grp 2	142	4.1056	.9203	.0772	5.3214	0052*
	Grp 3	209	4.0526	1.0661	.0737		
Q67M General information	Grp 1	48	4.5833	.7945	.1147		
	Grp 2	140	4.3214	.8334	.0704	6.4242	.0018*
	Grp 3	205	4 0683	1.1137	0778		
Q72M Treatment by local people	Grp 1	47	4.5745	.8784	.1281		
	Grp 2	140	4.1786	.8918	.0754	3.5530	0296*
	Grp 3	209	4.2249	.9158	0633		
Q73M Treatment by Mutawifeen staff	Grp 1	47	4.5319	.8810	1285		
	Grp 2	138	3.9710	1.0667	0908	6.4241	0018*
	Grp 3	199	4.2513	.9781	.0693		
Q70M Treatment by Officials	Grp 1	48	4.6458	.8377	.1209		
	Grp 2	136	4.4203	.7430	0632	3 6963	.0257*
	Grp 3	209	4.2823	9516	.0658		
Q64M Health services	Grp 1	48	4 5000	9676	1397		
	Grp 2	143	4 7692	5266	0440	3.6637	0265*
	Grp 3	212	4.5849	7953	0546		
Q75M Parks & recreational facilities	Grp 1	46	4.1087	1.2513	.1845		
	Grp 2	137	4.2336	1.1263	.0962	5 7261	.0035*
	Grp 3	199	3.7437	1.4872	.1054		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside and outside his country

10.15.2 The HFS Index of Arafat

As can be seen in Table D20 in Appendix D, the ANOVA results show that, for four items, there are significant differences among pilgrims having different travelling experience with respect to their perceptions regarding the importance of the HFS index of Arafat. The four items concern the pilgrims' claim for better treatment by policemen, by local people, and by Mutawifeen, and the requirement for fewer traffic jams in Arafat. By looking at the means values in Table 10.15.2.1 below, we notice that pilgrims who had never travelled before have greater expectations than other pilgrims, and thus they score the highest means, i.e. they perceive the importance of these HFS items more highly than pilgrims who had been exposed to travelling experience. The last item concerning the traffic jams is excluded, because the previous travellers perceive the importance of that item more highly than other pilgrims.

Table 10.15.2.1: Significant Results of ANOVA Tests Based on HFS-Arafat and the Travelling Experience

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q71A Treatment by policemen	Grp 1	47	4.6170	.8484	.1237	3.0245	.0497*
	Grp 2	142	4.4014	.7632	.0640		
	Grp 3	209	4.2871	.9167	.0634		
Q72A Treatment by local people	Grp 1	47	4.4255	1.0372	.1513		
	Grp 2	140	4.0214	.9998	.0845	3.1029	.0460*
	Grp 3	209	4.1818	.9734	.0673		
Q73A Treatment by Mutawifeen staff	Grp 1	47	4.3617	1.0920	.1593		
	Grp 2	138	3.8841	1.0676	.0909	4.8276	.0085*
	Grp 3	199	4.1709	1.0254	.0727		
Q45A Fewer traffic jams	Grp 1	51	4.1373	1.0004	.1401		
	Grp 2	147	4.0408	.9500	.0784	2.6058	.0751*
	Grp 3	219	4.2694	.9314	.0629		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside and outside his country

10.15.3 The HFS Index of Muzdalifah

The analysis results show significant differences among pilgrims having different travelling experiences with respect to their perceptions regarding the importance of three items of the Muzdalifah HFS index, as can be seen in Appendix D, Table D31. The three items concern the pilgrims' claim for: better treatment by Mutawifeen; adequate public transportation; and general information. The means values in Table 10.15.3.1 below, show that pilgrims who had never travelled before have greater expectations than others regarding these items and thus they score the highest means, i.e. they perceive the importance of these HFS items to be higher than pilgrims who had been exposed to travelling experience. This result matched with the previous one concerning Makkah.

Table 10.15.3.1: Significant Results of ANOVA Tests Based on HFS-Muzdalifah and Travelling Experience

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q73Z Treatment by Mutawifeen staff	Grp 1	47	4.2766	1.2105	.1766	3.7094	.0254*
	Grp 2	138	3.8696	1.0727	.0913		
	Grp 3	200	4.1400	1.0323	.0730		
Q44Z Public transportation	Grp 1	51	3.9804	1.2081	.1692		
	Grp 2	148	3.5541	1.2138	.0998	3.4663	.0321*
	Grp 3	219	3.8311	1.1706	.0791		
Q67Z General information	Grp 1	48	4.0417	1.3202	.1906		
	Grp 2	135	3.4148	1.2301	.1059	5.2361	.0057*
	Grp 3	203	3.3842	1.3313	.0934		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside and outside his country

10.15.4 The HFS Index of Mina

The ANOVA results show significant differences among pilgrims having different travelling experiences with respect to their perceptions regarding the importance of seven items of the Mina HFS index, as can be seen in Appendix D, Table D42. The seven items concern: signposting; reasonable pricing; pilgrims' movement; treatment by Mutawifeen; treatment by local people; general information; and postal services. The means values in Table 10.15.4.1 below indicate that pilgrims who had never travelled before and those who had travelled inside their countries have greater expectations than others regarding these items, and thus they score the highest means, i.e. they perceive the importance of these HFS items more highly than pilgrims who had been exposed to various travelling experience.

Table 10.15.4.1: Significant Results of ANOVA Tests Based on HFS-Mina and Travelling Experience

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q66I Signposting	Grp 1	48	4.6667	.7532	.1087	3.9211	.0206*
	Grp 2	145	4.7724	.4525	.0376		
	Grp 3	213	4.5540	.8595	.0589		
Q63I Reasonable pricing	Grp 1	48	4.3958	1.0667	.1540	5.0497	.0068*
	Grp 2	141	3.8227	1.1167	.0940		
	Grp 3	209	3.8421	1.1885	.0822		
Q46I Pilgrims' movements	Grp 1	51	4.2157	.9447	.1323	3.6507	.0268*
	Grp 2	145	4 5586	6960	.0578		
	Grp 3	216	4.3565	9825	.0669		
Q73I Treatment by Mutawifeen	Grp 1	47	4 3617	1.2055	.1758	4.3448	.0136*
	Grp 2	138	3.9275	1.0850	.0924		
	Grp 3	201	4 2189	i 0059	0710		
Q72I Treatment by local people	Grp 1	47	4.4681	.9968	.1454	3.6992	.0256*
	Grp 2	140	4.0357	.9921	.0839		
	Grp 3	209	4.1962	9327	.0645		
Q67I General information	Grp 1	48	4.2083	1.2370	1785	3 9606	019R*
	Grp 2	140	3.7643	1.1228	0949		
	Grp 3	206	3.6602	1.2692	0884		
Q61I Postal services	Grp 1	47	4.1064	1.0474	.1528	5.7863	.0033*
	Grp 2	130	3.3538	1.4620	.1282		
	Grp 3	203	3.6601	1.3079	.0918		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside and outside his country

10.15.5 The HFSQ Index

As can be seen in Table D55 in Appendix D, the analysis results show significant differences among pilgrims having various travelling experiences with respect to their perceptions regarding the importance of nine items of the HFSQ index. The nine affected items concern: assistant services; public areas; anticipation of pilgrims' needs; having more privacy; knowledgeable staff; treatments by Mutawifeen; trained employees; less crowding; and transportation and movement. The means values in

Table 10.15.5.1 below, indicate that pilgrims who had travelled outside their countries before have greater expectations concerning the service quality items than the other groups of pilgrims, and thus they score the highest means. In other words, pilgrims having international travelling experience perceive the importance of the HFSQ items more highly than the other pilgrims who had not travelled outside their countries before they came to this *Hajj* season.

Table 10.15.5.1: Significant Results of ANOVA Tests Based on HFSQ and Travelling Experience

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q11 Assistant services	Grp 1	51	4.1373	.8722	.1221	3.3150	.0373*
	Grp 2	149	4.2349	.8652	.0709		
	Grp 3	221	4.4163	.8413	.0566		
Q13 Attractive public areas	Grp 1	51	3.6667	1 0132	1419	4 6791	0098*
	Grp 2	149	4.1678	1.0293	.0843		
	Grp 3	221	4.1222	1.0654	.0717		
Q17 Anticipation of pilgrims' needs	Grp 1	50	3.9800	.9792	.1385	3.5125	.0307*
	Grp 2	149	4.0604	.9244	.0757		
	Grp 3	218	4.2752	.9095	.0616		
Q18 increased privacy	Grp 1	50	3.6000	1.1066	.1565	5.7998	.0033*
	Grp 2	149	4.0000	.9586	.0785		
	Grp 3	213	4.1549	1.0900	.0747		
Q22 Knowledgable staff	Grp 1	51	4.0980	1.2207	.1709	3.1178	.0453*
	Grp 2	149	3.9866	1.4046	.1151		
	Grp 3	222	4.3063	1.0954	.0735		
Q27 Treatment by Mutawefeen staff	Grp 1	51	4 0000	1.0583	.1482	5.9022	0030*
	Grp 2	149	3.9396	1.0015	0820		
	Grp 3	211	4.2938	.9947	.0685		
Q28 Trained employees	Grp 1	51	4.0588	1.1386	.1594	4.0849	.0175*
	Grp 2	148	3.7230	1 3392	.1101		
	Grp 3	221	4 0950	1 2192	0820		
Q23 Less crowding	Grp 1	51	4 0980	1.0441	.1462	4.~270	0093*
	Grp 2	149	4.0403	.9291	0761		
	Grp 3	222	4.3288	8848	.0594		
Q24 Transportation & movement	Grp 1	51	3.9804	.9485	.1328	6.0224	.0026*
	Grp 2	149	4.0336	1.0095	.0827		
	Grp 3	222	4.3378	.8966	.0602		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside andout side his country

10.15.6 The Effect of the Variable Concerning 'Travelling Experience' on the Pilgrims' Perceptions

The analysis results for many important items of the HFS indexes show significant differences among pilgrims having either different travelling experiences or no experience at all, with respect to their perceptions concerning the importance of the HFS. Therefore, the hypothesis that travelling experience affects the pilgrims' perceptions concerning the HFS is accepted.

10.16 Exploring the Relationship between the Effect of Training Experience and the HFS Indexes

This study attempts to investigate any possible relation between training experience and other variables in the HFS indexes. Table 7.16.1 in Chapter 7 shows that 83.5% of the pilgrims had had some sort of training about the *Hajj* before they came to this season. In contrast 16.5 % of the respondents had not attended any training regarding the *Hajj* in the past. The t-test technique is going to be employed to examine the link between this factor and the HFS variables.

10.16.1 The HFS Index of Makkah

The test results shown in Table 10.6.1.1 above, indicate significant differences between pilgrims having training experience and pilgrims without training experience with respect to their perceptions regarding the importance of six items in the HFS-Makkah index. The training experience factor raised the pilgrims' perceptions regarding the importance of four items in the HFS-Makkah index. They concern: movement in *Tawaf*; movement in *Sa'e*; information about the historical places; and recreational facilities. On the other hand, training experience decreases the pilgrims' perceptions regarding the treatments by Mutawifeen and policemen. Further research is required to understand this last finding.

10.16.2 The HFS Index of Arafat

As can be seen in Table 10.6.2.1 above, the ANOVA results show significant differences between pilgrims having training experience and pilgrims without training experience with respect to their perceptions regarding the importance of the postal services in Arafat. It seems that pilgrims who do not have training experience perceive the importance of this item more highly than other pilgrims. The trained pilgrims were informed that staying time in Arafat is short, and thus they may not need postal services; therefore they perceive the importance of this item less highly than the non trained pilgrims.

10.16.3 The HFS Index of Muzdalifah

As can be seen in Table 10.6.3.1 above, the analysis results show significant differences between pilgrims having training experience and pilgrims without

training experience with respect to their perceptions regarding the importance of treatment of pilgrims by the Mutawifeen staff in Muzdalifah. From the analysis results we notice that pilgrims who had not had training experience perceive the importance of this item more highly than other pilgrims. It appears that trained pilgrims were informed about the kinds of treatments they will face by the people during the *Hajj* season, and therefore they perceive the importance of this item less highly than the non trained pilgrims.

10.16.4 The HFS Index of Mina

The test results shown in Table 10.6.4.1 above, indicate significant differences between pilgrims who had had training or lessons and pilgrims who had not had training or lessons about the *Hajj* before with respect to their perceptions regarding the importance of two items in the HFS-Mina index. They concern: car park; and treatment by the Mutawifeen staff. Trained pilgrims' perceptions regarding the importance of the first item is more highly than the non trained pilgrims. However, different result is found concerning the second item, as shown in Table 10.6.4.1 above. Without further research we cannot explain why and how the training factor affects the pilgrims' perceptions with respect to the importance of the HFS.

10.16.5 The HFSQ Index

As can be noticed in Table 10.6.5.1 above, the analysis results of the most cases, show significant differences between pilgrims who had had training or lessons and pilgrims who had not had training or lessons about the *Hajj* before with respect to their perceptions concerning the importance of the HFSQ index. It is found that trained pilgrims' perceptions regarding the importance of the items concerning service quality is higher than the non trained pilgrims. Further research is required to explain why and how the training experience factor affects the pilgrims' perceptions with respect to the importance of the HFSQ.

10.16.6 The Effect of the Factor Concerning 'Training and Lessons' on the Pilgrims' Perceptions

The analysis results for the most important items of the HFS indexes show significant differences among pilgrims who had had training or lessons about the *Hajj* before and pilgrims who had not had training or lesson with respect to their perceptions concerning the importance of the HFS variables. Therefore, the hypothesis that training and lessons about the *Hajj* which taken by pilgrims before they come to Saudi Arabia affect their perceptions concerning the HFS is accepted.

10.17 Exploring the Relationship Between the Purpose of Coming to this *Hajj* Season and the HFS Indexes

Although it seems obvious that people come to Makkah in the *Hajj* season for the aim of performing the *Hajj*, it would be useful to investigate reasons other than that one. After asking the pilgrims about the other reasons, and testing that result against various variables, we can identify any particular needs regarding HFS required by different groups. The results in Chapter 7, Table 7.17.1 show that the majority of the pilgrims (71.1 %) come just to perform the *Hajj*. The rest of the respondents come to do *Hajj* and business. To test the link between this variable and the HFS variables we employ the ANOVA method.

10.17.1 The HFS Index of Makkah

The ANOVA test results shown in Table D10 in Appendix D, and in Table 10.17.1.1 below, do not show significant differences among pilgrims with respect to their purpose of coming and HFS-Makkah, except for two items. They concern the car parking and toilet facilities. In general, one can notice that pilgrims who come for the *Hajj* and business perceive the importance of these two items more highly than those who come for the *Hajj* only. The reason for this may be because businessmen use cars while they are working and are likely to use the crowded public toilets; therefore, they recognise the importance of these two facilities more highly than other pilgrims.

Table 10.17.1.1: Significant Results of ANOVA Tests Based on HFS-Makkah and the Purpose for Coming to this *Hajj* Season

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54M Car parking facilities	Grp 1	304	4.4539	.8431	.0484	4.3612	.0049*
	Grp 2	50	4.5800	.7309	.1034		
	Grp 3	14	4.1429	1.2924	.3454		
	Grp 4	44	4.0227	.9273	.1398		
Q59M Toilet facilities	Grp 1	303	4.5314	.8086	.0465		
	Grp 2	49	4.7347	.5313	.0759	2.6561	0481*
	Grp 3	14	4.6429	.7449	.1991		
	Grp 4	43	4.2791	.8817	.1345		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.62
** Grp 1 = to perform *Hajj* only, Grp 2 = for *Hajj* and business, Grp 3 = for *Hajj* and official work, Grp 4 = for *Hajj* and to accompany a friend or a relative.

10.17.2 The HFS Index of Arafat

As shown in Table D21 in Appendix D the analysis results for the most items of HFS-Arafat do not show significant differences among pilgrims with respect to their purpose for coming and HFS-Makkah, except for two items. They concern the car parking facilities and the postal services. From the means values in Table 10.17.2.1 below, we notice that the group of pilgrims who come for the *Hajj* and business perceive the importance of car parks more highly than the other groups of pilgrims. The reason for this may be because businessmen use private cars as transport and need to park them easily in Arafat; therefore, they recognise the importance of this facility more highly than other pilgrims. On the other hand, pilgrims who come for the *Hajj* and business perceive the importance of postal services less highly than other pilgrims because they know that the staying time in Arafat is very short, thus postal services are not so important for their business in this *Hajj* venue.

Table 10.17.2.1: Significant Results of ANOVA Tests Based on HFS-Arafat and the Purpose of Coming to this *Hajj* Season

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54A Car parking facilities	Grp 1	302	4.2384	.8870	.0510	5.0186	.0020*
	Grp 2	50	4.4800	.8142	.1151		
	Grp 3	14	3.5000	1.5064	.4026		
	Grp 4	44	4.0227	.9273	.1398		
Q61A Postal services	Grp 1	290	3.1571	1.4003	.0837	3.5507	.0147*
	Grp 2	32	2.5313	1.2439	.2199		
	Grp 3	14	2.2857	1.4373	.3841		
	Grp 4	43	2.8837	1.5616	.2381		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.62
** Grp 1 = to perform *Hajj* only, Grp 2 = for *Hajj* and business, Grp 3 = for *Hajj* and official work, Grp 4 = for *Hajj* and to accompany a friend or a relative.

10.17.3 The HFS Index of Muzdalifah

The ANOVA test results shown in Table D32 in Appendix D do not show significant differences among pilgrims with respect to their purpose of coming and HFS-Muzdalifah, except for three items such as: 1) treatment by policemen, 2) car parks, and 3) postal services. According to the test results in Table 10.17.3.1 below, we notice that pilgrims who come for the *Hajj* only and for the *Hajj* and business perceive the importance of the first two items more highly than other groups of pilgrims. The reason for this may be because both pilgrims and business-pilgrims have direct contact with policemen while they search for vacant car parks and/or for the location of other facilities in Muzdalifah. Therefore, they recognise the importance of these two facilities more highly than other pilgrims. However, with regard to postal services, it seems that pilgrims who come for *Hajj* only perceive the importance of this item more highly than other pilgrims who come for *Hajj* and other business.

Table 10.17.3.1: Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Purpose of Coming to this *Hajj* Season

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q71Z Treatment by policemen	Grp 1	295	4 4305	8296	.0483	3.7598	.0110*
	Grp 2	47	4.4255	.8274	.1207		
	Grp 3	14	4 0714	1.3848	.3701		
	Grp 4	43	4 0000	8997	.1372		
Q54Z Car parking facilities	Grp 1	304	4.1480	9989	0573		
	Grp 2	50	4.4800	.9311	.1317	4.2385	0058*
	Grp 3	14	3 5000	1.5064	.4026		
	Grp 4	44	3.9545	1 0105	.1523		
Q61Z Postal services	Grp 1	279	2.9964	1 4206	.0850		
	Grp 2	32	2 1875	1.0906	1928	6.9535	0001*
	Grp 3	14	1.6429	9288	2482		
	Grp 4	43	2.9535	1.5577	.2375		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.62
** Grp 1 = to perform *Hajj* only, Grp 2 = for *Hajj* and business, Grp 3 = for *Hajj* and official work, Grp 4 = for *Hajj* and to accompany a friend or a relative.

10.17.4 The HFS Index of Mina

As can be seen in Table D44 in Appendix D, the analysis results do not show significant differences among pilgrims with respect to their purpose of coming to this *Hajj* season and the importance of the HFS-Mina variables, except for two items, concerning inexpensive food, and treatment by policemen. We notice in Table 10.17.4.1 below that pilgrims who come for the *Hajj* and business perceive the importance of the first item less highly than those who come for the *Hajj* only. The reason for this may be because they can afford expensive food unlike other pilgrims.

Therefore, business-pilgrims recognise the importance of this item less highly than other pilgrims. However, pilgrims who come for the *Hajj* only and those who come for the *Hajj* and business have direct contact with policemen during Mina days, and thus they perceive the importance of having better treatment by policemen more highly than the other two groups of pilgrims.

Table 10.17.4.1: Significant Results of ANOVA Tests Based on HFS-Mina and the Purpose of Coming to this *Hajj* Season

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q57I Inexpensive food	Grp 1	303	4.2310	1.0451	.0600	3.0736	0276*
	Grp 2	50	3.8600	1.1954	1691		
	Grp 3	14	4.7143	.6112	.1634		
	Grp 4	43	4.1628	.8145	1242		
Q71I Treatment by policemen	Grp 1	295	4.4475	.8184	.0477	2.8293	.0383*
	Grp 2	47	4.4255	.8784	1281		
	Grp 3	14	4.3571	1.1507	.3075		
	Grp 4	43	4.0465	.8985	.1370		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.62
** Grp 1 = to perform *Hajj* only, Grp 2 = for *Hajj* and business, Grp 3 = for *Hajj* and official work, Grp 4 = for *Hajj* and to accompany a friend or a relative.

10.17.5 The HFSQ Index

As shown in Table D56 in Appendix D, the analysis results for eleven items of the HFSQ index show significant differences among pilgrims with respect to their purpose of coming to this *Hajj* season and HFSQ variables. The eleven affected items are listed in Table 10.17.5.1 below. It appears that most affected items are those concerning the service quality followed by the items regarding common safety, cleanliness of sites, and less crowding.

10.17.6 The Effect of the Variable Concerning ' the Purpose of Coming to this *Hajj* Season' on the Pilgrims' Perceptions

The empirical analysis results for most items of the HFS indexes show no significant differences among pilgrims who come to this *Hajj* season for various purposes other than *Hajj* with respect to their perceptions concerning the importance of the HFS. Therefore, the hypothesis that the different purposes of coming to the *Hajj* season, in addition to perform the *Hajj*, affect the pilgrims' perceptions concerning the HFS is rejected.

Table 10.17.6.1: Significant Results of ANOVA Tests Based on HFSQ and the Purpose of Coming to this *Hajj* Season

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q12 larger rooms in accommodation	Grp 1	307	4.1238	.9988	.0570	2.6800	.0466*
	Grp 2	46	4.4130	.9793	.1444		
	Grp 3	15	4.0000	1.1339	.2928		
	Grp 4	45	4.4667	.6941	.1035		
Q17 Anticipation of pilgrims' needs	Grp 1	307	4.1075	.9522	.0543	2.6709	.0471*
	Grp 2	50	4.2200	.8873	.1255		
	Grp 3	15	4.4000	.8281	.2138		
	Grp 4	45	4.4889	.6613	.0986		
Q18 Increased privacy	Grp 1	308	3.9740	1.0490	.0598	2.8487	.0373*
	Grp 2	38	4.2895	1.0374	.1683		
	Grp 3	15	4.2000	1 1464	2960		
	Grp 4	45	4.3778	.8605	1283		
Q19 Special requests carried out	Grp 1	308	3.9675	1 0172	.0580	2.8480	.0373*
	Grp 2	49	4 0816	1.0574	.1511		
	Grp 3	15	4.1333	1.0601	.2737		
	Grp 4	45	4.4222	6567	0979		
Q22 Knowledgable staff	Grp 1	309	4 1780	1 2603	0717	6.4608	0003*
	Grp 2	53	3.4717	1.6825	.2311		
	Grp 3	15	4.5333	.8338	.2153		
	Grp 4	45	4.4444	.5459	.0814		
Q26 Treatment by policemen	Grp 1	308	4.3149	.8589	.0489	2.2505	.0819*
	Grp 2	50	4 6200	.6354	.0899		
	Grp 3	15	4.5333	9155	.2364		
	Grp 4	45	4 4222	.7226	.1077		
Q28 Trained employees	Grp 1	307	3.9739	1 2391	.0707	6.2005	0004*
	Grp 2	53	3 3396	1 6864	.2316		
	Grp 3	15	4.4000	.9856	.2545		
	Grp 4	45	4.3333	.8257	.1231		
Q15 Reasonable security	Grp 1	308	4.4091	1.0024	.0571	3.1267	.0257*
	Grp 2	41	4.6829	.6870	.1073		
	Grp 3	15	4.5333	.6399	.1652		
	Grp 4	45	4.8000	.4045	.0603		
Q20 Common safety	Grp 1	309	4 5761	7718	.0439	2.7420	.0429*
	Grp 2	51	4.7843	.4154	.0582		
	Grp 3	15	4.4667	9155	.2364		
	Grp 4	45	4 8222	3866	0576		
Q21 Cleanliness of sites	Grp 1	309	4 3269	1.0256	0583	2 7629	0417*
	Grp 2	53	4.6415	.7363	.1011		
	Grp 3	15	4.6000	.9103	.2350		
	Grp 4	45	4.6222	.6138	.0915		
Q23 Less crowding	Grp 1	309	4.1715	9567	0544	3 0977	.0267*
	Grp 2	53	4.2075	7431	1021		
	Grp 3	15	4.4667	6399	1652		
	Grp 4	45	4.5778	.5834	.0870		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.62
** Grp 1 = to perform *Hajj* only, Grp 2 = for *Hajj* and business, Grp 3 = for *Hajj* and official work, Grp 4 = for *Hajj* and to accompany a friend or a relative.

10.18 Summary

Factors that might affect the pilgrims' perceptions concerning the importance of the HFS were investigated in this chapter. The research hypothesis was tested concerning the variables of the HFS indexes developed earlier in Chapter 9. The t-test, and the ANOVA techniques were employed whenever it was suitable in the hypothesis testing.

The analysis results showed that all the factors proposed affected the pilgrims' perceptions in various ways, and to certain degrees. However, out of the thirteen factors investigated in this study, there were some factors that had a clear and dominant influence on the HFS indexes variables more than the others. The significant factors, in order of their importance were: pilgrims' nationality, word-of-mouth, pilgrims' age, travelling experience, training experience, and home of residence.

Having finished testing the data collected for this study, and the research hypothesis, the next step is to discuss and interpret the analysis results of this research which is the subject of Chapter 11.

CHAPTER 11

The Research Discussion and Implications

11.1 Overview

This chapter aims to explain the major research findings, and to undertake the presentation of the research results discussion and interpretations.

11.2 The Research Discussion, and Interpretations

Based on the literature review concerning the event industry (see Chapter 2), and the findings of this study the definition of an event is modified to be:

> "Something of importance which is planned to happen at a specific time and in a specific place. An event must be manageable and controllable".

This definition is different to the others which were found to be defined in the previous literature by two points: a) it suggests that an event must be pre-planned, i.e. if it is not pre planned it may occur, but not be as successful in fulfilling its objectives; and b) an event must always be manageable and under control, otherwise the event may develop into an undesirable occasion.

In light of the research findings, it is argued that a mega-event must have the following characteristics:

1. has a special importance to people in the international community;
2. has well defined objectives, theme, and/or programme;

3. attracts an extraordinary number of participants from different parts of the world;
4. draws the attention of the international media to it and is well covered by such a media;
5. involves more than one venue;
6. requires the provision of various facilities and services;
7. has a limited duration time - not more than few weeks;
8. has clear social, economical, and environmental impacts on the host community and destination; and therefore,
9. requires adequate planning, organising, and management.

The events business is very important to the tourism and hospitality industry. It motivates travel, acts as a tourist attraction and helps with community development (Pyo, 1995). The event industry is very profitable. It is estimated that Britain earns somewhere around £200 million per annum from overseas visitors attending different events (Seekings, 1996). Moreover, Mega-events yield a substantial economical benefit to the host destination. Getz (1997) quoting Mihalik (1994) wrote that Atlanta's 1996 Summer Olympic Games generated $2 billion in construction projects in Georgia, including sports, educational, and housing facilities. In particular the Games were a catalyst for achieving a $42 million federal housing grant to revitalise a low-income housing project next to the Olympic village. Sydney Organising Committee for the Olympics Games (1995) reveals that it expects a major benefits from hosting the 2000 Summer Olympics, the event would add $ 7.3 billion to the country's Gross Domestic Product and generate 150,000 full and part-time jobs. Major benefits are expected to be with respect to housing facilities and urban renewal.

It is argued that each event is unique because each event has its own programme, participants, venue(s), and requires therefore, different facilities and services. The basic principles, however, and general practicalities of event organisation and management such as planning, staffing, controlling, financing, marketing, and programming can be applied to all events.

The demand for effective events' planning and management is derived from the importance of events' various impacts on host communities. There are positive and negative impacts of events which affect both the hosting organisation and the involved community (Hall, 1992; Getz, 1991; and Richie, 1984). Some of the positive impacts of events that event planners and managers should encourage include: creation of business and employment; increased awareness of the region as a travel/tourism destination; construction of new facilities; improvement of local infrastructures; the enhancement of international recognition of region and its values; etc. On the other hand, the negative effects of events that ought to be minimised are: price increases during the event; acquisition of a poor reputation as a result of inadequate facilities; improper practices and inflated prices; environmental damage and pollution; commercialisation of activities, an increase in crime; as well as other negative aspects. A quality event has many positive impacts and very few or no negative impacts. All stakeholders (i.e. participants, employees, service providers, people in the host community, etc.) should feel and benefit from the positive impacts of events. Negative impacts should be minimised as much as is practical, especially those in relation to the community and the environment.

The *Hajj* event is the annual Islamic pilgrimage to Makkah and to the Holy Places, Saudi Arabia. The *Hajj* is of a great importance to more than one billion people over the world because it is the fifth pillar of Islam - the pillars are in order: faith, prayer, concern for the needy, fasting, and the *Hajj*. The *Hajj* is an obligatory only for those who are physically and financially able to perform it. Nevertheless, about one and half million people go to Makkah each year from every corner of the globe providing a unique opportunity for those of different nations to meet one another. The *Hajj* event has a well defined programme. It is performed within various venues and involves different types of facilities and services (Chapter 3). The *Hajj* is widely covered by national and international media. It has great economic impacts on the private and governmental sectors in Saudi Arabia, and other international travelling companies are also benefit from such an event. There is a little research concerning the *Hajj* event's different issues; however, no research has been conducted with respect to facilities and services needed in such an event with respect to the actual users' perceptions. Therefore, the *Hajj* event is selected as a typical mega-event in order to be used as a vehicle to meet the research objectives.

The *Hajj* event is comprised of three distinct, yet inter-related dimensions. They are: religious; temporal; and spatial. In other words the *Hajj* consists of ritual observances and the activities necessarily associated with it. Those observances and activities are well defined and documented in Islam. The *Hajj* occurs and performed only within a specified time and at certain places. In other words, the *Hajj* event's programme, timing, and/or venues cannot be altered. A summary of the *Hajj* itinerary is reproduced in Figure 11.2.1. In light of the above facts and based on the proposition suggested by this research that 'the main components of an event is its programme and the facilities and services available for it', and because the success of any event depends upon these two controllable factors (i.e. the event's program/itinerary; and 2) the facilities and services available), this thesis argues that the success of the *Hajj* event depends upon, and should be related to, the success of preparing, managing, and providing the required facilities and services to the participants.

Figure 11.2.1: Summary of the *Hajj* Programme

The pilgrims come from home to Makkah and carry out the *Umrah*.

1. On the 8th of the *Hajj* Month *(Dhul Hijjah)* the pilgrims enter the state of Ihram and wear the cloth of Ihram (for men only, women wear their normal clothes) Some of them go to Mina and spend the night there, others either stay in Makkah or go to Arafat.
2. On the morning of the 9th *Dhul Hijjah* the pilgrims go from Mina and Makkah to Arafat and stay there performing prayers until the sunset.
3. After the sunset they go from Arafat to Muzdalifah and sleep there. Some of the pilgrims go straight on to Mina.
4. On the morning of the 10th *Dhul Hijjah*, the pilgrims go to the capital Jamarah in Mina, to Makkah to perform Tawaf al Ifadhah and then back to Mina. Others make the animal sacrifice. The pilgrims spend their night in Mina.
5. On the 11th *Dhul Hijjah* all three Jimar are stoned. Many pilgrims go to Makkah and to the animal sacrifice. They spend their night in Mina.
6. On the 12th Dhul Hijjah. All three Jimar are stoned again. Most of the pilgrims then leave Mina to Makkah and after performing the last Tawaf they can go to Madinah, and/or back home. Some pilgrims prefer to stay in Makkah for a few days.

The administration of the *Hajj* is an extremely complex exercise, one with which both private and public institutions must be deeply involved. The great number of pilgrims demands many facilities and services. The preparation and delivery of which demands skilled administration. The number of both internal and external pilgrims in the last two decades gives some cause for concern. Internal pilgrims are equal in number and may possibly outnumber external pilgrims. An imbalance in these two proportions is alarming especially when visualised in the context of the population of Saudi Arabia contrasted to the rest of the world. Furthermore, HRC (1983) projects the number of pilgrims at more than two million by the year 2005. The general rise in the number of pilgrims requires the planning and provision of all sorts of facilities, services, religious, residential, financial etc. Bearing in mind that the *Hajj* venues are of limited area and capacity, two measures have been taken to manage this problem: a) campaigns were launched requesting residents as well as expatriates not to repeat performances of the *Hajj*, and b) permission for the *Hajj* to have to be obtained by expatriates. The analysis results of this research (Chapter 7) show that about one third of the sample live in Saudi Arabia (interior pilgrims) whereas the others live outside (exterior pilgrims). From previous records it was found that the percentage of the interior pilgrims varied from 44.2 % to 55.8 % of the total pilgrim number (HRC, 1995). This finding indicates that the number of the interior pilgrims has decreased in this year, and that the governmental measures that have been taken to control the interior pilgrims was fruitful.

In relation to the above issue, more than one half of the respondents were performing the *Hajj* as their first time, 18% of the sample had performed the *Hajj* once before, and about 32% of the pilgrims had been to the *Hajj* twice or more in addition to their present occasion. Although *Hajj* is required only once in a lifetime, this result indicates that many Muslims are eager to perform it more than once. The current research suggests that the number of pilgrims must be controlled considering the physical capacity of the *Hajj* venues. Efforts, however, have been made, with the co-operation of other Islamic states, to limit the number of their pilgrims to 1% of the Muslims' population in the country. These measures - for internal and external pilgrims - have successfully brought down the number of pilgrims giving a better

chance of improving the FS provided. It is argued that similar actions are effective in controlling the number of participants in large-scale events.

It is revealed that seasonal changes in Land Use take place on both vacant plots and incidental locations such as streets, squares, median strips, footpaths, entrances to tunnels, spaces over and under bridges etc. As the *Hajj* week approaches, these spaces become heavily used for various purposes - mostly residential and commercial. Almost all vacant plots including public parks and ornamental gardens particularly those lying on major routes are occupied by pilgrims. These pilgrims become a major source of nuisance to other people, both pilgrims and residents. No serious attempt has been made to determine the root of this problem. However, HRC (1993) recently conducted a study which showed that such problems are mainly caused by either a lack of some facilities or by the mismanaging of the available facilities and services.

The *Hajj* event has a very clear economic impact that affects every aspect of living in Makkah. Over the past few decades, the government of Saudi Arabia has poured huge sums of money into development programmes to lay down and subsequently improve and maintain basic facilities and services for the rising numbers of pilgrims. Despite the diminished role of *Hajj* as a source of income to the government, the *Hajj* season remains a fundamental source of income for the City of Makkah especially. It is found that the most important and daunting task facing the private sector during a large-scale event is the provision of accommodation and the services related to it. Moreover, any management approach which is going to be employed to run large-scale events should consider the business aspects of such an event.

Based on the proposition that the success of an event relates to its programme and the facilities available for it, the present study aims to research the importance of facilities to large-scale events with respect to the actual users' perceptions. As mentioned before, there is a shortcoming in literature and research which concerns the participants' perceptions regarding the facilities required during mega-events. In short, the current study tried to answer the following major questions:

1. What is the importance of facilities in mega-events with respect to the actual users' perceptions?

2. What aspects of the facilities' are perceived as being important to the users during mega-events?
3. What are the factors affecting the users' perceptions concerning the importance of facilities in mega-events?

Considering the *Hajj* as a typical event mega-event, other questions have been proposed, namely:

1. What are the major facilities and aspects perceived by the participants as being of importance to the *Hajj* event, and within each *Hajj* venue in particular?
2. What is the relative importance of these facilities and aspects with respect to the participants' perceptions?
3. What are the factors that affect the participants' expectations and perceptions concerning these facilities and aspects?

Having reviewed the qualitative and quantitative research approaches, and due to the fact that this research concerns collecting extensive data regarding a mega-event, it is found that the qualitative method is not suitable for the current research because of the following reasons: 1) the duration time of the *Hajj* event is very limited - the pilgrims cannot be involved in the research for long time, i.e. they travel back home as soon as the *Hajj* rituals are completed, 2) The study involves a large number of respondents who come from different parts of the world with different languages and cultural background - the researcher is limited to English and Arabic, and 3) the sample of pilgrims involved in the study must represent the event's population because the results of this research will be generalised. An exclusive research tool has been developed to measure the participants' perceptions and attitude toward the importance and quality of facilities and services needed in a large-scale event. The quantitative research approach and the developed research tool have provided reliable results which represent the participants' perceptions and attitude concerning the importance of the facilities and services required during a typical mega-events.

The study results indicate that the survey covers most of the pilgrims nationalities (Arabian pilgrims 11%; African 5%; Iranians 4%; America, Europe and Turkey 9%;

pilgrims of South Asian countries 17 %; 23% of the respondents were from Southeast Asia; and the rest of the pilgrims were from Saudi Arabia). This result shows that the current research represents the participants' views, and it provides evidence that *Hajj* is an international mega-event which attracts people from all over the world. The analysis results conclude that the sampling method employed for the this research which comprises several sampling types, in order to guarantee a representation of the information obtained, such as quota, stratification, and random sampling, has proved to be adequate. It is argued that in conducting empirical research concerning mega-events employing several sampling techniques - quota, stratification, etc. (Chapter 6) - to select the sample required, will help in obtaining representative data.

The result of the empirical analysis shows that the majority of the pilgrims can be considered to be of young age - 36 to 45 years old (Chapter 7). The pilgrims who are more than 65 years old represent about 6% of the sample. Studies which have been conducted in the last five years by HRC also showed that most of the pilgrims who were performing the *Hajj* were less than 50 years old. The results of the previous studies confirms the validity of the present research regarding the age of the participants. Despite the fact that some officials believe that the majority of pilgrims are aged, the current research proves that such an assumption is false. The majority of the pilgrims are of a young age, and service providers must consider this fact to provide their customers with the appropriate facilities and services.

A pilgrim may never have been to the *Hajj* before, but he may have performed *Umrah* (i.e. a visit to Makkah) previously and experienced some of the places and the overall environment in Makkah. This pilgrim is expected to be different to the one who has never been to Makkah before, in terms of his perceptions regarding the facilities and services needed by him. It is found that a total of 55% of the sample have performed *Umrah* in previous years, 14% have done it once, and 41% of the participants declared that they had performed *Umrah* twice or more in the past. The respondents who answered that they had never been to *Umrah* before were 45 % of the sample. This finding reveals that people come for *Umrah* more than they come

for *Hajj* (Chapter 7). This fact can be utilised in the *Hajj* organisation. For example, the *Umrah* season can be employed to train people how to perform *Hajj* and what to expect regarding facilities and services during the *Hajj* season.

The results of the empirical analysis show that 59% of the pilgrims either completed high school or received some sort of university education, 32% of the respondents at least have attended some sort of formal education, and in contrast 9% of the pilgrims in the sample could not read or write at all. Comparing this finding with the result of Abu Alfotoh and Nojom's study (1988), it is noticed that education level has improved over time especially during the last seven years where the percentage of the pilgrims who do not read or write has decreased from 21% to 9%. This resulted in an overall increase of the percentage of those who receive some kind of school education. The percentage of pilgrims who had some sort of university education after high school also increased from 18% in 1983 to 32% in 1995. This result can be interpreted that pilgrims become better educated and informed, and thus it is expected that they require improved facilities and services. An implication of such a result is that as the events' participants become more educated and informed, therefore organisers of international events must consider this fact, and develop means to improve their understanding concerning the participants' needs.

Although *Hajj* is required of both men and women, but not obligatory for children, many parents prefer to bring the whole family with them. It is assumed that pilgrims who are accompanied by their family might perceive the importance of the *Hajj* facilities and services (HFS) in a different way to single pilgrims. The results indicate that single pilgrims are the majority in the sample (61%). The respondents who came with women were 28%, and those who brought women and children with them represented 11% of the sample. According to the Islamic teaching a women in the *Hajj* trip must be accompanied by an adult male - husband, sons, father, grandfather, uncles, and/or brothers. The interviewing of women by men is not socially accepted in Saudi Arabia. This study is limited in representing the females' opinion concerning the importance of the HFS. The result from this part of the survey, however, is employed to test whether there is a relationship between pilgrims accompanied by women and family with respect to their perceptions regarding the importance of the HFS (as discussed below).

The current study investigated how pilgrims managed to do the *Hajj*. In other words, had they organised their *Hajj* trip by themselves, or did they join an organisation to perform the *Hajj*. It is found that 31% of the respondents organised their own *Hajj* trip, where the majority of the sample (66%) were involved with *Mutawifeen*, and the rest of the pilgrims who represent 3% were members of an official agency during this *Hajj* season. This study recommends that pilgrims must be encouraged to join some sort of *Hajj* organisation. It is believed that such an arrangement will help in improving the *Hajj* organisation in general.

The analysis results indicate that the annual income for the majority of the respondents was 12000 SR or less. The pilgrims who earned between 12001 SR and 24000 SR per year represented 12% of the sample. The annual income of 8% of respondents was an amount between 24001 SR and 48000 SR. The pilgrims who earned an annual income of 48000 SR or more, were 4% of the sample. Although it found that most of the pilgrims in the sample were of a comparatively low income, this result was anticipated since the majority of Muslim Countries are categorised as Underdeveloped Countries that have a very low national income. Such a result suggests however, that the HFS must be provided with reasonable prices and a higher value.

It is found that while 15% of the pilgrims in the sample had not talked about the *Hajj* before, 85% of the respondents had talked to people about the *Hajj* before they came this season. Moreover, it is found that 17% of the respondents discussed just the problems, another 9% of them talked about positive *Hajj* aspects, and the majority of the pilgrims (74%) discussed both the negative and positive aspects of the *Hajj* season (Chapter 7). This result suggests that both positive and negative aspects of an event are of concern to participants, and therefore, negative aspects must be kept at a minimum and the event quality must be improved.

The analysis results conclude that about half of the pilgrims were expected to have at least some experience of international travel, nearly one third of the respondents did travel but, inside their countries (i.e. became better informed), while the rest of the pilgrims did not have any travelling experience. This finding suggests that improving

the HFS quality in the *Hajj* event to match international standards must become a priority since most of the participants are found to be experienced international travellers.

This research also concerns the training and lectures that might have been taken by pilgrims before they came to the *Hajj*. The results indicate that 40% of the pilgrims had had training and/or orientation lectures before they came to Saudi Arabia with respect to the different aspects of the *Hajj* journey. Consequently it is expected that some pilgrims might face some difficulties in dealing with the service providers and using the various HFS. It is recommended that pilgrims must have some sorts of training concerning the various *Hajj* aspects before they come to Makkah. Such a training is offered by some countries (e.g. Indonesia and Malaysia) for their citizens. Pilgrims from these countries are found to be very organised, problem free, and co-operative participants.

The results of the empirical analysis show that the majority of the pilgrims (70%) come just to perform the *Hajj*. The rest of the respondents come to do *Hajj* and business (Chapter 7). It is suggested that businessmen from all over the Islamic world should be encouraged to take the chance of being in the *Hajj* event to do business with each other. Such an action is recommended by the Islamic teaching. It is suggested that although, the main goal of the mega-events' participants is to attend such occasions, there is room to benefit from such events by encouraging participants to become involved in other activities such as: business, tourism, and cultural activities.

The customers' satisfaction issue is important in the service industry because the main goal of the service provider is to have a satisfied customer. This study measured the participants' attitude concerning the facilities and services provided, and the results indicate that: 1) the pilgrims feel that the present HFS available within the *Hajj* venues are satisfactory, however, they believe that such facilities and services could be improved; and 2) the pilgrims agree to an improvement of HFS but are not willing to pay extra money for better HFS (Chapter 9). In other words, the results suggest that pilgrims want better HFS but do not want to pay extra money for them. It is understandable that people always want to enjoy better facilities and services as far as they can pay the price. However, considering the low annual pilgrims' income as

discussed earlier, and the fact that they do not want to pay for better facilities, the only way to solve this dilemma and provide better, and affordable facilities and services is through improving the quality and/or the provision of the facilities and services available (i.e. by effective management) - such a process does not necessarily require extra costs.

The research results (Chapter 9) revealed that 'the spiritual experience created during and after performing the *Hajj* is of a high quality in spite of the fact that pilgrims are not completely satisfied with the available facilities and services'. These results suggest that further research should be conducted to investigate and evaluate the HFS available within the *Hajj* venues. Such research must distinguish between the satisfaction created from the ritual experience of the *Hajj* and the degree of satisfaction the pilgrims experienced after they used such facilities and services. One implication of such results is that 'assessment of an event quality with respect to participants' experience must consider two factors; 1) the programme quality, and 2) the facilities and services quality provided for such an event'.

Considering the major perceived facilities and services for the *Hajj* event in general, the study results point out that four factors are of special importance, namely: safety; security; performing the *Hajj* properly as explained by the prophet (i.e. following the event's programme); and provision of adequate toilet facilities (see Table 11.2.1). These results are logical because they include some of the most fundamental requirements for performing the *Hajj*. Safety and security is a prerequisite condition for the *Hajj* as declared by many Muslims gurus. Performing a perfect *Hajj* is a priority for pilgrims. All efforts should be directed towards satisfying these vital needs. Furthermore, the importance of providing an adequate number of public toilets to be used by pilgrims is understandable since Muslim pilgrims use toilets differently to other people (see Chapter 8 for details). However, International standards regarding the number of public toilets and types of their interior furniture should be customised before being adapted for the *Hajj* event.

Table 11.2.1: Major *Hajj* Facilities and services

Facilities / Services / Features	Importance
1. Common safety	Highly Important
2. Performing *Hajj* as *Sunah* (i.e. following the event's programme)	
3. Toilet facilities	
4. Reasonable security	
5. Problems are corrected *	Important
6. Adequate health care	
7. Prompt Services *	
8. Cleanliness of sites	
9. Appropriate treatment of participants by police officials *	
10.Assistant services *	
11.Less crowding	
12.Better transportation and movement	
13.Anticipation of participants' needs *	
14.Appropriate treatment of participants by service providers *	
15.Larger rooms for accommodation *	
16.Knowledgeable staff *	
17.Attractive public areas in buildings *	
18.Special requests carried out *	
19.Increased privacy *	Less Important
20.Trained employees *	

* this item can be included within the service quality dimension

Based on the above discussion concerning the importance of the major facilities, services, and aspects required in a typical mega-event, the research results revealed that the factors listed below are of concern to participants in mega-events:

- The service quality - problems to be corrected; prompt services; assistant services; anticipating the customers' needs; the physical characteristics associated with service encounters; etc. The study results indicate that the major aspects of the service quality dimension which are developed by Parasurman, Valarie, and Zeithaml (1985) are perceivable by large-scale events' participants.
- Health care and cleanliness of sites
- Less crowding and better transportation and movement within and between the event venues and/or location of other facilities.

- Appropriate treatment of participants by the personnel who deal with them directly such as police and service providers, and the local people.

In light of the above explanation, it is concluded that:

1. Events are created by people such as service providers and the local people, for people - the events' participants. This result agrees with what Morrison (1989) said: 'the tourism industry is people industry'. However, this research adds that 'the event industry is (also) people industry'. More research, therefore, should focus on the needs and requirements of the people involved.
2. Both the physical and non-physical aspects of facilities are perceived by participants as being important factors and. Oppermann (1996) draws a similar conclusion concerning convention events. The findings of this research, however, supports the argument that physical and non-physical aspects of facilities are of concern to mega-events' participants. These factors and the interaction between them must be considered in further research of the large-scale event industry.

The current research also considers the relative importance of facilities and services within the different *Hajj* venues as perceived by the actual users (Chapter 8). The relative of importance of such facilities and services is summarised in Table 11.2.2 below. It is found that, with respect to the venues involved, facilities and services such as: 1) signposting; 2) health services; and 3) drinking water are of high importance to participants regardless of how much time they spend at any of these places. It is argued that these facilities and services are fundamental and must be available and clearly presented to participants within venues for mega-events.

It is also revealed from Table 11.2.2 that the *Hajj* programme affects the types of the facilities and services required in a venue. For example, the pilgrims perceive the facilities concerning animal sacrificing; and barber shops in Mina as highly important facilities. According to Saleh and Ryan (1993) 'festival-goers are concerned about the event's programme, and its quality.' These points permit some generalisation to

be made such as: 1) Large-scale event-goers are concerned about the programme, objectives, and/or themes of such an event. 2) The event's programme affects the types of the facilities and services required for a mega-event.

Table 11.2.2: The Facilities and services Required in the Different *Hajj* Venues Listed According to their Relative Importance with respect to the Means Values

Facilities/Services	Makkah	Arafat	Muzdalifah	Mina
Signposting	1	1	1	1
Health services	2	2	2	2
Cleanliness of sites	3	4	6	10
Money exchanging facilities	4	NA	NA	NA
Telephones	5	22	22	22
Toilet facilities	6	6	8	8
Guiding services for pilgrims	7	5	4	5
Postal services	8	24	24	26
Freedom of movement	9	8	7	7
Drinking water	10	3	3	3
Appropriate treatment of pilgrims by police	11	7	5	9
Appropriate treatment of pilgrims by official	12	9	9	11
Car parking facilities	13	11	11	19
Restaurants and cafeterias	14	17	17	13
Conservation of historical Islamic places	15	10	10	12
Accommodation facilities	16	20	20	16
Shopping facilities	17	NA	23	25
Public transportation	18	18	19	20
Movement in *Tawaf*	19	NA	NA	NA
Inexpensive food	20	15	15	15
Appropriate treatment of pilgrims by local people	21	12	12	17
Movement in *Sa'e*	22	NA	NA	NA
Fewer traffic jams	23	13	13	14
Adequate general information	24	21	21	24
Appropriate treatment of pilgrims by *Mutawifeen*	25	14	14	18
Reasonable pricing	26	19	18	23
Clothes washing facilities	27	NA	NA	NA
Media services	28	25	25	27
Parks and recreational facilities	29	NA	NA	NA
Movement from Arafat to Muzdalifah	NA	16	NA	NA
Movement from Muzdalifah to Mina	NA	NA	16	NA
Movement from Mina to Makkah	NA	NA	NA	21
Animal sacrificing	NA	NA	NA	4
Movement in Jamarat	NA	NA	NA	12
Barber shops	NA	NA	NA	6
Total Number of HFS required	**29**	**25**	**25**	**28**

The data collected from the survey was subjected to a purification process to ensure the resultant instrument and other measures possess sound reliability and robustness. The process depended on; (1) reliability analysis (i.e. Cronbach Alpha Model), and (2) factor analysis. Such processes are recommended (Knutso et al, 1991; Getty, and Thompson, 1994; and Zain, 1995), and found to be adequate for this research. Because the study involved diverse facilities, services, and aspects, the above statistical approaches were also used to develop the *Hajj* facilities and services (HFS) indexes which comprise the major facilities and services required for the *Hajj* event as perceived by the actual users. The empirical analysis results show that the developed indexes have a high degree of internal reliability and robustness.

The HFS index developed for Makkah includes 29 items. They represent the HFS which were mostly required by pilgrims during their stay in the Holy City during the *Hajj* season. These 29 items were categorised into five major factors. These factors are listed in Table 11.9.1 according to their relative importance with respect to the average means values (AM).

Table 11.2.3: Summary of the HFS Index, Makkah

Factors	The Major HFS Included in the Factor
Health care, hygiene, and communication (AM = 4.59):	health care; cleanliness of sites; public telephones; postal services; signposting; and guiding services
Transportation, ease of movement, and basic facilities (AM = 4.36):	transportation facilities and its related aspects; movement in Tawaf and Sa'e; toilet facilities; and public drinking water
Participant care (AM = 4.35) :	Relates mainly to the appropriate treatment of pilgrims by service providers and local people
Hospitality facilities (AM = 4.31):	accommodation; restaurants; shopping facilities; and general information
Miscellaneous facilities (AM = 4.22):	laundry services; recreational facilities; and money exchanging facilities.

Having finished developing the HFS Index for Makkah, another HFS Index for Arafat is constructed following the same procedure of data purification and analysis. For the HFS construct in Arafat, the related (25) questions were subjected to reliability analysis. As the reliability analysis shows, some items produce good correlation scores (higher than 0.35). However 6 items score less than 0.35, three of which are the items forming the information and communication dimension, i.e. signposting; media services; and information about the historical places in Arafat. The other three items relate to the miscellaneous facilities and services. They include: shopping facilities; reasonable pricing; and inexpensive food. These six items are omitted in subsequent analysis. The other 19 items are retained for further examinations. Nevertheless after the factor analysis is conducted two more items were deleted: general information facilities and restaurants. In Arafat, where pilgrims stay for a few hours only, the empirical analysis results indicate that 17 kinds of facilities and services were required, they were grouped into three dimensions/factors to form the HFS index for Arafat (Table 11.2.4).

Table 11.2.4: Summary of the HFS Index, Arafat

Factor	The Major HFS Included in the Factor
Participant care, and site-upkeeping (AM = 4.34):	appropriate treatment of pilgrims by the service providers and the local people, and cleanliness of sites in Arafat
Transportation, and basic facilities (AM = 4.27):	the requirement for better traffic, and pedestrian flow; toilet facilities; public drinking water; accommodation facilities; and health care
Communication (AM = 3.31):	postal services, and public telephones

For the HFS construct in Muzdalifah, the 25 related questions were subjected to reliability analysis which show that some items produce good correlation scores (higher than 0.35). Six items however, score less than 0.35. These were the three items forming the dimension that are related to information and communication such as: signposting; media services; and information provision about the historical places

in Muzdalifah. The other three items represented some miscellaneous facilities and/or features regarding: shopping facilities, reasonable pricing of goods and food. These six items were left out in subsequent analysis. The other 19 items were retained and employed in the factor analysis. As previously carried out, factor analysis is conducted again on the HFS-Muzdalifah construct comprising a total of 19 items with item-total correlation scores higher than 0.35. Keeping in mind that pilgrims stay for few hours in Muzdalifah, the empirical analysis results indicate that 19 kinds of facilities and services are required. They are grouped into four factors which represent the HFS Index for Muzdalifah (Table 11.2.5).

Table 11.2.5: Summary of the HFS Index, Muzdalifah

Factor	The Major HFS Included in the Factor
Participant care and site-upkeeping (AM = 4.295):	Appropriate treatment of pilgrims by the services providers and the local people; guiding services; and the cleanliness of sites
Transportation and information (AM = 3.946):	Car parks; public transportation; traveling from Muzdalifah to Mina; free traffic flow; and general information services in Muzdalifah
Communication (AM = 3.101):	Public telephones

Having finished developing the HFS Index for Muzdalifah, the next step was to set up another HFS Index for Mina - where pilgrims spend few days - applying the same procedure of data purification. The corresponding twenty eight questions formulated earlier with respect to Mina are to be subjected to various analysis. There are three unique variables applied in Mina only. They are: 1) movements in *Jamarat*, 2) shops that sell coupons for animals' sacrificing, and 3) barber shops. These variables derived from the pilgrims' requirements in Mina which are based on the *Hajj* rites performed in this *Hajj* venue (see Chapter 3). The empirical analysis results show that most of the items produce good correlation scores. However, 2 items will be omitted as they score less than 0.35. These items are: 1) information about the historical places, and 2) shopping facilities. The other 26 items are retained for further examination. Furthermore, after the reliability analysis, factor analysis will be

conducted to test these 26 items. The analysis results show that the developed HFS Index for Mina consists of five dimensions/factors (Table 11.2.6).

Table 11.2.6: Summary of the HFS Index, Mina

Factors	The Major HFS Included in the Factor
Mina facilities (AM = 4.483):	Barber shops, and animal sacrificing facilities
Hospitality and site-upkeeping (AM = 4.419):	Toilet facilities; drinking water; health services; signposting; cleanliness of sites; guiding services; restaurants and eating places; inexpensive food; and reasonable pricing
Transportation, ease of movements, and accommodation (AM = 4.279):	Fewer traffic jams; freedom of pilgrims movement; public transportation; car parks; travelling from Mina to Makkah; movement in Jamarat; and the need for appropriate accommodation facilities in Mina
Participant care and information (AM = 4.205):	Appropriate treatment by the service providers; and general information
Communication (AM = 3.644):	Postal services; telephones; and media services

The above discussion suggests that the most important HFS as perceived by pilgrims in Mina are those which relate to the ritual activities performed in this *Hajj* venue such as factor relates to 'hair cutting and animal sacrificing, followed by the factor which concerns the basic hospitality facilities, and then the factor which concerns the transport and accommodation facilities required to perform the remaining ritual activities in Mina. Moreover taking care of pilgrims is perceived as being of concern to pilgrims but is placed after the aforementioned three factors. Finally the results indicate that postal services, telephones facilities, and media services are, relatively, the least important HFS required in Mina. In short, it is found that factors such as: health care and hygiene; transportation and ease of movement; participant care and social interaction; communication and information; and hospitality facilities are of concern to the mega-events' participants.

It is also noticed that the importance of the HFS required in each *Hajj* venue are dissimilar due to the following points:

a) the number of dimensions/factors in the HFS indexes are different (i.e. 5 in Makkah index, 3 in Arafat index, 4 in Muzdalifah index, and 5 in Mina index);

b) the average means which indicate the importance degree of different dimensions/factors are not equal;

c) the number and kinds of the FSF contained in the dimensions/factors are various; and

d) the degree of importance of the same HFS in the different HFS are dissimilar.

Bearing in mind that each *Hajj* venue hosts a particular programme (as discussed in Chapter 3), it is concluded that the research hypothesis (H1) which reads "there is a relation between the participants' perceptions with respect to the importance of the facilities and aspects available within a venue for large scale event and the event's programme" is supported. In other words, due to the fact that the *Hajj* programme changes from one venue to another, the facilities and services required by the pilgrims are dissimilar in the different *Hajj* venues.

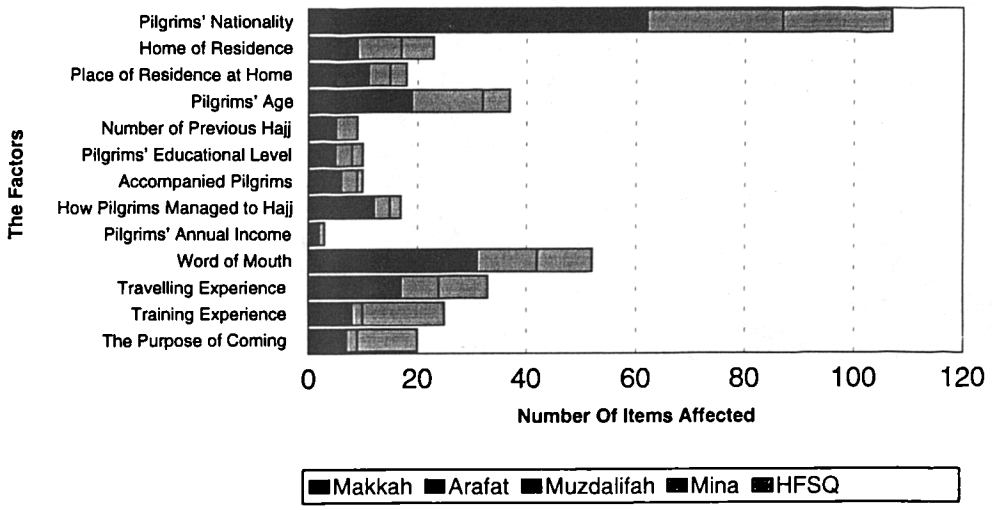
Using the HFS indexes, the next step was to analyse the relationships between the various items of these indexes and other factors that might affect the pilgrims' perceptions and expectations concerning the HFS.

This study explores the major factors that might affect the pilgrims' perceptions concerning the importance of the HFS during the *Hajj* event. The factors include: nationality; home of residence; participants' age; annual income; previous experiences; etc. The research investigates the relationship that might exist between these factors and the HFS variables which are available in the developed HFS indexes. Considering the tourism studies, Getz (1994) notices that researchers' view concerning factors affecting people's perceptions is varied such as: (a) Schroeder (1992) argues that socio-economic variables are not good predictors of people perceptions, (b) Husbands (1989) reports that age and education are important factors

affecting one's perceptions, (c) Brougham and Butler (1981) point out that there is a relationship between age and language, and people's perceptions. Other researchers believe that factors such as: income, time of residence, and profession affect the respondents' perceptions (Saleh, and Ryan, 1992). Girrad and Gartner (1993) argue that income, and age should be considered in researching people's perceptions. However, factors affecting participants' perceptions with respect to the importance of facilities and services during mega-events have not been discussed in literature (to the best of the author's knowledge). This research investigated these factors because there is a need for such information to be employed for further research, and for future practices of the mega-events' industry. The information yielded from this exercise is also necessary to identify the mega-event business market segmentation - grouping people with similar needs, wants, and characteristics together so that an organisation can use greater precision in serving and communicating with them.

The empirical analysis results which are presented in Chapter 10 indicate that all the factors proposed affect the participants' perceptions in various ways, and to certain degrees. However, out of the thirteen factors investigated in this study (see Figure 11.2.2), there were six factors that had a clear and dominant influence on the HFS indexes variables. Based on how factors frequently affect the participants' perceptions in this research, the six significant factors are: participants' nationality, verbal communication (word-of-mouth), participants' age, travelling experience, training experience, resident or non-resident of the host country. These factors should be considered in further research and in planning, designing, and managing large-scale events.

Figure 11.2.2: Factors Affecting Pilgrims' Perceptions Concerning the HFS



It is believed that the research findings which have been discussed above can be employed in further research and/or considered in planning and organising other large-scale events. However, researchers and/or planners must consider the factor that this research was regarding a typical mega-event, i.e. the *Hajj* event. Other large-scale events might have some particular aspects which must be considered in further research.

Having finished discussing and interpreting the main research results, the next chapter will link the current research findings to the related existing literature and suggests further research concerning the large-scale event industry.

CHAPTER

12

Linking the Research to Literature and Taking the Research Forward

12.1 Introduction

This chapter reviews how the research study has contributed to the theory and research in the area of the event industry, and importance of facilities and services for the large-scale event industry with respect to the actual users' perceptions in particular. This research study was not modelled as such on specific previous studies, and has drawn on literature from a range of disciplines such as: history; religion; service industry; architecture; planning; leisure and tourism; and marketing. It is, therefore, more meaningful to consider how it has added to the overall body of knowledge in the area of the large-scale event industry, than to try to compare it directly with other research studies. The following sections attempt to link the major research findings to the existing related literature, and to take the current research forward by suggesting subjects for further research.

12.2 Linking to the Event Industry

12.2.1 The Event Industry is for People

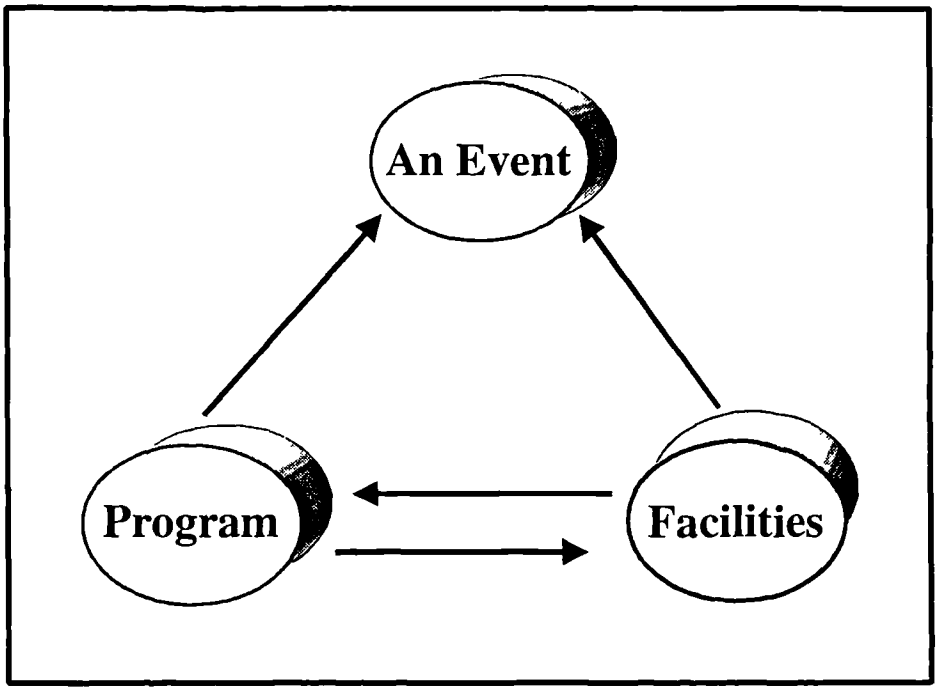
It is concluded from the discussion in Chapter 2 that a high quality event cannot be created unless the consideration of all involved stakeholders are met such as event's visitors/customers, employees, owners, retailers, and the public of the hosting community (Hall, 1992). This is because: a) the event's quality is related to persons or groups of persons (i.e. the event visitors/customers), and is perceived by them; and b) quality facilities and services are prepared and delivered by people who include all facilities and services' providers (i.e. employees of different involved non-governmental and governmental agencies, the businessmen, the retailers, the hotel owners, etc.), and the average persons in the community. Because a quality event has many positive impacts and very few or no negative impacts, all stakeholders should feel the positive impacts of events and benefit from them. The empirical analysis results for the *Hajj* (i.e. a typical mega-event) which is presented in Chapters 8 and 9 support this finding as it shows some evidence that people are the most important aspect which must be considered in the event industry. This is concluded from the fact that: a) the requirement for appropriate treatment by facilities and services' providers, and the local people is perceived by pilgrims as a highly important aspect in all *Hajj* venues, and b) there is a need for better services which are provided mainly by people. Morison (1989) has described tourism as "a people industry" - a service industry that is highly dependent on the quality of hospitality offered by employees work at hotels, restaurants, attractions, gift shops, etc.' This research argues that the large-scale event industry, in particular, is 'a people industry', and therefore, efforts must be focused to satisfy all the people involved (stakeholders) in order for such an industry to be improved and continue in the future.

12.2.2 The Importance of Facilities and Services

In light of the literature review presented in Section 2.4, it is found that the major components and/or elements of the event industry that are (mostly) under control are: 1) the event's programme (i.e. theme, objectives, etc.), which represents the main component of any event; and 2) facilities and services available within the event's venue. These elements are (arguably) the determiners of an event's success (Saleh, and Ryan, 1993; Oppermann, 1996). The current research discussion, implications, and the evidence provided from the empirical analysis results presented in Chapter 8 (section 8.2.1) and the previous chapter support this argument in general, and confirm that each component/element affects the other. In other words, the event's programme is affected by the facilities and services available (e.g. the venue's capacity might affect the event's programme). However, the programme can also affect the types of the required facilities and services (e.g. the *Hajj* event). The relationships between an event, facilities, and program are shown in Figure 12.2.1.

With respect to a typical mega-event, i.e. the *Hajj*, it is found that performing, and/or following the prescribed *Hajj* programme correctly is perceived as a highly important requirement by the participants. In addition to this, some facilities and services are perceived by the users as being of special importance for such a mega-event to be accomplished, namely: security and safety; transportation and movement; cleanliness of venues; toilet facilities; food and drink; accommodation; communication and information; service quality; and the requirement for appropriate treatment of participants by the service providers and the local people.

Figure 12.2.1: The events' Main Components



In light of the above explanation, a generalisation can be made. It reads: "concerning large-scale events, both physical (i.e. hardware - buildings, infrastructures, etc.) and non-physical aspects (i.e. software - social interactions, service quality, management, etc.) of facilities are important. The facilities and services required must be planned and provided with respect to the stakeholders' needs, particularly the actual users. These facilities and services must be integrated and quality managed, with consideration to the event's programme. Such facilities and services is the major factor required to produce improved venues for large-scale events. The success of large-scale events must be measured with respect to the people involved, and relates to two major factors; (1) the quality of the event's programme, and (2) the facilities and services provided. Facilities planning and management for mega-events must be considered as a strategic function of the event organisation." These arguments must be taken into account in further research, and in the planning, designing, and delivering of facilities for mega-events.

12.2.3 Facilities Management and the Event Industry

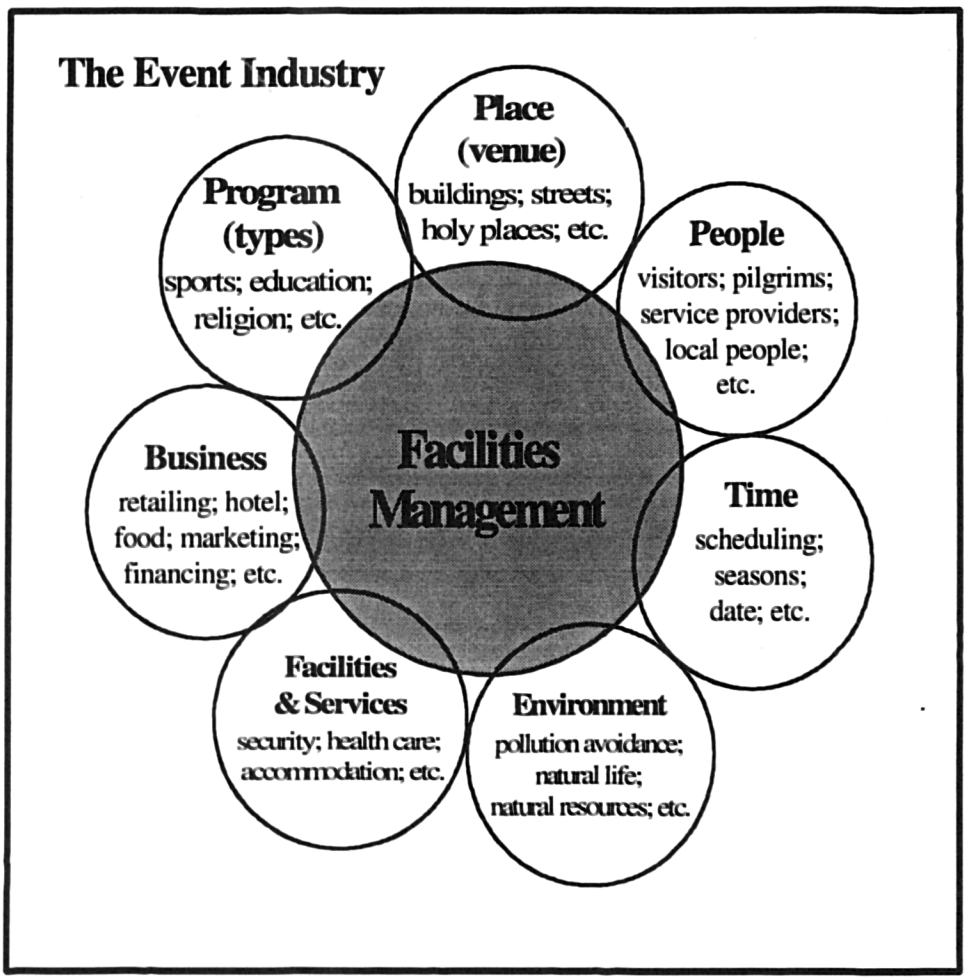
It was argued earlier in Chapter 2 that Operations Management (OM), Project Management (PM), and Logistics Management (LM) are well known management techniques which deal with different resources, and aim to maintain quality for customers and/or users. Therefore, they can be employed as effective management tools in the event industry (Badmin, et al, 1988; Yafi, 1983; Getz 1997). However, it must be noticed that OM, PM, and LM are mainly designed to accomplish projects or jobs on time, but without much concern for their further impacts, especially on the people involved, and/or the environment (Finkelstein, and Guertin, 1988; Leavitt, and Nunn, 1994). Therefore, because events have different impacts such as: social, economical, and environmental which may take some time to be realised (see Section 2.3), these approaches should not be implemented as overall management approaches in the planning and organising of mega-events.

It is revealed from the research findings and implications that the event industry involves aspects such as: facilities, places, people, processes, time, business, environment, and others. The Facilities Management (FM) approach concerns integrating and managing the physical resources (hardware) such as; venues, buildings, and infrastructures, with the required services (software) including; accommodation, transportation, etc.. It considers the social interactions, and service quality for the benefit of people. FM is a generic term that refers to a range of activities and functions. It is a process by which an organisation delivers and sustains agreed service levels within a quality environment to provide full value in use to meet strategic objectives (Alexander, 1991,1992; Friday and Cotts, 1995). FM focuses on people during all kinds of operations to provide them with quality services and facilities on time, first time and all the time. Although, FM is concerned with the people involved, it also considers many important issues that relate to human well-being and needs such as environment, safety, security, and health. FM is a new discipline which has been evolved within the last decade. However, it has been employed by organisations in different sectors, in the UK, including: computer manufacturing; higher education; government; and health care. In the absence of in-depth empirical research concerning the FM's performance with respect to such organisations, early reports, however, show evidence that FM helps the organisations

to meet their objectives, create satisfied customers, and/or make financial improvements (Facilities Management Casebook, 1996).

Therefore, it is argued that FM is the most appropriate approach for managing events. Implementing FM will work for the benefit of all concerned people and will definitely enhance, facilitate, and add more value to the event's products. By providing an ever improved consistent level of facilities and services, FM will enable the event organisation to cope and outdo other competitors. FM will improve the event's general standard, and maintain the brand of the event product. It is recommended that the FM approach is employed by event organisers, and further research must be conducted to investigate how such an approach functions with respect to the event industry.

Figure 12.2.2: Aspects to be Managed in the Event Industry



12.2.4 Factors Affecting Planning of International Events

Within the tourism industry context, Getz (1994) has noticed that researchers' view concerning factors affecting people's perceptions was varied such as: (a) Schroeder (1992) argued that socio-economic variables were not good predictors of people perceptions, (b) Husbands (1989) reported that age and education are important factors affecting one's perceptions, (c) Brougham and Butler (1981) pointed out that there was a relationship between age and language, and people's perceptions. Other researchers believed that factors such as: income, length of residence in that place, and profession affect the respondents' perceptions (Saleh, and Ryan, 1992). Girrad and Gartner (1993) argued that income and age should be considered in researching people's perceptions. However, factors affecting participants' perceptions with respect to the importance of facilities and services during mega-events have not been discussed in literature (to the best of the author's knowledge).

The empirical analysis results of the present research show that factors such as: participants' nationality (i.e. language); participants' age; travelling experience; training experience; verbal communication; and being resident or non-resident of the host country affect the mega-event participants' perceptions with respect to the importance of the facilities and services available within the venues in used. These six factors are important to be considered in further research, and in the mega-event planning. They should also be appreciated in the market segmentation studies for the large-scale event business. In practice, such factors can be employed for organising international events. For example, encouraging the people involved to arrive earlier before the event starts, will provide the event's organiser with a chance to offer training courses to these people. This will enable them to be familiar with the facilities available and how to benefit from them efficiently. These people can be employed to educate and help their colleges and/or citizens during the event with respect to the use of the facilities and services available for such an event. Another example, which is important is the participant's nationality which will help in determining the participants' customs, preferences, and language which are very important issues needed in planning, designing, and providing facilities such as: signposting, communication, and information.

12.3 For the *Hajj* Mega-event

The empirical analysis results and the research discussion suggest that although the ritual value of the *Hajj* must be appreciated and considered, the *Hajj* organisation and management should be considered as a business which must be analysed and improved regularly. The effectiveness of such a business must be reflected in its success in maintaining the following aspects:

1. Stakeholders' satisfaction - this includes: pilgrims; *Mutawifeen*; owners; retailers; local people; governmental officials; etc. Special attention must be drawn to different pilgrims' needs and requirements. Pilgrims should not be treated only as numbers, or as customers who will not be seen again. They are the guests of *Allah* and must be treated accordingly.

2. A positive identity for the Kingdom of Saudi Arabia and its citizens in the world as being the servants of the Islamic Holy Places.

3. Adequate production of the services and goods which are consumed by pilgrims and visitors.

4. Responsive to the world-wide change in the related industries such as: travel; tourism; events; and other service industries.

5. Adequate return for investment especially with respect to the public sector and providing supports to the other involved private businesses.

The *Hajj* business organisations is therefore would benefit from the FM's benchmarking process which mainly aims to enhance the organisation performance by learning from the successful experiences of other similar 'best practice' models (Weston, 1995). Such a model might be chosen from the international hospitality and tourism industry.

12.4 Suggestions for Further Research

This research has been exploratory, in terms of: a) investigating the importance of facilities to the mega-event industry with respect to the actual users' perceptions; b) developing indexes for the most important facilities and services required for the *Hajj* event; and c) exploring the relationships between factors that might affect the facilities users' perceptions with respect to the importance of the facilities and services available within venues for large-scale events. However, bearing in mind the facilities management approach which was suggested by this research to plan and organise the event industry, some ways in which the findings of this research can be implemented and taken forward are suggested below.

12.4.1 Developing Standards and Measures for the Event Industry

The event industry involves many kinds of businesses which must be measured continuously in order to be improved. The purpose of developing a measurement for the event industry are: 1) for the events' organisers and planners to decide if action is necessary to be taken to either improve an event and/or to protect people from the negative impacts of such an event; 2) for the people involved in events to judge the effect of their efforts on the important issues of such a business and/or to judge the quality of the services which are being provided to them by others; and 3) to create, facilitate and allow close communication with respect to events. Measuring concerns making reliable comparisons between one thing and another. To make such comparisons reliable people use a common standard or 'yardstick'. Clear specification and standards are a necessary precondition for measurement because a decision about what to measure and how to measure follows from work on setting standards. Both developing standards and measuring quality are included within the facilities management's concerns. Further researches are recommended in this area with respect to the mega-event industry. For example, considering the *Hajj* event, the findings of this research (i.e. the developed facilities indexes) can be employed in studies concerning facilities design processes, developing various specifications and standards, and constructing different measurements.

12.4.2 Exploring the Non-Physical Aspects of Facilities

The methodology used in this research has been to draw on a range of views in one-to-one in-depth discussions regarding facilities and services which are perceived as important by the participants of the event industry in general, and for the *Hajj* as a typical mega-event in particular. The research has not attempted to present a comprehensive picture of a particular facility and/or service. The research findings provide evidence that the non-physical aspects of facilities and services and the interaction between them and the physical aspects are important and should be considered in further research and in facilities' planning and designing of large-scale events. The non-physical aspects include effective management and operation of: facilities, services, time, and visitors. They also comprise the social interactions dimension when providing such facilities and services. To take the research forward, more case studies with respect to these factors could be investigated. For example, cases may include both the design of events' venues, and the design of the use of these venues, through time, with great attention to the whole built environment, external and internal. The purpose of researching such cases would be to provide more detailed information concerning the effects of such non-physical aspects on the event industry.

12.4.3 Improving Practices

The research results provide evidence concerning how the event's participant's educational level has improved within the last decade. The results also show that more and more participants have been involved in some kind of international travelling. Moreover, it is found that event-goers are eager for detailed information about the venue they use, the environment and the service quality. This evidence reveals that there are new values and attitudes which have been gained by the people (i.e. the users) within the last few years. These facts must be realised by the researchers and the people involved in planning and organising mega-events. As an example, and with the facts in mind, change in architectural practices ought to be encouraged. Architects have to rethink both, to make the practice and the profession relevant to a rapidly changing economic, social, and technological environment. Although, most of the events require a venue to occur, modern information

technology makes it possible for an educational event, for example, to take place through the internet at any place at any time. Events' venues would be affected definitely by these changes. The architect's knowledge, therefore, ought to be improved to help the events' participants and organisers to make the best use of their physical surroundings, at present and in the future. Architects must learn through research how to obtain information from the users of the built environment, by employing different methodologies (i.e. quantitative and qualitative methods), and how to make alliances with other disciplines that will be necessary to anticipate and meet the users' needs with respect to the event industry.

CHAPTER
13

Conclusions

12.1 Conclusions

Given that the large-scale event industry is important to the economy of the host country, and based on the proposition that the determinants of an event's success are the quality of (1) its programme, and (2) the facilities and services available for such an event (Saleh, and Ryan, 1993), the current study's main objective was to explore the importance of the facilities and services required within venues for large-scale events with respect to the actual users' perceptions. Other research objectives were: a) to determine what aspects of facilities and/or services are perceived as important by the mega-event's participants, and b) to invistigate factors affecting the users' perceptions concerning the importance of facilities and services during mega-events. This work is distinguished from the others in two ways. Firstly, it considered the importance of the facilities and services required for mega-events with respect to the actual users' perceptions (i.e. the demand side) rather than service providers' and/or planners' perceptions (i.e. the supply side). This area of research which focuses on the demand side rather than the supply side of facilities and services in the large-scale event industry has been neglected in the related literature and research. Secondly, a typical mega-event (i.e. the *Hajj* - the annual Islamic pilgrimage to Makkah and the Holy Places, Saudi Arabia) was used as a vehicle to meet the research objectives. This important international event has not been fully covered in the literature and research of the event industry.

Because mega-events: 1) involve a large number of participants who come from different parts of the world, and 2) have short duration time, a quantitative research approach was employed to collect and analyse the research data. An exclusive tool

(i.e. a questionnaire) to measure the participants' perceptions concerning the importance of facilities and services was constructed. From the results, five Indexes were developed to comprise the various aspects and types of facilities and services required within the different *Hajj* venues. The quantitative research approach and the developed research tool have proved to provide statistically reliable and valid results which can be generalised to represent the participants' perceptions concerning facilities and services in mega-events.

It is found that facilities and services is vital for the mega-event industry as percieved by events' participants. It is also found that the types of facilities and services required in a particular venue correlates to the programme taking place in that venue. The empirical analysis results revealed that security and safety are perceived by participants as being a highly important factor required during mega-events. Other facilities, services, and/or aspects are also of concern to participants. They include:

- Health care and hygiene (e.g. cleanliness of sites, and toilet facilities)

- Less crowding and better transportation and movement within and between the event venues and/or the location of other facilities.

- Information and communication (e.g. general information, and adequate signposting).

- The service quality - problems to be corrected; prompt services; assistant services; anticipating the customers' needs; the physical characteristics associated with service encounters; etc. The study results indicate that the major aspects of the service quality dimension which are developed by Parasurman, Valarie, and Zeithaml (1985) are perceivable by large-scale events' participants.

- Appropriate treatment of participants by the personnel who deal with them directly such as police, service providers, and the local people.

Bearing in mind the diverse types of facilities and services required in a mega-event, and the fact that the provision of a particular facility may affect the delivering of other facilities and/or services (e.g. transportation problems during a large-scale event may affects the provisions of other facilities and services such as: cleanliness,

health services, and catering), this research recommends that facilities and services which are required in a mega-event should be integrated and quality managed. In other words, researchers and organisers of mega-events must consider the facilities and services required during a mega-event totally, and the interrelation between them, rather than focusing on a particular facility and/or service.

The research findings indicate that events are created by people (e.g. service providers and the local people) for people (i.e. the events' participants). This result agrees with what Morrison (1989) argued: 'the tourism industry is a people industry'. This research have proved that 'the event industry is (also) a people industry', and further research therefore, should focus on the needs and requirements of the other people involved (stakeholders) in the large-scale event industry.

It is found that both the physical (e.g. buildings, and infrastructures) and non-physical (e.g. appropriate treatments of participants, and service quality) aspects of facilities and services are important factors as perceived by mega-event's participants. Physical aspects of facilities, and service quality were recognised as being points of concern to planners of convention events (Oppermann, 1996). However, the current research has explicitly emphasised the importance of considering the physical and non-physical aspects of facilities and services, and the interaction between them in further research and in the future practices of the mega-event industry.

The research results indicate that six factors are found to have a clear and dominant effect on the participants' perceptions regarding the importance of facilities and services during mega-events. The factors concern: nationality; verbal communication; participants' age; travelling experience; training and orientation; and resident and non-resident of the host country. Researchers and planners of mega-events must consider the fact that the nationality factor includes other elements such as language and cultural background.

The proposition concerning the two determinants (i.e. programme, and facilities and services) of an event's success is supported by the research's findings. Proposing a new point of view, the current study findings indicate that beside the programme quality, the success of a mega-event depends mainly on: 1) the availability, 2) accessibility, 3) affordability, and 4) presentability of facilities and services. In other

words, during a mega-event the facilities and services needed must be available within the venue involved, reachable and easy to find, inexpensive to use, and well presented and delivered by the people involved. In light of these research findings it can also be argued that 'assessment of a mega-event's overall quality must be made with respect to two factors; 1) the programme quality, and 2) the facilities and services quality provided for such an event'. Consequently, because the *Hajj* programme is prescribed, the success of such a mega-event depends mainly on the success of providing and managing the facilities and services required.

It is revealed that the large-scale event industry involves various elements and aspects, including: people; places; environment; processes; and business activities. The most commonly used approaches in managing events (e.g. operational management, project management, and logistical management) do not incorporate these aspects totally (see Chapter 2). Because the managing of such aspects and the interactions between them is the essence of the facilities management approach (Alexander, 1991,1992; Friday and Cotts, 1995), this study proposes that facilities management should be employed in the mega-event industry, and further research is therefore required to assess the performance of facilities management in that area.

As the current research has met its objectives, it is believed that the information provided by this research contributes to the overall knowledge concerning the large-scale event industry. This information will help in improving the future practices of such an ever growing and profitable industry, and will also facilitate further research concerning this particular area.

APPENDIX A

Kingdom of Saudi Arabia - Ministry of Higher Education
Umm Al-Qura University - Hajj Research Centre
Facilities management for the Hajj season
1995

Questionnaire no:-..... Date:-.....
Interviewer's Name:-.....
Location of the interview:-.....

(An Interviewer Administrated Questionnaire)

[Please answer the following questions by either filling in the blank line/s or by ticking (√) the answer that best applies.]

Q1. What is your Nationality? ..... **code no.** .....

Q2. Do you live in Saudi Arabia? ( ) Yes. ( ) No.

Q3. Which of the following best describes your place of living?
( ) A village ( ) A town ( ) A city

Q4. Which of the following best describes your age on your last birth day?
( ) 19 years old or under ( ) Between 20 and 39 years old
( ) Between 40 and 59 years old ( ) Between 60 and 79 years old
( ) 80 years old or above

Q5. Have you ever been to Hajj before?
( ) No ( ) Yes, once ( ) Yes, twice or more

Q6. Have you ever performed Umrah before you came to Hajj this season?
( ) No ( ) Yes, once ( ) Yes, twice or more

Q7. Which of the following best describes your level of education?
( ) I do not read or write ( ) I read and write but not a school graduate
( ) I graduated from an elementary or a middle school
( ) I graduated from a high school ( ) I graduated from a college or a university

Q8. Which of the following best describes the type of group you came here with?
( ) Accompanied with women and children who are 15 years old or above (family).
( ) Accompanied with women and children of 14 years old or under
No. of women = _____ No. of men = _____ No. of children = _____
( ) Not with a group (alone, single)

I am going to ask you to rate the **importance** of different facilities and services (or one of their feature) that pilgrims use and need during the Hajj season. I want you to think carefully about your answer and tick (√) the one box/answer that best describes your opinion. Please note the following:

***5* = Extremely important** **4 = Very Important** **3 = Moderately important**
2 = Slightly important **1 = Not important**

Services/facilities/features	5	4	3	2	1
Q9. Prompt services					
Q10. Problems are corrected quickly					
Q11. Assistant services					
Q12. Larger rooms for accommodation					
Q13. Attractive public areas					
Q14. Performing the Hajj as prescribed by *Sunah*					
Q15. Reasonable security (e.g. no vandalism)					
Q16. Adequate public toilets					
Q17. Anticipation of pilgrims' needs					
Q18. Improved privacy					
Q19. Special requests carried out					
Q20. Reasonable safety (e.g. no fire, no accidents)					
Q21. Clean places					
Q22. Knowledgeable staff					
Q23. Less crowding					
Q24. Better transportation and movement					
Q25. Adequate health care					
Q26. Appropriate treatment of pilgrims by police officials					
Q27. Appropriate treatment of pilgrims by *Mutawifeen*					
Q28. Trained/Experienced employees					
Other facilities/services/features (specify please)					

I am going to ask you about whether you **agree or disagree** about some statements regarding different facilities and services (and/or one of their features) that pilgrims use and need during the Hajj season. I want you to think carefully about your answer and tick (√) the one box/answer that best describes your opinion. Please note the following:

***5* = Very strongly agree** ***4* = Strongly agree** ***3* = Moderately agree** ***2* = Slightly agree** ***1* = Do not agree**

Services/facilities/features	5	4	3	2	1
Q29. I wish I had better facilities and services during the Hajj season					
Q30. I am willing to pay more money for better facilities and services					
Q31. I care much more about the availability of the facilities rather than their quality during the Hajj season					
Q32. The facilities and services for this Hajj season were satisfactory					
Q33. The experience I got out of Hajj was fulfilling					
Q34. I would like to perform another Hajj during next few years					
Q35. I will encourage my friends at home to perform Hajj					

[Please answer the following questions by either filling the blank line/s and/or by ticking (√) the one answer that best applies.]

Q36. Which of the following best describes how you performed Hajj this year?

( ) By my self ( )With an agent or a guide ( ) With an official agency

Q37. How much is your annual income?.....in which currency.....

Q38. Before you came here, had you talked about the Hajj with anybody who had been to Hajj before?
( ) No Please go to question no ( )
( ) Yes Please proceed to the next question

Q39. Which of the following best describes the subjects you had talked about?
( ) The negative aspects (e.g. problems he faced during the Hajj)
( ) The positive aspects ( ) Both

Q40. Have you ever travelled outside where you live before you came to the present Hajj?
( ) Never ( ) Yes, inside my country only
( ) Yes, inside and outside my country

Q41. Had you attended any type of training and/or lessons about the Hajj before you came here?
( ) No Please go to question no ( )
( ) Yes Please proceed

Q42. Which of the following best describes the main subjects of the training or the lessons you had attended?
( ) Religious subjects ( ) How to use the facilities during Hajj. ( ) Both
( ) Other. Please specify. .....
.....

Q43. How do you best describe the reason that has encouraged you to came for Hajj this year?
( ) To perform Hajj only ( ) To perform Hajj and involved in business
( ) To perform Hajj and involved with official work
( ) To perform Hajj and to escort somebody as a volunteer
( ) For an other reason. Specify please.
.....

Again I am going to ask you to rate the **importance** of different facilities and services and/or one of their feature that pilgrims use and need during the Hajj season. I want you to think carefully about your answer and tick (√) the one box/ answer that best describes your opinion. Please note the following:

***5* = Extremely important** ***4* = Very Important** ***3* = Moderately important**
***2* = Slightly important** ***1* = Not important**

Facilities/Services/Features	*Venues*	*5*	*4*	*3*	*2*	*1*
Q44. Adequate **public transportation** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q45. Fewer **traffic jams**	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q46. Free **pilgrims' movement** within	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					

	5	4	3	2	1
Q47. Easy **movement from Makkah or Mina to Arafat**					
Q48. Easy **movement from Arafat to Muzdalifah**					
Q49. Easy **movement from Muzdalifah to Mina**					
Q50. Easy **movement from Mina to Makkah**					
Free **movement and less crowding within**:					
Q51. ***Tawaf* in the Holy Mosque**, Makkah					
Q52. ***Sa'e* in the Holy Mosque**, Makkah					
Q53. **Jamarat throwing**. Mina					

Facilities/Services/Features	*Venues*	5	4	3	2	1
Q54. Adequate **public car parks** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q55. Adequate **accommodation facilities** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q56. The availability of adequate **restaurants and cafeterias** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q57. Inexpensive **food and beverages**	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
		5	4	3	2	1
Q58. Adequate **public drinking water** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q59. Adequate **public toilet facilities** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q60. Adequate **public telephone facilities** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q61. Adequate **postal services** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q62. Adequate **Shopping facilities**	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q63. Reasonable **pricing** (other than food and/or drink) in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					

		5	4	3	2	1
Q64. Adequate **health services** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q65. Adequate **cleaning services of sites** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q66. Adequate **sign-posting**	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q67. Adequate **general information** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q68. Adequate **guiding services** for pilgrims who have lost their way in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q69. Adequate and different **media** in (television, radio, and newspapers)	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q70. Appropriate **treatment of pilgrims by government officials in**	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q71. Appropriate **treatment of pilgrims by police officials** in	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
		5	4	3	2	1
Q72. Appropriate **treatment of pilgrims by local people in**	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
	Makkah					
Q73. Appropriate **treatment of pilgrims by *Mutawifeen*** in	Arafat					
	Mzdlifa					
	Mina					
Q74. Adequate information about the **Islamic historical places** in (Noor mountain, Tanaem mosque, etc.)	**Makkah**					
	Arafat					
	Mzdlifa					
	Mina					
Q75. Adequate **public parks and recreational places**	**Makkah**					
Q76. Adequate **money exchanging facilities**	Makkah					
Q77. Adequate **clothes washing facilities**	Makkah					
Q78. Adequate **barbers shops**	**Mina**					
Q79. Adequate **selling points of the animal sacrificing**	Mina					

Thank you very much.

APPENDIX B

PART 1

- - - - - - - - - - - F A C T O R A N A L Y S I S - - - - - - - - - - -

Analysis number 1 Listwise deletion of cases with missing values

Correlation Matrix:

	Q55M	Q56M	Q58M	Q64M	Q59M	Q65M	Q44M
Q55M	1.00000						
Q56M	.73436	1.00000					
Q58M	.57021	.58236	1.00000				
Q64M	.50350	.42294	.56646	1.00000			
Q59M	.60120	.56452	.72497	.63052	1.00000		
Q65M	.53458	.48153	.52725	.52496	.61480	1.00000	
Q44M	.55902	.45915	.46515	.41348	.53381	.39753	1.00000
Q45M	.39136	.32363	.46224	.38278	.50393	.37740	.48786
Q46M	.41296	.36593	.42931	.41063	.46662	.43515	.40378
Q47	.50110	.39401	.45650	.39193	.53218	.41088	.49283
Q51	.51420	.44756	.52736	.43455	.59289	.52091	.41412
Q52	.53621	.43109	.49135	.43463	.58232	.48168	.48888
Q54M	.56430	.42966	.48587	.50706	.53026	.48010	.48017
Q67M	.53752	.50594	.39455	.36196	.42700	.43939	.30560
Q66M	.42467	.44000	.48589	.45742	.51630	.60951	.35621
Q60M	.52271	.43639	.45083	.43616	.52990	.55742	.34952
Q61M	.54064	.50626	.47341	.49147	.55302	.51606	.38914
Q74M	.36377	.33293	.39317	.26386	.41496	.42959	.35956
Q70M	.49429	.47469	.45205	.44035	.51973	.58596	.35408
Q71M	.51478	.46613	.49590	.52100	.54850	.64140	.34700
Q72M	.36751	.38086	.38319	.32734	.43326	.55109	.32459
Q73M	.34180	.24738	.36216	.19322	.36015	.43864	.24624
Q68M	.54297	.48231	.58462	.59123	.61610	.54713	.44983
Q75M	.20785	.16746	.23767	.23427	.22905	.19517	.22386
Q76M	.33728	.32465	.30999	.40791	.37668	.46303	.23620
Q77M	.18552	.25602	.16877	.16577	.17808	.28448	.15987
Q62M	.59065	.62715	.41073	.34702	.47937	.42859	.37658
Q63M	.53094	.54100	.50821	.38419	.53700	.44438	.40825
Q57M	.51254	.47086	.60158	.46141	.60641	.38413	.40913

	Q45M	Q46M	Q47	Q51	Q52	Q54M	Q67M
Q45M	1.00000						
Q46M	.42614	1.00000					
Q47	.44794	.37581	1.00000				
Q51	.46481	.46777	.63285	1.00000			
Q52	.43098	.46653	.64831	.84271	1.00000		
Q54M	.48987	.44497	.47675	.51064	.49655	1.00000	
Q67M	.21297	.24587	.32818	.37576	.32684	.41845	1.00000
Q66M	.36832	.40930	.44884	.45486	.40648	.41734	.42997
Q60M	.27527	.37240	.39036	.41350	.42376	.41297	.46242
Q61M	.32747	.42134	.39685	.47482	.45528	.46936	.47131
Q74M	.35027	.32643	.34334	.44790	.40636	.34298	.32128
Q70M	.31861	.30504	.46352	.52345	.50087	.40796	.50185
Q71M	.32393	.31888	.41648	.47369	.48637	.40343	.48406
Q72M	.29518	.36366	.33121	.54523	.49092	.37094	.37007
Q73M	.25157	.25914	.40314	.38641	.35291	.32694	.30429
Q68M	.38074	.42785	.47472	.56274	.54307	.43842	.42971
Q75M	.22536	.21233	.11938	.22610	.21808	.30561	.28128
Q76M	.22790	.34305	.33911	.30123	.30264	.31201	.38653
Q77M	.13999	.20955	.13103	.13682	.13006	.19136	.24205
Q62M	.29214	.27468	.32972	.36745	.34537	.34797	.49911
Q63M	.30896	.20385	.45499	.42988	.39700	.36207	.53177
Q57M	.42429	.29458	.52997	.54999	.50821	.43087	.43740

	Q66M	Q60M	Q61M	Q74M	Q70M	Q71M	Q72M
Q66M	1.00000						
Q60M	.45275	1.00000					
Q61M	.52161	.67120	1.00000				
Q74M	.43782	.36342	.44617	1.00000			
Q70M	.52207	.44767	.48358	.47048	1.00000		
Q71M	.45447	.44250	.49615	.38866	.74982	1.00000	
Q72M	.43344	.37748	.42635	.59765	.60676	.61534	1.00000
Q73M	.23123	.33450	.32819	.36154	.42692	.44736	.48746
Q68M	.49908	.47624	.52062	.51146	.53345	.59595	.56350
Q75M	.29971	.21545	.23314	.36834	.11763	.07659	.18795
Q76M	.57768	.43430	.41271	.34063	.34606	.38187	.34291
Q77M	.36678	.26360	.20976	.21162	.29687	.24827	.21524
Q62M	.37983	.48799	.53567	.41833	.44884	.46667	.42440
Q63M	.42982	.42902	.44751	.38600	.53772	.50778	.44762
Q57M	.45559	.41211	.45002	.39739	.53063	.42669	.38879

	Q73M	Q68M	Q75M	Q76M	Q77M	Q62M	Q63M
Q73M	1.00000						
Q68M	.42855	1.00000					
Q75M	.07430	.20907	1.00000				
Q76M	.24183	.43052	.44332	1.00000			
Q77M	.18191	.14284	.35285	.64783	1.00000		
Q62M	.25449	.42896	.14445	.29569	.21470	1.00000	
Q63M	.43499	.43469	.14408	.34329	.24728	.58377	1.00000
Q57M	.37572	.50326	.22458	.29641	.11356	.36376	.59125

	Q57M
Q57M	1.00000

Determinant of Correlation Matrix = .0000000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .93790

Bartlett Test of Sphericity = 7622.7859, Significance = .00000

Extraction 1 for analysis 1, Principal Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
Q55M	1.00000	*	1	12.83197	44.2	44.2
Q56M	1.00000	*	2	1.77976	6.1	50.4
Q58M	1.00000	*	3	1.52295	5.3	55.6
Q64M	1.00000	*	4	1.35504	4.7	60.3
Q59M	1.00000	*	5	1.01881	3.5	63.8
Q65M	1.00000	*	6	.91255	3.1	67.0
Q44M	1.00000	*	7	.84333	2.9	69.9
Q45M	1.00000	*	8	.79665	2.7	72.6
Q46M	1.00000	*	9	.73611	2.5	75.2
Q47	1.00000	*	10	.69000	2.4	77.5
Q51	1.00000	*	11	.62765	2.2	79.7
Q52	1.00000	*	12	.57157	2.0	81.7
Q54M	1.00000	*	13	.51868	1.8	83.5
Q67M	1.00000	*	14	.48806	1.7	85.1
Q66M	1.00000	*	15	.45867	1.6	86.7
Q60M	1.00000	*	16	.43224	1.5	88.2
Q61M	1.00000	*	17	.41487	1.4	89.7
Q74M	1.00000	*	18	.35519	1.2	90.9
Q70M	1.00000	*	19	.34212	1.2	92.1
Q71M	1.00000	*	20	.32786	1.1	93.2
Q72M	1.00000	*	21	.29040	1.0	94.2
Q73M	1.00000	*	22	.26634	.9	95.1
Q68M	1.00000	*	23	.26124	.9	96.0
Q75M	1.00000	*	24	.24732	.9	96.9
Q76M	1.00000	*	25	.22919	.8	97.7
Q77M	1.00000	*	26	.20498	.7	98.4
Q62M	1.00000	*	27	.17897	.6	99.0
Q63M	1.00000	*	28	.16924	.6	99.6
Q57M	1.00000	*	29	.12824	.4	100.0

PC extracted 5 factors.

Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q59M	.80780	-.16898	.08871	-.12092	-.12104
Q55M	.76545	-.11669	-.05760	-.35053	.06161
Q68M	.76066	-.06760	-.03545	.12971	-.15744
Q65M	.75446	.11718	-.07758	.11959	-.30711
Q51	.74436	-.27588	.13427	.26470	.08458
Q58M	.74268	-.16922	.08206	-.15385	-.05644
Q70M	.73341	.05469	-.33093	.21102	-.05315
Q71M	.72986	.03719	-.34848	.17325	-.24417
Q52	.72269	-.30242	.17157	.23110	.06255
Q61M	.72025	.10178	-.06112	-.14598	-.14506
Q56M	.70391	-.01256	-.14915	-.41247	.08458
Q57M	.69661	-.19580	-.02278	-.04688	.22916
Q66M	.69243	.27945	.11971	.03926	-.14148
Q63M	.68532	.01878	-.33538	-.15392	.29724
Q60M	.67430	.16179	-.07586	-.15346	-.18159
Q64M	.67284	-.04642	.16348	-.16823	-.39830
Q54M	.67269	-.11435	.26533	-.07942	.00847
Q47	.66963	-.28369	.13818	.11917	.13279
Q72M	.66348	.07135	-.24897	.45533	.04697
Q62M	.64074	.08536	-.31753	-.33501	.16628
Q67M	.62847	.21101	-.24768	-.24121	.15102
Q44M	.62330	-.22152	.23794	-.16671	.16222
Q74M	.60992	.13045	-.00907	.31487	.30846
Q46M	.57592	-.05632	.37271	.07904	-.23531
Q45M	.56766	-.24281	.37909	.03163	.10528
Q73M	.52444	-.05195	-.26748	.39489	.14169
Q77M	.34747	.70694	.15588	.04637	.07596
Q76M	.56308	.62224	.21883	.05903	-.07744
Q75M	.34242	.44131	.48667	-.00312	.36570

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
Q55M	.72952	*	1	12.83197	44.2	44.2
Q56M	.69518	*	2	1.77976	6.1	50.4
Q58M	.61379	*	3	1.52295	5.3	55.6
Q64M	.66854	*	4	1.35504	4.7	60.3
Q59M	.71824	*	5	1.01881	3.5	63.8
Q65M	.69758	*				
Q44M	.54829	*				
Q45M	.53700	*				
Q46M	.53539	*				
Q47	.57981	*				
Q51	.72543	*				
Q52	.70049	*				
Q54M	.54237	*				
Q67M	.58183	*				
Q66M	.59343	*				
Q60M	.54314	*				
Q61M	.57521	*				
Q74M	.58339	*				
Q70M	.69774	*				
Q71M	.74516	*				
Q72M	.71681	*				
Q73M	.52530	*				
Q68M	.62604	*				
Q75M	.68261	*				
Q76M	.76160	*				
Q77M	.65272	*				
Q62M	.65854	*				
Q63M	.69454	*				
Q57M	.57883	*				

VARIMAX rotation 1 for extraction 1 in analysis 1 - Kaiser Normalization.

VARIMAX converged in 8 iterations.

Rotated Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q45M	.69447	.10579	.10549	.12547	.12900
Q52	.68429	.13211	.41585	.20197	.03258
Q51	.66487	.14629	.47175	.19168	.05180
Q47	.63498	.21709	.33527	.12719	.03001
Q44M	.63252	.34889	.05934	.11406	.09976
Q54M	.59090	.26354	.11269	.27975	.18110
Q59M	.56016	.39914	.20855	.44524	.05854

- - - - - - - - - - - F A C T O R A N A L Y S I S - - - - - - - - - - -

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q58M	.53223	.41056	.16731	.36216	.05297
Q46M	.52838	-.00948	.10211	.45230	.20276
Q57M	.51843	.44933	.31609	.07406	.05255
Q62M	.13523	.74648	.21394	.15863	.10991
Q56M	.30569	.72101	.09103	.25568	.09067
Q63M	.21716	.69277	.39417	.03798	.10314
Q55M	.44860	.65547	.11589	.28622	.05737
Q67M	.10341	.64859	.24367	.17748	.24413
Q72M	.20036	.16682	.76043	.21175	.16041
Q73M	.19593	.16655	.67442	.05589	.03476
Q70M	.16960	.37075	.63576	.34617	.08660
Q71M	.12695	.34390	.58786	.51479	.01396
Q74M	.33193	.20295	.55386	-.01953	.35339
Q64M	.40834	.25191	.04014	.65504	.08745
Q65M	.24721	.25164	.42062	.60221	.18321
Q60M	.19583	.43126	.19954	.48352	.21258
Q61M	.26986	.45000	.22286	.46276	.18993
Q66M	.27571	.24089	.26322	.46025	.42223
Q68M	.40584	.26245	.42933	.44786	.08688
Q77M	-.07824	.13590	.13249	.17432	.76170
Q75M	.31862	.08344	-.02852	-.10866	.74934
Q76M	.09374	.15588	.18527	.39301	.73467

Factor Transformation Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	.54941	.50330	.44529	.43090	.24674
Factor 2	-.53812	.05861	.01121	.13048	.83057
Factor 3	.60619	-.46503	-.48184	.02284	.42847
Factor 4	.03463	-.66134	.74166	-.07906	.07151
Factor 5	.19978	.29938	.13912	-.88912	.24611

Factor Score Coefficient Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q55M	.04825	.23296	-.13940	-.01703	-.05956
Q56M	-.01939	.29890	-.14267	-.02926	-.03562
Q58M	.10062	.05700	-.09317	.07200	-.06336
Q64M	.02551	-.05999	-.17513	.37906	-.06783
Q59M	.09416	.02248	-.08381	.12876	-.07399
Q65M	-.09117	-.09147	.07498	.29380	-.02051
Q44M	.21592	.07353	-.12414	-.12358	.00594
Q45M	.27007	-.08598	-.07009	-.08678	.03136
Q46M	.14592	-.20079	-.08716	.22155	.03698
Q47	.19853	-.04441	.06109	-.11908	-.04227
Q51	.19208	-.12522	.13804	-.08247	-.04226
Q52	.20884	-.12841	.10392	-.06341	-.05166
Q54M	.16862	-.01715	-.10364	.01543	.03207
Q67M	-.11203	.26933	-.00990	-.08486	.06463
Q66M	-.03394	-.06093	-.00992	.16671	.14530
Q60M	-.08977	.07648	-.06037	.20080	.01516
Q61M	-.05644	.07888	-.05474	.16585	.00141
Q74M	.05159	-.03204	.23932	-.25766	.16119
Q70M	-.12188	.01301	.23874	.05775	-.05518
Q71M	-.16216	-.02005	.19730	.22499	-.11650
Q72M	-.07142	-.10403	.35787	-.04378	.01139
Q73M	-.03043	-.05056	.33799	-.13691	-.03434
Q68M	.01134	-.07114	.08668	.14988	-.05808
Q75M	.14657	-.01166	-.09109	-.26782	.43763
Q76M	-.09061	-.07581	-.02404	.13195	.34718
Q77M	-.12074	-.01100	.00294	-.00316	.40125
Q62M	-.10072	.33726	-.03742	-.10255	-.01469
Q63M	-.05548	.29238	.08635	-.23106	-.00873
Q57M	.12370	.11805	.03578	-.18856	-.03150

Covariance Matrix for Estimated Regression Factor Scores:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.00000				
Factor 2	.00000	1.00000			
Factor 3	.00000	.00000	1.00000		
Factor 4	.00000	.00000	.00000	1.00000	
Factor 5	.00000	.00000	.00000	.00000	1.00000

PART 2

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

********** FACTOR 1 2nd RUN **********

1.	Q45M	Less trafic jam (T J)
2.	Q52	Movement in Sa'e
3.	Q51	Movement in Tawaf
4.	Q47	Travelling (Makkah or Mina to Araf)at
5.	Q44M	Public transportation (P T)
6.	Q54M	Car parks (C P)
7.	Q59M	Toilets' facilities (T F)
8.	Q58M	Drinking water (D W)
9.	Q46M	Pilgrims' movements (P M)
10.	Q57M	Inexpensive Foods (F P)

		Mean	Std Dev	Cases
1.	Q45M	4.2896	.8818	442.0
2.	Q52	4.2760	.9740	442.0
3.	Q51	4.3054	.9686	442.0
4.	Q47	4.3507	.8942	442.0
5.	Q44M	4.3100	.8839	442.0
6.	Q54M	4.4027	.8681	442.0
7.	Q59M	4.5475	.7904	442.0
8.	Q58M	4.4367	.8712	442.0
9.	Q46M	4.4321	.8889	442.0
10.	Q57M	4.3371	.9437	442.0

Covariance Matrix

	Q45M	Q52	Q51	Q47	Q44M
Q45M	.7776				
Q52	.3689	.9486			
Q51	.3875	.7999	.9382		
Q47	.3359	.5492	.5321	.7996	
Q44M	.3930	.4267	.3654	.3831	.7813
Q54M	.3706	.4169	.4232	.3596	.3715
Q59M	.3354	.4313	.4333	.3540	.3560
Q58M	.3426	.3962	.4219	.3386	.3564
Q46M	.3349	.3884	.3870	.2790	.3193
Q57M	.3217	.4306	.4592	.4099	.3057

	Q54M	Q59M	Q58M	Q46M	Q57M
Q54M	.7536				
Q59M	.3640	.6247			
Q58M	.3408	.4724	.7590		
Q46M	.3539	.3252	.3120	.7902	
Q57M	.3265	.4205	.4534	.2259	.8906

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Correlation Matrix

	Q45M	Q52	Q51	Q47	Q44M
Q45M	1.0000				
Q52	.4295	1.0000			
Q51	.4537	.8478	1.0000		
Q47	.4259	.6306	.6143	1.0000	
Q44M	.5042	.4957	.4268	.4847	1.0000
Q54M	.4842	.4931	.5033	.4632	.4842
Q59M	.4812	.5603	.5660	.5009	.5096
Q58M	.4460	.4669	.4999	.4346	.4628
Q46M	.4272	.4486	.4495	.3509	.4064
Q57M	.3865	.4684	.5023	.4857	.3665

	Q54M	Q59M	Q58M	Q46M	Q57M
Q54M	1.0000				
Q59M	.5306	1.0000			
Q58M	.4506	.6860	1.0000		
Q46M	.4587	.4629	.4029	1.0000	
Q57M	.3986	.5637	.5514	.2693	1.0000

N of Cases = 442.0

Statistics for	Mean	Variance	Std Dev	N of Variables
Scale	43.6878	43.0225	6.5592	10

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q45M	39.3982	35.8638	.6042	.3952	.8965
Q52	39.4118	33.6577	.7447	.7539	.8872
Q51	39.3824	33.6653	.7490	.7533	.8869
Q47	39.3371	35.1401	.6681	.4902	.8925
Q44M	39.3778	35.6869	.6207	.4346	.8954
Q54M	39.2851	35.6147	.6422	.4284	.8941
Q59M	39.1403	35.4134	.7425	.6053	.8887
Q58M	39.2511	35.3948	.6626	.5343	.8928
Q46M	39.2557	36.3812	.5456	.3408	.9001
Q57M	39.3507	35.4255	.5970	.4295	.8972

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 10 items

Alpha = .9029 Standardized item alpha = .9033

****** Method 2 (covariance matrix) will be used for this analysis ******

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

********** FACTOR 2 2nd RUN **********

1.	Q62M	Shops and selling points (S P)
2.	Q56M	Restaurants and cafeterias (R C)
3.	Q63M	Goods are low-priced (P G)
4.	Q55M	Accommodation facilities (A F)
5.	Q67M	General information (G I)

		Mean	Std Dev	Cases
1.	Q62M	4.3179	.9710	431.0
2.	Q56M	4.3573	.9487	431.0
3.	Q63M	4.2088	.9779	431.0
4.	Q55M	4.3735	.9135	431.0
5.	Q67M	4.2784	.9652	431.0

Covariance Matrix

	Q62M	Q56M	Q63M	Q55M	Q67M
Q62M	.9429				
Q56M	.5699	.8999			
Q63M	.5172	.4810	.9563		
Q55M	.5112	.6174	.4614	.8346	
Q67M	.4741	.4584	.4836	.4725	.9316

Correlation Matrix

	Q62M	Q56M	Q63M	Q55M	Q67M
Q62M	1.0000				
Q56M	.6186	1.0000			
Q63M	.5447	.5185	1.0000		
Q55M	.5763	.7124	.5164	1.0000	
Q67M	.5058	.5007	.5123	.5359	1.0000

N of Cases = 431.0

Statistics for	Mean	Variance	Std Dev	N of Variables
Scale	21.5360	14.6586	3.8287	5

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q62M	17.2181	9.5709	.6899	.4830	.8287
Q56M	17.1787	9.5052	.7271	.5833	.8192
Q63M	17.3271	9.8160	.6342	.4069	.8431
Q55M	17.1624	9.6991	.7249	.5706	.8205
Q67M	17.2575	9.9498	.6203	.3901	.8464

Reliability Coefficients 5 items

Alpha = .8607 Standardized item alpha = .8614

****** Method 2 (covariance matrix) will be used for this analysis ******

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

********** FACTOR 3 2nd RUN **********

1.	Q72M	Local people's treatment (T L)
2.	Q73M	Mutawifeen staff's treatment (M P)
3.	Q70M	Officials' treatment (T O)
4.	Q71M	Policemen's treatment (T P)
5.	Q74M	Information / hestorical places (I P)

		Mean	Std Dev	Cases
1.	Q72M	4.2936	.8897	419.0
2.	Q73M	4.2840	.9674	419.0
3.	Q70M	4.4057	.8681	419.0
4.	Q71M	4.4057	.8344	419.0
5.	Q74M	4.3819	.9031	419.0

Covariance Matrix

	Q72M	Q73M	Q70M	Q71M	Q74M
Q72M	.7916				
Q73M	.4356	.9359			
Q70M	.4763	.3630	.7537		
Q71M	.4428	.3390	.5288	.6962	
Q74M	.4714	.3219	.3471	.2849	.8156

Correlation Matrix

	Q72M	Q73M	Q70M	Q71M	Q74M
Q72M	1.0000				
Q73M	.5060	1.0000			
Q70M	.6167	.4322	1.0000		
Q71M	.5965	.4200	.7300	1.0000	
Q74M	.5866	.3685	.4427	.3781	1.0000

N of Cases = 419.0

Statistics for	Mean	Variance	Std Dev	N of Variables
Scale	21.7709	12.0144	3.4662	5

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q72M	17.4773	7.5707	.7459	.5643	.7695
Q73M	17.4869	8.1595	.5281	.2899	.8338
Q70M	17.3652	7.8305	.7060	.5934	.7818
Q71M	17.3652	8.1271	.6707	.5714	.7925
Q74M	17.3890	8.3483	.5462	.3603	.8259

Reliability Coefficients 5 items

Alpha = .8346 Standardized item alpha = .8376

****** Method 2 (covariance matrix) will be used for this analysis ******

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

********** FACTOR 4 2nd RUN **********

1.	Q64M	Health services (H S)
2.	Q65M	Cleaning of places (L P)
3.	Q60M	Telephones (P H)
4.	Q61M	Post services (P S)
5.	Q66M	Direction signs (D S)
6.	Q68M	Guiding services (G S)

		Mean	Std Dev	Cases
1.	Q64M	4.6370	.7461	438.0
2.	Q65M	4.5822	.7481	438.0
3.	Q60M	4.5708	.8023	438.0
4.	Q61M	4.5183	.8304	438.0
5.	Q66M	4.6872	.6968	438.0
6.	Q68M	4.5479	.7868	438.0

Covariance Matrix

	Q64M	Q65M	Q60M	Q61M	Q66M
Q64M	.5567				
Q65M	.2896	.5596			
Q60M	.2603	.3374	.6437		
Q61M	.3007	.3200	.4472	.6896	
Q66M	.2340	.3221	.2636	.2952	.4855
Q68M	.3344	.3141	.2929	.3172	.2748

	Q68M
Q68M	.6190

Correlation Matrix

	Q64M	Q65M	Q60M	Q61M	Q66M
Q64M	1.0000				
Q65M	.5189	1.0000			
Q60M	.4348	.5622	1.0000		
Q61M	.4853	.5151	.6712	1.0000	
Q66M	.4502	.6180	.4716	.5102	1.0000
Q68M	.5696	.5337	.4641	.4855	.5012
Q68M	1.0000				

N of Cases = 438.0

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	27.5434	12.7613	3.5723	6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q64M	22.9064	9.3665	.6214	.4169	.8500
Q65M	22.9612	9.0351	.7041	.5247	.8357
Q60M	22.9726	8.9146	.6685	.5194	.8419
Q61M	23.0251	8.7110	.6856	.5280	.8390
Q66M	22.8562	9.4964	.6472	.4548	.8461
Q68M	22.9954	9.0755	.6470	.4431	.8457

Reliability Coefficients 6 items

Alpha = .8658 Standardized item alpha = .8664

****** Method 2 (covariance matrix) will be used for this analysis ******

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

********** FACTOR 5 2nd RUN **********

1. Q77M Clothes washing facility (W F)
2. Q75M Parks & recreational places (P R)
3. Q76M Money exchange bureau (M E)

	Mean	Std Dev	Cases
1. Q77M	4.1486	1.0759	424.0
2. Q75M	3.9623	1.3452	424.0
3. Q76M	4.5613	.8113	424.0

Covariance Matrix

	Q77M	Q75M	Q76M
Q77M	1.1575		
Q75M	.5257	1.8094	
Q76M	.5712	.4917	.6582

Correlation Matrix

	Q77M	Q75M	Q76M
Q77M	1.0000		
Q75M	.3633	1.0000	
Q76M	.6545	.4505	1.0000

N of Cases = 424.0

Statistics for	Mean	Variance	Std Dev	N of Variables
Scale	12.6722	6.8024	2.6081	3

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q77M	8.5236	3.4510	.5488	.4342	.5699
Q75M	8.7099	2.9582	.4397	.2112	.7724
Q76M	8.1108	4.0184	.6536	.4805	.5233

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 3 items

Alpha = .7006 Standardized item alpha = .7420

APPENDIX C

Source: Kaplan (1987)

Critical values of t[a]

For any given *df*, the table shows the values of t corresponding to various levels of probability. Obtained t is significant at a given level if it is equal to or *greater than* the value shown in the table.

	LEVEL OF SIGNIFICANCE FOR ONE-TAILED TEST					
	.10	.05	025	.01	.005	0005
	LEVEL OF SIGNIFICANCE FOR TWO-TAILED TEST					
df	.20	10	05	02	01	.001
1	3 078	6.314	12.706	31.821	63 657	636.619
2	1 886	2.920	4.303	6.965	9 925	31.598
3	1.638	2.353	3.182	4.541	5.841	12.941
4	1.533	2.132	2.776	3 747	4.604	8.610
5	1.476	2.015	2.571	3.365	4.032	6.859
6	1.440	1.943	2.447	3.143	3.707	5.959
7	1.415	1.895	2.365	2.998	3.499	5.405
8	1.397	1.860	2.306	2.896	3.355	5.041
9	1.383	1.833	2.262	2.821	3.250	4.781
10	1.372	1.812	2.228	2.764	3.169	4.587
11	1.363	1.796	2.201	2.718	3.106	4.437
12	1.356	1.782	2.179	2.681	3 055	4.318
13	1.350	1.771	2.160	2.650	3.012	4.221
14	1.345	1.761	2.145	2.624	2.977	4.140
15	1.341	1.753	2.131	2.602	2.947	4.073
16	1.337	1.746	2.120	2.583	2.921	4.015
17	1.333	1.740	2.110	2.567	2.898	3.965
18	1.330	1.734	2.101	2.552	2.878	3.922
19	1.328	1.729	2.093	2.539	2.861	3.883
20	1.325	1.725	2.086	2.528	2.845	3.850
21	1.323	1.721	2.080	2.518	2.831	3 819
22	1.321	1.717	2.074	2.508	2.819	3 792
23	1.319	1.714	2.069	2.500	2.807	3 767
24	1.318	1.711	2.064	2.492	2.797	3 745
25	1.316	1.708	2.060	2.485	2.787	3 725

	LEVEL OF SIGNIFICANCE FOR ONE-TAILED TEST					
	10	.05	.025	.01	.005	.0005
	LEVEL OF SIGNIFICANCE FOR TWO-TAILED TEST					
df	.20	.10	.05	.02	.01	.001
26	1.315	1.706	2.056	2.479	2.779	3.707
27	1.314	1.703	2.052	2.473	2.771	3.690
28	1.313	1.701	2.048	2.467	2.763	3.674
29	1.311	1.699	2.045	2.462	2.756	3.659
30	1.310	1.697	2.042	2.457	2.750	3.646
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373
∞	1.282	1.645	1.960	2.326	2.576	3.291

[a]Appendix 2 is taken from Table III of Fisher and Yates, *Statistical tables for biological, agricultural and medical research*, published by Longman Group Ltd., London (previously published by Oliver and Boyd, Edinburgh), and by permission of the authors and publishers.

APPENDIX D

Table D 1:

ANOVA Results for Testing HFS-Makkah By the Pilgrims' Nationality

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups	7	13.9874	1.9982	2.5247	.0148*
	Within Groups	461	364.8612	.7915		
	Total	468	378.8486			
Q52 Movement in Sa'e	Between Groups	7	37.6510	5.3787	6.2058	.0000*
	Within Groups	456	395.2261	.8667		
	Total	463	432.8772			
Q51 Movement in Tawaf	Between Groups	7	36.8894	5.2699	6.0129	.0000*
	Within Groups	456	399.6537	.8764		
	Total	463	436.5431			
Q47 Travelling to Mina & Arafat	Between Groups	7	36.7431	5.2490	7.0099	0000*
	Within Groups	456	341.4551	.7488		
	Total	463	378.1983			
Q44M Public transportation	Between Groups	7	25.3963	3.6280	4.8726	.0000*
	Within Groups	462	343.9994	.7446		
	Total	469	369.3957			
Q54M Car parking facilities	Between Groups	7	20.2358	2.8908	4.0059	.0002*
	Within Groups	454	327.6257	.7216		
	Total	461	347.8615			
Q59M Toilet facilities	Between Groups	7	25.5963	3.6566	6.1460	0000*
	Within Groups	451	268.3253	.5950		
	Total	458	293.9216			
Q58M Public drinking water	Between Groups	7	20.3941	2.9134	3.8772	.0004*
	Within Groups	450	338.1408	.7514		
	Total	457	358.5349			
Q46M Pilgrims' movements	Between Groups	7	17.0398	2.4343	3.1760	.0027*
	Within Groups	456	349.5034	.7665		
	Total	463	366.5431			
Q57M inexpensive foods	Between Groups	7	61.5317	8.7902	10.6046	.0000*
	Within Groups	452	374.6661	.8289		
	Total	459	436.1978			
Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups	7	60.1762	8.5966	10.7395	.0000*
	Within Groups	441	353.0042	8005		
	Total	448	413.1804			
Q56M Restaurants and cafeterias	Between Groups	7	41.1970	5.8853	7.4361	0000*
	Within Groups	457	361 6934	.7915		
	Total	464	402 8903			
Q63M Reasonable pricing	Between Groups	7	78.4334	11.2048	14.1603	.0000*
	Within Groups	442	349.7466	.7913		
	Total	449	428.1800			
Q55M Accommodation facilities	Between Groups	7	51.4992	7.3570	9.9468	.0000*
	Within Groups	452	334.3160	.7396		
	Total	459	385.8152			
Q67M General information	Between Groups	7	53.2727	7.6104	9.0477	.0000*
	Within Groups	433	364.2148	.8411		
	Total	440	417.4875			
Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	7	22.5332	3.2190	4.3074	.0001*
	Within Groups	439	328.0753	.7473		
	Total	446	350.6085			
Q73M Treatment by Mutawifeen staff	Between Groups	7	45.2554	6.4651	7.2540	.0000*
	Within Groups	419	373.4285	.8912		
	Total	426	418.6838			
Q70M Treatment by officials	Between Groups	7	20.3888	2.9127	4.2079	.0002*
	Within Groups	437	302.4876	.6922		
	Total	444	322.8764			
Q71M Treatment by policemen	Between Groups	7	16.0649	2 2950	3.4664	0013*
	Within Groups	441	291.9752	.6621		
	Total	448	308.0401			
Q74M Information/historical places	Between Groups	7	38.3637	5.4805	7.0695	0000*
	Within Groups	432	334.8999	.7752		
	Total	439	373.2636			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	7	19.2386	2.7484	5.4219	.0000*
	Within Groups	446	226.0764	.5069		
	Total	453	245.3150			
Q65M Cleanliness of sites	Between Groups	7	17.8571	2.5510	4 9595	.0000*
	Within Groups	447	229 9231	.5144		
	Total	454	247 7802			
Q60M Public telephones	Between Groups	7	24.6378	3.5197	5 9971	0000*
	Within Groups	447	262.3424	5869		
	Total	454	286.9802			
Q61M Postal services	Between Groups	7	32.9486	4.7069	7.6626	.0000*
	Within Groups	441	270.8955	.6143		
	Total	448	303.8441			

Q66M Signposting	Between Groups	7	20.7181	2.9597	6.8659	.0000*
	Within Groups	448	193.1218	.4311		
	Total	455	213.8399			
Q68M Guiding services	Between Groups	7	35.2611	5.0373	8.6030	.0000*
	Within Groups	442	258.8034	.5855		
	Total	449	294.0644			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	7	39.7198	5.6743	5 3392	0000*
	Within Groups	437	464.4240	1.0628		
	Total	444	504.1438			
Q75M Parks & recreational facilities	Between Groups	7	103.5122	14.7875	9.2941	.0000*
	Within Groups	416	661.8840	1.5911		
	Total	423	765.3962			
Q76M Money exchanging facilities	Between Groups	7	14.3352	2.0479	3.3403	.0018*
	Within Groups	437	267.9209	.6131		
	Total	444	282.2562			

* The differences among means are statistically significant since F Prob. < .05 and F Ratio > 2.03

Table D 2:

Significant Results of ANOVA Tests Based on HFS-Makkah and Pilgrims' Nationality

Question Number / Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Factor 1: Movements and basic facilities							
Q45M Fewer traffic jams	Grp 1	51	4.0392	1.1993	.1679	2.5247	.0148*
	Grp 2	20	4.0500	1.0501	.2348		
	Grp 3	16	4.5000	.6325	.1581		
	Grp 4	45	4.4000	1.0090	.1504		
	Grp 5	82	4.0366	.9222	.1018		
	Grp 6	108	4.3519	.6742	.0649		
	Grp 7	121	4.4380	.7626	.0693		
	Grp 8	26	4.3462	1.1642	.2283		
Q52 Movement in Sa'e	Grp 1	50	3.9800	1.2534	.1773	6.2058	.0000*
	Grp 2	17	4.0000	.8660	.2100		
	Grp 3	16	4.0625	.9979	.2495		
	Grp 4	45	4.2000	1.0357	.1544		
	Grp 5	80	3.9875	1 0493	1173		
	Grp 6	108	4.7500	.5138	.0494		
	Grp 7	121	4.3058	8836	.0803		
	Grp 8	27	4.2593	1.1633	.2239		
Q51 Movement in Tawaf	Grp 1	50	3.9200	1.2591	.1781	6.0129	.0000*
	Grp 2	17	4.1765	.8828	.2141		
	Grp 3	16	4 1250	.9574	.2394		
	Grp 4	45	4.2444	1.0478	1562		
	Grp 5	80	4 0125	1.0732	1200		
	Grp 6	108	4.7500	.5138	.0494		
	Grp 7	121	4.3058	.9114	.0829		
	Grp 8	27	4.4074	1.0473	.2016		
Q47 Travelling to Mina & Arafat	Grp 1	51	4.1176	1.2107	.1695	7.0099	.0000*
	Grp 2	17	4.4118	5073	.1230		
	Grp 3	16	4.1875	.9106	.2276		
	Grp 4	45	4.1556	1.0215	.1523		
	Grp 5	79	3 9620	1.0057	.1131		
	Grp 6	108	4.7778	.4395	0423		
	Grp 7	121	4.3802	.7880	.0716		
	Grp 8	27	4 2963	1 1030	2123		
Q44M Public transportation	Grp 1	51	3 9804	1 0486	.1468	4.8726	.0000*
	Grp 2	20	3 9500	8870	.1983		
	Grp 3	16	4.3750	6191	.1548		
	Grp 4	45	4.3111	1.0834	.1615		
	Grp 5	81	4.1852	.9761	.1085		
	Grp 6	109	4.6881	.6040	.0578		
	Grp 7	121	4.2562	.7803	.0709		
	Grp 8	27	4.3333	1.037~	.1997		
Q54M Car parking facilities	Grp 1	51	3.9804	1.2081	.1692	4.0059	.0003*
	Grp 2	16	4.0625	.6801	.1700		
	Grp 3	16	4.5000	.6325	.1581		
	Grp 4	45	4.4444	.9428	1405		
	Grp 5	77	4.4416	.7521	.0857		
	Grp 6	109	4.6789	.5754	.0551		
	Grp 7	121	4.3388	.8520	.0775		
	Grp 8	27	4 4815	1.1887	.2288		

Q59M Toilet facilities	Grp 1	50	4.1400	1.2456	.1761	6.1460	.0000*
	Grp 2	13	4.3077	.6304	.1748		
	Grp 3	15	4.5333	.6399	.1652		
	Grp 4	45	4.4667	.9195	.1371		
	Grp 5	80	4.4375	.7436	.0831		
	Grp 6	109	4.9174	.3633	.0348		
	Grp 7	120	4.4917	.7447	.0680		
	Grp 8	27	4.5556	.8916	.1716		
Q58M Public drinking water	Grp 1	50	4.1600	1.1843	.1675	3.8772	.0004*
	Grp 2	13	3.8462	.9871	.2738		
	Grp 3	15	4.4667	.6399	.1652		
	Grp 4	45	4.4444	1.0125	.1509		
	Grp 5	79	4.3418	.9458	.1064		
	Grp 6	109	4.7523	.4745	.0454		
	Grp 7	120	4.4000	.7928	.0724		
	Grp 8	27	4.3333	1.2089	.2327		
Q46M Pilgrims' movements	Grp 1	50	4.2000	1.0880	.1539	3.1760	.0027*
	Grp 2	19	4.3684	.6840	.1569		
	Grp 3	16	4.7500	.4472	.1118		
	Grp 4	45	4.2889	1.0579	.1577		
	Grp 5	78	4.4231	.9191	.1041		
	Grp 6	109	4.7431	.5341	.0512		
	Grp 7	121	4.3388	.9179	.0834		
	Grp 8	26	4.3462	1.1642	.2283		
Q57M inexpensive foods	Grp 1	49	3.8776	1.2687	.1812	10.6046	.0000*
	Grp 2	14	4.0000	.8771	.2344		
	Grp 3	15	4.2667	7988	.2063		
	Grp 4	45	4.3778	9837	.1466		
	Grp 5	81	3.7037	1.0301	.1145		
	Grp 6	109	4.6972	.5854	.0561		
	Grp 7	120	4.5083	.8199	.0748		
	Grp 8	27	4.3333	1.1435	.2201		
Factor 2: Hospitality facilities							
Q62M Shopping facilities	Grp 1	48	4.0417	1.1478	.1657	0.7395	.0000*
	Grp 2	11	4.5455	.5222	.1575		
	Grp 3	15	4.0000	1.1952	.3086		
	Grp 4	45	4.4667	.9677	.1443		
	Grp 5	74	4.4324	.9228	.1073		
	Grp 6	109	4.8716	.3873	.0371		
	Grp 7	120	3.9167	.9665	.0882		
	Grp 8	27	4.2963	1.2030	.2315		
Q56M Restaurants and cafeterias	Grp 1	50	4.0800	1.2591	.1781	7.4361	.0000*
	Grp 2	15	4.2000	.6761	.1746		
	Grp 3	16	4.3125	.8732	.2183		
	Grp 4	45	4.4667	.9909	.1477		
	Grp 5	82	4.4268	.7862	.0868		
	Grp 6	109	4.8440	.4341	.0416		
	Grp 7	121	4.1074	.9292	.0845		
	Grp 8	27	4.0370	1.3723	.2641		
Q63M Reasonable pricing	Grp 1	49	3.6327	1.3338	.1905	14.1603	.0000*
	Grp 2	11	4.1818	.7508	.2264		
	Grp 3	15	4 3333	.8165	2108		
	Grp 4	45	4.4222	.9650	.1439		
	Grp 5	77	3.7792	1.0211	.1164		
	Grp 6	10?	4.8224	.4078	.0394		
	Grp 7	120	4.0000	.8888	.0811		
	Grp 8	26	4.3077	.8376	.1643		
Q55M Accommodation facilities	Grp 1	50	3.9800	1.2204	.1726	9.9468	.0000*
	Grp 2	16	4.0000	.8165	.2041		
	Grp 3	16	4.3125	.8732	.2183		
	Grp 4	45	4.4000	.9630	.1435		
	Grp 5	76	4.1974	.9095	.1043		
	Grp 6	109	4 9266	.2952	.0283		
	Grp 7	121	4.1570	8564	.0779		
	Grp 8	27	4 2963	1 2346	.2376		
Q67M General information	Grp 1	48	3 4792	1.5297	.2208	9.0477	.0000*
	Grp 2	10	3.8000	7888	.2494		
	Grp 3	15	4 4667	.8338	.2153		
	Grp 4	45	4.4222	1 0111	1507		
	Grp 5	68	4.3676	8447	1024		
	Grp 6	108	4 6574	6289	.0605		
	Grp 7	120	4.1250	7731	.0706		
	Grp 8	27	4.2222	1.1209	.2157		

Factor 3: Pilgrim Care

Q72M Treatment by local people	Grp 1	49	4.2449	.8787	.1255	4.3074	.0001*
	Grp 2	8	4.1250	.8345	2950		
	Grp 3	15	4.4667	.7432	.1919		
	Grp 4	44	4.5000	9276	1398		
	Grp 5	76	4.0263	.9234	.1059		
	Grp 6	108	4.6111	.6388	.0615		
	Grp 7	120	4.1250	.8941	.0816		
	Grp 8	27	4.2222	1.2195	.2347		
Q73M Treatment by Mutawifeen staff	Grp 1	47	4.3404	1.1282	.1646	7.2540	.0000*
	Grp 2	8	4.1250	.6409	.2266		
	Grp 3	15	4.4000	.6325	.1633		
	Grp 4	44	4.4773	1.0227	.1542		
	Grp 5	60	3.6000	1.1818	.1526		
	Grp 6	107	4.6262	.6223	.0602		
	Grp 8	26	4.1538	1.2229	.2398		
Q70M Treatment by officials	Grp 1	48	4.3333	1.0980	.1585	4.2079	.0002*
	Grp 2	9	4.5556	.5270	.1757		
	Grp 3	15	4.4000	.7368	.1902		
	Grp 4	45	4.4222	1.0333	.1540		
	Grp 5	74	4.4054	.8746	1017		
	Grp 6	107	4.7383	.4625	.0447		
	Grp 7	120	4.1583	.8696	.0794		
	Grp 8	27	4.5926	.8884	.1710		
Q71M Treatment by policemen	Grp 1	49	4 3469	1.0318	.1474	3.4664	0013*
	Grp 2	9	4.3333	.5000	.1667		
	Grp 3	15	4.4667	.7432	.1919		
	Grp 4	44	4.4545	1.0220	.1541		
	Grp 5	77	4.4545	.8667	.0988		
	Grp 6	108	4.6481	.5689	.0547		
	Grp 7	120	4.1750	.8566	.0782		
	Grp 8	27	4.7407	.5257	.1012		
Q74M Information/historical places	Grp 1	48	4.2708	1.0466	.1511	7.0695	.0000*
	Grp 2	8	3.6250	1.1877	.4199		
	Grp 3	15	4.6000	.5071	.1309		
	Grp 4	44	4.4545	.9512	.1434		
	Grp 5	69	3.9275	1.1545	.1390		
	Grp 6	109	4.7431	.4982	.0477		
	Grp 7	120	4.3583	.7756	.0708		
	Grp 8	27	4.0000	1.2710	.2446		

Factor 4: Health care and communication

Q64M Health services	Grp 1	49	4.2449	.9902	.1415	5.4219	.0000*
	Grp 2	10	4.8000	.4216	.1333		
	Grp 3	15	4.6667	.4880	.1260		
	Grp 4	45	4.3778	1.0507	.1566		
	Grp 5	79	4.7342	.6738	.0758		
	Grp 6	109	4.8899	.3426	.0328		
	Grp 7	120	4.6667	.6525	.0596		
	Grp 8	27	4.4815	1.0141	.1952		
Q65M Cleanliness of sites	Grp 1	49	4.3878	.9087	.1298	4.9595	.0000*
	Grp 2	10	4.6000	.6992	.2211		
	Grp 3	15	4.8667	.3519	.0909		
	Grp 4	45	4.5111	.8950	.1334		
	Grp 5	81	4.6173	.7171	.0797		
	Grp 6	108	4.8889	.3441	.0331		
	Grp 7	120	4.3917	.8127	.0742		
	Grp 8	27	4.5926	.7971	.1534		
Q60M Public telephones	Grp 1	49	4.3673	.9724	.1389	5.9971	.0000*
	Grp 2	13	4.4615	.6602	.1831		
	Grp 3	15	4.5333	.9155	.2364		
	Grp 4	45	4.4667	.9195	.1371		
	Grp 5	77	4.7013	.5635	.0642		
	Grp 6	109	4.9358	.2814	.0270		
	Grp 7	120	4.3583	9597	0876		
	Grp 8	27	4 4074	.8884	.1710		
Q61M Postal services	Grp 1	48	4 1458	1.0104	1458	7 6626	.0000*
	Grp 2	11	4 3636	8090	.2439		
	Grp 3	15	4.6000	6325	.1633		
	Grp 4	45	4.3111	.9729	.1450		
	Grp 5	75	4.6533	.6677	.0771		
	Grp 6	108	4.9259	.2965	.0285		
	Grp 7	120	4.4250	.9136	.0834		
	Grp 8	27	4.1481	1.0267	.1976		

Q66M Signposting	Grp 1	49	4.4490	.9368	.1338	6.8659	.0000*
	Grp 2	10	3.9000	.9944	.3145		
	Grp 3	15	5.0000	.0000	.0000		
	Grp 4	45	4.5556	.8675	.1293		
	Grp 5	81	4.8148	.5503	.0611		
	Grp 6	109	4.9450	.2291	.0219		
	Grp 7	120	4.6000	.7148	.0653		
	Grp 8	27	4.6296	.8389	.1614		
Q68M Guiding services	Grp 1	48	4.4375	.8227	.1187	8.6030	.0000*
	Grp 2	10	4.1000	.7379	.2333		
	Grp 3	15	4.6000	.6325	.1633		
	Grp 4	45	4.5778	.8916	1329		
	Grp 5	76	4.1579	.9940	.1140		
	Grp 6	109	4.9633	.1889	.0181		
	Grp 7	120	4.4750	.7882	.0720		
	Grp 8	27	4.2963	1.0675	.2054		
Factor 5: Miscellaneous							
Q77M Clothe washing facilities	Grp 1	47	4.0638	1.2407	.1810	5.3392	0000*
	Grp 2	8	3.6250	1.0607	.3750		
	Grp 3	15	4.7333	.5936	.1533		
	Grp 4	43	4.3488	1.0885	.1660		
	Grp 5	79	4.6709	.8121	.0914		
	Grp 6	109	4.0826	.8512	.0815		
	Grp 7	119	3.8908	1.2405	.1137		
	Grp 8	25	4.3600	.9074	.1815		
Q75 M Parks & recreational facilities	Grp 1	47	3.0213	1.6483	.2404	9.2941	.0000*
	Grp 2	8	2.0000	1.0690	.3780		
	Grp 3	15	4.7333	.5936	.1533		
	Grp 4	43	4.2093	1.2451	.1899		
	Grp 5	58	3.8621	1.4684	.1928		
	Grp 6	109	4.3028	.8872	.0850		
	Grp 7	119	4.1008	1.2782	.1172		
	Grp 8	25	3.5600	1.5567	.3113		
Q76 M Money exchanging facilities	Grp 1	47	4.3191	1.0448	.1524	3.3403	.0018*
	Grp 2	8	4.2500	.7071	.2500		
	Grp 3	15	4.9333	.2582	.0667		
	Grp 4	43	4.4186	1.0742	.1638		
	Grp 5	79	4.6709	.7289	.0820		
	Grp 6	109	4.7982	.4256	.0408		
	Grp 7	119	4.4706	.8716	.0799		
	Grp 8	25	4.5600	.7681	.1536		

*** The differences among means are statistically significant since F Prob. < .05 and F Ratio > 2.03**
**** Grp 1 = Arabic countries, Grp 2 = African countries, Grp 3 = Iran, Grp 4 = America, Europe & Turkey, Grp 5 = South Asia, Grp 6 = South East Asia, Grp 7 = Saudi Arabia, Grp 8 = Other nationality**

Table D 3:

ANOVA Results for Testing HFS-Makkah By Where the Pilgrim Live at Home

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups	2	.3887	.1944	±2377	.7886
	Within Groups	457	373.7330	.8178		
	Total	459	374.1217			
Q52 Movement in Sa'e	Between Groups	2	4.0810	2.0405	2.1633	.1161
	Within Groups	452	426.3454	.9432		
	Total	454	430.4264			
Q51 Movement in Tawaf	Between Groups	2	3.5423	1.7712	1.8592	.1570
	Within Groups	452	430.6027	.9527		
	Total	454	434 1451			
Q47 Travelling to Mina & Arafat	Between Groups	2	8483	4242	.5154	5976
	Within Groups	452	371 9781	.8230		
	Total	454	372.8264			
Q44M Public transportation	Between Groups	2	1.4134	.7067	.8844	.4137
	Within Groups	458	365.9792	.7991		
	Total	460	367 3926			
Q54M Car parking facilities	Between Groups	2	6.2818	3.1409	4.1608	.0162*
	Within Groups	450	339.6961	.7549		
	Total	452	345.9779			
Q59M Toilet facilities	Between Groups	2	3.5612	1.7806	2.8248	.0604
	Within Groups	447	281.7633	.6303		
	Total	449	285.3244			
Q58M Public drinking water	Between Groups	2	3.6698	1.8349	2.3591	.0957
	Within Groups	446	346.8959	7778		
	Total	448	350.5657			
Q46M Pilgrims' movements	Between Groups	2	1.7194	.8597	1.0827	.3396
	Within Groups	452	358.9180	.7941		
	Total	454	360.6374			
Q57M inexpensive foods	Between Groups	2	1 7543	8772	.9181	4000
	Within Groups	448	428.0239	.9554		
	Total	450	429 7783			

Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups	2	9.8881	4.9441	5.6652	0037*
	Within Groups	437	381.3755	.8727		
	Total	439	391.2636			
Q56M Restaurants and cafeterias	Between Groups	2	8.3108	4.1554	4.8856	.0080*
	Within Groups	453	385.2945	.8505		
	Total	455	393.6053			
Q63M Reasonable pricing	Between Groups	2	1.0579	.5290	.5570	.5734
	Within Groups	438	415.9806	.9497		
	Total	440	417.0385			
Q55M Accommodation facilities	Between Groups	2	4.0544	2.0272	2.4393	.0884
	Within Groups	448	372.3092	.8310		
	Total	450	376.3636			
Q67M General information	Between Groups	2	4.6734	2.3367	2.4495	.0875
	Within Groups	429	409.2432	.9539		
	Total	431	413.9167			
Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	2	.3283	.1642	.2053	.8145
	Within Groups	435	347.8474	.7996		
	Total	437	348.1758			
Q73M Treatment by Mutawifeen staff	Between Groups	2	2.4503	1.2252	1.2321	.2928
	Within Groups	415	412.6693	.9944		
	Total	417	415.1196			
Q70M Treatment by officials	Between Groups	2	2.3933	1.1966	1.6466	1939
	Within Groups	433	314.6778	7267		
	Total	435	317.0711			
Q71M Treatment by policemen	Between Groups	2	3.1065	1.5533	2.2552	.1061
	Within Groups	437	300.9821	.6887		
	Total	439	304.0886			
Q74M Information/historical places	Between Groups	2	2.3692	1.1846	1.3809	.2525
	Within Groups	428	367.1667	.8579		
	Total	430	369.5360			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	2	6.5764	3.2882	6.1471	.0023*
	Within Groups	442	236.4348	.5349		
	Total	444	243.0112			
Q65M Cleanliness of sites	Between Groups	2	.7571	.3786	.7312	.4819
	Within Groups	443	229.3595	.5177		
	Total	445	230.1166			
Q60M Public telephones	Between Groups	2	2.7717	1.3858	2.3204	.0994
	Within Groups	443	264.5826	.5973		
	Total	445	267.3543			
Q61M Postal services	Between Groups	2	7.7022	3.8511	5 8120	.0032*
	Within Groups	437	289.5614	6626		
	Total	439	297.2636			
Q66M Signposting	Between Groups	2	7298	.3649	.8324	4357
	Within Groups	444	194 6170	4383		
	Total	446	195.3468			
Q68M Guiding services	Between Groups	2	.5556	.2778	.4208	.6568
	Within Groups	438	289.1496	.6602		
	Total	440	289.7052			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	2	2.0636	1.0318	.9248	.3974
	Within Groups	434	484.2156	1.1157		
	Total	436	486.2792			
Q75M Parks & recreational facilities	Between Groups	2	5.4350	2.7175	1.5062	.2230
	Within Groups	413	745.1588	1.8043		
	Total	415	750.5937			
Q76M Money exchanging facilities	Between Groups	2	2.4613	1.2307	2.0522	.1297
	Within Groups	434	260 2572	.5997		
	Total	436	262.7185			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 4:

Significant Results of ANOVA Tests Based on HFS-Makkah and Where the Pilgrim Live at Home

Question Number / Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54M Car parking facilities	Grp 1	73	4.3014	8111	.0949	4.1608	.0162*
	Grp 2	120	4.6083	.6648	.0607		
	Grp 3	260	4.3577	.9621	.0597		
Q62M Shopping facilities	Grp 1	70	4.4571	.8459	.1011	5.6652	.0037*
	Grp 2	115	4.5739	.8063	.0752		
	Grp 3	255	4.2353	1.0076	.0631		
Q56M Restaurants and cafeterias	Grp 1	74	4.3919	.8886	.1033	4.8856	.0080*
	Grp 2	123	4.5935	.7557	.0681		
	Grp 3	259	4.2780	1.0000	.0621		
Q64M Health services	Grp 1	71	4.7606	.4918	.0584	6.1471	.0023*
	Grp 2	117	4.8120	.5074	.0469		
	Grp 3	257	4.5486	.8607	.0537		
Q61M Postal services	Grp 1	72	4.6528	.6747	.0795	5.8120	.0032*
	Grp 2	114	4.7193	.6978	.0654		
	Grp 3	254	4.4291	.8940	.0561		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = Village, Grp 2 = Town, Grp 3 = City

Table D 5:

ANOVA Results for Testing HFS-Makkah By the Pilgrims' Age

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups	5	9.5954	1.9191	2.4062	.0360*
	Within Groups	458	365.2818	.7976		
	Total	463	374.8772			
Q52 Movement in Sa'e	Between Groups	5	5.7651	1.1530	1.2369	2907
	Within Groups	453	422.2741	.9322		
	Total	458	428.0392			
Q51 Movement in Tawaf	Between Groups	5	5.0150	1.0030	1.0649	.3791
	Within Groups	453	426.6713	.9419		
	Total	458	431 6863			
Q47 Travelling to Mina & Arafat	Between Groups	5	13.4655	2.6931	3.3904	.0051*
	Within Groups	453	359.8330	.7943		
	Total	458	373.2985			
Q44M Public transportation	Between Groups	5	15.8557	3.1711	4.1942	.0010*
	Within Groups	459	347.0390	.7561		
	Total	464	362.8946			
Q54M Car parking facilities	Between Groups	5	6.9499	1 3900	1.8766	.0971
	Within Groups	451	334.0567	.7407		
	Total	456	341.0066			
Q59M Toilet facilities	Between Groups	5	11.9015	2.3803	3.8260	.0021*
	Within Groups	448	278.7174	6221		
	Total	453	290.6189			
Q58M Public drinking water	Between Groups	5	5.7976	1.1595	1.4829	.1940
	Within Groups	447	349.5313	.7819		
	Total	452	355.3289			
Q46M Pilgrims' movements	Between Groups	5	10.9185	2.1837	2.8383	.0155*
	Within Groups	453	348.5237	.7694		
	Total	458	359.4423			
Q57M inexpensive foods	Between Groups	5	6 7976	1 3575	1 4303	2120
	Within Groups	449	426 1574	9491		
	Total	454	432.9451			
Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups	5	24.8848	4.9770	5.6858	0000*
	Within Groups	438	383.3922	.8753		
	Total	443	408.2770			
Q56M Restaurants and cafeterias	Between Groups	5	10.2166	2.0433	2 4035	.0362*
	Within Groups	454	385.9660	.8501		
	Total	459	396.1826			
Q63M Reasonable pricing	Between Groups	5	18.2255	3.6451	3.9572	.0016*
	Within Groups	439	404.3723	.9211		
	Total	444	422.5978			
Q55M Accommodation facilities	Between Groups	5	10.5356	2.1071	2.5685	.0263*
	Within Groups	449	368.3523	.8204		
	Total	454	378.8879			
Q67M General information	Between Groups	5	6.9148	1.3830	1.4584	.2023
	Within Groups	430	407 7526	.9483		
	Total	435	414.6674			

Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	5	3.5786	.7157	.9173	.4695
	Within Groups	436	340.1861	.7802		
	Total	441	343.7647			
Q73M Treatment by Mutawifeen staff	Between Groups	5	12.7172	2.5434	2.6502	.0225*
	Within Groups	417	400.1954	.9597		
	Total	422	412.9125			
Q70M Treatment by officials	Between Groups	5	9.9063	1.9813	2.7746	.0176*
	Within Groups	434	309.9096	7141		
	Total	439	319.8159			
Q71M Treatment by policemen	Between Groups	5	4.7556	.9511	1.4058	.2209
	Within Groups	438	296.3502	.6766		.
	Total	443	301.1059			
Q74M Information/historical places	Between Groups	5	5.5565	1.1113	1.3131	.2573
	Within Groups	429	363.0550	.8463		
	Total	434	368.6115			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	5	.7616	.1523	.2770	.9257
	Within Groups	443	243.6392	.5500		
	Total	448	244.4009			
Q65M Cleanliness of sites	Between Groups	5	4.8595	.9719	1.8336	.1049
	Within Groups	444	235.3383	.5300		
	Total	449	240.1978			
Q60M Public telephones	Between Groups	5	5.9781	1 1956	1.9120	0910
	Within Groups	444	277.6419	.6253		
	Total	449	283.6200			
Q61M Postal services	Between Groups	5	5.7613	1.1523	1.7120	.1305
	Within Groups	438	294.7973	.6731		
	Total	443	300.5586			
Q66M Signposting	Between Groups	5	3.7918	.7584	1.6319	.1501
	Within Groups	445	206.7980	.4647		
	Total	450	210.5898			
Q68M Guiding services	Between Groups	5	5.8985	1.1797	1.8072	.1101
	Within Groups	440	287.2226	.6528		
	Total	445	293.1211			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	5	9.6039	1.9208	1.7260	.1273
	Within Groups	434	482.9756	1.1128		
	Total	439	492.5795			
Q75M Parks & recreational facilities	Between Groups	5	21.9443	4.3889	2.4542	.0330*
	Within Groups	414	740.3676	1.7883		
	Total	419	762.3119			
Q76M Money exchanging facilities	Between Groups	5	3.4255	.6851	1.0880	.3663
	Within Groups	434	273.2927	.6297		
	Total	439	276.7182			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23

Table D 6:

Significant Results of ANOVA Tests Based on HFS-Makkah and Pilgrims' Age

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q45M Fewer traffic jams	Grp 1	46	4.5435	.7213	.1064	2 4062	.0360*
	Grp 2	125	4.2480	1.0291	.0920		
	Grp 3	144	4.4028	.7509	.0626		
	Grp 4	65	4.2000	.9715	.1205		
	Grp 5	56	4.0893	.9587	.1281		
	Grp 6	28	4.0357	.8381	.1584		
Q47 Travelling. Makkah - Mina,Arafat	Grp 1	45	4.5778	.6567	.0979	3.3904	.0051*
	Grp 2	123	4.4797	7825	0706		
	Grp 3	144	4.3681	.9368	.0781		
	Grp 4	65	4.0615	.9334	.1158		
	Grp 5	55	4.2727	9898	1335		
	Grp 6	27	4.0000	1.1094	.2135		
Q44M Public transportation	Grp 1	46	4.4130	.9328	.1375	4.1942	.0010*
	Grp 2	126	4.4048	.9049	.0806		
	Grp 3	144	4.4861	7289	.0607		
	Grp 4	65	4.0615	.9981	.1238		
	Grp 5	56	4.0536	.9228	.1233		
	Grp 6	28	4 0357	.8381	.1584		
Q59M Toilet facilities	Grp 1	45	4.6667	.7687	.1146	3.8260	.0021*
	Grp 2	121	4.6281	.7318	0665		
	Grp 3	142	4.6620	.6619	.0555		
	Grp 4	64	4.2656	.9959	1245		
	Grp 5	55	4.4364	.8769	.1182		
	Grp 6	27	4.2222	.933?	1797		

Q46M Pilgrims' movements	Grp 1	46	4.1957	1.1666	.1720	2.8383	.0155*
	Grp 2	123	4.6260	.7830	.0706		
	Grp 3	144	4.5208	.7383	.0615		
	Grp 4	64	4.2656	1.0426	.1303		
	Grp 5	55	4.3455	.9273	.1250		
	Grp 6	27	4.2963	.8689	.1672		
Q62M Shopping facilities	Grp 1	44	4.5682	6954	1048	5.6858	0000*
	Grp 2	118	4.4492	.9572	.0881		
	Grp 3	140	4 5143	.7726	0653		
	Grp 4	63	3.8730	1.2114	1526		
	Grp 5	53	4.1509	.9883	1358		
	Grp 6	26	4.1154	1.1073	2172		
Q56M Restaurants and cafeterias	Grp 1	46	4.4130	.9563	.1410	2.4035	.0362*
	Grp 2	125	4.4240	.9526	.0852		
	Grp 3	143	4.5245	.8378	.0701		
	Grp 4	64	4.0781	.9808	.1226		
	Grp 5	55	4.2909	.9364	.1263		
	Grp 6	27	4.2222	.9740	.1875		
Q63M Inexpensive pricing	Grp 1	45	4.3111	.9250	.1379	3 9572	0016*
	Grp 2	117	4.3248	.8986	.0831		
	Grp 3	141	4.3475	.8863	.0746		
	Grp 4	63	3.9841	1.0548	.1329		
	Grp 5	53	3.8679	1.0926	.1501		
	Grp 6	26	3.8077	1.1321	.2220		
Q55M Accommodation facilities	Grp 1	43	4.4651	.9089	.1386	2.5685	0263*
	Grp 2	121	4.3388	.9535	.0867		
	Grp 3	144	4.5278	.7928	.0661		
	Grp 4	65	4.1077	.9862	.1223		
	Grp 5	55	4.3091	.9204	.1241		
	Grp 6	27	4.1111	1.0127	.1949		
Q73M Treatment by Mutawifeen staffs	Grp 1	39	4.2821	.9162	.1467	2.6502	.0225*
	Grp 2	106	4.3962	.9530	.0926		
	Grp 3	135	4.3630	.8945	.0770		
	Grp 4	62	3.9839	1.0938	.1389		
	Grp 5	54	4.2222	1.0581	.1440		
	Grp 6	27	3.8519	1.1335	.2181		
Q70M Treatment by Officials	Grp 1	45	4.7333	.4472	.0667	2.7746	.0176*
	Grp 2	114	4.4474	.8834	.0827		
	Grp 3	139	4.4676	.8280	.0702		
	Grp 4	62	4.1452	.9382	.1192		
	Grp 5	53	4.3396	.8975	.1233		
	Grp 6	27	4.4815	.9352	.1800		
Q75M Parks & recreational facilities	Grp 1	39	3.7949	1.5420	.2469	2.4542	.0330*
	Grp 2	107	3.6822	1.5022	.1452		
	Grp 3	134	4.0299	1.2740	.1101		
	Grp 4	62	4.0484	1.2858	.1633		
	Grp 5	52	4.4231	.8482	.1176		
	Grp 6	26	3.8462	1.5151	.2971		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

Table D 7:

ANOVA Results For Testing HFS-Makkah By Number of Previous Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups	2	2.5133	1.2566	1.5547	.2124
	Within Groups	461	372.6225	8083		
	Total	463	375.1358			
Q52. Movement in Sa'e	Between Groups	2	2.3155	1.1577	1.2368	.2913
	Within Groups	456	426 8654	.9361		
	Total	458	429.1808			
Q51 Movement in Tawaf	Between Groups	2	1.1859	.5930	.6263	.5350
	Within Groups	456	431.7204	.9468		
	Total	458	432.9063			
Q47 Travelling to Mina & Arafat	Between Groups	2	1.5756	.7878	.9664	.3812
	Within Groups	456	371.7229	.8152		
	Total	458	373.2985			
Q44M Public transportation	Between Groups	2	.9951	.4976	.6274	.5345
	Within Groups	462	366.4113	.7931		
	Total	464	367.4065			
Q54M Car parking facilities	Between Groups	2	5.0760	2.5380	3.3931	.0345*
	Within Groups	454	339.5848	.7480		
	Total	456	344.6608			
Q59M Toilet facilities	Between Groups	2	.4760	.2380	.3699	.6910
	Within Groups	451	290.2288	.6435		
	Total	453	290.7048			
Q58M Public drinking water	Between Groups	2	4.3331	2.1665	2.8096	.0613
	Within Groups	450	346.9959	.7711		
	Total	452	351.3289			

Q46M Pilgrims' movements	Between Groups	2	4.4696	2.2348	2.8539	.0586
	Within Groups	456	357.0772	.7831		
	Total	458	361.5468			
Q57M inexpensive foods	Between Groups	2	3.6979	1.8489	1.9488	.1436
	Within Groups	452	428.8384	.9488		
	Total	454	432.5363			
Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups	2	1.8291	9146	9972	3697
	Within Groups	441	404.4479	.9171		
	Total	443	406.2770			
Q56M Restaurants and cafeterias	Between Groups	2	2.1133	1.0567	1.2270	.2941
	Within Groups	457	393.5736	.8612		
	Total	459	395.6870			
Q63M Reasonable pricing	Between Groups	2	8.5823	4.2911	4.6016	.0105*
	Within Groups	442	412.1818	.9325		
	Total	444	420.7640			
Q55M Accommodation facilities	Between Groups	2	1.8762	.9381	1.1145	3290
	Within Groups	452	380.4447	.8417		
	Total	454	382.3209			
Q67M General information	Between Groups	2	.6928	.3464	.3663	.6935
	Within Groups	433	409.4999	.9457		
	Total	435	410 1927			
Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	2	.6928	.3464	.3663	.6935
	Within Groups	433	409.4999	.9457		
	Total	435	410.1927			
Q73M Treatment by Mutawifeen staff	Between Groups	2	6564	3282	3308	7185
	Within Groups	419	415.7133	9922		
	Total	421	416.3697			
Q70M Treatment by officials	Between Groups	2	1.2441	.6221	.8645	.4220
	Within Groups	437	314.4286	.7195		
	Total	439	315.6727			
Q71M Treatment by policemen	Between Groups	2	2.8210	1.4105	2.0873	.1252
	Within Groups	441	298.0146	.6758		
	Total	443	300.8356			
Q74M Information/historical places	Between Groups	2	1.8224	.9112	1.0640	.3460
	Within Groups	432	369.9477	.8564		
	Total	434	371.7701			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	2	3.1643	1.5822	3.0114	.0502
	Within Groups	446	234.3279	.5254		
	Total	448	237.4922			
Q65M Cleanliness of sites	Between Groups	2	1.1957	.5979	1.1589	.3148
	Within Groups	447	230.6020	.5159		
	Total	449	231.7978			
Q60M Public telephones	Between Groups	2	1.1119	5560	.9204	3991
	Within Groups	447	270.0081	.6040		
	Total	449	271 1200			
Q61M Postal services	Between Groups	2	.7066	.3533	.5197	.5950
	Within Groups	441	299.7866	.6798		
	Total	443	300.4932			
Q66M Signposting	Between Groups	2	.8170	.4085	.9331	.3941
	Within Groups	448	196.1320	.4378		
	Total	450	196.9490			
Q68M Guiding services	Between Groups	2	2.5318	1.2659	1.9407	1448
	Within Groups	442	288.3087	.6523		
	Total	444	290.8404			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	2	.4277	.2138	.1903	8269
	Within Groups	438	492.1891	1.1237		
	Total	440	492.6168			
Q75M Parks & recreational facilities	Between Groups	2	11 4418	5.7209	3 2107	0413*
	Within Groups	417	743 0225	1.7818		
	Total	419	754.4643			
Q76M Money exchanging facilities	Between Groups	2	1.0936	5468	8949	4094
	Within Groups	438	267.6185	.6110		
	Total	440	268.7120			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 8:

Significant Results of ANOVA Tests Based on HFS-Makkah and Number of Previous Hajj

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54M Car parking facilities	Grp 1 Grp 2 Grp 3	234 81 142	4.5128 4.2716 4.3239	.8142 .9356 .9035	.0532 .1040 .0758	3.3931	.0345*
Q63M Reasonable pricing	Grp 1 Grp 2 Grp 3	228 80 137	4.0789 4.1625 4.3942	.9858 .9993 .9104	.0653 .1117 .0778	4.6016	.0105*

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = none, Grp 2 = one time, Grp 3 = more than once.

Table D 9:

ANOVA Results for Testing HFS-Makkah By the Pilgrims' Educational level

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups Within Groups Total	4 458 462	2.7464 372.9641 375.7106	.6866 .8143	.8432	.4983
Q52 Movement in Sa'e	Between Groups Within Groups Total	4 453 457	6.7233 421.9426 428.6659	1.6808 .9314	1.8045	1268
Q51 Movement in Tawaf	Between Groups Within Groups Total	4 453 457	2.8066 431.2130 434.0197	.7017 .9519	.7371	5670
Q47 Travelling to Mina & Arafat	Between Groups Within Groups Total	4 453 457	2.6978 372.8568 375.5546	.6744 .8231	.8194	.5132
Q44M Public transportation	Between Groups Within Groups Total	4 459 463	6.1037 360.4394 366.5431	1.5259 .7853	1.9432	.1022
Q54M Car parking facilities	Between Groups Within Groups Total	4 451 455	4.0783 341.6761 345.7544	1.0196 .7576	1.3458	.2520
Q59M Toilet facilities	Between Groups Within Groups Total	4 448 452	.6735 291.9755 292.6490	.1684 .6517	.2583	.9045
Q58M Public drinking water	Between Groups Within Groups Total	4 447 451	.4582 356.1325 356.5907	.1145 .7967	1438	.9657
Q46M Pilgrims' movements	Between Groups Within Groups Total	4 453 457	1.0384 358.0970 359.1354	.2596 7905	3284	8589
Q57M inexpensive foods	Between Groups Within Groups Total	4 449 453	3.9899 429 2106 433.2004	.9975 .9559	1 0435	3843
Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups Within Groups Total	4 438 442	3.1159 407.7690 410.8849	.7790 .9310	.8367	.5023
Q56M Restaurants and cafeterias	Between Groups Within Groups Total	4 454 458	1.8100 398.6998 400.5098	.4525 .8782	.5153	.7246
Q63M Reasonable pricing	Between Groups Within Groups Total	4 439 443	4.3005 419.8076 424.1081	1.0751 .9563	1.1243	.3444
Q55M Accommodation facilities	Between Groups Within Groups Total	4 449 453	3.1378 380.4745 383 6123	.7844 .8474	.9257	.4487
Q67M General information	Between Groups Within Groups Total	4 430 434	3 1633 411 9999 415 1632	7908 9581	8254	5095

Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	4	5.7913	1.4478	1.8446	.1193
	Within Groups	436	342.2087	.7849		
	Total	440	348.0000			
Q73M Treatment by Mutawifeen staff	Between Groups	4	6.1657	1.5414	1.5615	.1837
	Within Groups	416	410.6467	.9871		
	Total	420	416.8124			
Q70M Treatment by officials	Between Groups	4	5.2976	1.3244	1.8214	.1237
	Within Groups	434	315.5817	.7271		
	Total	438	320.8793			
Q71M Treatment by policemen	Between Groups	4	1.6600	.4150	5968	.6651
	Within Groups	438	304.5567	.6953		
	Total	442	306.2167			
Q74M Information/historical places	Between Groups	4	4.6219	1.1555	1.3517	.2500
	Within Groups	429	366.7330	.8549		
	Total	433	371.3548			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	4	3.0380	.7595	1.4755	2086
	Within Groups	443	228.0245	.5147		
	Total	447	231.0625			
Q65M Cleanliness of sites	Between Groups	4	.5892	.1473	.2657	.9000
	Within Groups	444	246.1858	.5545		
	Total	448	246.7751			
Q60M Public telephones	Between Groups	4	1.2470	.3118	.4865	.7456
	Within Groups	444	284.5035	.6408		
	Total	448	285.7506			
Q61M Postal services	Between Groups	4	1.4261	.3565	.5224	.7193
	Within Groups	438	298.9125	.6824		
	Total	442	300.3386			
Q66M Signposting	Between Groups	4	2.0610	.5152	1.0855	.3631
	Within Groups	445	211.2302	.4747		
	Total	449	213.2911			
Q68M Guiding services	Between Groups	4	2.9314	.7328	1.1183	.3472
	Within Groups	439	287.6880	.6553		
	Total	443	290.6194			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	4	3.9113	.9778	.8573	.4896
	Within Groups	435	496.1773	1.1406		
	Total	439	500.0886			
Q75M Parks & recreational facilities	Between Groups	4	14.9123	3.7281	2.0931	.0809
	Within Groups	414	737.3979	1.7812		
	Total	418	752.3103			
Q76M Money exchanging facilities	Between Groups	4	2.3462	.5865	.9362	.4427
	Within Groups	435	272.5424	.6265		
	Total	439	274.8886			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 10:

ANOVA Results for Testing HFS-Makkah By the Pilgrims' Accompanied Persons

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups	2	1.2144	.6072	.7345	.4803
	Within Groups	436	360.4348	.8267		
	Total	438	361.6492			
Q52 Movement in Sa'e	Between Groups	2	3.6011	1.8006	1.9238	.1473
	Within Groups	431	403.3966	.9360		
	Total	433	406.9977			
Q51 Movement in Tawaf	Between Groups	2	3.0359	1.5179	1.6066	.2018
	Within Groups	431	407.2060	.9448		
	Total	433	410.2419			
Q47 Travelling to Mina & Arafat	Between Groups	2	2.2327	1.1163	1.3598	2578
	Within Groups	432	354.6547	.8210		
	Total	434	356.8874			
Q44M Public transportation	Between Groups	2	1.2438	.6219	7722	4626
	Within Groups	437	351.9471	.8054		
	Total	439	353.1909			
Q54M Car parking facilities	Between Groups	2	.3740	.1870	.2450	.7828
	Within Groups	431	328.9716	.7633		
	Total	433	329.3456			
Q59M Toilet facilities	Between Groups	2	.8353	.4177	.6223	.5372
	Within Groups	426	285.9246	.6712		
	Total	428	286.7599			
Q58M Public drinking water	Between Groups	2	2.2091	1.1046	1.3649	2565
	Within Groups	425	343.9287	8092		
	Total	427	346.1379			
Q46M Pilgrims' movements	Between Groups	2	.0740	.0370	.0454	9556
	Within Groups	431	350.9859	.8144		
	Total	433	351.0599			
Q57M Inexpensive foods	Between Groups	2	3.1526	1.5763	1 6564	1920
	Within Groups	427	406.3381	.9516		
	Total	429	409.4907			

Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups	2	1.4199	.7100	.7547	.4708
	Within Groups	419	394.1346	.9407		
	Total	421	395.5545			
Q56M Restaurants and cafeterias	Between Groups	2	.8475	.4238	.4968	.6088
	Within Groups	432	368.4950	.8530		
	Total	434	369.3425			
Q63M Reasonable pricing	Between Groups	2	2.3462	1.1731	1.2288	.2937
	Within Groups	418	399.0695	.9547		
	Total	420	401.4157			
Q55M Accommodation facilities	Between Groups	2	.4730	.2365	.2817	.7546
	Within Groups	432	362.6764	.8395		
	Total	434	363.1494			
Q67M General information	Between Groups	2	3.0079	1.5040	1.5645	.2104
	Within Groups	414	397.9753	.9613		
	Total	416	400.9832			
Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	2	.1861	.0930	.1141	.8922
	Within Groups	415	338.5029	.8157		
	Total	417	338.6890			
Q73M Treatment by Mutawifeen staff	Between Groups	2	2.8632	1.4316	1.4332	.2397
	Within Groups	404	403.5397	9989		
	Total	406	406.4029			
Q70M Treatment by officials	Between Groups	2	2.0315	1.0158	1.3568	.2586
	Within Groups	413	309.1896	.7486		
	Total	415	311.2212			
Q71M Treatment by policemen	Between Groups	2	1.3065	.6532	.9241	.3977
	Within Groups	417	294.7768	.7069		
	Total	419	296.0833			
Q74M Information/historical places	Between Groups	2	2.2871	1.1435	1.3125	.2703
	Within Groups	410	357.2335	.8713		
	Total	412	359.5206			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	2	.3380	.1690	.2975	.7428
	Within Groups	421	239.1714	.5681		
	Total	423	239.5094			
Q65M Cleanliness of sites	Between Groups	2	.2343	.1171	.2231	.8001
	Within Groups	422	221.5634	.5250		
	Total	424	221.7976			
Q60M Public telephones	Between Groups	2	.3444	.1722	.2830	.7537
	Within Groups	422	256.7709	6085		
	Total	424	257.1153			
Q61M Postal services	Between Groups	2	3.7690	1.8845	2.7680	.0639
	Within Groups	419	285.2665	.6808		
	Total	421	289.0355			
Q66M Signposting	Between Groups	2	.0569	.0284	.0624	.9395
	Within Groups	423	192.6755	.4555		
	Total	425	192.7324			
Q68M Guiding services	Between Groups	2	3.4972	1.7486	2.5808	.0769
	Within Groups	419	283.8867	.6775		
	Total	421	287 3839			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	2	3.9631	1.9815	1 7730	.1711
	Within Groups	413	461.5754	1.1176		
	Total	415	465 5385		-	
Q75M Parks & recreational facilities	Between Groups	2	15.7542	7.8771	4 4819	119
	Within Groups	402	706.5322	1.7575		
	Total	404	722.2864			
Q76M Money exchanging facilities	Between Groups	2	.3760	.1880	.3073	.7356
	Within Groups	413	252.6793	.6118		
	Total	415	253.0553			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 11:

ANOVA Results for Testing HFS-Makkah By the Way Pilgrims Managed Their Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups	2	6489	3244	4230	6554
	Within Groups	385	295.2893	.7670		
	Total	387	295.9381			
Q52 Movement in Sa'e	Between Groups	2	.9831	.4916	.5232	5930
	Within Groups	380	356.9960	.9395		
	Total	382	357.9791			
Q51 Movement in Tawaf	Between Groups	2	3.4980	1.7490	1.8920	.1522
	Within Groups	380	351.2749	.9244		
	Total	382	354.7728			
Q47 Travelling to Mina & Arafat	Between Groups	2	5.6889	2.8445	3.6370	.0272*
	Within Groups	381	297.9751	.7821		
	Total	383	303.6641			
Q44M Public transportation	Between Groups	2	6.0980	3.0490	4.3414	0137*
	Within Groups	386	271.0896	.7023		
	Total	388	277.1877			

Q54M Car parking facilities	Between Groups	2	.5764	.2882	.3959	.6733
	Within Groups	379	275.8974	.7280		
	Total	381	276.4738			
Q59M Toilet facilities	Between Groups	2	1.8452	.9226	1.4549	.2347
	Within Groups	375	237.7976	.6341		
	Total	377	239.6429			
Q58M Public drinking water	Between Groups	2	8.1557	4.0778	5.5485	.0042*
	Within Groups	374	274.8682	.7349		
	Total	376	283.0239			
Q46M Pilgrims' movements	Between Groups	2	.0194	.0097	.0127	.9874
	Within Groups	381	290.7202	.7630		
	Total	383	290.7396			
Q57M inexpensive foods	Between Groups	2	1.3640	.6820	.7405	.4776
	Within Groups	377	347.2123	.9210		
	Total	379	348.5763			
Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups	2	5.3255	2.6628	3.0828	.0470*
	Within Groups	367	316.9988	.8638		
	Total	369	322.3243			
Q56M Restaurants and cafeterias	Between Groups	2	7.5200	3.7600	4.6562	.0100*
	Within Groups	381	307.6649	.8075		
	Total	383	315.1849			
Q63M Reasonable pricing	Between Groups	2	14.7838	7.3919	7.8553	.0005*
	Within Groups	367	345.3487	.9410		
	Total	369	360.1324			
Q55M Accommodation facilities	Between Groups	2	2.7062	1.3531	1.6879	.1863
	Within Groups	378	303.0313	.8017		
	Total	380	305.7375			
Q67M General information	Between Groups	2	2.0164	1.0082	1.1017	.3334
	Within Groups	359	328.5250	.9151		
	Total	361	330.5414			
Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	2	.7055	3527	.4645	6288
	Within Groups	365	277.1831	.7594		
	Total	367	277.8886			
Q73M Treatment by Mutawifeen staff	Between Groups	2	1.1470	.5735	.5764	.5624
	Within Groups	349	347.2138	.9949		
	Total	351	348.3608			
Q70M Treatment by officials	Between Groups	2	2.6268	1.3134	2.0012	.1367
	Within Groups	362	237.5814	.6563		
	Total	364	240.2082			
Q71M Treatment by policemen	Between Groups	2	1.9365	.9682	1.4103	2454
	Within Groups	367	251.9662	.6866		
	Total	369	253.9027			
Q74M Information/historical places	Between Groups	2	3.9706	1.9853	2.4632	.0866
	Within Groups	358	288.5447	.8060		
	Total	360	292.5152			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	2	.4998	.2499	.4705	.6250
	Within Groups	371	197.0510	.5311		
	Total	373	197.5508			
Q65M Cleanliness of sites	Between Groups	2	.6417	.3208	.6637	5156
	Within Groups	372	179.8277	4834		
	Total	374	180.4693			
Q60M Public telephones	Between Groups	2	1.1573	5787	1.1547	3163
	Within Groups	371	185.9229	.5011		
	Total	373	187.0802			
Q61M Postal services	Between Groups	2	2.5047	1.2523	1.9752	.1402
	Within Groups	367	232.6872	.6340		
	Total	369	235.1919			
Q66M Signposting	Between Groups	2	.0099	.0050	.0125	.9875
	Within Groups	373	147.8597	.3964		
	Total	375	147.8697			
Q68M Guiding services	Between Groups	2	.9623	.4811	7457	.4751
	Within Groups	368	237.4313	6452		
	Total	370	238.3935			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	2	6.2221	3.1111	2.8235	.0607
	Within Groups	367	404.3752	1.1018		
	Total	369	410.5973			
Q75M Parks & recreational facilities	Between Groups	2	8.3834	4.1917	2.4324	.0893
	Within Groups	349	601.4348	1.7233		
	Total	351	609.8182			
Q76M Money exchanging facilities	Between Groups	2	.3291	.1645	.2911	.7476
	Within Groups	367	207.4034	.5651		
	Total	369	207.7324			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 12:

Significant Results of ANOVA Tests Based on HFS-Makkah and the Way Pilgrims Managed their Hajj

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q47 Travelling. Makkah - Mina, Arafat	Grp 1 Grp 2 Grp 3	117 256 11	4.5043 4.2500 4.5455	.7946 .9075 1.2136	.0735 .0567 .3659	3.6370	.0272*
Q44M Public transportation	Grp 1 Grp 2 Grp 3	120 258 11	4.4833 4.2364 4.6364	.7884 .8656 .6742	0720 .0539 .2033	4.3414	.0137*
Q58M Public drinking water	Grp 1 Grp 2 Grp 3	116 250 11	4.6121 4.3440 4.9091	.7315 .9236 .3015	.0679 .0584 .0909	5.5485	.0042*
Q62M Shopping facilities	Grp 1 Grp 2 Grp 3	112 247 11	4.4911 4.2713 4.7273	.9104 .9517 .4671	.0860 .0606 1408	3.0828	.0470*
Q56M Restaurants and cafeterias	Grp 1 Grp 2 Grp 3	118 255 11	4.5678 4 2902 4.7273	.7451 .9731 .4671	0686 .0609 .1408	4.6562	.0100*
Q63M Reasonable pricing	Grp 1 Grp 2 Grp 3	113 246 11	4.4336 4.0488 4.7273	.8004 1.0525 .4671	.0753 .0671 .1408	7.8553	.0005*

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

Table D 13:

ANOVA Results for Testing HFS-Makkah By the Pilgrims' Anual income

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups Within Groups Total	4 380 384	5.9321 237.7718 243.7039	1.4830 6257	2.3701	.0521
Q52 Movement in Sa'e	Between Groups Within Groups Total	4 375 379	5.0717 343.7993 348.8711	1.2679 .9168	1.3830	.2392
Q51 Movement in Tawaf	Between Groups Within Groups Total	4 375 379	5.0599 342.2980 347.3579	1.2650 .9128	1.3858	.2382
Q47 Travelling to Mina & Arafat	Between Groups Within Groups Total	4 375 379	3.5490 277.1326 280.6816	.8872 .7390	1.2006	.3101
Q44M Public transportation	Between Groups Within Groups Total	4 380 384	1.1507 276.2935 277.4442	.2877 .7271	.3957	8118
Q54M Car parking facilities	Between Groups Within Groups Total	4 374 378	2.9031 278.7064 281.6095	.7258 .7452	.9739	.4217
Q59M Toilet facilities	Between Groups Within Groups Total	4 375 379	.4951 227.1128 227.6079	.1238 .6056	.2044	.9359
Q58M Public drinking water	Between Groups Within Groups Total	4 375 379	8155 274 7924 275 6079	2039 .7328	.2782	8920
Q46M Pilgrims' movements	Between Groups Within Groups Total	4 377 381	8396 291.9039 292.7435	.2099 7743	2711	8965
Q57M inexpensive foods	Between Groups Within Groups Total	4 376 380	.3655 343.1200 343.4856	.0914 .9126	.1001	.9824
Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups Within Groups Total	4 367 371	.9237 318.7188 319.6425	.2309 .8684	.2659	.8998
Q56M Restaurants and cafeterias	Between Groups Within Groups Total	4 377 381	2.1979 341.0927 343.2906	.5495 .9048	.6073	6576
Q63M Reasonable pricing	Between Groups Within Groups Total	4 368 372	2.6870 326.7982 329.4853	.6718 .8880	.7564	.5542

Q55M Accommodation facilities	Between Groups	4	3.3218	.8305	1.0243	.3946
	Within Groups	372	301.6171	.8108		
	Total	376	304.9390			
Q67M General information	Between Groups	4	4.0939	1.0235	1.1719	.3228
	Within Groups	361	315.2749	.8733		
	Total	365	319.3689			
Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	4	3.6686	.9172	1.1959	.3122
	Within Groups	367	281.4496	.7669		
	Total	371	285.1183			
Q73M Treatment by Mutawifeen staff	Between Groups	4	3.0964	.7741	.8056	5222
	Within Groups	348	334.3880	.9609		
	Total	352	337.4844			
Q70M Treatment by officials	Between Groups	4	1.5576	.3894	.5948	.6666
	Within Groups	365	238.9721	6547		
	Total	369	240 5297			
Q71M Treatment by policemen	Between Groups	4	4 0133	1.0033	1.5251	1942
	Within Groups	369	242.7487	.6579		
	Total	373	246.7620			
Q74M Information/historical places	Between Groups	4	3.1822	.7956	1.0548	.3788
	Within Groups	361	272.2822	.7542		
	Total	365	275.4645			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	4	1.5334	.3833	.8050	.5226
	Within Groups	373	177.6306	.4762		
	Total	377	179.1640			
Q65M Cleanliness of sites	Between Groups	4	3.4973	.8743	1.6879	.1521
	Within Groups	374	193.7375	.5180		
	Total	378	197.2348			
Q60M Public telephones	Between Groups	4	3.4329	.8582	1.5816	.1785
	Within Groups	373	202.4005	.5426		
	Total	377	205.8333			
Q61M Postal services	Between Groups	4	2.1363	.5341	8639	4857
	Within Groups	368	227.5045	.6182		
	Total	372	229.6408			
Q66M Signposting	Between Groups	4	2.2510	.5628	1.3474	.2518
	Within Groups	375	156.6200	.4177		
	Total	379	158.8711			
Q68M Guiding services	Between Groups	4	.8701	.2175	.3338	8552
	Within Groups	369	240.4588	.6516		
	Total	373	241.3289			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	4	2.2265	.5566	.4714	.7567
	Within Groups	368	434.5242	1.1808		
	Total	372	436.7507			
Q75M Parks & recreational facilities	Between Groups	4	6.0413	1.5103	.8484	.4953
	Within Groups	347	617.7058	1.7801		
	Total	351	623.7472			
Q76M Money exchanging facilities	Between Groups	4	4.2764	1.0691	1.7397	.1406
	Within Groups	368	226.1419	.6145		
	Total	372	230.4182			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 13* : ANOVA Results for Testing HFS-Makkah By Travelling Experience

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups	2	.6004	.3002	.3556	7010
	Within Groups	415	350 3087	8441		
	Total	417	350.9091			
Q52 Movement in Sa'e	Between Groups	2	4.6807	2.3404	2.4402	.0884
	Within Groups	411	394.1888	.9591		
	Total	413	398.8696			
Q51 Movement in Tawaf	Between Groups	2	2.6442	1.3221	1.3739	.2543
	Within Groups	411	395.5128	.9623		
	Total	413	398.1570			
Q47 Travelling to Mina & Arafat	Between Groups	2	1.6760	.8380	.9806	.3760
	Within Groups	412	352.0686	.8545		
	Total	414	353.7446			
Q44M Public transportation	Between Groups	2	.4096	2048	2465	7817
	Within Groups	416	345.6477	8309		
	Total	418	346.0573			
Q54M Car parking facilities	Between Groups	2	5.6361	2.8180	3.6077	.0280*
	Within Groups	409	319.4804	.7811		
	Total	411	325.1165			
Q59M Toilet facilities	Between Groups	2	4.6794	2.3397	3.4992	0311*
	Within Groups	406	271.4673	.6686		
	Total	408	276.1467			
Q58M Public drinking water	Between Groups	2	.2107	.1054	.1264	.8813
	Within Groups	404	336.7819	.8336		
	Total	406	336.9926			
Q46M Pilgrims' movements	Between Groups	2	3.2855	1.6428	1.9702	1407
	Within Groups	410	341 8573	8338		
	Total	412	345 1429			

Q57M inexpensive foods	Between Groups	2	5.5251	2.7626	2.9605	.0529
	Within Groups	406	378.8514	.9331		
	Total	408	384.3765			
Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups	2	7.8496	3.9248	4.0766	.0177*
	Within Groups	396	381.2532	.9628		
	Total	398	389.1028			
Q56M Restaurants and cafeterias	Between Groups	2	1.6886	.8443	.9149	.4014
	Within Groups	411	379.2897	.9228		
	Total	413	380.9783			
Q63M Reasonable pricing	Between Groups	2	10.3109	5.1554	5.3214	0052*
	Within Groups	396	383.6490	.9688		
	Total	398	393.9599			
Q55M Accommodation facilities	Between Groups	2	3.6272	1.8136	2.0721	.1272
	Within Groups	407	356.2289	.8753		
	Total	409	359 8561			
Q67M General information	Between Groups	2	12.4942	6.2471	6 4242	0018*
	Within Groups	390	379.2463	9724		
	Total	392	391.7405			
Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	2	5.7943	2.8972	3.5530	.0296*
	Within Groups	393	320.4557	.8154		
	Total	395	326.2500			
Q73M Treatment by Mutawifeen staff	Between Groups	2	12.8490	6.4245	6.4241	.0018*
	Within Groups	381	381.0234	1.0001		
	Total	383	393.8724			
Q70M Treatment by officials	Between Groups	2	5.6000	2.8000	3.6963	.0257*
	Within Groups	392	296.9469	.7575		
	Total	394	302.5468			
Q71M Treatment by policemen	Between Groups	2	4.0039	2.0019	2.8034	.0618
	Within Groups	396	282.7831	.7141		
	Total	398	286.7870			
Q74M Information/historical places	Between Groups	2	2.1412	1.0706	1.2309	.2932
	Within Groups	386	335.7405	.8698		
	Total	388	337.8817			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	2	3.9725	1.9862	3.6637	.0265*
	Within Groups	400	216.8563	.5421		
	Total	402	220.8288			
Q65M Cleanliness of sites	Between Groups	2	.6613	.3306	.5970	5510
	Within Groups	401	222.1110	.5539		
	Total	403	222.7723			
Q60M Public telephones	Between Groups	2	1.8835	.9417	1.5565	.2121
	Within Groups	402	243.2178	.6050		
	Total	404	245.1012			
Q61M Postal services	Between Groups	2	1.2186	.6093	.8819	.4148
	Within Groups	398	274.9809	.6909		
	Total	400	276.1995			
Q66M Signposting	Between Groups	2	2.0869	1.0434	2.1867	1136
	Within Groups	402	191.8243	.4772		
	Total	404	193.9111			
Q68M Guiding services	Between Groups	2	.3683	.1841	.2680	.7650
	Within Groups	399	274.1218	.6870		
	Total	401	274.4900			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	2	.1426	.0713	.0634	.9385
	Within Groups	392	440.7333	1 1243		
	Total	394	440.8759			
Q75M Parks & recreational facilities	Between Groups	2	20.5752	10 2876	5 7261	0035*
	Within Groups	379	680.9117	1.7966		
	Total	381	701.4869			
Q76M Money exchanging facilities	Between Groups	2	2.9707	1 4854	2.3920	0928
	Within Groups	392	243 4242	.6210		
	Total	394	246.3949			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 14:

Significant Results of ANOVA Tests Based on HFS-Makkah and Travelling Experience

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54M Car parking facilities	Grp 1	51	4.5098	.7035	.0985	3.6077	0280*
	Grp 2	145	4.5310	.7733	.0642		
	Grp 3	216	4.2917	.9851	.0670		
Q59M Toilet facilities	Grp 1	50	4.6800	.7126	.1008		
	Grp 2	147	4.6054	.6678	.0551	3.4992	.0311*
	Grp 3	212	4.4151	.9274	.0637		
Q62M Shopping facilities	Grp 1	48	4.6042	.9394	.1356		
	Grp 2	142	4.3592	.9404	.0789	4.0766	.0177*
	Grp 3	209	4.1818	1.0169	.0703		

Q63M Reasonable pricing	Grp 1	48	4.5625	.7693	.1110		
	Grp 2	142	4.1056	.9203	.0772	5.3214	.0052*
	Grp 3	209	4.0526	1.0661	.0737		
Q67M General information	Grp 1	48	4.5833	.7945	.1147		
	Grp 2	140	4.3214	.8334	.0704	6.4242	.0018*
	Grp 3	205	4.0683	1.1137	.0778		
Q72M Treatment by local people	Grp 1	47	4.5745	.8784	.1281		
	Grp 2	140	4.1786	.8918	.0754	3.5530	.0296*
	Grp 3	209	4.2249	.9158	.0633		
Q73M Treatment by Mutawifeen staffs	Grp 1	47	4.5319	.8810	.1285		
	Grp 2	138	3.9710	1.0667	.0908	6.4241	.0018*
	Grp 3	199	4.2513	.9781	.0693		
Q70M Treatment by Officials	Grp 1	48	4.6458	.8377	.1209		
	Grp 2	138	4.4203	.7430	.0632	3.6963	.0257*
	Grp 3	209	4.2823	.9516	.0658		
Q64M Health services	Grp 1	48	4.5000	.9676	.1397		
	Grp 2	143	4.7692	.5266	.0440	3.6637	.0265*
	Grp 3	212	4.5849	.7953	.0546		
Q75M Parks & recreational facilities	Grp 1	46	4.1087	1.2513	.1845		
	Grp 2	137	4.2336	1.1263	.0962	5.7261	.0035*
	Grp 3	199	3.7437	1.4872	.1054		

*** significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02**
**** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside and out side his country**

Table D 15:

ANOVA Results for Testing HFS-Makkah By The Purpose for Coming in this Hajj Season

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Movements and basic facilities						
Q45M Fewer traffic jams	Between Groups	3	4.9344	1.6448	2.0687	.1037
	Within Groups	415	329.9582	.7951		
	Total	418	334.8926			
Q52 Movement in Sa'e	Between Groups	3	2.9115	.9705	1.0724	.3606
	Within Groups	410	371.0233	.9049		
	Total	413	373.9348			
Q51 Movement in Tawaf	Between Groups	3	1.1580	.3860	.4168	.7410
	Within Groups	410	379.7019	.9261		
	Total	413	380.8599			
Q47 Travelling to Mina & Arafat	Between Groups	3	2.8014	.9338	1.1236	.3392
	Within Groups	410	340.7469	.8311		
	Total	413	343.5483			
Q44M Public transportation	Between Groups	3	5.2423	1.7474	2.2648	.0804
	Within Groups	417	321.7410	.7716		
	Total	420	326.9834			
Q54M Car parking facilities	Between Groups	3	9.6275	3.2092	4.3612	.0049*
	Within Groups	408	300.2268	.7359		
	Total	411	309.8544			
Q59M Toilet facilities	Between Groups	3	4 9358	1 6453	2.6561	.0481*
	Within Groups	405	250 8686	.6194		
	Total	408	255.8044			
Q58M Public drinking water	Between Groups	3	4.8020	1.6007	2.1271	.0962
	Within Groups	404	304.0117	.7525		
	Total	407	308.8137			
Q46M Pilgrims' movements	Between Groups	3	1.2390	.4130	5510	6477
	Within Groups	411	308.0718	7496		
	Total	414	309.3108			
Q57M inexpensive foods	Between Groups	3	5.5081	1.8360	1.9715	.1176
	Within Groups	406	378.1041	.9313		
	Total	409	383.6122			
Factor 2: Hospitality facilities						
Q62M Shopping facilities	Between Groups	3	2.9570	.9857	1.0396	.3749
	Within Groups	395	374.5067	.9481		
	Total	398	377.4637			
Q56M Restaurants and cafeterias	Between Groups	3	2.2318	.7439	.8423	.4713
	Within Groups	411	362 9875	.8832		
	Total	414	365 2193			
Q63M Reasonable pricing	Between Groups	3	2.2870	7623	7824	.5043
	Within Groups	396	385.8730	.9744		
	Total	399	388 1600			
Q55M Accommodation facilities	Between Groups	3	2.8215	9405	1 1057	3466
	Within Groups	407	346.1761	.8506		
	Total	410	348.9976			
Q67M General information	Between Groups	3	3.2764	1.0921	1.1351	.3347
	Within Groups	387	372.3655	.9622		
	Total	390	375.6419			

Factor 3: Pilgrim Care						
Q72M Treatment by local people	Between Groups	3	3.9451	1.3150	1.6891	.1688
	Within Groups	394	306.7483	.7785		
	Total	397	310.6935			
Q73M Treatment by Mutawifeen staff	Between Groups	3	.7875	.2625	.2618	.8529
	Within Groups	375	375.9724	1.0026		
	Total	378	376.7599			
Q70M Treatment by officials	Between Groups	3	3.0374	1.0125	1.3640	.2534
	Within Groups	391	290.2386	.7423		
	Total	394	293.2759			
Q71M Treatment by policemen	Between Groups	3	5.0272	1.6757	2.5320	.0567
	Within Groups	396	262.0828	.6618		
	Total	399	267.1100			
Q74M Information/historical places	Between Groups	3	2.2263	.7421	.8418	.4716
	Within Groups	387	341.1701	.8816		
	Total	390	343.3964			
Factor 4: Health care and communication						
Q64M Health services	Between Groups	3	2.6340	.8780	1.6767	1714
	Within Groups	400	209.4551	.5236		
	Total	403	212.0891			
Q65M Cleanliness of sites	Between Groups	3	1.3442	.4481	.8852	4487
	Within Groups	401	202.9669	.5062		
	Total	404	204.3111			
Q60M Public telephones	Between Groups	3	1.1664	.3888	.6231	6004
	Within Groups	401	250.2163	.6240		
	Total	404	251.3827			
Q61M Postal services	Between Groups	3	2.3488	.7829	1.1684	.3215
	Within Groups	396	265.3487	.6701		
	Total	399	267.6975			
Q66M Signposting	Between Groups	3	.5950	.1983	.4392	.7251
	Within Groups	402	181.5331	.4516		
	Total	405	182.1281			
Q68M Guiding services	Between Groups	3	1.5058	.5019	.7631	.5153
	Within Groups	396	260.4542	.6577		
	Total	399	261.9600			
Factor 5: Miscellaneous						
Q77M Clothe washing facilities	Between Groups	3	2.9400	.9800	.8623	.4607
	Within Groups	392	445.4918	1.1365		
	Total	395	448.4318			
Q75M Parks & recreational facilities	Between Groups	3	2.1931	.7310	.4001	.7530
	Within Groups	372	679.7112	1.8272		
	Total	375	681.9043			
Q76M Money exchanging facilities	Between Groups	3	.1317	.0439	.0706	.9756
	Within Groups	392	243.5956	.6214		
	Total	395	243.7273			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.62

Table D 16:

Significant Results of ANOVA Tests Based on HFS-Makkah and the Purpose for Coming to this Hajj Season

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54M Car parking facilities	Grp 1	304	4.4539	.8431	.0484	4.3612	.0049*
	Grp 2	50	4.5800	.7309	.1034		
	Grp 3	14	4.1429	1.2924	.3454		
	Grp 4	44	4.0227	.9273	.1398		
Q59M Toilet facilities	Grp 1	303	4.5314	.8086	.0465		
	Grp 2	49	4.7347	.5313	.0759	2.6561	.0481*
	Grp 3	14	4 6429	.7449	.1991		
	Grp 4	43	4.2791	.8817	.1345		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.62
** Grp 1 = to perform Hajj only, Grp 2 = for Hajj and business, Grp 3 = for Hajj and official work, Grp 4 = for Hajj and to accompany a friend or a relative.

Table D 17:

ANOVA Results for Testing HFS-Arafat by the Pilgrims' Nationality

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	7	14.4588	2.0655	3.0097	.0042*
	Within Groups	440	301.9697	.6863		
	Total	447	316.4286			
Q70A Treatment by officials	Between Groups	7	17.0557	2.4365	3.1223	0032*
	Within Groups	437	341.0207	.7804		
	Total	444	358.0764			
Q72A Treatment by local people	Between Groups	7	19.3326	2.7618	2.9563	.0049*
	Within Groups	439	410.1216	.9342		
	Total	446	429.4541			
Q73A Treatment by Mutawifeen staff	Between Groups	7	46.0746	6.5821	6.6866	.0000*
	Within Groups	419	412.4500	.9844		
	Total	426	458.5246			
Q68A Guiding services	Between Groups	7	47.4719	6.7817	8.6724	.0000*
	Within Groups	438	342.5124	.7820		
	Total	445	389.9843			
Q65A Signposting	Between Groups	7	17.6340	2.5191	3.9914	.0003*
	Within Groups	446	281.4937	.6312		
	Total	453	299.1278			
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	7	21.9740	3.1391	3.6444	.0008*
	Within Groups	460	396.2225	.8614		
	Total	467	418.1966			
Q44A Public transportation	Between Groups	7	12.4480	1.7783	1.6291	.1250
	Within Groups	462	504.2946	1.0915		
	Total	469	516.7426			
Q48 Travelling to Arafat, Muzdalifah	Between Groups	7	62.5246	8.9321	8.9576	.0000*
	Within Groups	455	453.7043	.9972		
	Total	462	516.2289			
Q59A Toilet facilities	Between Groups	7	38.0448	5.4350	7.3361	.0000*
	Within Groups	452	334.8661	.7409		
	Total	459	372.9109			
Q46A Pilgrims' movements	Between Groups	7	20.0754	2.8679	3.5338	.0010*
	Within Groups	455	369.2594	.8116		
	Total	462	389.3348			
Q54A Car parking facilities	Between Groups	7	20.4901	2.9272	3.5673	.0010*
	Within Groups	452	370.8904	.8206		
	Total	459	391.3804			
Q58A Public drinking water	Between Groups	7	17.5055	2 5008	4.2546	.0001*
	Within Groups	450	264 5032	.5878		
	Total	457	282.0087			
Q55A Accommodation facilities	Between Groups	[illegible]	23.2384	3.3198	2.9769	.0046*
	Within Groups	451	502.9490	1.1152		
	Total	458	526.1874			
Q64A Health services	Between Groups	7	21.6797	3.0971	4.9050	.0000*
	Within Groups	442	279.0848	.6314		
	Total	449	300.7644			
Factor 3: Communication						
Q61A Postal services	Between Groups	7	127.8335	18.2619	10.4365	.0000*
	Within Groups	408	713.9261	1.7498		
	Total	415	841.7596			
Q60A Public telephones	Between Groups	7	110.8493	15.8356	10.9043	.0000*
	Within Groups	436	633.1755	1.4522		
	Total	443	744.0248			

* The differences among means are statistically significant since F Prob. < .05 and F Ratio > 2.03

Table D 18:

Significant Results of ANOVA Tests Based on HFS- Arafat and the Pilgrims' Nationality

Question Number / Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Factor 1: Caring and sanitation							
Q71A Treatment by policemen	Grp 1	49	4.3673	.9724	1389	3.0097	.0042*
	Grp 2	8	4.3750	.5175	.1830		
	Grp 3	15	4.4667	.7432	.1919		
	Grp 4	44	4.4318	1.0207	.1539		
	Grp 5	77	4.4805	.8677	.0989		
	Grp 6	108	4.6389	.5546	.0534		
	Grp 7	120	4.1500	.8663	.0791		
	Grp 8	27	4.4815	.9352	.1800		
Q70A Treatment by officials	Grp 1	48	4.3125	1.0946	.1580	3.1223	.0032*
	Grp 2	9	4.4444	.5270	.1757		
	Grp 3	15	4.4000	.7368	.1902		
	Grp 4	45	4.4222	1.0333	.1540		
	Grp 5	74	4.3514	1.0127	.1177		
	Grp 6	107	4.6355	.5729	.0554		
	Grp 7	120	4.1083	.9056	0827		
	Grp 8	27	4.5556	.8916	.1716		
Q72A Treatment by local people	Grp 1	49	4.1633	.9208	.1315	2.9563	.0049*
	Grp 2	8	4.1250	1.1260	.3981		
	Grp 3	15	4.4667	.7432	.1919		
	Grp 4	44	4.4545	.9512	.1434		
	Grp 5	76	3.9605	1.0256	.1176		
	Grp 6	108	4.4259	.8450	.0813		
	Grp 7	120	3.9917	1.0000	.0913		
	Grp 8	27	4.2963	1.2346	.2376		
Q73A Treatment by Mutawifeen staff	Grp 1	47	4.3191	1.0856	.1584	6.6866	.0000*
	Grp 2	8	3.7500	1.0351	.3660		
	Grp 3	15	4.4667	.6399	1652		
	Grp 4	44	4.4545	1.0445	.1575		
	Grp 5	60	3.4500	1.2812	.1654		
	Grp 6	107	4.4299	.6883	.0665		
	Grp 7	120	4.1167	.9717	.0887		
	Grp 8	26	4.1154	1.2434	.2439		
Q68A Guiding services	Grp 1	48	4.4375	.8482	.1224	8.6724	.0000*
	Grp 2	9	4.1111	1.0541	.3514		
	Grp 3	15	4.4000	.7368	.1902		
	Grp 4	45	4.5333	.9195	.1371		
	Grp 5	73	3.8493	1.1627	.1361		
	Grp 6	109	4.8716	.5460	.0523		
	Grp 7	120	4.4333	.8375	.0765		
	Grp 8	27	4.3333	1.2710	.2446		
Q65A Signposting	Grp 1	49	4.3469	1.0114	.1445	3.9914	.0003*
	Grp 2	10	4.0000	.8165	.2582		
	Grp 3	15	4 8667	.3519	0909		
	Grp 4	45	4.5333	.8686	.1295		
	Grp 5	80	4.3250	.7758	.0867		
	Grp 6	108	4.7500	.5317	.0512		
	Grp 7	120	4.3417	.8934	.0816		
	Grp 8	27	4.4444	8473	.1631		
Factor 2: Movements and basic facilities							
Q45A Fewer traffic jams	Grp 1	50	4.0200	1.1337	.1603	3.6444	.0008*
	Grp 2	20	3.7000	1.2607	.2819		
	Grp 3	16	4.3750	.7188	.1797		
	Grp 4	45	4.3333	1.0000	.1491		
	Grp 5	81	3.8889	1.0488	.1165		
	Grp 6	108	4.1759	.7341	.0706		
	Grp 7	121	4.4132	.7818	.0711		
	Grp 8	27	4 3704	1.1145	.2145		
Q48 Travelling to Arafat, Muzdalifah	Grp 1	51	4.1765	1 1438	1602	8.9576	.0000*
	Grp 2	17	3.7059	1.1048	.2680		
	Grp 3	16	3 6250	1 2042	.3010		
	Grp 4	45	4.0667	1.0954	.1633		
	Grp 5	79	3.4557	1.1745	.1321		
	Grp 6	108	4.5278	.5874	.0565		
	Grp 7	121	4.1736	1.0462	.0951		
	Grp 8	26	4.4231	.8566	.1680		

Q59A Toilet facilities	Grp 1	50	4.1000	1.2976	.1835	7.3361	.0000*
	Grp 2	13	4.7692	.4385	.1216		
	Grp 3	15	4.5333	.6399	.1652		
	Grp 4	45	4.4889	.9200	.1372		
	Grp 5	81	3.9877	1.0185	.1132		
	Grp 6	109	4.7982	.4671	.0447		
	Grp 7	120	4.4667	.7985	.0729		
	Grp 8	27	4.4444	.9740	.1875		
Q46A Pilgrims' movements	Grp 1	49	4.2449	1.0710	.1530	3.5338	.0010*
	Grp 2	19	3.6842	1.2043	.2763		
	Grp 3	16	4.7500	.4472	.1118		
	Grp 4	45	4.2667	1.0090	.1504		
	Grp 5	78	4.4487	.8474	.0960		
	Grp 6	109	4.6147	.6222	.0596		
	Grp 7	121	4.3140	.9223	.0838		
	Grp 8	26	4.2692	1.2824	.2515		
Q54A Car parking facilities	Grp 1	50	3.7600	1.2545	.1774	3.5673	.0010*
	Grp 2	16	4.0625	.6801	.1700		
	Grp 3	16	4.1250	8851	.2213		
	Grp 4	45	4.3556	1 0035	.1496		
	Grp 5	77	3.9870	.9247	.1054		
	Grp 6	109	4.3853	.7059	.0676		
	Grp 7	121	4.3223	.8584	.0780		
	Grp 8	26	4.3077	.9703	.1903		
Q58A Public drinking water	Grp 1	50	4.3000	1.1294	.1597	4.2546	0001*
	Grp 2	13	4.6154	.5064	.1404		
	Grp 3	15	4.4667	.6399	.1652		
	Grp 4	45	4.4444	1.0125	.1509		
	Grp 5	79	4.3418	.7988	.0899		
	Grp 6	109	4.8532	.3807	.0365		
	Grp 7	120	4.4917	.6610	.0603		
	Grp 8	27	4.5556	1.0860	.2090		
Q55A Accommodation facilities	Grp 1	51	3.6471	1.2779	.1789	2.9769	.0046*
	Grp 2	15	3.6000	1.4541	.3754		
	Grp 3	16	4.0625	1.1236	.2809		
	Grp 4	45	4.3778	.9603	.1432		
	Grp 5	75	3.8933	.9942	.1148		
	Grp 6	109	3.6697	1.0279	0985		
	Grp 7	121	4 0165	9218	.0838		
	Grp 8	27	4.0370	1.2855	.2474		
Q64A Health services	Grp 1	49	4.2653	1.0562	.1509	4.9050	0000*
	Grp 2	10	4.3000	.9487	.3000		
	Grp 3	15	4.6667	4880	.1260		
	Grp 4	45	4.3556	1.0693	.1594		
	Grp 5	75	4.4667	.9054	.1046		
	Grp 6	109	4.9174	.3633	.0348		
	Grp 7	120	4.6250	.7454	.0680		
	Grp 8	27	4.5185	.9352	.1800		
Factor 3: Communication							
Q61A Postal services	Grp 1	48	2.9375	1.3591	.1962	10.4365	.0000*
	Grp 2	11	1.3636	.5045	.1521		
	Grp 3	15	3.3333	1.6330	.4216		
	Grp 4	45	4.3556	9806	1462		
	Grp 5	42	2.9286	1.5987	.2467		
	Grp 6	108	2 9722	1.0630	.1023		
	Grp 7	120	2 6917	1.4655	.1338		
	Grp 8	27	3.2963	1.5644	.3011		
Q60A Public telephones	Grp 1	48	3.6250	1.4236	.2055	10.9043	.0000*
	Grp 2	13	1.3846	.6504	.1804		
	Grp 3	15	4.3333	.9759	.2520		
	Grp 4	45	4.4222	.9883	.1473		
	Grp 5	67	3.7015	1.3144	.1606		
	Grp 6	109	3.6239	1.0345	.0991		
	Grp 7	120	3.3500	1.2613	.1151		
	Grp 8	27	3.7037	1.4888	.2865		

*** The differences among means are statistically significant since F Prob. < .05 and F Ratio > 2.03**

**** Grp 1 = Arabic countries, Grp 2 = African countries, Grp 3 = Iran, Grp 4 = America, Europe & Turkey, Grp 5 = South Asia, Grp 6 = South East Asia, Grp 7 = Saudi Arabia, Grp 8 = Other nationality**

Table D 19:

ANOVA Results for Testing HFS-Arafat By Where the Pilgrims Live at Home

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	2	3.6956	1.8478	2.6085	.0748
	Within Groups	436	308.8511	.7084		
Q70A Treatment by officials	Between Groups	2	.9460	.4730	.5825	.5590
	Within Groups	433	351.6114	.8120		
Q72A Treatment by local people	Between Groups	2	.2564	.1282	.1308	.8774
	Within Groups	435	426.3920	.9802		
Q73A Treatment by Mutawifeen staff	Between Groups	2	5.5370	2.7685	2.5566	0788
	Within Groups	415	449.4008	1.0829		
Q68A Guiding services	Between Groups	2	.1164	.0582	.0652	.9369
	Within Groups	434	387.5266	.8929		
Q65A Signposting	Between Groups	2	.1321	.0660	.1038	.9014
	Within Groups	442	281.0724	.6359		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	2	4.4421	2.2211	2.5277	.0810
	Within Groups	456	400.6864	.8787		
Q44A Public transportation	Between Groups	2	3 0935	1.5468	1.4095	.2453
	Within Groups	458	502.5941	1.0974		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	2	6.9682	3.4841	3.1683	.0430*
	Within Groups	451	495.9569	1.0997		
Q59A Toilet facilities	Between Groups	2	.0566	.0283	.0359	.9648
	Within Groups	448	353.4689	.7890		
Q46A Pilgrims' movements	Between Groups	2	3.2331	1.6165	1.9652	.1413
	Within Groups	451	370.9784	.8226		
Q54A Car parking facilities	Between Groups	2	.7299	.3650	.4218	.6562
	Within Groups	448	387.6781	.8654		
Q58A Public drinking water	Between Groups	2	.6196	.3098	.5102	.6007
	Within Groups	446	270.7836	.6071		
Q55A Accommodation facilities	Between Groups	2	2.5767	1.2884	1.1189	.3276
	Within Groups	447	514.7210	1.1515		
Q64A Health services	Between Groups	2	4 6537	2.3268	3.6255	.0274*
	Within Groups	438	281 1060	.6418		
Factor 3: Communication						
Q61A Postal services	Between Groups	2	1.2167	6083	.2969	.7432
	Within Groups	404	827.6629	2.0487		
Q60A Public telephones	Between Groups	2	6 5140	3.2570	1.9472	.1439
	Within Groups	432	722.6032	1.6727		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 20:

Significant Results of ANOVA Tests Based on HFS-Arafat and Where the Pilgrims Live at Home

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q48 Travelling (Arafat-Muzdalifah)	Grp 1	73	4.0685	1.0452	.1223	3.1683	.0430*
	Grp 2	123	3.9187	1.0834	.0977		
	Grp 3	258	4.2054	1.0328	.0643		
Q64A Health services	Grp 1	70	4.6143	.7282	.0870	3 6255	.0274*
	Grp 2	115	4.~652	.6117	.0570		
	Grp 3	256	4 5234	.8897	.0556		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = Village, Grp 2 = Town, Grp 3 = City

Table D 21:

ANOVA Results for Testing HFS-Arafat By the Pilgrims' Age

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	5	3.7311	.7462	1.0662	.3784
	Within Groups	437	305.8445	.6999		
Q70A Treatment by officials	Between Groups	5	6.9327	1.3865	1.7282	.1268
	Within Groups	434	348.1923	.8023		
Q72A Treatment by local people	Between Groups	5	4.5838	9168	9561	4445
	Within Groups	436	418.0701	.9589		
Q73A Treatment by Mutawifeen staff	Between Groups	5	14.2997	2.8599	2.7180	.0197*
	Within Groups	417	438.7830	1.0522		
Q68A Guiding services	Between Groups	5	5.0560	1.0112	1.1488	.3338
	Within Groups	436	383.7946	.8803		
Q65A Signposting	Between Groups	5	7.2518	1.4504	2.2560	.0480*
	Within Groups	443	284.7972	.6429		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	5	11.3357	2.2671	2.5689	.0263*
	Within Groups	457	403.3165	.8825		
Q44A Public transportation	Between Groups	5	4.1215	.8243	.7468	.5887
	Within Groups	459	506.6183	1.1037		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	5	7.8422	1.5684	1.4079	.2200
	Within Groups	452	503.5377	1.1140		
Q59A Toilet facilities	Between Groups	5	12.8832	2.5766	3.2411	.0069*
	Within Groups	449	356.9542	.7950		
Q46A Pilgrims' movements	Between Groups	5	4.1243	.8249	.9857	.4260
	Within Groups	452	378.2425	.8368		
Q54A Car parking facilities	Between Groups	5	7.9233	1.5847	1.8861	0954
	Within Groups	449	377.2415	.8402		
Q58A Public drinking water	Between Groups	5	8.7292	1.7458	2.8692	.0146*
	Within Groups	447	271.9904	.6085		
Q55A Accommodation facilities	Between Groups	5	4.6827	.9365	.8159	.5387
	Within Groups	448	514.2424	1.1479		
Q64A Health services	Between Groups	5	2.9536	.5907	.8738	4985
	Within Groups	439	296.7902	.6761		
Factor 3: Communication						
Q61A Postal services	Between Groups	5	16 8629	3.3726	1.6719	1402
	Within Groups	406	818.9818	2.0172		
Q60A Public telephones	Between Groups	5	13.4244	2.6849	1.6125	.1554
	Within Groups	433	720.9674	1.6651		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23

Table D 22:

Significant Results of ANOVA Tests Based on HFS- Arafat and the Pilgrims' Age

Question Number / Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q73A Treatment by Mutawifeen staff	Grp 1	39	4.1795	.9966	.1596	2.7180	.0197*
	Grp 2	106	4.3113	.9891	.0961		
	Grp 3	135	4.2593	.9381	.0807		
	Grp 4	62	3.8387	1.1480	.1458		
	Grp 5	54	4.2222	1.0581	.1440		
	Grp 6	27	3.7778	1.2506	.2407		
Q65A Cleanliness of sites	Grp 1	46	4.4348	.9810	.1446	2.2560	.0480*
	Grp 2	118	4.6271	.6511	.0599		
	Grp 3	141	4.5319	.7705	.0649		
	Grp 4	64	4.2656	.9127	.1141		
	Grp 5	53	4.3962	.8625	.1185		
	Grp 6	27	4.2963	.8234	.1585		
Q45A Fewer traffic jams	Grp 1	46	4.4565	.8871	.1308	2.5689	0263*
	Grp 2	124	4.2500	1.0010	.0899		
	Grp 3	144	4.2431	8042	.0670		
	Grp 4	65	4.0923	1.0417	1292		
	Grp 5	56	4.0000	.9909	.1324		
	Grp 6	28	3.7857	1.0313	.1949		
Q59A Toilet facilities	Grp 1	46	4.5000	.8882	.1310	3.2411	.0069*
	Grp 2	121	4.5537	.8461	.0769		
	Grp 3	142	4.5493	.7493	.0629		
	Grp 4	64	4.1563	1.0870	.1359		
	Grp 5	55	4 3273	1 0010	.1350		
	Grp 6	27	4.0741	1 0350	.1992		
Q58A Public drinking water	Grp 1	46	4.6304	.8527	.1257	2.8692	.0146*
	Grp 2	121	4.6612	.6777	.0616		
	Grp 3	142	4.5845	.7649	.0642		
	Grp 4	64	4.3438	.8768	.1096		
	Grp 5	54	4.4259	.7673	.1044		
	Grp 6	26	4.1923	.9389	.1841		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

Table D 23:

ANOVA Results for Testing HFS-Arafat By the Pilgrims' Number of Previous Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	2	3.0934	1.5467	2.2230	.1095
	Within Groups	440	306.1346	.6958		
Q70A Treatment by officials	Between Groups	2	.6982	.3491	4356	.6471
	Within Groups	437	350.1746	.8013		
Q72A Treatment by local people	Between Groups	2	.5076	.2538	.2619	.7697
	Within Groups	439	425.5286	.9693		
Q73A Treatment by Mutawifeen staff	Between Groups	2	1.2776	.6388	5907	5544
	Within Groups	419	453.0850	1.0813		
Q68A Guiding services	Between Groups	2	2.4560	1.2280	1.3999	.2477
	Within Groups	438	384.2016	.8772		
Q65A Signposting	Between Groups	2	.4535	.2268	.3566	7002
	Within Groups	446	283.5955	.6359		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	2	2.3475	1.1738	1.3375	.2635
	Within Groups	460	403.6784	.8776		
Q44A Public transportation	Between Groups	2	.9540	.4770	.4375	.6459
	Within Groups	462	503.7857	1.0904		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	2	.3351	.1676	.1517	.8593
	Within Groups	455	502.6343	1.1047		
Q59A Toilet facilities	Between Groups	2	0778	0389	0491	9521
	Within Groups	452	358.0101	.7921		
Q46A Pilgrims' movements	Between Groups	2	3.7675	1.8838	2.3099	.1004
	Within Groups	455	371.0534	.8155		

Q54A Car parking facilities	Between Groups	2	.9154	.4577	.5345	.5863
	Within Groups	452	387.0758	.8564		
Q58A Public drinking water	Between Groups	2	.4620	.2310	.3820	.6827
	Within Groups	450	272.1120	.6047		
Q55A Accommodation facilities	Between Groups	2	8.1599	4.0800	3.5997	.0281*
	Within Groups	451	511.1793	1.1334		
Q64A Health services	Between Groups	2	.4124	.2062	.3253	.7225
	Within Groups	442	280.1854	.6339		
Factor 3: Communication						
Q61A Postal services	Between Groups	2	4.6608	2.3304	1.1534	.3166
	Within Groups	408	824.3173	2.0204		
Q60A Public telephones	Between Groups	2	5.7090	2.8545	1.7159	.1810
	Within Groups	436	725.3252	1.6636		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 24:

Significant Results of ANOVA Tests Based on HFS-Arafat and Number of Previous Hajj

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q55A Accommodation facilities	Grp 1	232	4.0172	.9757	.0641		
	Grp 2	81	3.6667	1.2042	.1338	3.5997	.0281*
	Grp 3	141	3.8369	1.1188	.0942		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = none, Grp 2 = once, Grp 3 = two times or more

Table D 25:

ANOVA Results for Testing HFS-Arafat By the Pilgrims' Education Level

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	4	1.6351	.4088	.5740	.6817
	Within Groups	437	311.2449	.7122		
Q70A Treatment by officials	Between Groups	4	3.9296	.9824	1.2102	.3057
	Within Groups	434	352.2891	.8117		
Q72A Treatment by local people	Between Groups	4	3.3221	.8305	.8567	.4900
	Within Groups	436	422.6779	.9694		
Q73A Treatment by Mutawifeen staff	Between Groups	4	7.0933	1.7733	1.6568	.1592
	Within Groups	416	445.2677	1.0704		
Q68A Guiding services	Between Groups	4	1.6952	.4238	.4864	.7457
	Within Groups	435	378.9957	.8713		
Q65A Signposting	Between Groups	4	.8638	.2159	.3226	.8628
	Within Groups	443	296.5648	.6694		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	4	5.3416	1.3354	1.4881	.2047
	Within Groups	457	410.1043	.8974		
Q44A Public transportation	Between Groups	4	8.5762	2.1440	1.9591	.0997
	Within Groups	459	502.3182	1.0944		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	4	4.5969	1.1492	1.0235	.3947
	Within Groups	452	507.5432	1.1229		
Q59A Toilet facilities	Between Groups	4	3.5983	.8996	1.0995	.3562
	Within Groups	449	367.3555	.8182		
Q46A Pilgrims' movements	Between Groups	4	1.2568	.3142	.3694	.8305
	Within Groups	452	384.4938	.8506		
Q54A Car parking facilities	Between Groups	4	8.2084	2.0521	2.4340	.0467*
	Within Groups	449	378.5515	.8431		
Q58A Public drinking water	Between Groups	4	.7993	.1998	.3191	.8652
	Within Groups	447	279.8821	.6261		

Q55A Accommodation facilities	Between Groups	4	25.8223	6.4556	5.8520	.0001*
	Within Groups	448	494.2086	1.1031		
Q64A Health services	Between Groups	4	4.0990	1.0248	1.5560	.1851
	Within Groups	439	289.1149	.6586		
Factor 3: Communication						
Q61A Postal services	Between Groups	4	16.5472	4.1368	2.0801	0826
	Within Groups	405	805.4528	1.9888		
Q60A Public telephones	Between Groups	4	9.4634	2.3659	1.4142	.2283
	Within Groups	433	724.3836	1.6729		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 26:

Significant Results of ANOVA Tests Based on HFS-Arafat and the Pilgrims' Educational Level

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54A Car parking facilities	Grp 1	41	4.4390	.7762	.1212	2.4340	.0467*
	Grp 2	63	4.4127	.7325	.0923		
	Grp 3	84	4.2500	.9167	.1000		
	Grp 4	120	4.1083	.9330	.0852		
	Grp 5	146	4.0890	1.0098	.0836		
Q55A Accommodation facilities	Grp 1	41	4.5122	.8100	.1265		
	Grp 2	63	4.0635	1.0140	.1277		
	Grp 3	83	3.6386	1.0885	.1195	5.8520	.0001*
	Grp 4	121	3.9091	.9916	.0901		
	Grp 5	145	3.7517	1.1458	.0952		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39
** Grp 1 = don't read or write, Grp 2 = read and write, Grp 3 = middle school, Grp 4 = high school, Grp 5 = universiy.

Table D 27:

ANOVA Results for Testing HFS-Arafat By the Pilgrims' Accompanied Persons

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	2	.7145	.3572	.4925	.6114
	Within Groups	416	301.7247	.7253		
Q70A Treatment by officials	Between Groups	2	1.6499	.8250	.9897	.3726
	Within Groups	413	344.2635	8336		
Q72A Treatment by local people	Between Groups	2	5725	.2862	2881	7498
	Within Groups	415	412 3270	9936		
Q73A Treatment by Mutawifeen staff	Between Groups	2	4 8340	2.4170	2 2242	1095
	Within Groups	404	439.0235	1.0867		
Q68A Guiding services	Between Groups	2	2 9289	1.4645	1.6109	2010
	Within Groups	415	377.2720	9091		
Q65A Signposting	Between Groups	2	.3484	.1742	.2702	.7634
	Within Groups	421	271.4606	.6448		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	2	8.2276	4 1138	4 6694	.0099*
	Within Groups	435	383.2359	.8810		
Q44A Public transportation	Between Groups	2	12.3660	6.1830	5.6691	.0037*
	Within Groups	437	476.6136	1.0906		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	2	5.3225	2.6613	2.3925	.0926
	Within Groups	431	479.4171	1.1123		
Q59A Toilet facilities	Between Groups	2	2.0918	1.0459	1.3194	2684
	Within Groups	427	338.4779	.7927		
Q46A Pilgrims' movements	Between Groups	2	.8815	.4408	5225	5934
	Within Groups	430	362.7582	.8436		
Q54A Car parking facilities	Between Groups	2	1.9838	.9919	1.1492	.3179
	Within Groups	429	370.2917	.8632		
Q58A Public drinking water	Between Groups	2	2.8156	1 4078	2.2516	1065
	Within Groups	425	265.7265	.6252		

Q55A Accommodation facilities	Between Groups	2	.4380	.2190	.1875	.8291
	Within Groups	431	503.4721	1.1681		
Q64A Health services	Between Groups	2	.6541	.3271	.4852	.6159
	Within Groups	417	281.0863	.6741		
Factor 3: Communication						
Q61A Postal services	Between Groups	2	17.2753	8.6377	4.3553	.0135*
	Within Groups	393	779.4191	1.9833		
Q60A Public telephones	Between Groups	2	5.2697	2.6348	1.5658	.2102
	Within Groups	413	694.9779	1.6828		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 28:

Significant Results of ANOVA Tests Based on HFS-Arafat and the Pilgrims' Accompanied Persons

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q45A Fewer traffic jams	Grp 1	264	4 2689	.9144	.0563	4.6694	.0099*
	Grp 2	125	3.9600	1.0426	.0933		
	Grp 3	49	4.2245	.7710	.1101		
Q44A Public transportation	Grp 1	266	4.0977	1.0595	.0650	5.6691	.0037*
	Grp 2	125	3.7440	1.1065	.0990		
	Grp 3	49	4.1837	.7548	.1078		
Q61A Postal services	Grp 1	240	2.9167	1.4952	.0965	4.3553	.0135*
	Grp 2	110	2.8545	1.2254	.1168		
	Grp 3	46	3.5435	1.3451	.1983		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = single, Grp 2 = with women, Grp 3 = with women and children.

Table D 29:

ANOVA Results for Testing HFS-Arafat By the Way Pilgrims Managed their Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	2	2.0070	1.0035	1.4662	.2321
	Within Groups	367	251.1822	.6844		
Q70A Treatment by officials	Between Groups	2	3.0433	1.5216	2.0542	.1297
	Within Groups	362	268.1458	.7407		
Q72A Treatment by local people	Between Groups	2	1.8926	.9463	1.0189	.3620
	Within Groups	365	338.9770	.9287		
Q73A Treatment by Mutawifeen staff	Between Groups	2	4 1316	2.0658	1.9829	.1392
	Within Groups	349	363.5843	1.0418		
Q68A Guiding services	Between Groups	2	3.6621	1.8311	2.1163	.1220
	Within Groups	364	314.9428	.8652		
Q65A Signposting	Between Groups	2	.3836	.1918	.3134	.7312
	Within Groups	371	227.0736	.6121		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	2	2 2033	1 1016	1.2850	2778
	Within Groups	384	329.2127	.8573		
Q44A Public transportation	Between Groups	2	8.0050	4.0025	3.9334	.0204*
	Within Groups	386	392.7867	1 0176		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	2	2.3064	1.1532	1.0526	.3500
	Within Groups	380	416.3045	1.0955		
Q59A Toilet facilities	Between Groups	2	1.3033	.6517	.8338	.4352
	Within Groups	376	293.8629	.7816		
Q46A Pilgrims' movements	Between Groups	2	.4808	.2404	.3053	.7371
	Within Groups	380	299.1954	.7874		
Q54A Car parking facilities	Between Groups	2	7255	.3628	4479	.6393
	Within Groups	378	306.1144	8098		
Q58A Public drinking water	Between Groups	2	4 6196	2.3098	3.9050	.0210*
	Within Groups	374	221.2160	.5915		

Q55A Accommodation facilities	Between Groups	2	3.8916	1.9458	1.8089	.1653
	Within Groups	377	405.5294	1.0757		
Q64A Health services	Between Groups	2	.1493	.0747	.1205	8865
	Within Groups	367	227.3534	.6195		
Factor 3: Communication						
Q61A Postal services	Between Groups	2	7.8438	3.9219	2.0521	.1301
	Within Groups	336	642.1444	1.9111		
Q60A Public telephones	Between Groups	2	12.0864	6.0432	3.9243	.0206*
	Within Groups	361	555.9218	1.5399		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 30:

Significant Results of ANOVA Tests Based on HFS-Arafat and the Way Pilgrims Managed Hajj

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q44A Public transportation	Grp 1	120	4.2083	1.0603	.0968	3.9334	.0204*
	Grp 2	258	3.9225	.9872	.0615		
	Grp 3	11	4.3636	.9244	.2787		
Q58A Public drinking water	Grp 1	116	4.6552	.7114	.0661	3.9050	.0210*
	Grp 2	250	4.4600	.8068	.0510		
	Grp 3	11	4.9091	.3015	.0909		
Q60A Public telephones	Grp 1	112	3.8125	1.3256	.1253	3.9243	.0206*
	Grp 2	241	3.4647	1.2006	.0773		
	Grp 3	11	4.0909	1.2210	.3682		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

Table D 31:

ANOVA Results for Testing HFS-Arafat By the Pilgrims Annual Income

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	4	4.0829	1.0207	1.5445	.1887
	Within Groups	368	243.1933	.6609		
Q70A Treatment by officials	Between Groups	4	3.8956	.9739	1.2981	.2703
	Within Groups	365	273.8476	.7503		
Q72A Treatment by local people	Between Groups	4	7 2578	1.8144	1.8827	.1128
	Within Groups	367	353.6992	.9638		
Q73A Treatment by Mutawifeen staff	Between Groups	4	3.5554	.8889	.8625	4866
	Within Groups	348	358.6429	1.0306		
Q68A Guiding services	Between Groups	4	1.4395	.3599	.4006	.8082
	Within Groups	366	328.8030	.8984		
Q65A Signposting	Between Groups	4	5.5983	1.3996	2.2072	.0677
	Within Groups	373	236.5208	.6341		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	4	2.2239	.5560	7565	5541
	Within Groups	379	278 5235	7349		
Q44A Public transportation	Between Groups	4	2.6291	.6573	.5973	.6648
	Within Groups	381	419.2776	1.1005		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	4	4.8764	1.2191	1.1104	.3513
	Within Groups	375	411.7131	1.0979		
Q59A Toilet facilities	Between Groups	4	4.7533	1 1883	1.5773	.1796
	Within Groups	376	283.2835	7534		
Q46A Pilgrims' movements	Between Groups	4	2.7281	.6820	.8278	5081
	Within Groups	376	309.7811	.8239		
Q54A Car parking facilities	Between Groups	4	3.1031	.7758	.9665	.4258
	Within Groups	373	299.3863	.8026		
Q58A Public drinking water	Between Groups	4	3.3553	.8388	1.6001	.1736
	Within Groups	375	196.5921	.5242		

Q55A Accommodation facilities	Between Groups	4	1.5852	.3963	.3507	.8435
	Within Groups	370	418.0841	1.1300		
Q64A Health services	Between Groups	4	4.2284	1.0571	1.6877	.1522
	Within Groups	370	231.7556	.6264		
Factor 3: Communication						
Q61A Postal services	Between Groups	4	5.3065	1.3266	.7355	.5683
	Within Groups	336	606.0659	1.8038		
Q60A Public telephones	Between Groups	4	7.6663	1.9166	1.2186	3025
	Within Groups	362	569.3419	1.5728		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 32:

ANOVA Results for Testing HFS-Arafat By the Pilgrims' Travelling Experience

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	2	4.4410	2.2205	3.0245	0497*
	Within Groups	395	290.0012	.7342		
Q70A Treatment by officials	Between Groups	2	2.3811	1.1906	1.4638	.2326
	Within Groups	392	318.8341	.8134		
Q72A Treatment by local people	Between Groups	2	6.0876	3.0438	3.1029	.0460*
	Within Groups	393	385.5160	.9810		
Q73A Treatment by Mutawifeen staff	Between Groups	2	10.6229	5.3115	4.8276	.0085*
	Within Groups	381	419.1869	1.1002		
Q68A Guiding services	Between Groups	2	.2149	.1074	.1182	.8885
	Within Groups	395	359.0238	.9089		
Q65A Signposting	Between Groups	2	1.2267	.6133	.9214	.3988
	Within Groups	400	266.2671	.6657		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	2	4.6690	2 3345	2.6058	.0751*
	Within Groups	414	370.8993	.8959		
Q44A Public transportation	Between Groups	2	3.6654	1.8327	1.6333	.1965
	Within Groups	416	466.7976	1.1221		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	2	3.3362	1.6681	1 4529	2351
	Within Groups	411	471.8812	1.1481		
Q59A Toilet facilities	Between Groups	2	4.0655	2.0328	2.4390	.0885
	Within Groups	406	338.3697	.8334		
Q46A Pilgrims' movements	Between Groups	2	2.2825	1.1412	1.3071	.2717
	Within Groups	409	357.1059	8731		
Q54A Car parking facilities	Between Groups	2	1.0682	.5341	.5981	.5504
	Within Groups	407	363.4708	.8930		
Q58A Public drinking water	Between Groups	2	5358	2679	4113	6631
	Within Groups	404	263.1644	6514		
Q55A Accommodation facilities	Between Groups	2	2.5387	1 2694	1.1176	.3281
	Within Groups	406	461.1483	1.1358		
Q64A Health services	Between Groups	2	1.2573	6287	.9295	3956
	Within Groups	397	268.4927	.6763		
Factor 3: Communication						
Q61A Postal services	Between Groups	2	6.5791	3.2895	1.6307	.1972
	Within Groups	372	750.3969	2.0172		
Q60A Public telephones	Between Groups	2	1.6284	.8142	.4841	.6166
	Within Groups	391	657.5823	1.6818		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 33:

Significant Results of ANOVA Tests Based on HFS-Arafat and the Pilgrims' Travelling Experience

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q71A Treatment by policemen's	Grp 1	47	4.6170	.8484	.1237	3.0245	.0497*
	Grp 2	142	4.4014	.7632	.0640		
	Grp 3	209	4.2871	.9167	.0634		
Q72A Treatment by local people	Grp 1	47	4.4255	1.0372	.1513	3.1029	.0460*
	Grp 2	140	4.0214	.9998	.0845		
	Grp 3	209	4.1818	.9734	.0673		
Q73A Treatment Mutawifeen staff	Grp 1	47	4.3617	1.0920	.1593	4.8276	.0085*
	Grp 2	138	3.8841	1.0676	.0909		
	Grp 3	199	4.1709	1.0254	.0727		
Q45A Fewer traffic jam	Grp 1	51	4.1373	1.0004	.1401	2 6058	0751*
	Grp 2	147	4.0408	9500	0784		
	Grp 3	219	4.2694	.9314	.0629		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside and outside his country

Table D 34:

ANOVA Results for Testing HFS-Arafat By the Reasons for Coming in this Hajj Season

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and sanitation						
Q71A Treatment by policemen	Between Groups	3	4.9104	1.6368	2.3689	.0702
	Within Groups	395	272.9292	.6910		
Q70A Treatment by officials	Between Groups	3	2.8936	.9645	1.2077	.3067
	Within Groups	391	312.2811	.7987		
Q72A Treatment by local people	Between Groups	3	3.0435	1.0145	1.0764	.3589
	Within Groups	394	371.3384	.9425		
Q73A Treatment by Mutawifeen staff	Between Groups	3	.3263	.1088	.0985	.9608
	Within Groups	375	414 2384	1.1046		
Q68A Guiding services	Between Groups	3	2.5048	.8349	.9395	.4215
	Within Groups	392	348.3714	.8887		
Q65A Signposting	Between Groups	3	.4585	.1528	.2467	.8637
	Within Groups	400	247.8262	.6196		
Factor 2: Movements and basic facilities						
Q45A Fewer traffic jams	Between Groups	3	5.6161	1.8720	2.1681	.0912
	Within Groups	415	358.3361	.8635		
Q44A Public transportation	Between Groups	3	4.3730	1.4577	1.4290	.2337
	Within Groups	416	424.3389	1.0200		
Q48 Travelling to Arafat, Muzdalifah	Between Groups	3	1 8092	.6031	.5322	.6604
	Within Groups	409	463 4257	1.1331		
Q59A Toilet facilities	Between Groups	3	6850	2283	.2902	.8325
	Within Groups	406	319 4711	7869		
Q46A Pilgrims' movements	Between Groups	3	1.1688	.3896	.4813	6954
	Within Groups	410	331.8650	.8094		
Q54A Car parking facilities	Between Groups	3	12.4522	4.1507	5.0186	.0020*
	Within Groups	406	335.7917	.8271		
Q58A Public drinking water	Between Groups	3	3 3968	1.1323	1.9533	.1204
	Within Groups	404	234 1890	5797		
Q55A Accommodation facilities	Between Groups	3	3.1421	1.0474	.9606	.4113
	Within Groups	406	442.6628	1.0903		
Q64A Health services	Between Groups	3	3.3647	1.1216	1.7642	.1534
	Within Groups	396	251.7453	.6357		

Factor 3: Communication						
Q61A Postal services	Between Groups	3	21.1386	7.0462	3.5507	.0147*
	Within Groups	365	724.3302	1.9845		
Q60A Public telephones	Between Groups	3	6.1364	2.0455	1.2330	.2974
	Within Groups	391	648.6585	1.6590		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.62

Table D 35:

Significant Results of ANOVA Tests Based on HFS-Arafat and the Purpose of Coming to this Hajj Season

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54A Car parking facilities	Grp 1	302	4.2384	.8870	.0510	5.0186	.0020*
	Grp 2	50	4.4800	.8142	.1151		
	Grp 3	14	3.5000	1.5064	.4026		
	Grp 4	44	4.0227	.9273	.1398		
Q61A Postal services	Grp 1	280	3.1571	1.4003	.0837	3.5507	.0147*
	Grp 2	32	2.5313	1.2439	.2199		
	Grp 3	14	2.2857	1.4373	.3841		
	Grp 4	43	2.8837	1.5616	.2381		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.62
** Grp 1 = to perform Hajj only, Grp 2 = for Hajj and business, Grp 3 = for Hajj and official work, Grp 4 = for Hajj and to accompany a friend or a relative.

Table D 36:

ANOVA Results for Testing HFS-Muzdalifah By the Pilgrims' Nationality

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	7	9.7012	1.3859	1.6727	.1137
	Within Groups	437	362.0606	.8285		
	Total	444	371.7618			
Q72Z Treatment by local people	Between Groups	7	11.3806	1.6258	1.6524	1189
	Within Groups	438	430.9445	.9839		
	Total	445	442.3251			
Q71Z Treatment by policemen	Between Groups	7	12.2861	1.7552	2.3826	.0212*
	Within Groups	440	324.1336	.7367		
	Total	447	336.4196			
Q73Z Treatment by Mutawifeen staff	Between Groups	7	40.3994	5.7713	5.4344	.0000*
	Within Groups	420	446.0375	1.0620		
	Total	427	486.4369			
Q68Z Guiding services	Between Groups	7	50.0451	7.1493	8 5440	.0000*
	Within Groups	438	366.5020	.8368		
	Total	445	416.5471			
Q65Z Cleanliness of sites	Between Groups	7	18.0059	2.5723	3.2268	0024*
	Within Groups	446	355.5381	.7972		
	Total	453	373.5441			
Factor 2: Movements and information						
Q44Z Public transportation	Between Groups	7	41.3331	5.9047	4.3927	.0001*
	Within Groups	461	619.6776	1.3442		
	Total	468	661.0107			
Q45Z Fewer traffic jams	Between Groups	7	31.3384	4.4769	4.4823	.0001*
	Within Groups	461	460.4442	.9988		
	Total	468	491.7825			
Q49 Travelling (Muzdalifah-Mina)	Between Groups	7	53.2261	7.6037	6.4488	.0000*
	Within Groups	456	537.6683	1.1791		
	Total	463	590.8944			
Q54Z Car parking facilities	Between Groups	7	28.0309	4.0044	4.0449	.0003*
	Within Groups	454	449.4605	.9900		
	Total	461	477.4913			
Q67Z General information	Between Groups	7	89 8958	12 8423	8 2860	.0000*
	Within Groups	426	660.2448	1 5499		
	Total	433	750.1406			
Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups	7	26.5292	3.7899	2.7091	.0093*
	Within Groups	454	635.1180	1.3989		
	Total	461	661.6472			
Q58Z Public drinking water	Between Groups	7	19.1686	2.7384	3 4404	.0013*
	Within Groups	450	358.1786	.7960		
	Total	457	377.3472			
Q59Z Toilet facilities	Between Groups	7	25.4850	3.6407	4.2077	.0002*
	Within Groups	449	388.4975	.8653		
	Total	456	413.9825			
Q64Z Health services	Between Groups	7	29.1014	4.1573	5.5354	.0000*
	Within Groups	440	330.4611	.7510		
	Total	447	359.5625			
Q46Z Pilgrims' movements	Between Groups	7	26.3750	3.7679	4 5220	0001*
	Within Groups	456	379.9504	8332		
	Total	463	406.3254			
Q55Z Accommodation facilities	Between Groups	7	92.3088	11.7584	8 0710	.0000*
	Within Groups	449	654 1376	1.4569		
	Total	456	736.4464			
Factor 4: Communication						
Q61Z Postal services	Between Groups	7	153.8705	21.9815	12.7024	.0000*
	Within Groups	407	704.3126	1.7305		
	Total	414	858.1831			
Q60Z Public telephones	Between Groups	7	133.9450	19.1350	12 3075	0000*
	Within Groups	436	677.8658	1.5547		
	Total	443	811.8108			

* The differences among means are statistically significant since F Prob. < .05 and F Ratio > 2.03

Table D 37:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Pilgrims' Nationaliy

Question Number / Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Factor 1: Caring and Sanitation							
Q71Z	Grp 1	49	4.3265	1.0285	.1469	2.3826	.0212
Treatment by policemen	Grp 2	8	4.3750	.5175	.1830		
	Grp 3	15	4.4667	.7432	.1919		
	Grp 4	44	4.4091	1.0414	.1570		
	Grp 5	77	4.4805	.8677	.0989		
	Grp 6	108	4.5926	.5806	.0559		
	Grp 7	120	4.1500	.8949	.0817		
	Grp 8	27	4.4074	1.0473	.2016		
Q73Z	Grp 1	47	4.2340	1.1075	.1616	5.4344	.0000
Treatment by Mutawifeen staff	Grp 2	8	3.5000	1.1952	.4226		
	Grp 3	15	4.4667	.6399	.1652		
	Grp 4	44	4.4773	1.0227	.1542		
	Grp 5	60	3.4833	1.2418	.1603		
	Grp 6	107	4.3271	.8442	.0816		
	Grp 7	120	4.1167	.9803	.0895		
	Grp 8	27	4.0000	1.3587	.2615		
Q68Z	Grp 1	48	4.3333	.9070	.1309	8.5440	0000
Guiding services	Grp 2	9	3.5556	1.3333	.4444		
	Grp 3	15	4.4000	.7368	.1902		
	Grp 4	45	4.4667	.9909	.1477		
	Grp 5	73	3.8767	1.1049	.1293		
	Grp 6	109	4.8440	.5801	.0556		
	Grp 7	120	4.4167	.8656	.0790		
	Grp 8	27	4.1481	1.3785	.2653		
Q65Z	Grp 1	49	4.1837	1.2020	.1717	3.2268	.0024
Cleanliness of sites	Grp 2	10	3.6000	.9661	.3055		
	Grp 3	15	4.8667	.3519	.0909		
	Grp 4	45	4.5333	.8686	.1295		
	Grp 5	80	4.2625	.8822	.0986		
	Grp 6	108	4.5741	.7131	.0686		
	Grp 7	120	4 3333	.9378	.0856		
	Grp 8	27	4.3704	.9260	.1782		
Factor 2: Movements and information							
Q44Z	Grp 1	50	3.8400	1.1843	.1675	4.3927	.0001
Public transportation	Grp 2	20	2.9500	1.2344	.2760		
	Grp 3	16	4.1875	.8342	.2085		
	Grp 4	45	4.2222	1.2039	.1795		
	Grp 5	81	3.7037	1.1450	1272		
	Grp 6	109	3.5596	1.3083	1253		
	Grp 7	121	4.0165	1.0082	.0917		
	Grp 8	27	4.1852	1.1779	.2267		
Q45Z	Grp 1	50	3.9600	1.2610	.1783	4.4823	.0001
Fewer traffic jams	Grp 2	20	3.5000	1.3955	.3120		
	Grp 3	16	4.3750	7188	.1797		
	Grp 4	45	4.3556	1.0035	.1496		
	Grp 5	82	3.8415	1.1052	.1220		
	Grp 6	108	4 0000	.8647	.0832		
	Grp 7	121	4 4132	8028	.0730		
	Grp 8	27	4.2593	1 1959	.2302		
Q49	Grp 1	51	3.9804	1.2081	1692	6.4488	.0000
Travelling (Muzdalifah-Mina)	Grp 2	17	3.1765	1 2862	.3120		
	Grp 3	16	3.5625	1 3647	.3412		
	Grp 4	45	4.0667	1.0745	.1602		
	Grp 5	79	3.4430	1.2480	.1404		
	Grp 6	108	4 3056	8025	.0772		
	Grp 7	121	4 1322	1 1026	1002		
	Grp 8	27	4.2593	9443	1817		
Q54Z	Grp 1	51	3 8235	1.2603	.1765	4.0449	.0003
Car parking facilities	Grp 2	16	3.6250	.9574	.2394		
	Grp 3	16	4.1250	.8851	.2213		
	Grp 4	45	4.3778	.9837	.1466		
	Grp 5	77	3.8571	1.0094	.1150		
	Grp 6	109	4.3945	.9131	.0875		
	Grp 7	121	4.2893	.8985	.0817		
	Grp 8	27	4.2963	1.2030	.2315		
Q67Z	Grp 1	48	2.8958	1.4766	.2131	8.2860	.0000
General information	Grp 2	10	2.4000	1.0750	.3399		
	Grp 3	15	3.6000	1.4041	.3625		
	Grp 4	45	4.3556	1.0478	.1562		
	Grp 5	61	3.1311	1.3720	1757		
	Grp 6	108	3.9259	1.1657	.1122		
	Grp 7	120	3.6000	1.1405	.1041		
	Grp 8	27	3.3704	1.4974	.2882		

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Pilgrims' Nationaliy (Continued)

Question Number / Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Factor 3: Hospitality and facilities finding							
Q56Z Restaurants and cafeterias	Grp 1	50	3.7400	1.3524	.1913	2.7091	0093
	Grp 2	14	3.5714	.9376	.2506		
	Grp 3	16	4.3750	.8851	.2213		
	Grp 4	45	4.4444	.9184	.1369		
	Grp 5	80	3.9500	1.0299	.1151		
	Grp 6	109	3.6972	1.5000	.1437		
	Grp 7	121	4.0083	.9958	.0905		
	Grp 8	27	4.1481	1.2311	.2369		
Q58Z Public drinking water	Grp 1	50	4.0800	1.2591	.1781	3.4404	0013
	Grp 2	13	3.6923	.9473	.2627		
	Grp 3	15	4.4667	.6399	.1652		
	Grp 4	45	4.4222	1.0111	.1507		
	Grp 5	79	4.3797	.7894	.0888		
	Grp 6	109	4.6514	.7376	.0706		
	Grp 7	120	4.4083	.8250	.0753		
	Grp 8	27	4.5556	1.0860	.2090		
Q59Z Toilet facilities	Grp 1	50	3.9400	1.3763	.1946	4.2077	.0002
	Grp 2	13	4.2308	8321	.2308		
	Grp 3	15	4 5333	6399	.1652		
	Grp 4	45	4.4667	9195	.1371		
	Grp 5	78	4.0256	.9932	.1125		
	Grp 6	109	4 5872	7603	.0728		
	Grp 7	120	4.4250	.8566	.0782		
	Grp 8	27	4.5185	.8490	.1634		
Q64Z Health services	Grp 1	49	4.1633	1.1609	.1658	5.5354	.0000
	Grp 2	10	3.6000	1.2649	.4000		
	Grp 3	15	4.6667	.4880	.1260		
	Grp 4	45	4.3111	1.0834	.1615		
	Grp 5	73	4.4247	.9416	.1102		
	Grp 6	109	4.8257	.6213	.0595		
	Grp 7	120	4.6250	.7454	.0680		
	Grp 8	27	4.5185	.9755	.1877		
Q46Z Pilgrims' movements	Grp 1	50	4.2400	1 0606	.1500	4.5220	.0001
	Grp 2	19	3.3684	1.2566	.2883		
	Grp 3	16	4.7500	.4472	.1118		
	Grp 4	45	4.2667	1.0090	.1504		
	Grp 5	78	4.4615	.8481	.0960		
	Grp 6	109	4.5229	.7888	.0756		
	Grp 7	121	4.3058	.9205	.0837		
	Grp 8	26	4.4231	.9868	.1935		
Q55Z Accommodation facilities	Grp 1	50	3.4400	1.4165	.2003	8.0710	.0000
	Grp 2	15	2.6667	1.5887	.4102		
	Grp 3	16	3.9375	1.1815	.2954		
	Grp 4	45	4.2667	1.0313	.1537		
	Grp 5	75	3.8000	1.1508	.1329		
	Grp 6	109	3.0459	1.1893	.1139		
	Grp 7	121	3.8512	1.1230	.1021		
	Grp 8	26	3.8846	1.4234	.2792		
Factor 4: Communication							
Q61Z Postal services	Grp 1	48	2.9375	1.3433	.1939	12.7024	0000
	Grp 2	11	1.4545	.5222	.1575		
	Grp 3	15	3.3333	1.6330	.4216		
	Grp 4	45	4.3556	1.0035	.1496		
	Grp 5	41	2.7317	1.5496	.2420		
	Grp 6	108	2.4352	1.0526	.1013		
	Grp 7	120	2.6333	1.4548	1328		
	Grp 8	27	3.1111	1.6251	.3128		
Q60Z Public telephones	Grp 1	48	3 4792	1 4585	.2105	12 3075	0000
	Grp 2	13	1 4615	.6602	.1831		
	Grp 3	15	4.3333	9759	2520		
	Grp 4	45	4.4000	1.0313	.1537		
	Grp 5	67	3 6119	1.3479	.1647		
	Grp 6	109	2.9908	1.1426	.1094		
	Grp 7	120	3.2417	1.2768	.1166		
	Grp 8	27	3.7037	1.4888	.2865		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
Grp 1 = Village, Grp 2 = Town, Grp 3 = City

Table D 38:

ANOVA Results for Testing HFS-Muzdalifah By Where the Pilgrims' Live at Home

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	2	.3899	.1949	.2306	.7941
	Within Groups	433	366.0046	.8453		
Q72Z Treatment by local people	Between Groups	2	.2564	.1282	.1308	.8774
	Within Groups	435	426.3920	.9802		
Q71Z Treatment by policemen	Between Groups	2	3.8014	1.9007	2.5203	.0816
	Within Groups	436	328.8091	.7541		
Q73Z Treatment by Mutawifeen staff	Between Groups	2	4.6732	2.3366	2.0330	1322
	Within Groups	416	478.1191	1.1493		
Q68Z Guiding services	Between Groups	2	.1026	.0513	0538	9476
	Within Groups	434	413 9843	9539		
Q65Z Cleanliness of sites	Between Groups	2	2.1849	1.0925	1.3609	.2575
	Within Groups	442	354.8128	.8027		
Factor 2: Movements and information						
Q44Z Public transportation	Between Groups	2	8.1479	4.0739	2.9003	.0560
	Within Groups	457	641.9391	1.4047		
Q45Z Fewer traffic jams	Between Groups	2	5.7408	2.8704	2.7707	.0637
	Within Groups	457	473.4419	1.0360		
Q49 Travelling (Muzdalifah-Mina)	Between Groups	2	7.6499	3.8249	3.0265	.0495*
	Within Groups	452	571.2424	1.2638		
Q54Z Car parking facilities	Between Groups	2	.1343	.0671	.0637	.9383
	Within Groups	450	474.4353	1.0543		
Q67Z General information	Between Groups	2	.5510	.2755	.1576	.8542
	Within Groups	422	737.6514	1.7480		
Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups	2	26.0976	13.0488	9.3113	.0001*
	Within Groups	450	630.6308	1.4014		
Q58Z Public drinking water	Between Groups	2	.5416	.2708	.3378	.7135
	Within Groups	446	357.4985	.8016		
Q59Z Toilet facilities	Between Groups	2	.0685	.0342	.0385	.9622
	Within Groups	445	395.6257	.8890		
Q64Z Health services	Between Groups	2	4.9799	2.4899	3.1923	.0420*
	Within Groups	436	340.0725	.7800		
Q46Z Pilgrims' movements	Between Groups	2	1.5969	.7984	.9257	.3970
	Within Groups	452	389.8405	.8625		
Q55Z Accommodation facilities	Between Groups	2	3.4773	1.7386	1.0758	.3419
	Within Groups	445	719.1634	1.6161		
Factor 4: Communication						
Q61Z Postal services	Between Groups	2	4.2422	2.1211	1.0180	.3622
	Within Groups	403	839 6888	2.0836		
Q60Z Public telephones	Between Groups	2	15.9713	7.9857	4.4025	.0128*
	Within Groups	432	783.5919	1.8139		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 39:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and Where Pilgrims live at Home

Question Number / Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q49 Travelling (Muzdalifah-Mina)	Grp 1	73	3.9452	1.1534	.1350	3.0265	.0495*
	Grp 2	123	3.7886	1.1033	.0995		
	Grp 3	259	4 0888	1.1257	.0699		
Q56Z Restaurants and Cafeterias	Grp 1	73	3.4658	1.3342	.1562	9.3113	.0001*
	Grp 2	122	4.2213	1.0642	.0963		
	Grp 3	258	3.9535	1.1925	.0742		
Q64Z Health services	Grp 1	69	4.4928	.8849	.1065	3.1923	.0420*
	Grp 2	114	4.7193	.6719	.0629		
	Grp 3	256	4.4727	.9616	.0601		
Q60Z Public telephones	Grp 1	68	3.0000	1.3383	.1623	4.4025	.0128*
	Grp 2	112	3.3125	1.3492	.1275		
	Grp 3	255	3.5294	1.3480	.0844		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
Grp 1 = Village, Grp 2 = Town, Grp 3 = City

Table D 40:

ANOVA Results for Testing HFS-Muzdalifah By the Pilgrims' Age

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	5	5.4158	1.0832	1.3067	.2600
	Within Groups	434	359.7637	8289		
Q72Z Treatment by local people	Between Groups	5	3.2893	.6579	.6621	.6524
	Within Groups	435	432.2255	.9936		
Q71Z Treatment by policemen	Between Groups	5	4.0568	.8114	1.1087	.3550
	Within Groups	437	319.8123	.7318		
Q73Z Treatment by Mutawifeen staff	Between Groups	5	9.7047	1.9409	1.7210	.1285
	Within Groups	418	471.4179	1.1278		
Q68Z Guiding services	Between Groups	5	3.2578	.6516	6895	.6316
	Within Groups	436	412.0295	.9450		
Q65Z Cleanliness of sites	Between Groups	5	5.7352	1 1470	1.4135	.2180
	Within Groups	443	359.4897	.8115		
Factor 2: Movements and information						
Q44Z Public transportation	Between Groups	5	7.0502	1.4100	9969	419i
	Within Groups	458	647.8098	1 4144		
Q45Z Fewer traffic jams	Between Groups	5	6.4782	1.2956	1.2311	2933
	Within Groups	458	482.0024	1 0524		
Q49 Travelling (Muzdalifah-Mina)	Between Groups	5	4.2854	8571	6676	6482
	Within Groups	453	581.5751	1.2838		
Q54Z Car parking facilities	Between Groups	5	14.3347	2.8669	2.8293	.0158*
	Within Groups	451	457.0088	1.0133		
Q67Z General information	Between Groups	5	13.7539	2.7508	1.5951	.1602
	Within Groups	423	729.4676	1.7245		
Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups	5	23.2547	4.6509	3.3019	0061*
	Within Groups	451	635.2661	1 4086		
Q58Z Public drinking water	Between Groups	5	3.9009	.7802	.9373	4565
	Within Groups	447	372.0770	.8324		
Q59Z Toilet facilities	Between Groups	5	8.3436	1.6687	1.8403	.1037
	Within Groups	446	404.4263	.9068		
Q64Z Health services	Between Groups	5	1.7912	.3582	.4390	.8213
	Within Groups	437	356.6061	.8160		

Q46Z Pilgrims' movements	Between Groups	5	3.0551	.6110	.6984	.6249
	Within Groups	453	396.3479	.8749		
Q55Z Accommodation facilities	Between Groups	5	12.2654	2.4531	1.5288	.1794
	Within Groups	446	715.6372	1.6046		
Factor 4: Communication						
Q61Z Postal services	Between Groups	5	11.1619	2.2324	1.0743	.3740
	Within Groups	405	841.5875	2.0780		
Q60Z Public telephones	Between Groups	5	10.5676	2.1135	1.1548	.3307
	Within Groups	433	792.4666	1.8302		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23

Table D 41:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and Pilgrims' Age

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q54Z Car parking facilities	Grp 1	45	4.3333	.9770	.1456		
	Grp 2	124	4.1935	1.0720	.0963		
	Grp 3	144	4.2986	.9686	.0807	2.8293	.0158*
	Grp 4	64	3.7969	1.0263	.1283		
	Grp 5	53	4.2264	.9536	.1310		
	Grp 6	27	3.9259	.9971	.1919		
Q56Z Restaurants and cafeterias	Grp 1	46	4.1957	1.0460	.1542		
	Grp 2	124	4.1855	1.1431	.1027		
	Grp 3	143	3.8881	1.2788	.1069	3.3019	.0061*
	Grp 4	63	3.7302	1.1102	.1399		
	Grp 5	55	3.5273	1.3451	.1814		
	Grp 6	26	4.0385	.8709	.1708		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

Table D 42:

ANOVA Results for Testing HFS-Muzdalifah By the Number of Previous Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	2	2.6311	1.3155	1.5885	.2054
	Within Groups	437	361.9121	.8282		
Q72Z Treatment by local people	Between Groups	2	2.4497	1.2249	1.2294	.2935
	Within Groups	438	436.3711	.9963		
Q71Z Treatment by policemen	Between Groups	2	2.7382	1.3691	1.8451	.1592
	Within Groups	440	326.4808	.7420		
Q73Z Treatment by Mutawifeen staff	Between Groups	2	2.7893	1.3946	1.2221	.2957
	Within Groups	420	479.3006	1.1412		
Q68Z Guiding services	Between Groups	2	3.4920	1.7460	1.8669	.1558
	Within Groups	438	409.6418	.9353		
Q65Z Cleanliness of sites	Between Groups	2	.4210	.2105	.2618	.7698
	Within Groups	446	358.5901	.8040		
Factor 2: Movements and information						
Q44Z Public transportation	Between Groups	2	.6946	.3473	.2470	.7812
	Within Groups	461	648.1653	1.4060		
Q45Z Fewer traffic jams	Between Groups	2	.9383	.4691	.4517	.6368
	Within Groups	461	478.7773	1.0386		
Q49 Travelling (Muzdalifah-Mina)	Between Groups	2	.0153	.0076	.0060	.9940
	Within Groups	456	577.9063	1.2673		
Q54Z Car parking facilities	Between Groups	2	.3102	.1551	.1482	.8623
	Within Groups	454	475.0509	1.0464		
Q67Z General information	Between Groups	2	2.2293	1.1146	.6406	.5275
	Within Groups	426	741.2579	1.7400		

Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups	2	11.2319	5.6160	3.9512	.0199*
	Within Groups	454	645.2889	1.4213		
Q58Z Public drinking water	Between Groups	2	.4613	.2307	.2897	.7486
	Within Groups	450	358.3113	.7962		
Q59Z Toilet facilities	Between Groups	2	.0348	.0174	.0196	.9806
	Within Groups	449	399.6178	.8900		
Q64Z Health services	Between Groups	2	.7665	.3832	.4971	.6086
	Within Groups	440	339.2109	.7709		
Q46Z Pilgrims' movements	Between Groups	2	3.9187	1.9593	2.3025	.1012
	Within Groups	456	388.0465	.8510		
Q55Z Accommodation facilities	Between Groups	2	11.4623	5.7312	3.6040	.0280*
	Within Groups	449	714.0067	1.5902		
Factor 4: Communication						
Q61Z Postal services	Between Groups	2	5.7990	2.8995	1.4045	.2467
	Within Groups	407	840.2035	2.0644		
Q60Z Public telephones	Between Groups	2	4.1895	2.0948	1.1471	.3185
	Within Groups	436	796.2023	1.8262		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 43:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and Number of Previous Hajj

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q56Z Restaurants and cafeterias	Grp 1	234	4.0855	1.0610	.0694	3.9512	.0199*
	Grp 2	83	3.6867	1.3608	.1494		
	Grp 3	140	3.8571	1.2895	.1090		
Q55Z Accommodation facilities	Grp 1	232	3.7629	1.1658	.0765	3.6040	.0280*
	Grp 2	81	3.5062	1.3704	.1523		
	Grp 3	139	3.4173	1.3454	.1141		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
Grp 1 = none, Grp 2 = once, Grp 3 = two times or more

Table D 44:

ANOVA Results for Testing HFS-Muzdalifah By the Pilgrims' Educational Level

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	4	5 4202	1.3550	1.6290	.1659
	Within Groups	434	361.0081	8318		
Q72Z Treatment by local people	Between Groups	4	5.7249	1.4312	1.4531	.2156
	Within Groups	435	428.4547	.9850		
Q71Z Treatment by policemen	Between Groups	4	2.3412	.5853	.7871	.5340
	Within Groups	437	324.9462	.7436		
Q73Z Treatment by Mutawifeen staff	Between Groups	4	9.7059	2.4265	2.1591	.0728
	Within Groups	417	468.6377	1.1238		
Q68Z Guiding services	Between Groups	4	2.5492	.6373	.7014	.5913
	Within Groups	435	395.2485	.9086		
Q65Z Cleanliness of sites	Between Groups	4	1.4379	.3595	.4306	.7865
	Within Groups	443	369 8099	8348		

Factor 2: Movements and information						
Q44Z Public transportation	Between Groups	4	11.5422	2.8856	2.0570	.0855
	Within Groups	458	642.4837	1.4028		
Q45Z Fewer traffic jams	Between Groups	4	10.0661	2.5165	2.4147	.0481*
	Within Groups	458	477.3162	1.0422		
Q49 Travelling (Muzdalifah-Mina)	Between Groups	4	3.0963	.7741	.6019	.6615
	Within Groups	453	582.5893	1.2861		
Q54Z Car parking facilities	Between Groups	4	7.4016	1.8504	1.7937	.1290
	Within Groups	451	465.2629	1.0316		
Q67Z General information	Between Groups	4	15.3350	3.8338	2.2412	0639
	Within Groups	423	723.5622	1.7105		
Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups	4	26.0281	6.5070	4.6582	.0011*
	Within Groups	451	629.9983	1.3969		
Q58Z Public drinking water	Between Groups	4	.3812	.0953	.1136	.9777
	Within Groups	447	375.0790	.8391		
Q59Z Toilets' facilities	Between Groups	4	4 8335	1.2084	1 3255	.2595
	Within Groups	446	406.5811	.9116		
Q64Z Health services	Between Groups	4	3.9332	.9833	1.2275	.2984
	Within Groups	437	350.0577	.8010		
Q46Z Pilgrims' movements	Between Groups	4	3.7765	.9441	1.0721	.3697
	Within Groups	453	398.9222	.8806		
Q55Z Accommodation facilities	Between Groups	4	32.8637	8.2159	5.2581	.0004*
	Within Groups	446	696.8835	1.5625		
Factor 4: Communication						
Q61Z Postal services	Between Groups	4	14.1581	3.5395	1.7373	.1409
	Within Groups	404	823.0888	2.0373		
Q60Z Public telephones	Between Groups	4	12.2824	3.0706	1.6898	1513
	Within Groups	433	786.8044	1.8171		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 45:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Pilgrims' Educational Level

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q45Z Fewer traffic jams	Grp 1	41	4 4634	1.0024	.1566	2.4147	.0481*
	Grp 2	65	4.1231	1.0534	.1307		
	Grp 3	86	3.9186	1.0314	.1112		
	Grp 4	123	4.2033	.9050	.0816		
	Grp 5	148	4.0405	1.0934	.0899		
Q56Z Restaurants and cafeterias	Grp 1	40	4.4000	9819	.1553	4.6582	.0011*
	Grp 2	63	3 9683	1 2177	1534		
	Grp 3	84	3 5000	1 2941	.1412		
	Grp 4	122	4.0410	1.1164	.1011		
	Grp 5	147	3 9524	1.2012	0991		
Q55Z Accommodation facilities	Grp 1	40	4.3750	1.0786	.1705	5.2581	.0004*
	Grp 2	63	3.6984	1.3986	.1762		
	Grp 3	84	3 3810	1.2114	1322		
	Grp 4	120	3.6583	1.1846	.1081		
	Grp 5	144	3.4375	1.2994	.1083		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39
Grp 1 = don't read or write, Grp 2 = read and write, Grp 3 = middle school, Grp 4 = high school, Grp 5 = universiy.

Table D 46:

ANOVA Results for Testing HFS-Muzdalifah By the Pilgrims' Accompanied Persons

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	2	1.0256	.5128	.5913	.5541
	Within Groups	413	358.1643	.8672		
Q72Z Treatment by local people	Between Groups	2	.1416	.0708	.0689	9334
	Within Groups	414	425.0671	1.0267		
Q71Z Treatment by policemen	Between Groups	2	.7304	.3652	.4726	.6237
	Within Groups	416	321.4415	.7727		
Q73Z Treatment by Mutawifeen staff	Between Groups	2	4.4765	2.2383	1.9420	.1447
	Within Groups	405	466.7784	1.1525		
Q68Z Guiding services	Between Groups	2	5.1570	2.5785	2.6694	.0705
	Within Groups	415	400.8741	.9660		
Q65Z Cleanliness of sites	Between Groups	2	.3466	1733	.2107	8101
	Within Groups	421	346.2194	.8224		
Factor 2: Movements and information						
Q44Z Public transportation	Between Groups	2	14.1184	7.0592	5.0108	.0071*
	Within Groups	436	614.2415	1.4088		
Q45Z Fewer traffic jams	Between Groups	2	6.0057	3.0028	2.8638	.0581
	Within Groups	436	457.1743	1.0486		
Q49 Travelling (Muzdalifah-Mina)	Between Groups	2	6.8698	3.4349	2.6746	.0701
	Within Groups	432	554.7991	1.2843		
Q54Z Car parking facilities	Between Groups	2	2.1947	1.0973	1.0376	.3552
	Within Groups	431	455.8353	1.0576		
Q67Z General information	Between Groups	2	3315	.1658	.0938	.9105
	Within Groups	407	719.3782	1.7675		
Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups	2	7.0646	3.5323	2.4378	.0886
	Within Groups	429	621.6020	1.4490		
Q58Z Public drinking water	Between Groups	2	5.9193	2.9597	3.6176	.0277*
	Within Groups	425	347.7068	.8181		
Q59Z Toilet facilities	Between Groups	2	3.8854	1.9427	2.1711	.1153
	Within Groups	424	379.3886	.8948		
Q64Z Health services	Between Groups	2	.2723	.1361	.1662	.8470
	Within Groups	415	339.9885	.8192		
Q46Z Pilgrims' movements	Between Groups	2	.9332	.4666	.5299	.5891
	Within Groups	431	379.5299	.8806		
Q55Z Accommodation facilities	Between Groups	2	1 6714	.8357	.5092	.6013
	Within Groups	429	704 0485	1 6411		
Factor 4: Communication						
Q61Z Postal services	Between Groups	2	17.0593	8.5296	4.2236	.0153*
	Within Groups	392	791.6496	2.0195		
Q60Z Public telephones	Between Groups	2	10.7517	5.3759	2.9379	.0541
	Within Groups	413	755.7074	1.8298		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 47:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and Accompanied Persons

Question Number / Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q44Z Public transportation	Grp 1	265	3.8943	1.2139	.0746	5.0108	.0071*
	Grp 2	125	3.5200	1.1954	.1069		
	Grp 3	49	4.0000	1.0000	.1429		
Q58Z Public drinking water	Grp 1	260	4.4962	.8632	.0535	3.6176	.0277*
	Grp 2	119	4.2269	1.0451	.0958		
	Grp 3	49	4.4082	.7337	.1048		
Q61Z Postal services	Grp 1	240	2.7375	1.4785	.0954	4.2236	.0153*
	Grp 2	109	2.6514	1.2720	.1218		
	Grp 3	46	3.3478	1.4486	.2136		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
Grp 1 = single, Grp 2 = with women, Grp 3 = with women and children.

Table D 48:

ANOVA Results for Testing HFS-Muzdalifah By the Way Pilgrims Managed their Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	2	2.7192	1.3596	1.7393	.1771
	Within Groups	362	282.9794	.7817		
Q72Z Treatment by local people	Between Groups	2	1.5327	.7663	.7848	.4570
	Within Groups	364	355.4483	.9765		
Q71Z Treatment by policemen	Between Groups	2	1 6154	8077	1.1386	3214
	Within Groups	367	260 3414	.7094		
Q73Z Treatment by Mutawifeen staff	Between Groups	2	4.3929	2.1964	2.0728	.1274
	Within Groups	350	370.8706	1.0596		
Q68Z Guiding services	Between Groups	2	4.2001	2.1001	2.3678	.0951
	Within Groups	364	322.8462	.8869		
Q65Z Cleanliness of sites	Between Groups	2	.2391	.1195	.1638	.8489
	Within Groups	371	270.6914	.7296		
Factor 2: Movements and information						
Q44Z Public transportation	Between Groups	2	7.5635	3.7817	2.8559	.0587
	Within Groups	385	509.8077	1.3242		
Q45Z Fewer traffic jams	Between Groups	2	6598	.3299	.3250	.7227
	Within Groups	385	390.8119	1.0151		
Q49 Travelling (Muzdalifah-Mina)	Between Groups	2	2.1567	1.0784	.8443	4307
	Within Groups	381	486.6324	1.2773		
Q54Z Car parking facilities	Between Groups	2	8932	.4466	4473	6397
	Within Groups	379	378.3843	.9984		
Q67Z General information	Between Groups	2	1.0255	.5128	.3119	.7322
	Within Groups	352	578.6534	1.6439		
Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups	2	17.1609	8.5804	6.1305	.0024*
	Within Groups	378	529.0648	1.3996		
Q58Z Public drinking water	Between Groups	2	5.4591	2.7295	3.5057	.0310*
	Within Groups	374	291.1987	.7786		
Q59Z Toilet facilities	Between Groups	2	1.9255	.9627	1.1366	.3220
	Within Groups	373	315.9469	.8470		
Q64Z Health services	Between Groups	2	.0755	.0377	.0510	.9503
	Within Groups	365	270 3593	.7407		
Q46Z Pilgrims' movements	Between Groups	2	.4676	2338	2805	7555
	Within Groups	381	317.5324	.8334		
Q55Z Accommodation facilities	Between Groups	2	3.1144	1.5572	1.0025	.3680
	Within Groups	375	582.5047	1.5533		

Factor 4: Communication						
Q61Z Postal services	Between Groups Within Groups	2 335	4.6546 654.2566	2.3273 1.9530	1.1917	.3050
Q60Z Public telephones	Between Groups Within Groups	2 361	11.6796 608.0017	5.8398 1.6842	3.4674	.0322*

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 49:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Way Pilgrims Managed their Hajj

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q56Z Restaurants and cafeterias	Grp 1 Grp 2 Grp 3	117 253 11	4.1880 3.7866 4.5455	1.1290 1.2190 .8202	.1044 .0766 .2473	6.1305	.0024*
Q58Z Public drinking water	Grp 1 Grp 2 Grp 3	116 250 11	4.5517 4.3600 4.9091	.8880 .8953 .3015	.0825 .0566 0909	3.5057	.0310*
Q60Z Public telephones	Grp 1 Grp 2 Grp 3	112 241 11	3.6429 3.2531 3.4545	1.3547 1.2609 1.5076	.1280 .0812 .4545	3.4674	0322*

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

Table D 50:

ANOVA Results for Testing HFS-Muzdalifah By the Pilgrims' Annual Income

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups Within Groups	4 365	4.8054 284.6244	1.2013 .7798	1.5406	1898
Q72Z Treatment by local people	Between Groups Within Groups	4 366	10.4697 361.5465	2.6174 .9878	2.6497	0331*
Q71Z Treatment by policemen	Between Groups Within Groups	4 368	4.8721 258.3290	1.2180 .7020	1.7351	.1416
Q73Z Treatment by Mutawifeen staff	Between Groups Within Groups	4 349	5.2821 381.8252	1.3205 1.0941	1.2070	3075
Q68Z Guiding services	Between Groups Within Groups	4 366	2.8653 347 0107	.7163 9481	.7555	5548
Q65Z Cleanliness of sites	Between Groups Within Groups	4 373	4.4893 294 1668	1 1223 7887	1 4231	2256
Factor 2: Movements and information						
Q44Z Public transportation	Between Groups Within Groups	4 380	4.7993 536.1617	1.1998 1.4110	8504	.4940
Q45Z Fewer traffic jams	Between Groups Within Groups	4 380	4.1635 335.3430	1.0409 .8825	1.1795	.3194
Q49 Travelling (Muzdalifah-Mina)	Between Groups Within Groups	4 375	6.5312 462.3399	1.6328 1.2329	1.3243	.2603
Q54Z Car parking facilities	Between Groups Within Groups	4 374	9.6696 358.7684	2.4174 .9593	2.5200	.0409*
Q67Z General information	Between Groups Within Groups	4 354	10.0286 563.6372	2.5071 1.5922	1 5746	.1805
Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups Within Groups	4 375	3.8989 569.8484	9747 1.5196	o414	6332
Q58Z Public drinking water	Between Groups Within Groups	4 375	6.9822 281.8047	1.7455 7515	2 3228	0562

Q59Z Toilet facilities	Between Groups	4	6.0894	1.5223	1.8044	.1273
	Within Groups	373	314.6964	.8437		
Q64Z Health services	Between Groups	4	4.0083	1.0021	1.2445	2916
	Within Groups	368	296.3241	.8052		
Q46Z Pilgrims' movements	Between Groups	4	3.3640	.8410	.9719	.4228
	Within Groups	377	326.2172	.8653		
Q55Z Accommodation facilities	Between Groups	4	14.9590	3.7398	2.3862	.0508
	Within Groups	369	578.3244	1.5673		
Factor 4: Communication						
Q61Z Postal services	Between Groups	4	3.9217	.9804	.5484	.7003
	Within Groups	335	598.8548	1.7876		
Q60Z Public telephones	Between Groups	4	10.3203	2.5801	1 5284	.1933
	Within Groups	362	611.1075	1.6881		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 51:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Pilgrims Annual Income

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q72Z Treatment by local people	Grp 1	281	4.1174	.9767	.0583		
	Grp 2	47	4.1277	.9916	.1446	2.6497	.0331*
	Grp 3	22	4.5455	.7385	.1575		
	Grp 4	6	4.0000	1.5492	.6325		
	Grp 5	15	3.4667	1.3558	.3501		
Q54Z Car parking facilities	Grp 1	289	4.2007	.9544	0561		
	Grp 2	47	4.0638	1.1113	.1621	2.5200	.0409*
	Grp 3	21	4.6190	.7400	.1615		
	Grp 4	7	3.4286	1.3973	.5281		
	Grp 5	15	3.9333	1.0998	.2840		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39
Grp 1 = SR 12000 or less, Grp 2 = SR 12001-24000, Grp 3 = SR 24001-36000, Grp 4 = SR 36001-48000, Grp 5 = >SR 48000.

Table D 52:

ANOVA Results for Testing HFS-Muzdalifah By the Traveller Pilgrims

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	2	3.6550	1.8275	2.2063	1115
	Within Groups	392	324.6893	.8283		
Q72Z Treatment by local people	Between Groups	2	5.1622	2.5811	2 5877	.0765
	Within Groups	392	391.0049	.9975		
Q71Z Treatment by policemen	Between Groups	2	4.5927	2.2963	2.8860	.0570
	Within Groups	395	314 2918	.7957		
Q73Z Treatment by Mutawifeen staff	Between Groups	2	8.4895	4.2448	3.7094	.0254*
	Within Groups	382	437.1364	1.1443		
Q68Z Guiding services	Between Groups	2	.3904	1952	.2005	.8184
	Within Groups	395	384.5744	.9736		
Q65Z Cleanliness of sites	Between Groups	2	9201	.4600	.5492	.5778
	Within Groups	400	335.0452	.8376		
Factor 2: Movements and information						
Q44Z Public transportation	Between Groups	2	9 8276	4.9138	3.4663	0321*
	Within Groups	415	588 2968	1.4176		
Q45Z Fewer traffic jams	Between Groups	2	6.1876	3.0938	2.9753	.0521
	Within Groups	415	431.5277	1.0398		
Q49 Travelling (Muzdalifah-Mina)	Between Groups	2	7.6123	3.8061	2.9498	.0535
	Within Groups	412	531.6022	1.2903		
Q54Z Car parking facilities	Between Groups	2	1.7275	8637	.7914	4539
	Within Groups	409	446.3575	1.0913		
Q67Z General information	Between Groups	2	17.5736	8 7868	5.2361	.0057*
	Within Groups	383	642.7166	1.6781		

Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups	2	5.9058	2.9529	2.1799	.1144
	Within Groups	408	552.6830	1.3546		
Q58Z Public drinking water	Between Groups	2	.1876	.0938	.1111	.8949
	Within Groups	404	341.1244	.8444		
Q59Z Toilet facilities	Between Groups	2	5.0400	2.5200	2.8153	.0611
	Within Groups	403	360.7334	.8951		
Q64Z Health services	Between Groups	2	.9528	.4764	.5871	.5564
	Within Groups	395	320.4844	.8114		
Q46Z Pilgrims' movements	Between Groups	2	2.1998	1.0999	1.2122	.2986
	Within Groups	410	372.0181	.9074		
Q55Z Accommodation facilities	Between Groups	2	5.8836	2.9418	1.8599	1570
	Within Groups	404	639.0009	1.5817		
Factor 4: Communication						
Q61Z Postal services	Between Groups	2	2.4910	1.2455	.6129	.5423
	Within Groups	371	753.8967	2.0321		
Q60Z Public telephones	Between Groups	2	.3506	.1753	0955	.9090
	Within Groups	391	718.0555	1.8365		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 53:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and Travelling Experience

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q73Z Treatment by Mutawifeen staff	Grp 1	47	4.2766	1.2105	.1766	3.7094	.0254*
	Grp 2	138	3.8696	1.0727	.0913		
	Grp 3	200	4.1400	1.0323	.0730		
Q44Z Public transportation	Grp 1	51	3.9804	1.2081	.1692		
	Grp 2	148	3.5541	1.2138	.0998	3.4663	.0321*
	Grp 3	219	3.8311	1.1706	.0791		
Q67Z General information	Grp 1	48	4 0417	1.3202	.1906		
	Grp 2	135	3.4148	1.2301	.1059	5.2361	.0057*
	Grp 3	203	3.3842	1.3313	.0934		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside and out side his country

Table D 54:

ANOVA Results for Testing HFS-Muzdalifah By the Reasons for Coming in this Hajj Season

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Caring and Sanitation						
Q70Z Treatment by officials	Between Groups	3	4.8105	1.6035	1.9801	.1164
	Within Groups	391	316.6325	.8098		
Q72Z Treatment by local people	Between Groups	3	5.0314	1.6771	1.7763	.1511
	Within Groups	393	371.0694	.9442		
Q71Z Treatment by policemen	Between Groups	3	8 3594	2.7865	3 7598	.0110*
	Within Groups	395	292.7434	.7411		
Q73Z Treatment by Mutawifeen staff	Between Groups	3	1.0984	.3661	.3258	.8067
	Within Groups	376	422.5331	1.1238		
Q68Z Guiding services	Between Groups	3	3.2636	1.0879	1.1583	.3255
	Within Groups	392	368.1581	.9392		
Q65Z Cleanliness of sites	Between Groups	3	.4225	.1408	.1762	.9125
	Within Groups	400	319.6246	.7991		

Factor 2: Movements and information						
Q44Z Public transportation	Between Groups Within Groups	3 416	4.7779 562.6007	1.5926 1.3524	1.1776	.3179
Q45Z Fewer traffic jams	Between Groups Within Groups	3 415	6.6713 422.0208	2.2238 1.0169	2.1868	.0890
Q49 Travelling (Muzdalifah-Mina)	Between Groups Within Groups	3 410	3.4122 523.4187	1.1374 1.2766	.8909	.4458
Q54Z Car parking facilities	Between Groups Within Groups	3 408	13.0342 418.2279	4.3447 1.0251	4.2385	.0058*
Q67Z General information	Between Groups Within Groups	3 381	11.6645 646.5329	3.8882 1.6969	2.2913	.0778
Factor 3: Hospitality and facilities finding						
Q56Z Restaurants and cafeterias	Between Groups Within Groups	3 408	4.5569 527.2004	1.5190 1.2922	1.1755	.3187
Q58Z Public drinking water	Between Groups Within Groups	3 404	3.9273 315.5629	1.3091 .7811	1.6760	.1716
Q59Z Toilet facilities	Between Groups Within Groups	3 403	.6869 357.8683	.2290 .8880	.2579	.8557
Q64Z Health services	Between Groups Within Groups	3 394	2.8823 298.2559	.9608 .7570	1.2692	.2846
Q46Z Pilgrims' movements	Between Groups Within Groups	3 411	4.0621 342.7909	1.3540 .8340	1.6235	.1833
Q55Z Accommodation facilities	Between Groups Within Groups	3 404	3.6438 618.3464	1.2146 1.5306	.7936	.4980
Factor 4: Communication						
Q61Z Postal services	Between Groups Within Groups	3 364	40.7465 710.9927	13.5822 1.9533	6.9535	.0001*
Q60Z Public telephones	Between Groups Within Groups	3 391	9.2012 702.1761	3.0671 1.7958	1.7079	.1648

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.62

Table D 55:

Significant Results of ANOVA Tests Based on HFS-Muzdalifah and the Purpose of Coming to this Hajj Season

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q71Z Treatment by policemen	Grp 1 Grp 2 Grp 3 Grp 4	295 47 14 43	4.4305 4.4255 4.0714 4.0000	.8296 .8274 1.3848 .8997	.0483 .1207 .3701 .1372	3.7598	.0110*
Q54Z Car parking facilities	Grp 1 Grp 2 Grp 3 Grp 4	304 50 14 44	4.1480 4.4800 3.5000 3.9545	.9989 .9311 1.5064 1.0105	.0573 .1317 .4026 .1523	4.2385	.0058*
Q61Z Postal services	Grp 1 Grp 2 Grp 3 Grp 4	279 32 14 43	2.9964 2.1875 1.6429 2.9535	1.4206 1.0906 .9288 1.5577	.0850 .1928 .2482 .2375	6.9535	.0001*

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 2.62
** Grp 1 = to perform Hajj only, Grp 2 = for Hajj and business, Grp 3 = for Hajj and official work, Grp 4 = for Hajj and to accompany a friend or a relative.

Table D 56:

ANOVA Results for Testing HFS-Mina By the Pilgrims' Nationality

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	7	60.8742	8.6963	11.3739	.0000
	Within Groups	453	346.3579	.7646		
	Total	460	407.2321			
Q58I Public drinking water	Between Groups	7	25.9229	3.7033	5.9571	.0000
	Within Groups	451	280.3691	.6217		
	Total	458	306.2919			
Q64I Health services	Between Groups	7	25 1314	3 5902	6.8073	0000
	Within Groups	444	234.1673	.5274		
	Total	451	259.2987			
Q66I Signposting	Between Groups	7	17.4232	2.4890	5.0872	0000
	Within Groups	449	219.6840	.4893		
	Total	456	237.1072			
Q65I Cleanliness of sites	Between Groups	7	47.2195	6.7456	8.3074	.0000
	Within Groups	448	363.7783	.8120		
	Total	455	410.9978			
Q68I Guiding services	Between Groups	7	57.8039	8.2577	11.8705	.0000
	Within Groups	440	306.0867	.6957		
	Total	447	363.8906			
Q57I Inexpensive food	Between Groups	7	122.2023	17.4575	21.1887	0000
	Within Groups	453	373.2294	.8239		
	Total	460	495.4317			
Q56I Restaurants and cafeterias	Between Groups	7	26.8877	3.8411	4.6454	.0000
	Within Groups	457	377.8779	.8269		
	Total	464	404.7656			
Q63I Reasonable pricing	Between Groups	7	119 1483	17 0212	15.6340	.0000
	Within Groups	441	480.1301	1.0887		
	Total	448	599.2784			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	7	27.6649	3.9521	4.5887	.0001
	Within Groups	463	398.7725	.8613		
	Total	470	426.4374			
Q46I Pilgrims movements	Between Groups	7	18.0952	2.5850	3.5438	.0010
	Within Groups	455	331.9005	.7295		
	Total	462	349.9957			
Q44I Public transportation	Between Groups	7	24.1873	3.4553	3 8012	0005
	Within Groups	463	420.8700	.9090		
	Total	470	445.0573			
Q54I Car parking facilities	Between Groups	7	122.1015	17.4431	14.6477	0000
	Within Groups	466	554.9302	1.1908		
	Total	473	677.0316			
Q50 Travelling to Makkah	Between Groups	7	35.2011	5.0287	5.1378	.0000
	Within Groups	455	445.3389	.9788		
	Total	462	480.5400			
Q53 Movements in Jamarat	Between Groups	7	76 7281	10.9612	13.0270	.0000
	Within Groups	457	384.5278	8414		
	Total	464	461.2559			
Q55I Accommodation facilities	Between Groups	7	12.8327	1 8332	2.2275	0310
	Within Groups	452	371 9913	.8230		
	Total	459	384 8239			
Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	7	47.6525	6.8075	6.8285	.0000
	Within Groups	421	419.7041	.9969		
	Total	428	467.3566			
Q72I Treatment by local people	Between Groups	7	22.3004	3.1858	3.7230	.0006
	Within Groups	439	375.6503	.8557		
	Total	446	397.9508			
Q70I Treatment by officials	Between Groups	7	15.9550	2.2793	2.9821	.0046
	Within Groups	437	334.0090	.7643		
	Total	444	349.9640			
Q71I Treatment by policemen	Between Groups	7	16 6876	2.3839	3 4272	0014
	Within Groups	441	306.7557	.6956		
	Total	448	323.4432			
Q67I General information	Between Groups	7	107.9188	15.4170	12 2316	.0000
	Within Groups	434	547 0247	1.2604		
	Total	441	654.9434			

Factor 4: Communication						
Q61I Postal services	Between Groups	7	116.4630	16.6376	10.8354	.0000
	Within Groups	416	638.7611	1.5355		
	Total	423	755.2241			
Q60I Public telephones	Between Groups	7	82.0411	11.7202	10.9216	.0000
	Within Groups	443	475.3912	1.0731		
	Total	450	557.4324			
Q69I Media services	Between Groups	7	165.0769	23.5824	12.7417	.0000
	Within Groups	411	760.6797	1.8508		
	Total	418	925.7566			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	7	23.3826	3.3404	4.5505	.0001
	Within Groups	440	322.9902	.7341		
	Total	447	346.3728			
Q78I Shops selling coupons for animals sacrificing	Between Groups	7	9.5170	1.3596	1.7617	.0932
	Within Groups	434	334.9265	.7717		
	Total	441	344.4434			

Significant statistical differences among different means occur when F Prob.< .05 and F Ratio > 2.03

Table D 57 :

Significant Results of ANOVA Tests Based on HFS-Mina and Pilgrims' Nationality

Question Number / Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Factor 1: Basic facilities & services							
Q59I Toilet facilities	Grp 1	50	4.0400	1.3547	.1916	11.3739	.0000*
	Grp 2	13	4.8462	.3755	.1042		
	Grp 3	15	4.5333	.6399	.1652		
	Grp 4	45	4.4444	.9184	.1369		
	Grp 5	81	3.8519	1.1631	.1292		
	Grp 6	109	4.8899	.3426	.0328		
	Grp 7	120	4.5000	.7334	.0669		
	Grp 8	28	4.5000	1.0000	.1890		
Q58I Public drinking water	Grp 1	50	4 2600	1.2090	.1710	5.9571	.0000*
	Grp 2	13	4.4615	.5189	.1439		
	Grp 3	15	4.4667	6399	.1652		
	Grp 4	45	4 4444	1 0125	1509		
	Grp 5	79	4.2405	9636	1084		
	Grp 6	109	4.8991	.3026	.0290		
	Grp 7	120	4.5250	.5936	.0542		
	Grp 8	28	4.6429	1.0616	.2006		
Q64I Health services	Grp 1	49	4.2857	1.0992	.1570	6.8073	.0000*
	Grp 2	10	4.5000	.5270	1667		
	Grp 3	15	4 6667	.4880	.1260		
	Grp 4	45	4 3333	1.0660	.1589		
	Grp 5	76	4.4474	.8702	.0998		
	Grp 6	109	4.9541	.2504	.0240		
	Grp 7	120	4.6667	.6525	.0596		
	Grp 8	28	4.8214	.4756	.0899		
Q66I Signposting	Grp 1	49	4.3469	.9906	1415	5.0872	.0000*
	Grp 2	10	4.3000	.9487	.3000		
	Grp 3	15	4.9333	.2582	.0667		
	Grp 4	45	4.4889	.9444	.1408		
	Grp 5	81	4.7284	6711	.0746		
	Grp 6	109	4 9266	.2620	.0251		
	Grp 7	120	4.6333	6602	0603		
	Grp 8	28	4 5000	1.0364	.1959		
Q65I Cleanliness of sites	Grp 1	49	4.2245	1.1949	.170[illegible]	8.30[illegible]4	.0000*
	Grp 2	10	4 4000	6992	2211		
	Grp 3	15	4.8667	.3519	.0909		
	Grp 4	45	4 5556	.86[illegible]5	.1293		
	Grp 5	81	3 9136	1.18[illegible]3	.1317		
	Grp 6	108	4.8519	3822	.0368		
	Grp 7	120	4.3500	.9042	.0825		
	Grp 8	28	4.3929	1.0659	.2014		
Q68I Guiding services	Grp 1	48	4 4375	.8227	.1187	11.8705	0000*
	Grp 2	9	4.4444	5270	.1757		
	Grp 3	15	4 5333	6399	.1652		
	Grp 4	45	4.5778	.8916	.1329		
	Grp 5	74	3 7973	1.1465	.1333		
	Grp 6	109	4.9358	.4144	.0397		
	Grp 7	120	4.4667	.8192	.0748		
	Grp 8	28	4.5357	1.1701	.2211		
Q57I Inexpensive food	Grp 1	49	3.9388	1.1620	.1660	21.1887	.0000*
	Grp 2	14	4.2143	.6993	.1869		
	Grp 3	15	4.4000	.6325	.1633		
	Grp 4	45	4.4444	.9184	.1369		
	Grp 5	81	3.1975	1.1556	.1284		
	Grp 6	109	4.6697	.5280	.0506		
	Grp 7	120	4.4833	.8598	.0785		
	Grp 8	28	4.3571	1.1292	.2134		

Q56I Restaurants and cafeterias	Grp 1	50	4.0800	1.1578	.1637	4.6454	.0000*
	Grp 2	14	4.3571	.6333	.1693		
	Grp 3	16	4.4375	.7274	.1819		
	Grp 4	45	4.5111	.8950	.1334		
	Grp 5	82	3.9756	.9935	.1097		
	Grp 6	109	4.6147	.6654	.0637		
	Grp 7	121	4.1736	.8629	.0784		
	Grp 8	28	4.1071	1.3149	.2485		
Q63I Reasonable pricing	Grp 1	49	3.2857	1.4142	.2020	15.6340	.0000*
	Grp 2	11	3.9091	1.2210	.3682		
	Grp 3	15	4.0667	1.0998	.2840		
	Grp 4	45	4.4444	.9184	.1369		
	Grp 5	75	3.3467	1.1566	.1335		
	Grp 6	107	4.6449	.6903	.0667		
	Grp 7	120	3.7500	1.0710	.0978		
	Grp 8	27	4.2593	1.0595	.2039		
Factor 2: Movements & accommodation							
Q45I Fewer traffic jams	Grp 1	51	4.0980	1.1875	1663	4.5887	.0001*
	Grp 2	20	3.7000	1.2607	2819		
	Grp 3	16	4.5000	.6325	1581		
	Grp 4	45	4.4000	.9863	.1470		
	Grp 5	82	3.8659	1.0973	.1212		
	Grp 6	108	4.3796	.6371	.0613		
	Grp 7	121	4.4132	.7924	.0720		
	Grp 8	28	4.4643	1.1049	.2088		
Q46I Pilgrims movements	Grp 1	50	4.2200	1.0554	.1493	3.5438	.0010*
	Grp 2	19	4.0000	1.1547	.2649		
	Grp 3	16	4.7500	.4472	.1118		
	Grp 4	45	4.2667	1.0090	.1504		
	Grp 5	78	4.4615	.8169	.0925		
	Grp 6	109	4.7156	.5459	.0523		
	Grp 7	121	4.3802	.8685	.0790		
	Grp 8	25	4.3200	1.1446	.2289		
Q44I Public transportation	Grp 1	51	3.8824	1.1941	.1672	3.8012	0005*
	Grp 2	20	3.5500	1.1459	.2562		
	Grp 3	16	4.3750	.6191	.1548		
	Grp 4	45	4.2444	1.1900	.1774		
	Grp 5	81	3.9259	1.0698	.1189		
	Grp 6	109	4.4037	.6820	.0653		
	Grp 7	121	4.2314	.8343	.0758		
	Grp 8	28	4.2500	1 0758	.2033		
Q54I Car parking facilities	Grp 1	48	3.9167	1.0686	.1542	14.6477	.0000*
	Grp 2	24	2 6667	2.0144	.4112		
	Grp 3	17	4.0588	1.2485	.3028		
	Grp 4	44	4.5455	.8199	1236		
	Grp 5	82	3.6951	1 3671	.1510		
	Grp 6	109	4.7523	.5120	.0490		
	Grp 7	122	4.3197	.9024	.0817		
	Grp 8	28	4.0714	1.6762	.3168		
Q50 Travelling to Makkah	Grp 1	51	4.0588	1.1902	.1667	5.1378	.0000*
	Grp 2	17	3 1765	1.1311	.2743		
	Grp 3	16	3.7500	1.0646	.2661		
	Grp 4	45	4.2444	.9806	.1462		
	Grp 5	78	3.6667	1.1696	.1324		
	Grp 6	108	4.2315	.6643	0639		
	Grp 7	121	4.2314	.9726	.0884		
	Grp 8	27	4.1111	1.0500	.2021		
Q53 Movements in Jamarat	Grp 1	51	4.0784	1.2782	.1790	13.0270	.0000*
	Grp 2	17	4 5882	8703	.2111		
	Grp 3	16	4.1875	.9106	.2276		
	Grp 4	45	4.2444	1.0478	.1562		
	Grp 5	80	3.6250	1.1733	.1312		
	Grp 6	108	4.8704	.3641	.0350		
	Grp 7	121	4.3884	8101	0736		
	Grp 8	27	4.3704	1.0432	.2008		
Q55I Accommodation facilities	Grp 1	51	4 0000	1.2490	.1749	2 2275	.0310*
	Grp 2	15	3.7333	1.0998	.2840		
	Grp 3	16	4.3750	.8062	.2016		
	Grp 4	45	4.4222	.9412	.1403		
	Grp 5	76	4.1316	.8381	.0961		
	Grp 6	109	4.4037	.6543	.0627		
	Grp 7	121	4.1818	.8266	.0751		
	Grp 8	27	4.1481	1.3503	.2599		

Factor 3: Pilgrim Care and information

Q73I Treatment by Mutawifeen staff	Grp 1	47	4.3191	1.0856	.1584	6.8285	.0000*
	Grp 2	8	4.1250	.6409	.2266		
	Grp 3	15	4.4667	.6399	.1652		
	Grp 4	44	4.4773	1.0227	.1542		
	Grp 5	60	3.5000	1.2419	.1603		
	Grp 6	107	4.5327	.6633	.0641		
	Grp 7	120	4.1083	1.0108	.0923		
	Grp 8	28	4.1071	1.3968	.2640		
Q72I Treatment by local people	Grp 1	49	4.1633	.9431	.1347	3.7230	.0006*
	Grp 2	8	4.2500	.7071	.2500		
	Grp 3	15	4.4000	.7368	.1902		
	Grp 4	44	4.4545	.9512	.1434		
	Grp 5	76	3.9737	.9657	.1108		
	Grp 6	108	4.5000	.6904	0664		
	Grp 7	120	4.0000	1.0042	.0917		
	Grp 8	27	4.3333	1.2710	.2446		
Q70I Treatment by officials	Grp 1	48	4.3750	1.0644	.1536	2.9821	.0046*
	Grp 2	9	4.2222	.9718	3239		
	Grp 3	15	4.4000	.7368	.1902		
	Grp 4	45	4.4222	1.0333	.1540		
	Grp 5	74	4.3784	.9466	.1100		
	Grp 6	107	4.6636	.5485	.0530		
	Grp 7	120	4.1417	.8628	.0788		
	Grp 8	27	4.4815	1.1222	.2160		
Q71I Treatment by policemen	Grp 1	49	4.4082	.9772	.1396	3.4272	.0014*
	Grp 2	8	4.3750	.5175	.1830		
	Grp 3	15	4.4667	.7432	.1919		
	Grp 4	44	4.4091	1.0414	.1570		
	Grp 5	77	4.4805	.8677	.0989		
	Grp 6	108	4.6852	.4862	.0468		
	Grp 7	120	4.1500	.8855	.0808		
	Grp 8	28	4.4286	1.0338	1954		
Q67I General information	Grp 1	48	2.9583	1.5012	.2167	12.2316	.0000*
	Grp 2	10	3.4000	1.3499	.4269		
	Grp 3	15	3.7333	1.2228	.3157		
	Grp 4	45	4.4000	.9863	.1470		
	Grp 5	68	3.4265	1.1885	.1441		
	Grp 6	108	4.4537	.7536	.0725		
	Grp 7	120	3.7333	1.1132	.1016		
	Grp 8	28	3.6786	1.4670	.2772		
Factor 4: Communication							
Q61I Postal services	Grp 1	48	3.3750	1.2985	.1874	10.8354	0000*
	Grp 2	11	2.8182	1.0787	.3252		
	Grp 3	15	3.5333	1.6847	.4350		
	Grp 4	45	4.3778	.9603	.1432		
	Grp 5	49	3.6122	1.3665	.1952		
	Grp 6	108	4.1667	.8593	.0827		
	Grp 7	120	3.0167	1 4837	.1354		
	Grp 8	28	4.0357	1.1701	.2211		
Q60I Public telephones	Grp 1	48	3 9792	1.2289	.1774	10.9216	0000*
	Grp 2	13	2 8462	1.0682	2963		
	Grp 3	15	4.5333	.9155	.2364		
	Grp 4	45	4.4889	.9200	.1372		
	Grp 5	73	3.9315	1.1221	.1313		
	Grp 6	109	4 4587	.6876	0659		
	Grp 7	120	3.5583	1.1938	.1090		
	Grp 8	28	4.3571	1.0616	.2006		
Q69I Media services	Grp 1	46	3.2826	1.5299	.2256	12.7417	.0000*
	Grp 2	9	2.6667	1.2247	.4082		
	Grp 3	15	2.8667	1.7265	.4458		
	Grp 4	45	2 7556	1.7077	.2546		
	Grp 5	47	3 0213	1.4369	.2096		
	Grp 6	109	4 1284	7341	.0703		
	Grp 7	120	2 5500	1.4999	.1369		
	Grp 8	28	3 6429	1.3935	2633		

Table D 58:

Significant Results of ANOVA Tests Based on HFS-Mina and Pilgrims' Nationality (Continued)

Question Number / Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Factor 5: Hair cutting and animal sacrificing							
Q79I Barber shops	Grp 1	48	4.2917	1.0510	.1517	4.5505	.0001*
	Grp 2	8	3.3750	.9161	.3239		
	Grp 3	15	4.9333	.2582	.0667		
	Grp 4	44	4.4545	1.0220	.1541		
	Grp 5	79	4.3797	.8959	.1008		
	Grp 6	109	4.2844	.8829	0846		
	Grp 7	120	4.6750	.6239	.0570		
	Grp 8	25	4.4800	1.0456	.2091		
Q78I Shops selling coupons for animals sacrificing	Grp 1	48	4.4792	.9451	.1364	1.7617	.0932*
	Grp 2	8	4.1250	.6409	.2266		
	Grp 3	15	3.8667	1.6417	.4239		
	Grp 4	43	4.4419	1.0305	.1572		
	Grp 5	75	4.6000	.8220	.0949		
	Grp 6	109	4.5963	.5630	.0539		
	Grp 7	119	4.5462	.8611	.0789		
	Grp 8	25	4.4000	1.2247	.2449		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
** Grp 1 = Arabic countries, Grp 2 = African countries, Grp 3 = Iran, Grp 4 = America, Europe & Turkey, Grp 5 = South Asia, Grp 6 = South East Asia, Grp 7 = Saudi Arabia, Grp 8 = Other nationality

Table D 59:

ANOVA Results for Testing HFS-Mina By Where the Pilgrims Live at Home

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	2	.2147	.1074	.1244	.8831
	Within Groups	449	387.6149	.8633		
	Total	451	387.8296			
Q58I Public drinking water	Between Groups	2	.7131	.3566	5403	.5829
	Within Groups	447	294.9846	6599		
	Total	449	295.6978			
Q64I Health services	Between Groups	2	2.9545	1.4773	2.5841	.0766
	Within Groups	440	251.5331	.5717		
	Total	442	254.4876			
Q66I Signposting	Between Groups	2	.4068	.2034	.4141	.6612
	Within Groups	445	218.5843	.4912		
	Total	447	218.9911			
Q65I Cleanliness of sites	Between Groups	2	3.0920	1.5460	1.7563	.1739
	Within Groups	444	390.8409	.8803		
	Total	446	393.9329			
Q68I Guiding services	Between Groups	2	1.0633	.5317	.6429	5263
	Within Groups	436	360.5585	.8270		
	Total	438	361.6219			
Q57I Inexpensive food	Between Groups	2	9 7381	4 8691	4.5450	.0111*
	Within Groups	449	481 0141	1 0713		
	Total	451	490.7522			
Q56I Restaurants and cafeterias	Between Groups	2	6 1533	3.0766	3.5381	0299*
	Within Groups	453	393.9169	.8696		
	Total	455	400.0702			
Q63I Reasonable pricing	Between Groups	2	.9250	.4625	.345[illegible]	.7079
	Within Groups	437	584.6295	1.3378		
	Total	439	585.5545			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	2	4.7072	2.3536	2 6470	0719
	Within Groups	459	408.1239	.8892		
	Total	461	412.8312			
Q46I Pilgrims movements	Between Groups	2	1.4283	.7142	.950[illegible]	.38[illegible]3
	Within Groups	451	338.8030	.7512		
	Total	453	340.2313			
Q44I Public transportation	Between Groups	2	2.9100	1.4550	1.5510	.2131
	Within Groups	459	430.5878	.9381		
	Total	461	433.4978			
Q54I Car parking facilities	Between Groups	2	2.1021	1.0511	.7241	.4853
	Within Groups	462	670.6205	1.4516		
	Total	464	672.7226			
Q50 Travelling to Makkah	Between Groups	2	5.625[illegible]	2.8129	2.7107	.0676
	Within Groups	451	467.9976	1.0377		
	Total	453	473.6233			
Q53 Movements in Jamarat	Between Groups	2	.0444	.0222	.0220	.9783
	Within Groups	453	457.5674	1.0101		
	Total	455	457.6118			

Q55I Accommodation facilities	Between Groups	2	.5395	.2697	.3198	.7264
	Within Groups	448	377.8419	.8434		
	Total	450	378.3814			
Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	2	3.9430	1.9715	1.7878	.1686
	Within Groups	417	459.8546	1.1028		
	Total	419	463.7976			
Q72I Treatment by local people	Between Groups	2	.3723	.1861	.2051	8147
	Within Groups	435	394.8811	.9078		
	Total	437	395.2534			
Q70I Treatment by officials	Between Groups	2	1.2663	.6332	.7991	.4504
	Within Groups	433	343.0892	.7924		
	Total	435	344.3555			
Q71I Treatment by policemen	Between Groups	2	4.6919	2.3459	3.2563	.0395*
	Within Groups	437	314.8331	.7204		
	Total	439	319.5250			
Q67I General information	Between Groups	2	.3255	.1627	.1091	.8967
	Within Groups	430	641.7022	1.4923		
	Total	432	642.0277			
Factor 4: Communication						
Q61I Postal services	Between Groups	2	2.3467	1.1734	6473	.5240
	Within Groups	412	746.8725	1.8128		
	Total	414	749.2193			
Q60I Public telephones	Between Groups	2	4.2340	2.1170	1.7311	.1783
	Within Groups	439	536.8611	1.2229		
	Total	441	541.0950			
Q69I Media services	Between Groups	2	2.1022	1.0511	.4721	.6240
	Within Groups	407	906.0954	2.2263		
	Total	409	908.1976			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	2	.6913	.3457	.4420	.6430
	Within Groups	437	341.7723	.7821		
	Total	439	342.4636			
Q78I Shops selling coupons for animals sacrificing	Between Groups	2	7.0159	3.5079	4.5348	.0112*
	Within Groups	431	333.4012	.7736		
	Total	433	340.4171			

*Significant statistical differences among different means occur when F Prob.< .05 and F Ratio > 3.02

Table D 60

Significant Results of ANOVA Tests Based on HFS-Mina and Where the Pilgrims Live at Home

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q57I Inexpensive food	Grp 1	72	4.3056	.9441	.1113	4.5450	.0111*
	Grp 2	122	3.9754	1.2363	.1119		
	Grp 3	258	4.3062	.9518	.0593		
Q56I Restaurants & cafeterias	Grp 1	73	4.0411	.9195	.1076	3.5381	.0299*
	Grp 2	123	4.4065	.9129	.0823		
	Grp 3	260	4.2885	.9451	.0586		
Q71I Treatment by policemen	Grp 1	70	4.5857	.7893	.0943	3.2563	.0395*
	Grp 2	116	4.5172	.6913	.0642		
	Grp 3	254	4.3386	.9259	.0581		
Q78I Shops selling coupons for animals sacrificing	Grp 1	71	4.5070	.6519	.0774	4 5348	0112*
	Grp 2	112	4.7232	5728	0541		
	Grp 3	251	4.4223	1.0339	0653		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = Village, Grp 2 = Town, Grp 3 = City

Table D 61:

ANOVA Results for Testing HFS-Mina By the Pilgrims' Age

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	5	16.0264	3.2053	3.6984	0027*
	Within Groups	450	390.0000	.8667		
	Total	455	406.0263			
Q58I Public drinking water	Between Groups	5	9.2037	1.8407	2.7873	.0171*
	Within Groups	448	295.8646	.6604		
	Total	453	305.0683			
Q64I Health services	Between Groups	5	3.0117	.6023	1.0403	.3933
	Within Groups	441	255.3417	.5790		
	Total	446	258.3535			

Q66I Signposting	Between Groups	5	4.4812	.8962	1.7425	.1235
	Within Groups	446	229.4015	.5144		
	Total	451	233.8827			
Q65I Cleanliness of sites	Between Groups	5	17.9050	3.5810	4.1460	.0011*
	Within Groups	445	384.3567	.8637		
	Total	450	402.2616			
Q68I Guiding services	Between Groups	5	7.5514	1.5103	1.8618	0998
	Within Groups	438	355.3044	.8112		
	Total	443	362 8559			
Q57I Inexpensive food	Between Groups	5	21.2089	4.2418	4.0490	.0013
	Within Groups	450	471.4205	1.0476		
	Total	455	492.6294			
Q56I Restaurants and cafeterias	Between Groups	5	17.9372	3.5874	4.2414	.0009*
	Within Groups	454	383.9997	.8458		
	Total	459	401.9370			
Q63I Reasonable pricing	Between Groups	5	17.3519	3.4704	2.6344	.0232*
	Within Groups	438	576.9972	1.3173		
	Total	443	594.3491			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	5	16.6782	3.3356	3.7799	.0023*
	Within Groups	460	405.9334	.8825		
	Total	465	422.6116			
Q46I Pilgrims movements	Between Groups	5	3.7791	.7558	1.0074	.4128
	Within Groups	452	339.1292	.7503		
	Total	457	342.9083			
Q44I Public transportation	Between Groups	5	10.1341	2.0268	2.1743	.0559
	Within Groups	460	428 7951	.9322		
	Total	465	438.9292			
Q54I Car parking facilities	Between Groups	5	29.8519	5.9704	4.3124	.0008*
	Within Groups	463	641.0095	1.3845		
	Total	468	670.8614			
Q50 Travelling to Makkah	Between Groups	5	4.7263	.9453	.9073	.4760
	Within Groups	452	470.9091	1.0418		
	Total	457	475.6354			
Q53 Movements in Jamarat	Between Groups	5	9.3067	1.8613	1.8870	.0952
	Within Groups	455	448.8191	.9864		
	Total	460	458.1258			
Q55I Accommodation facilities	Between Groups	5	3.7325	.7465	.8955	.4839
	Within Groups	449	374.2895	.8336		
	Total	454	378.0220			
Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	5	14.3420	2.8684	2.6861	0210*
	Within Groups	419	447.4368	1.0679		
	Total	424	461.7788			
Q72I Treatment by local people	Between Groups	5	4.4333	.8867	.9997	.4175
	Within Groups	436	386.7161	8870		
	Total	441	391.1493			
Q70I Treatment by officials	Between Groups	5	6.6872	1.3374	1.7249	.1275
	Within Groups	434	336.5037	.7754		
	Total	439	343.1909			
Q71I Treatment by policemen	Between Groups	5	4.9236	.9847	1.4106	.2191
	Within Groups	438	305.7700	.6981		
	Total	443	310.6937			
Q67I General information	Between Groups	5	28.4424	5.6885	3.9606	.0016*
	Within Groups	431	619 0267	1.4363		
	Total	436	647.4691			
Factor 4: Communication						
Q61I Postal services	Between Groups	5	23.4017	4.6803	2.6676	.0218
	Within Groups	413	724.6126	1.7545		
	Total	418	748.0143			
Q60I Public telephones	Between Groups	5	27.6378	5.5276	4.6985	.0003*
	Within Groups	440	517.6357	1.1764		
	Total	445	545.2735			
Q69I Media services	Between Groups	5	28.8921	5.7784	2.6710	.0217*
	Within Groups	408	882.6562	2.1634		
	Total	413	911.5483			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	5	9.2827	1.8565	2.4299	.0345*
	Within Groups	437	333.8821	.7640		
	Total	442	343.1648			
Q78I Shops selling coupons for animals sacrificing	Between Groups	5	2.5510	.5102	.6465	.6643
	Within Groups	432	340.9125	.7891		
	Total	437	343.4635			

*Significant statistical differences among different means occur when F Prob.< .05 and F Ratio > 2.23

Table D 62:

Significant Results of ANOVA Tests Based on HFS-Mina and Pilgrims' Age

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q59I Toilet facilities	Grp 1	46	4.5000	1.0274	.1515	3.6984	.0027*
	Grp 2	122	4.5902	.8308	.0752		
	Grp 3	142	4.5493	.7680	.0644		
	Grp 4	64	4.1563	1.0870	.1359		
	Grp 5	55	4.2545	1.1421	.1540		
	Grp 6	27	4.0370	1.0913	.2100		
Q58I Public drinking water	Grp 1	46	4.5000	1.0055	.1483	2.7873	.0171*
	Grp 2	122	4.6639	.7113	.0644		
	Grp 3	142	4.6197	.7412	.0622		
	Grp 4	64	4.2969	.9542	.1193		
	Grp 5	54	4.4259	.7673	.1044		
	Grp 6	26	4.2692	.9616	.1886		
Q65I Cleanliness of sites	Grp 1	46	4.3913	1.0430	.1538	4.1460	.0011*
	Grp 2	119	4.6387	.7334	.0672		
	Grp 3	141	4.5319	.8498	.0716		
	Grp 4	64	4.1719	1.0772	.1347		
	Grp 5	54	4.2037	1.1390	.1550		
	Grp 6	27	4.0370	1.0554	.2031		
Q57I Inexpensive food	Grp 1	45	3.9778	1.1964	.1783	4.0490	.0013*
	Grp 2	123	4.3902	.9636	.0869		
	Grp 3	142	4.3451	.8509	.0714		
	Grp 4	64	4.1094	1.0708	.1338		
	Grp 5	55	4.1818	1.1562	.1559		
	Grp 6	27	3.5556	1.3681	.2633		
Q56I Restaurants & cafeterias	Grp 1	46	4.3913	.8814	.1300	4.2414	.0009*
	Grp 2	125	4.4720	.8479	.0758		
	Grp 3	143	4.3427	.9428	.0788		
	Grp 4	64	3.9219	1.0436	.1304		
	Grp 5	55	4.1273	.8618	.1162		
	Grp 6	27	3.9630	.9799	.1886		
Q63I Reasonable pricing	Grp 1	45	3.8444	1.2424	.1852	2.6344	.0232*
	Grp 2	117	4.1880	1.0499	.0971		
	Grp 3	141	4.0638	1.1289	.0951		
	Grp 4	63	3.7302	1.1529	.1453		
	Grp 5	52	3.7308	1.2543	.1739		
	Grp 6	26	3.6154	1.2673	.2485		
Q45I Fewer traffic jams	Grp 1	46	4.5652	.8857	.1306	3.7799	.0023*
	Grp 2	127	4.3465	.9870	.0876		
	Grp 3	144	4.3056	.8469	.0706		
	Grp 4	65	4.1077	1.0019	.1243		
	Grp 5	56	4.1071	.9081	.1214		
	Grp 6	28	3.7143	1.1501	.2174		
Q54I Car parking facilities	Grp 1	45	4.2444	1.1313	.1686	4.3124	0008*
	Grp 2	129	4.2326	1.2840	.1130		
	Grp 3	143	4.4476	.9320	.0779		
	Grp 4	67	3.7761	1.3006	.1589		
	Grp 5	56	4.1250	1.2658	.1692		
	Grp 6	29	3.6552	1.3437	.2495		
Q73I Treatment by Mutawifeen	Grp 1	39	4.2821	.9162	.1467	2.6861	.0210*
	Grp 2	107	4.3551	1.0302	.0996		
	Grp 3	136	4.2794	9790	0839		
	Grp 4	62	3.9194	1.0909	1385		
	Grp 5	54	4.2407	1 0449	.1422		
	Grp 6	27	3.7407	1.2888	.2480		
Q67I General information	Grp 1	43	4 1628	1 0896	.1662	3.9606	.0016*
	Grp 2	113	4.0708	1.2444	.1171		
	Grp 3	138	3.8406	1.1915	.1014		
	Grp 4	63	3.4286	1.1738	.1479		
	Grp 5	53	3.7547	1.1914	.1637		
	Grp 6	27	3.3333	1.2710	.2446		
Q60I Public telephones	Grp 1	46	4.0870	1.2261	.1808	4.6985	.0003*
	Grp 2	119	4.2437	1.0574	.0969		
	Grp 3	139	4.2158	.9613	.0815		
	Grp 4	63	3.6508	1.1799	.1487		
	Grp 5	54	3.6852	1.1298	.1537		
	Grp 6	25	3.7600	1.2342	.2468		

Q69I Media services	Grp 1	40	3.4750	1.5687	.2480		
	Grp 2	108	3.3704	1.4699	.1414	2.6710	.0217*
	Grp 3	134	3.3582	1.4322	.1237		
	Grp 4	61	2.9344	1.4127	.1809		
	Grp 5	50	2.8000	1.5253	.2157		
	Grp 6	21	2.6190	1.5645	.3414		
Q79I Barber shops	Grp 1	45	4.1556	1.0435	.1556		
	Grp 2	115	4.5826	.8479	.0791	2.4299	.0345*
	Grp 3	139	4.4029	.9067	.0769		
	Grp 4	64	4.2969	.9203	.1150		
	Grp 5	53	4.5283	.6681	.0918		
	Grp 6	27	4.6667	.7338	.1412		

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

Table D 63:

ANOVA Results for Testing HFS-Mina By the Number of Previous Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	2	.7104	3552	.4108	6634
	Within Groups	453	391.6909	.8647		
	Total	455	392.4013			
Q58I Public drinking water	Between Groups	2	.9889	.4944	7537	.4712
	Within Groups	451	295.8746	.6560		
	Total	453	296.8634			
Q64I Health services	Between Groups	2	.5555	.2778	.4958	.6094
	Within Groups	444	248.7331	.5602		
	Total	446	249.2886			
Q66I Signposting	Between Groups	2	.2840	.1420	.2896	.7487
	Within Groups	449	220.2005	.4904		
	Total	451	220.4845			
Q65I Cleanliness of sites	Between Groups	2	.0993	.0496	.0561	9454
	Within Groups	448	396.1624	.8843		
	Total	450	396.2616			
Q68I Guiding services	Between Groups	2	.7374	.3687	.4508	.6374
	Within Groups	440	359.8856	.8179		
	Total	442	360.6230			
Q57I Inexpensive food	Between Groups	2	3 8564	1.9282	1.7860	.1688
	Within Groups	453	489.0822	1.0797		
	Total	455	492.9386			
Q56I Restaurants and cafeterias	Between Groups	2	.9014	.4507	.5162	.5971
	Within Groups	457	399.0355	.8732		
	Total	459	399 9370			
Q63I Reasonable pricing	Between Groups	2	7.4549	3.7275	2.8343	.0598
	Within Groups	441	579.9685	1.3151		
	Total	443	587.4234			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	2	1.4693	.7347	8243	.4392
	Within Groups	463	412.6508	.8913		
	Total	465	414.1202			
Q46I Pilgrims movements	Between Groups	2	2.8767	1.4383	1.9354	.1456
	Within Groups	455	338.1473	.7432		
	Total	457	341.0240			
Q44I Public transportation	Between Groups	2	2.5416	1.2708	1.3671	.2559
	Within Groups	463	430 3876	9296		
	Total	465	432.9292			
Q54I Car parking facilities	Between Groups	2	3.6360	1.8180	1.2671	2826
	Within Groups	466	668.5942	1.4348		
	Total	468	672 2303			
Q50 Travelling to Makkah	Between Groups	2	1 2337	6169	5941	5525
	Within Groups	455	472 4017	1 0382		
	Total	457	473.6354			
Q53 Movements in Jamarat	Between Groups	2	2.5021	1.2511	1.2597	.2847
	Within Groups	457	453.8805	.9932		
	Total	459	456.3826			
Q55I Accommodation facilities	Between Groups	2	.2594	.1297	.1540	.8573
	Within Groups	452	380.6329	.8421		
	Total	454	380.8923			
Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	2	1.4176	.7088	.6440	.5257
	Within Groups	421	463.3347	1.1006		
	Total	423	464.7524			
Q72I Treatment by local people	Between Groups	2	.2282	1141	.1270	.8808
	Within Groups	439	394.3533	.8983		
	Total	441	394.5814			
Q70I Treatment by officials	Between Groups	2	1.4886	.7443	.9531	.3864
	Within Groups	437	341.2751	.7809		
	Total	439	342.7636			

Q71I Treatment by policemen	Between Groups	2	2.9210	1 4605	2 0556	.1292
	Within Groups	441	313.3200	.7105		
	Total	443	316.2410			
Q67I General information	Between Groups	2	.6661	.3331	.2226	.8006
	Within Groups	434	649.4620	1.4965		
	Total	436	650.1281			
Factor 4: Communication						
Q61I Postal services	Between Groups	2	2.5052	1.2526	.6965	.4989
	Within Groups	416	748.0772	1.7983		
	Total	418	750.5823			
Q60I Public telephones	Between Groups	2	4.1069	2.0535	1.6810	.1874
	Within Groups	443	541.1666	1.2216		
	Total	445	545.2735			
Q69I Media services	Between Groups	2	11.3265	5.6633	2.5810	.0769
	Within Groups	411	901.8257	2.1942		
	Total	413	913.1522			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	2	1.4011	.7005	.9078	.4042
	Within Groups	441	340.3016	.7717		
	Total	443	341.7027			
Q78I Shops selling coupons for animals sacrificing	Between Groups	2	.5918	.2959	3776	6857
	Within Groups	435	340.8260	.7835		
	Total	437	341.4178			

Significant statistical differences among different means occur when F Prob.< .05 and F Ratio > 3.02

Table D 64:

ANOVA Results for Testing HFS-Mina By the Pilgrims' Education Level

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	4	4.6801	1.1700	1.3143	.2637
	Within Groups	450	400.6034	.8902		
	Total	454	405.2835			
Q58I Public drinking water	Between Groups	4	1.0716	.2679	.3950	.8123
	Within Groups	448	303.8864	.6783		
	Total	452	304.9581			
Q64I Health services	Between Groups	4	1.4778	.3695	.6346	.6380
	Within Groups	441	256.7374	.5822		
	Total	445	258.2152			
Q66I Signposting	Between Groups	4	3.0739	.7685	1.5142	.1970
	Within Groups	446	226 3584	.5075		
	Total	450	229.4324			
Q65I Cleanliness of sites	Between Groups	4	3.6323	.9081	.9970	.4088
	Within Groups	445	405.3122	.9108		
	Total	449	408.9444			
Q68I Guiding services	Between Groups	4	2.2844	.5711	.6933	.5969
	Within Groups	437	359.9893	.8238		
	Total	441	362.2738			
Q57I Inexpensive food	Between Groups	4	4.2820	1.0705	.9882	.4136
	Within Groups	450	487.4630	1.0833		
	Total	454	491.7451			
Q56I Restaurants and cafeterias	Between Groups	4	9.3724	2.3431	2.7123	.0296*
	Within Groups	454	392.2006	.8639		
	Total	458	401.5730			
Q63I Reasonable pricing	Between Groups	4	6.0375	1.5094	1.1392	.3374
	Within Groups	438	580.3101	1.3249		
	Total	442	586.3476			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	4	2.7253	.6813	.7448	.5619
	Within Groups	460	420.8145	.9148		
	Total	464	423.5398			
Q46I Pilgrims movements	Between Groups	4	1.9203	.4801	.6298	.6415
	Within Groups	452	344 5523	.7623		
	Total	456	346.4726			
Q44I Public transportation	Between Groups	4	10 4077	2.6019	2 8021	0255*
	Within Groups	460	427.1321	.9285		
	Total	464	437 5398			
Q54I Car parking facilities	Between Groups	4	3.6062	.9015	.6383	.6354
	Within Groups	462	652.5566	1.4125		
	Total	466	656.1627			
Q50 Travelling to Makkah	Between Groups	4	1.3252	.3313	.3162	.8672
	Within Groups	452	473.6157	1.0478		
	Total	456	474.9409			
Q53 Movements in Jamarat	Between Groups	4	3.0702	.7676	.7646	.5487
	Within Groups	454	455.7533	1.0039		
	Total	458	458 8235			
Q55I Accommodation facilities	Between Groups	4	10.3379	2 5845	3 1248	0149
	Within Groups	449	371.3626	.8271		
	Total	453	381 7004			

Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	4	6.1425	1 5356	1.4342	2218
	Within Groups	418	447 5502	1 0707		
	Total	422	453.6927			
Q72I Treatment by local people	Between Groups	4	3.8408	.9602	1.0851	.3633
	Within Groups	436	385.8236	.8849		
	Total	440	389.6644			
Q70I Treatment by officials	Between Groups	4	4.5594	1.1398	1.4888	.2046
	Within Groups	434	332.2652	.7656		
	Total	438	336.8246			
Q71I Treatment by policemen	Between Groups	4	2.5747	.6437	.9164	.4542
	Within Groups	438	307.6420	.7024		
	Total	442	310.2167			
Q67I General information	Between Groups	4	8.9592	2.2398	1.5231	.1944
	Within Groups	431	633.8183	1.4706		
	Total	435	642.7775			
Factor 4: Communication						
Q61I Postal services	Between Groups	4	10.1875	2.5469	1 4276	2239
	Within Groups	413	736.8101	1.7840		
	Total	417	746.9976			
Q60I Public telephones	Between Groups	4	4.3070	1.0768	9641	.4854
	Within Groups	440	548.3132	1.2462		
	Total	444	552.6202			
Q69I Media services	Between Groups	4	15.8734	3.9684	1.8061	1267
	Within Groups	408	896.4462	2.1972		
	Total	412	912.3196			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	4	3.7974	.9493	1.2257	.2991
	Within Groups	438	339.2455	.7745		
	Total	442	343.0429			
Q78I Shops selling coupons for animals sacrificing	Between Groups	4	3.7998	.9500	1.2090	.3062
	Within Groups	432	339.4359	.7857		
	Total	436	343.2357			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 65:

Significant Results of ANOVA Tests Based on HFS-Mina and the Pilgrims' Educational Level

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q56I Restaurants & cafeterias	Grp 1	41	4.4878	.8695	.1358	2.7123	.0296*
	Grp 2	63	4.2698	.9539	.1202		
	Grp 3	85	3.9882	1.0059	.1091		
	Grp 4	122	4.3033	.8989	.0814		
	Grp 5	148	4.3311	.9139	.0751		
Q44I Public transportation	Grp 1	41	4.3659	.9422	.1472		
	Grp 2	66	4.3788	.7798	.0960	2.8021	.0255*
	Grp 3	87	4.0230	.9521	.1021		
	Grp 4	123	4.2358	8404	0758		
	Grp 5	148	4.0135	1.1308	.0930		
Q55I Accommodation facilities	Grp 1	41	4.6341	.6227	.0973	3.1248	0149
	Grp 2	63	4.2857	.8877	.1118		
	Grp 3	84	4.0952	.8448	.0922		
	Grp 4	121	4.2314	.8637	.0785		
	Grp 5	145	4.1103	1.0483	.0871		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39
** Grp 1 = don't read or write, Grp 2 = read and write, Grp 3 = middle school, Grp 4 = high school, Grp 5 = universiy.

Table D 66:

ANOVA Results for Testing HFS-Mina By the Pilgrims' Accompanied Persons

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	2	3.5403	1.7701	2.0519	1298
	Within Groups	428	369 2347	8627		
	Total	430	372.7749			
Q58I Public drinking water	Between Groups	2	3.5939	1.7970	2.7435	.0655
	Within Groups	426	279.0215	.6550		
	Total	428	282.6154			
Q64I Health services	Between Groups	2	.1469	.0734	.1239	.8935
	Within Groups	419	248.4431	.5929		
	Total	421	248.5900			
Q66I Signposting	Between Groups	2	.0322	.0161	.0317	9688
	Within Groups	424	215.7195	.5088		
	Total	426	215 7518			

Q65I Cleanliness of sites	Between Groups	2	2.9851	1.4925	1.6480	.1937
	Within Groups	423	383.1111	.9057		
	Total	425	386.0962			
Q68I Guiding services	Between Groups	2	3.5621	1.7811	2.1037	.1233
	Within Groups	417	353.0355	.8466		
	Total	419	356.5976			
Q57I Inexpensive food	Between Groups	2	4.7855	2.3927	2.2431	.1074
	Within Groups	428	456.5463	1.0667		
	Total	430	461.3318			
Q56I Restaurants and cafeterias	Between Groups	2	.8813	.4406	.5209	.5944
	Within Groups	432	365.4543	.8460		
	Total	434	366 3356			
Q63I Reasonable pricing	Between Groups	2	7.7019	3.8510	2.8801	.0572
	Within Groups	418	558.8967	1.3371		
	Total	420	566.5986			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	2	3.9863	1.9932	2.2041	.1116
	Within Groups	438	396.0726	.9043		
	Total	440	400.0590			
Q46I Pilgrims movements	Between Groups	2	.3680	.1840	.2398	7869
	Within Groups	430	330.0061	.7675		
	Total	432	330.3741			
Q44I Public transportation	Between Groups	2	8.2794	4.1397	4.4166	.0126*
	Within Groups	438	410.5415	.9373		
	Total	440	418.8209			
Q54I Car parking facilities	Between Groups	2	1.8303	.9151	.6690	.5127
	Within Groups	440	601.8853	1.3679		
	Total	442	603.7156			
Q50 Travelling to Makkah	Between Groups	2	9.5099	4.7549	4.5901	.0107*
	Within Groups	431	446.4740	1.0359		
	Total	433	455.9839			
Q53 Movements in Jamarat	Between Groups	2	3.1533	1.5766	1.6977	.1843
	Within Groups	433	402.1311	.9287		
	Total	435	405.2844			
Q55I Accommodation facilities	Between Groups	2	.2675	.1337	.1589	.8531
	Within Groups	432	363.6543	.8418		
	Total	434	363.9218			
Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	2	6.4799	3.2399	2.9360	0542
	Within Groups	406	448.0238	1.1035		
	Total	408	454.5037			
Q72I Treatment by local people	Between Groups	2	2604	1302	.1416	.86°0
	Within Groups	415	381.4550	9192		
	Total	417	381.7153			
Q70I Treatment by officials	Between Groups	2	1.5981	.7990	.9810	.3758
	Within Groups	413	336.3923	.8145		
	Total	415	337.9904			
Q71I Treatment by policemen	Between Groups	2	1.9855	.9928	1.3460	.2614
	Within Groups	417	307 5764	.7376		
	Total	419	309.5619			
Q67I General information	Between Groups	2	6.1868	3.0934	2.0532	1296
	Within Groups	415	625.2582	1.5066		
	Total	417	631 4450			
Factor 4: Communication						
Q61I Postal services	Between Groups	2	3.6059	1.8029	.9871	.3735
	Within Groups	400	730.5629	1.8264		
	Total	402	734.1687			
Q60I Public telephones	Between Groups	2	2.3030	1.1515	.9273	.3964
	Within Groups	419	520.2965	1.2418		
	Total	421	522 5995			
Q69I Media services	Between Groups	2	19.9266	9.9633	4.6218	0104*
	Within Groups	394	849.3530	2 1557		
	Total	396	869.2796			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	2	.2732	.1366	.1830	.8329
	Within Groups	415	309.8823	.7467		
	Total	417	310.1555			
Q78I Shops selling coupons for animals sacrificing	Between Groups	2	1.9868	.9934	1.2337	.2923
	Within Groups	412	331.7626	.8052		
	Total	414	333.7494			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 67:

Significant Results of ANOVA Tests Based on HFS-Mina and Accompanied Persons

Question Number / Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q44I Public transportation	Grp 1	267	4.2135	.9826	.0601	4.4166	.0126*
	Grp 2	125	3.9440	1.0105	.0904		
	Grp 3	49	4.3469	.7514	.1073		
Q50 Travelling to Makkah	Grp 1	262	4.1412	1.0353	.0640	4 5901	.0107*
	Grp 2	123	3.8130	9864	.0889		
	Grp 3	49	4.1429	1.0000	.1429		
Q69I Media services	Grp 1	240	3.0292	1.5427	.0996	4.6218	.0104*
	Grp 2	109	3.3761	1.4128	.1353		
	Grp 3	48	3.6458	1.1758	.1697		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = single, Grp 2 = with women, Grp 3 = with women and children.

Table D 68:

ANOVA Results for Testing HFS-Mina By the Way Pilgrims Manage their Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	2	2.1256	1.0628	1.1881	.3059
	Within Groups	376	336.3283	.8945		
	Total	378	338.4538			
Q58I Public drinking water	Between Groups	2	3.4941	1.7471	2.5881	.0765
	Within Groups	374	252.4634	.6750		
	Total	376	255.9576			
Q64I Health services	Between Groups	2	.2424	.1212	.2133	.8080
	Within Groups	368	209.0784	.5681		
	Total	370	209.3208			
Q66I Signposting	Between Groups	2	.4727	.2364	.4884	.6140
	Within Groups	373	180.4954	.4839		
	Total	375	180.9681			
Q65I Cleanliness of sites	Between Groups	2	1.3750	.6875	.7576	.4695
	Within Groups	372	337.5583	.9074		
	Total	374	338.9333			
Q68I Guiding services	Between Groups	2	2.8985	1.4493	1.7699	.1718
	Within Groups	365	298.8814	.8189		
	Total	367	301.7799			
Q57I Inexpensive food	Between Groups	2	2.1929	1.0965	1.0067	.3664
	Within Groups	377	410.6071	1.0891		
	Total	379	412.8000			
Q56I Restaurants and cafeterias	Between Groups	2	10 1148	5 0574	6.1155	.0024*
	Within Groups	380	314 2507	8270		
	Total	382	324 3655			
Q63I Reasonable pricing	Between Groups	2	18.9264	9.4632	7.3181	.0009*
	Within Groups	365	471 9866	1.2931		
	Total	367	490.9130			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	2	1 2214	.6107	.7067	.4939
	Within Groups	386	333 5447	.8641		
	Total	388	334.7661			
Q46I Pilgrims movements	Between Groups	2	.0008	.0004	.0006	.9994
	Within Groups	380	265.2003	.6979		
	Total	382	265.2010			
Q44I Public transportation	Between Groups	2	3.8671	1.9335	2.1818	.1142
	Within Groups	386	342.0712	.8862		
	Total	388	345.9383			
Q54I Car parking facilities	Between Groups	2	.3024	1512	.1233	.8841
	Within Groups	385	472.2826	1.2267		
	Total	387	472.5851			
Q50 Travelling to Makkah	Between Groups	2	4.3896	2.1948	2.1369	.1194
	Within Groups	380	390.2945	1.0271		
	Total	382	394 6841			
Q53 Movements in Jamarat	Between Groups	2	1.8509	.9255	.9132	.4021
	Within Groups	381	386.1074	1.0134		
	Total	383	387.9583			
Q55I Accommodation facilities	Between Groups	2	4.6805	2.3402	2 9551	.0533
	Within Groups	378	299.3510	.7919		
	Total	380	304.0315			

Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	2	2.3648	1.1824	1.0987	.3345
	Within Groups	350	376.6664	1.0762		
	Total	352	379.0312			
Q72I Treatment by local people	Between Groups	2	.5296	.2648	.3057	.7368
	Within Groups	364	315.3450	.8663		
	Total	366	315.8747			
Q70I Treatment by officials	Between Groups	2	2.4889	1.2444	1.6943	.1852
	Within Groups	361	265.1457	.7345		
	Total	363	267.6346			
Q71I Treatment by policemen	Between Groups	2	1.9221	.9610	1.3388	.2634
	Within Groups	367	263.4536	.7179		
	Total	369	265.3757			
Q67I General information	Between Groups	2	.5704	.2852	.1935	.8242
	Within Groups	359	529.1892	1.4741		
	Total	361	529.7597			
Factor 4: Communication						
Q61I Postal services	Between Groups	2	2.5268	1.2634	.6900	.5023
	Within Groups	343	628.0195	1.8310		
	Total	345	630.5462			
Q60I Public telephones	Between Groups	2	7.9521	3.9761	3.2715	.0391*
	Within Groups	367	446.0370	1.2154		
	Total	369	453.9892			
Q69I Media services	Between Groups	2	7.5590	3.7795	1.7421	.1767
	Within Groups	337	731.1351	2.1695		
	Total	339	738.6941			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	2	1.0474	.5237	.7120	.4913
	Within Groups	368	270.6777	.7355		
	Total	370	271.7251			
Q78I Shops selling coupons for animals sacrificing	Between Groups	2	1.3326	.6663	.9734	.3788
	Within Groups	364	249.1579	.6845		
	Total	366	250.4905			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 69:

Significant Results of ANOVA Tests Based on HFS-Mina and the Way Pilgrims Managed their Hajj

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q56I Restaurants & cafeterias	Grp 1	117	4.4444	.8754	.0809	6.1155	.0024*
	Grp 2	255	4.1569	.9385	.0588		
	Grp 3	11	4.8182	.4045	.1220		
Q63I Reasonable pricing	Grp 1	112	4.1429	.9478	0896	7.3181	.0008*
	Grp 2	245	3.8122	1.2337	.0788		
	Grp 3	11	4.9091	.3015	.0909		
Q60I Public telephones	Grp 1	113	4.1770	1.0457	.0984	3.2715	.0391*
	Grp 2	246	3.9065	1.1228	.0716		
	Grp 3	11	4.4545	1.2136	.3659		

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02
** Grp 1 = by himself, Grp 2 = with an agent or Mutawif, Grp 3 = with official agent

Table D 70:

ANOVA Results for Testing HFS-Mina By the Pilgrims' Annual Income

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	4	2.3863	.5966	.7331	.5698
	Within Groups	376	305.9654	.8137		
	Total	380	308.3517			
Q58I Public drinking water	Between Groups	4	2.7075	.6769	1.1463	.3344
	Within Groups	375	221.4399	.5905		
	Total	379	224.1474			
Q64I Health services	Between Groups	4	2.0458	.5115	.9153	.4550
	Within Groups	371	207.3132	.5588		
	Total	375	209.3590			
Q66I Signposting	Between Groups	4	2.8281	.7070	1.5728	.1808
	Within Groups	375	168.5693	.4495		
	Total	379	171.3974			
Q65I Cleanliness of sites	Between Groups	4	6.1233	1.5308	1.6964	.1501
	Within Groups	374	337.4862	.9024		
	Total	378	343.6095			

Q68I Guiding services	Between Groups	4	2.4609	.6152	.7242	.5758
	Within Groups	367	311.7622	.8495		
	Total	371	314.2231			
Q57I Inexpensive food	Between Groups	4	1.0606	.2651	2506	.9092
	Within Groups	376	397.7793	1.0579		
	Total	380	398.8399			
Q56I Restaurants and cafeterias	Between Groups	4	2.0840	.5210	.5974	.6647
	Within Groups	377	328.7851	.8721		
	Total	381	330.8691			
Q63I Reasonable pricing	Between Groups	4	1.8762	4691	.3712	.8291
	Within Groups	367	463.7017	1.2635		
	Total	371	465.5780			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	4	1.8489	.4622	.6367	.6366
	Within Groups	380	275.8550	.7259		
	Total	384	277.7039			
Q46I Pilgrims movements	Between Groups	4	1.9355	.4839	.6672	.6151
	Within Groups	376	272.6840	.7252		
	Total	380	274.6194			
Q44I Public transportation	Between Groups	4	.7953	.1988	.2272	.9231
	Within Groups	380	332.5398	.8751		
	Total	384	333.3351			
Q54I Car parking facilities	Between Groups	4	2.2813	.5703	.5170	.7233
	Within Groups	377	415.8575	1.1031		
	Total	381	418.1387			
Q50 Travelling to Makkah	Between Groups	4	3.5803	.8951	.9135	.4560
	Within Groups	374	366.4672	.9799		
	Total	378	370.0475			
Q53 Movements in Jamarat	Between Groups	4	4.3935	1.0984	1.1985	.3110
	Within Groups	376	344.6038	.9165		
	Total	380	348.9974			
Q55I Accommodation facilities	Between Groups	4	1.4973	.3743	.4546	.7690
	Within Groups	371	305.4708	.8234		
	Total	375	306.9681			
Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	4	3.3240	.8310	.8017	.5247
	Within Groups	349	361.7410	1.0365		
	Total	353	365.0650			
Q72I Treatment by local people	Between Groups	4	3.3240	.8310	.8017	.5247
	Within Groups	349	361.7410	1.0365		
	Total	353	365.0650			
Q70I Treatment by officials	Between Groups	4	3.4477	8619	1.2335	2962
	Within Groups	364	254.3572	.6988		
	Total	368	257.8049			
Q71I Treatment by policemen	Between Groups	4	4.0523	1.0131	1.5143	.1973
	Within Groups	368	246.1890	.6690		
	Total	372	250.2413			
Q67I General information	Between Groups	4	.8935	.2234	.1611	.9578
	Within Groups	361	500.4726	1.3864		
	Total	365	501.3661			
Factor 4: Communication						
Q61I Postal services	Between Groups	4	1.7553	.4388	.2467	.9116
	Within Groups	343	610.0953	1.7787		
	Total	347	611.8506			
Q60I Public telephones	Between Groups	4	2.7037	.6759	.5882	.6714
	Within Groups	368	422.9103	1.1492		
	Total	372	425 6139			
Q69I Media services	Between Groups	4	21.0873	5.2718	2.5909	.0366*
	Within Groups	340	691.8229	2.0348		
	Total	344	712.9101			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	4	2.4222	.6055	.8258	.5093
	Within Groups	370	271.3112	.7333		
	Total	374	273.7333			
Q78I Shops selling coupons for animals sacrificing	Between Groups	4	1.0338	.2584	.3668	8322
	Within Groups	365	257.1392	.7045		
	Total	369	258.1730			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 71:

Significant Results of ANOVA Tests Based on HFS-Mina and the Pilgrims Annual Income

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q69I Media services	Grp 1	261	3.2682	1.4401	.0891	2.5909	.0366*
	Grp 2	44	3.0455	1.4620	.2204		
	Grp 3	19	2.6316	1.3000	.2982		
	Grp 4	6	4.6667	.5164	.2108		
	Grp 5	15	3.2667	1.4376	.3712		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39
** Grp 1 = SR 12000 or less, Grp 2 = SR 12001-24000, Grp 3 = SR 24001-36000, Grp 4 = SR 36001-48000, Grp 5 = >SR 48000.

Table D 72:

ANOVA Results for Testing HFS-Mina By the Pilgrims Travelling Experience

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	2	3.5297	1.7649	1.9423	.1447
	Within Groups	407	369.8093	.9086		
	Total	409	373.3390			
Q58I Public drinking water	Between Groups	2	.8704	.4352	.6411	.5273
	Within Groups	405	274.9311	.6788		
	Total	407	275.8015			
Q64I Health services	Between Groups	2	1.2763	.6381	1.0781	.3412
	Within Groups	398	235.5816	.5919		
	Total	400	236.8579			
Q66I Signposting	Between Groups	2	4.1407	2.0703	3.9211	0206*
	Within Groups	403	212.7854	.5280		
	Total	405	216.9261			
Q65I Cleanliness of sites	Between Groups	2	4.5844	2.2922	2.4566	0870
	Within Groups	402	375.0946	.9331		
	Total	404	379.6790			
Q68I Guiding services	Between Groups	2	1.0281	.5140	.6001	.5493
	Within Groups	397	340.0694	.8566		
	Total	399	341.0975			
Q57I Inexpensive food	Between Groups	2	1.8043	.9021	.8267	.4382
	Within Groups	407	444.1567	1.0913		
	Total	409	445.9610			
Q56I Restaurants and cafeterias	Between Groups	2	1.6258	.8129	.9049	.4054
	Within Groups	411	369.2341	.8984		
	Total	413	370.8599			
Q63I Reasonable pricing	Between Groups	2	13.3424	6.6712	5 0497	0068*
	Within Groups	395	521.8360	1.3211		
	Total	397	535 1784			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	2	1.8262	.9131	9845	.3745
	Within Groups	417	386.7714	.9275		
	Total	419	388 5976			
Q46I Pilgrims movements	Between Groups	2	5 7471	2 8735	3 6507	026P*
	Within Groups	409	321.9301	7871		
	Total	411	327 6772			
Q44I Public transportation	Between Groups	2	1.7772	.8886	.9254	.39?2
	Within Groups	417	400.4014	.9602		
	Total	419	402.1786			
Q54I Car parking facilities	Between Groups	2	1.5587	.7794	.6422	.5267
	Within Groups	413	501.2465	1.2137		
	Total	415	502.8053			
Q50 Travelling to Makkah	Between Groups	2	2.4289	1.2144	1.1332	.3230
	Within Groups	411	440.4528	1.0717		
	Total	413	442.8816			
Q53 Movements in Jamarat	Between Groups	2	2.6942	1.3471	1.3212	2680
	Within Groups	413	421 1111	1.0196		
	Total	415	423.8053			
Q55I Accommodation facilities	Between Groups	2	1 8763	.9381	1.0871	3382
	Within Groups	407	351 2359	.8630		
	Total	409	353.1122			
Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	2	9 7671	4.8835	4.3448	0136*
	Within Groups	383	430.4946	1.1240		
	Total	385	440.261?			
Q72I Treatment by local people	Between Groups	2	6.8427	3.4214	3.6992	.0256*
	Within Groups	393	363.4805	.9249		
	Total	395	370 3232			
Q70I Treatment by officials	Between Groups	2	3 7250	1 8625	2.3192	0997
	Within Groups	392	314 8167	.8031		
	Total	394	318.5418			

Q71I Treatment by policemen	Between Groups	2	3.6846	1.8423	2.4204	.0902
	Within Groups	396	301.4182	.7612		
	Total	398	305.1028			
Q67I General information	Between Groups	2	11.6965	5.8483	3.9606	0198*
	Within Groups	391	577.3517	1.4766		
	Total	393	589.0482			
Factor 4: Communication						
Q61I Postal services	Between Groups	2	20.6199	10.3100	5.7863	.0033*
	Within Groups	377	671.7380	1.7818		
	Total	379	692.3579			
Q60I Public telephones	Between Groups	2	3.5906	1.7953	1.4311	.2403
	Within Groups	398	499.2872	1.2545		
	Total	400	502.8778			
Q69I Media services	Between Groups	2	12.6292	6.3146	2.8241	.0606
	Within Groups	372	831.7868	2.2360		
	Total	374	844.4160			
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups	2	.9357	.4678	.6280	.5342
	Within Groups	395	294.2603	.7450		
	Total	397	295.1960			
Q78I Shops selling coupons for animals sacrificing	Between Groups	2	.9261	.4630	.5812	5597
	Within Groups	391	311 5333	7968		
	Total	393	312 4594			

*Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 73:

Significant Results of ANOVA Tests Based on HFS-Mina and Travelling Experience

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q66I Signposting	Grp 1	48	4.6667	.7532	.1087	3.9211	.0206*
	Grp 2	145	4.7724	.4525	.0376		
	Grp 3	213	4.5540	.8595	.0589		
Q63I Reasonable pricing	Grp 1	48	4.3958	1.0667	.1540	5.0497	.0068*
	Grp 2	141	3.8227	1.1167	.0940		
	Grp 3	209	3.8421	1.1885	.0822		
Q46I Pilgrims movements	Grp 1	51	4.2157	.9447	.1323	3.6507	0268*
	Grp 2	145	4.5586	.6960	.0578		
	Grp 3	216	4.3565	.9825	.0669		
Q73I Treatment by Mutawifeen	Grp 1	47	4.3617	1.2055	.1758	4.3448	.0136*
	Grp 2	138	3.9275	1.0850	0924		
	Grp 3	201	4.2189	1.0059	0710		
Q72I Treatment by local people	Grp 1	47	4.4681	.9968	.1454	3.6992	0256*
	Grp 2	140	4.0357	.9921	.0839		
	Grp 3	209	4.1962	.9327	.0645		
Q67I General information	Grp 1	48	4.2083	1.2370	.1785	3.9606	.0198*
	Grp 2	140	3.7643	1.1228	0949		
	Grp 3	206	3.6602	1.2692	.0884		
Q61I Postal services	Grp 1	47	4.1064	1.0474	.1528	5.7863	.0033*
	Grp 2	130	3.3538	1.4620	1282		
	Grp 3	203	3 6601	1 3079	0918		

* significant statistical differences among different means occur when F Prob. < .05, and F Ratio > 3.02
** Grp 1 = never travelled before, Grp 2 = travelled inside only, Grp 3 = travelled inside and out side his country

Table D 74:

ANOVA Results for Testing HFS-Mina By the Purpose for Coming in this Hajj Season

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Factor 1: Basic facilities & services						
Q59I Toilet facilities	Between Groups	3	.1020	.0340	.0388	.9898
	Within Groups	406	356.0541	.8770		
	Total	409	356.1561			
Q58I Public drinking water	Between Groups	3	3.3746	1.1249	1.7461	.1570
	Within Groups	404	260.2724	.6442		
	Total	407	263 6471			
Q64I Health services	Between Groups	3	1.3996	.4665	.8477	.4684
	Within Groups	397	218.4907	.5504		
	Total	400	219.8903			
Q66I Signposting	Between Groups	3	.3993	1331	.2618	.8529
	Within Groups	402	204.3717	.5084		
	Total	405	204.7709			
Q65I Cleanliness of sites	Between Groups	3	1.5383	.5128	.5602	.6416
	Within Groups	401	367.0395	.9153		
	Total	404	368.5778			
Q68I Guiding services	Between Groups	3	.8447	2816	3262	8064
	Within Groups	393	339.2410	.8632		
	Total	396	340.0856			
Q57I Inexpensive food	Between Groups	3	9.8243	3.2748	3.0736	0276*
	Within Groups	406	432.5660	1.0654		
	Total	409	442.3902			
Q56I Restaurants and cafeterias	Between Groups	3	.5041	.1680	.1929	.9012
	Within Groups	410	357.1964	.8712		
	Total	413	357.7005			
Q63I Reasonable pricing	Between Groups	3	4.0345	1.3448	1.0167	.3851
	Within Groups	394	521.1438	1.3227		
	Total	397	525.1784			
Factor 2: Movements & accommodation						
Q45I Fewer traffic jams	Between Groups	3	6.8615	2.2872	2.5587	.054[illegible]
	Within Groups	416	371.8504	.8939		
	Total	419	378.7119			
Q46I Pilgrims movements	Between Groups	3	2.7594	.9198	1.2683	.2848
	Within Groups	410	297.3493	.7252		
	Total	413	300.1087			
Q44I Public transportation	Between Groups	3	3.0025	1.0008	1.0804	.3571
	Within Groups	417	386.2801	.9263		
	Total	420	389.2827			
Q54I Car parking facilities	Between Groups	3	4.9379	1.6460	1.3860	.2465
	Within Groups	412	489.2712	1.1876		
	Total	415	494.2091			
Q50 Travelling to Makkah	Between Groups	3	2.1164	.7055	.6814	5638
	Within Groups	410	424.4923	1.0353		
	Total	413	426.6087			
Q53 Movements in Jamarat	Between Groups	3	2.9288	9763	.9529	.4150
	Within Groups	411	421 0856	1.0245		
	Total	414	424 0145			
Q55I Accommodation facilities	Between Groups	3	4385	.1462	.1838	.9074
	Within Groups	407	323.6686	.7953		
	Total	410	324.1071			
Factor 3: Pilgrim Care and information						
Q73I Treatment by Mutawifeen staff	Between Groups	3	.7151	.2384	2126	.8877
	Within Groups	376	421.6112	1.1213		
	Total	379	422.3263			
Q72I Treatment by local people	Between Groups	3	3.3262	1.1087	1.2512	.2909
	Within Groups	393	348.2506	.8861		
	Total	396	351.5768			
Q70I Treatment by officials	Between Groups	3	5 0047	1.6682	2 0501	1064
	Within Groups	391	318.1700	.8137		
	Total	394	323 1747			
Q71I Treatment by policemen	Between Groups	3	6.0929	2.0310	2.8293	0383*
	Within Groups	395	283.5462	.7178		
	Total	398	289.6391			
Q67I General information	Between Groups	3	8.1905	2.7302	1.8209	.1428
	Within Groups	387	580.2392	1.4993		
	Total	390	588 429[illegible]			

Factor 4: Communication						
Q61I Postal services	Between Groups Within Groups Total	3 372 375	13.3454 685.5057 698.8511	4.4485 1.8428	2.4140	.0663
Q60I Public telephones	Between Groups Within Groups Total	3 396 399	2.6596 501.7779 504.4375	.8865 1.2671	.6996	.5527
Q69I Media services	Between Groups Within Groups Total	3 366 369	4.8083 822.1214 826.9297	1.6028 2.2462	.7135	.5444
Factor 5: Hair cutting and animal sacrificing						
Q79I Barber shops	Between Groups Within Groups Total	3 394 397	4.2870 306.2080 310.4950	1.4290 .7772	1.8387	.1396
Q78I Shops selling coupons for animals sacrificing	Between Groups Within Groups Total	3 390 393	4.6689 317.7067 322.3756	1.5563 .8146	1.9105	.1273

*Significant statistical differences among different means occur if F Prob. < .05 and F Ratio > 2.62

Table D 75:

Significant Results of ANOVA Tests Based on HFS-Mina and the Purpose of Coming to this Hajj Season

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q57I Inexpensive food	Grp 1 Grp 2 Grp 3 Grp 4	303 50 14 43	4.2310 3.8600 4.7143 4.1628	1.0451 1.1954 .6112 .8145	.0600 .1691 .1634 .1242	3.0736	.0276*
Q71I Treatment by policemen	Grp 1 Grp 2 Grp 3 Grp 4	295 47 14 43	4.4475 4.4255 4.3571 4.0465	.8184 .8784 1 1507 .8985	.0477 .1281 .3075 .1370	2.8293	.0383*

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.62
** Grp 1 = to perform Hajj only, Grp 2 = for Hajj and business, Grp 3 = for Hajj and official work, Grp 4 = for Hajj and to accompany a friend or a relative.

Table D 45:
ANOVA Results for Testing HFSQ by the Pilgrims' Nationality

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	7	51.9626	7.4232	10.3744	.0000*
	Within Groups	469	335.5846	.7155		
	Total	476	387.5472			
Q10 Proplems are corrected	Between Groups	7	56 7134	8.1019	12 4282	.0000*
	Within Groups	469	305.7394	.6519		
	Total	476	362.4528			
Q11 Assistant services	Between Groups	7	51.9144	7.4163	11.3740	.0000*
	Within Groups	471	307.1128	.6520		
	Total	478	359.0271			
Q12 Bigger rooms in accommodation places	Between Groups	7	44.4341	6.3477	6.9439	.0000*
	Within Groups	463	423.2516	.9142		
	Total	470	467.6858			
Q13 Nice public areas	Between Groups	7	42.4362	6.0623	5.7447	.0000*
	Within Groups	471	497.0419	1.0553		
	Total	478	539.4781			
Q17 Anticipation of pilgrims' needs	Between Groups	7	52.5911	7.5130	10.1033	.0000*
	Within Groups	467	347.2699	.7436		
	Total	474	399.8611			
Q18 Have more privecy	Between Groups	7	82.1314	11.7331	11.7370	.0000*
	Within Groups	455	454.8491	.9997		
	Total	462	536.9806			
Q19 Special requests carreid out	Between Groups	7	59.0781	8.4397	9.2416	.0000*
	Within Groups	466	425.5654	.9132		
	Total	473	484.6435			
Q22 Knowledgable staff	Between Groups	7	239.2146	34.1735	30.5096	.0000*
	Within Groups	472	528.6833	1.1201		
	Total	479	767.8979			
Q26 Treatment by policemen	Between Groups	7	28.6109	4.0873	5 5454	0000*
	Within Groups	468	344.9437	7371		
	Total	475	373.5546			
Q27 Treatment by Mutawefeen staff	Between Groups	7	38.0512	5.4359	5.6870	.0000*
	Within Groups	452	432.0445	.9559		
	Total	459	470.0957			
Q28 Trained employees	Between Groups	7	189.5303	27.0758	21.4761	.0000*
	Within Groups	470	592.5471	1.2607		
	Total	477	782.0774			
Dimention 2: Major facilities / services / features						
Q14 Performing Hajj as Sunah	Between Groups	7	43 6296	6.2328	12 6787	0000*
	Within Groups	470	231 0503	4916		
	Total	477	274 6799			
Q15 Reasonable security	Between Groups	7	59.7403	8.5343	11 8347	0000*
	Within Groups	459	330.9963	7211		
	Total	466	390.7366			
Q16 Public toilets	Between Groups	7	29.4610	4.2087	8.7974	.0000*
	Within Groups	466	222.9357	.4784		
	Total	473	252 3966			
Q20 Common safety	Between Groups	7	54.4464	7 7781	18 4844	0000*
	Within Groups	470	197.7712	.4208		
	Total	477	252 2176			
Q21 Clean places	Between Groups	7	97.0589	13.8656	17.7584	.0000*
	Within Groups	472	368.5328	.7808		
	Total	479	465.5917			

Q23 Less crowding	Between Groups	7	38.5461	5.5066	7.1538	.0000*
	Within Groups	472	363.3205	.7697		
	Total	479	401.8667			
Q24 Transportation & movement	Between Groups	7	25.3563	3.6223	4.3139	.0001*
	Within Groups	471	395.4955	.8397		
	Total	478	420.8518			
Q25 Health care	Between Groups	7	54.5970	7.7996	14.6971	.0000*
	Within Groups	472	250.4842	.5307		
	Total	479	305.0812			

* The differences among means are statistically significant since F Prob. < .05 and F Ratio > 2.03

Table D 46:

Significant Results of ANOVA Tests Based on HFSQ and Pilgrims' Nationality

Question Number Facilities / Services	Group	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Dimension 1: Service Quality							
Q9 Prompt services	Grp 1	49	4.4490	.8431	.1204	10.3744	.0000*
	Grp 2	24	4.0417	.9991	.2039		
	Grp 3	17	4.7647	.4372	1060		
	Grp 4	45	3.6222	1.1926	.1778		
	Grp 5	82	4.3415	.9325	.1030		
	Grp 6	109	4.7615	.5594	.0536		
	Grp 7	122	4.5984	.7784	.0705		
	Grp 8	29	4.2414	1.1230	.2085		
Q10 Proplems are corrected	Grp 1	49	4.4898	.7107	.1015	12.4282	.0000*
	Grp 2	24	4.2083	.8836	.1804		
	Grp 3	17	4.7059	.4697	.1139		
	Grp 4	45	3.5778	1.1578	.1726		
	Grp 5	81	4.3086	.9829	.1092		
	Grp 6	109	4.8165	.4339	.0416		
	Grp 7	122	4.6066	.7773	.0704		
	Grp 8	30	4.3000	1.0222	.1866		
Q11 Assistant services	Grp 1	50	4.3800	8781	.1242	11.3740	.0000*
	Grp 2	24	3.7083	.9079	.1853		
	Grp 3	17	4.7059	.4697	.1139		
	Grp 4	45	3.4889	1.1604	.1730		
	Grp 5	82	4.2927	.8387	.0926		
	Grp 6	109	4.3761	.6352	.0608		
	Grp 7	122	4.5820	.7589	.0687		
	Grp 8	30	4.4333	.7739	.1413		
Q12 Bigger rooms in accommodation places	Grp 1	50	3.9200	1.1925	.1686	6.9439	.0000*
	Grp 2	24	4.2500	.8969	.1831		
	Grp 3	17	4.6471	.4926	.1195		
	Grp 4	45	3.5333	1.1985	.1787		
	Grp 5	75	3.9600	.8920	.1030		
	Grp 6	109	4.4771	.7403	.0709		
	Grp 7	122	4.3033	.8989	.0814		
	Grp 8	29	3.8276	1.3646	.2534		
Q13 Nice public areas	Grp 1	50	3.9000	1.1995	.1696	5.7447	0000*
	Grp 2	24	4.1250	.8999	.1837		
	Grp 3	17	4.5882	.7123	.1728		
	Grp 4	45	3.3333	1.2060	.1798		
	Grp 5	82	4 2073	1 0152	.1121		
	Grp 6	109	3.9908	9378	0898		
	Grp 7	122	4.3197	9205	0833		
	Grp 8	30	3.8000	1 3746	2510		
Q17 Anticipation of pilgrims' needs	Grp 1	50	4 1800	.9409	.1331	10.1033	.0000*
	Grp 2	24	3.6667	8681	.1772		
	Grp 3	17	4 7059	4697	.1139		
	Grp 4	45	3.6000	1.1160	.1664		
	Grp 5	79	4.2785	.7996	.0900		
	Grp 6	109	3.9266	.7663	.0734		
	Grp 7	122	4.5656	.7495	.0679		
	Grp 8	29	4.0345	1.2951	.2405		
Q18 Have more privecy	Grp 1	50	3.8400	1.1843	.1675	11.7370	0000*
	Grp 2	24	2.9583	1.4289	.291[illegible]		
	Grp 3	17	4.4706	.7174	.1740		
	Grp 4	45	3.4667	1.1985	.1787		
	Grp 5	66	4.0909	.8723	.1074		
	Grp 6	109	3.8257	.9314	.0892		
	Grp 7	122	4.5246	.7520	.0681		
	Grp 8	30	3.8333	1.3917	.2541		

Q19 Special requests carreid out	Grp 1	50	3.8800	1.2229	.1729	9.2416	.0000*
	Grp 2	24	3.4167	1.0180	.2078		
	Grp 3	17	4.5882	.5073	.1230		
	Grp 4	45	3.5556	1.0778	.1607		
	Grp 5	77	4.1429	.8385	.0956		
	Grp 6	109	3.8349	.8768	.0840		
	Grp 7	122	4.4836	.8355	.0756		
	Grp 8	30	3.7000	1.3429	.2452		
Q22 Knowledgable staff	Grp 1	50	4.1400	1.2124	.1715	30.5096	.0000*
	Grp 2	24	3.7917	1.5030	.3068		
	Grp 3	17	4.5882	.5073	.1230		
	Grp 4	45	3.6000	1.2505	.1864		
	Grp 5	83	2.8434	1.6783	.1842		
	Grp 6	109	4.8440	.4341	.0416		
	Grp 7	122	4.5902	6773	.0613		
	Grp 8	30	4.3667	.9279	.1694		
Q26 Treatment by policemen	Grp 1	50	4.4000	.9258	.1309	5.5454	.0000*
	Grp 2	24	4.2083	.7211	.1472		
	Grp 3	17	4.5294	.5145	.1248		
	Grp 4	45	3.6444	1.2996	1937		
	Grp 5	80	4.5750	.6517	.0729		
	Grp 6	109	4.2844	.7828	.0750		
	Grp 7	121	4.4132	.7924	.0720		
	Grp 8	30	4.4333	1.1351	.2072		
Q27 Treatment by Mutawefeen staff	Grp 1	49	4.1633	1.1058	.1580	5.6870	.0000*
	Grp 2	23	4.0435	.8779	.1831		
	Grp 3	17	4.5294	.5145	.1248		
	Grp 4	45	3.5556	1.3409	.1999		
	Grp 5	65	3.8000	1.1885	.1474		
	Grp 6	109	4.3853	.6513	.0624		
	Grp 7	122	4.3607	.8631	.0781		
	Grp 8	30	4.1000	1.2690	.2317		
Q28 Trained employees	Grp 1	48	4.1667	1.2434	.1795	21.4761	.0000*
	Grp 2	24	3 7500	1.2247	.2500		
	Grp 3	17	4.5882	.5073	.1230		
	Grp 4	45	3.4667	1.2541	.1869		
	Grp 5	83	2.7590	1.6935	1859		
	Grp 6	109	4.4404	.6863	.0657		
	Grp 7	122	4 4016	.7890	.0714		
	Grp 8	30	3 9000	1 3222	2414		
Dimention 2: Major facilities / services / features							
Q14 Performing Hajj as Sunah	Grp 1	50	4.5800	.6728	.0951	12.6787	.0000*
	Grp 2	24	4.9167	.2823	.0576		
	Grp 3	17	4.7059	.4697	.1139		
	Grp 4	45	3.7778	1.0848	.1617		
	Grp 5	82	4.6829	.5416	.0598		
	Grp 6	109	4.8899	.4780	.0458		
	Grp 7	122	4.5164	.8647	.0783		
	Grp 8	29	4.6207	.6769	.1257		
Q15 Reasonable security	Grp 1	50	4.7000	.5803	.0821	11.8347	.0000*
	Grp 2	24	4.7917	.5090	.1039		
	Grp 3	17	3.7647	1.5624	.3789		
	Grp 4	45	3.5778	1.0551	.1573		
	Grp 5	70	4.8143	.4903	.0586		
	Grp 6	109	4.4862	1.0682	.1023		
	Grp 7	122	4.5984	.7347	.0665		
	Grp 8	30	4.5667	.7279	.1329		
Q16 Public toilets	Grp 1	50	4.3600	.9848	.1393	8 7974	.0000*
	Grp 2	24	4.5417	.5882	.1201		
	Grp 3	17	4.7059	.4697	.1139		
	Grp 4	41	3.8537	.8821	.1378		
	Grp 5	83	4.4217	.7177	.0788		
	Grp 6	109	4.7706	.4224	.0405		
	Grp 7	121	4 6281	6342	.0577		
	Grp 8	29	4.4138	.9070	.1684		
Q20 Common safety	Grp 1	50	4.7000	.6468	.0915	18.4844	.0000*
	Grp 2	24	4.7500	.5316	.1085		
	Grp 3	17	4.7059	4697	.1139		
	Grp 4	45	3 6444	1 0693	.1594		
	Grp 5	81	4.7531	.4339	.0482		
	Grp 6	109	4.9083	.2900	.0278		
	Grp 7	122	4.5984	.7569	.0685		
	Grp 8	30	4.5333	.8996	.1642		

Q21 Clean places	Grp 1	50	4.4800	.9311	.1317	17.7584	.0000*
	Grp 2	24	4.5000	.6594	.1346		
	Grp 3	17	4.7647	.4372	.1060		
	Grp 4	45	3.0889	1.5495	.2310		
	Grp 5	83	4.5663	.6087	.0668		
	Grp 6	109	4.7064	.4963	.0475		
	Grp 7	122	4.4918	.8648	.0783		
	Grp 8	30	4.0667	1.4368	.2623		
Q23 Less crowding	Grp 1	50	4.2400	1.0012	.1416	7.1538	.0000*
	Grp 2	24	4.2083	.8836	.1804		
	Grp 3	17	4.6471	.4926	.1195		
	Grp 4	45	3.6222	1.1926	.1778		
	Grp 5	83	4.0241	.8407	.0923		
	Grp 6	109	4.1651	.8873	.0850		
	Grp 7	122	4.5738	.7376	.0668		
	Grp 8	30	4.3667	.8503	.1552		
Q24 Transportation & movement	Grp 1	50	4.2000	1.0690	.1512	4.3139	.0001*
	Grp 2	24	3.9583	.9991	.2039		
	Grp 3	17	4.6471	.4926	.1195		
	Grp 4	45	3.6889	1.2027	.1793		
	Grp 5	82	4.0732	.9399	.1038		
	Grp 6	109	4.2569	.7253	.0695		
	Grp 7	122	4.4344	.8429	.0763		
	Grp 8	30	4.3333	1.0933	.1996		
Q25 Health care	Grp 1	50	4.4800	.7887	.1115	14.6971	.0000*
	Grp 2	24	4.7083	.4643	.0948		
	Grp 3	17	4.6471	.4926	.1195		
	Grp 4	45	3.6889	1.1042	.1646		
	Grp 5	83	4.0964	.7904	.0868		
	Grp 6	109	4.8073	.4610	.0442		
	Grp 7	122	4.5738	.6914	.0626		
	Grp 8	30	4.5000	.9377	.1712		

* The differences among means are statistically significant since F Prob. < .05 and F Ratio > 2.03
** Grp 1 = Arabic countries, Grp 2 = African countries, Grp 3 = Iran, Grp 4 = America, Europe & Turkey, Grp 5 = South Asia, Grp 6 = South East Asia, Grp 7 = Saudi Arabia, Grp 8 = Other nationality

Table D 47:

ANOVA Results for Testing HFSQ by Where Pilgrims Live at Home

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	2	.5045	.2522	.3158	.7293
	Within Groups	465	371.3652	.7986		
	Total	467	371.8697			
Q10 Proplems are corrected	Between Groups	2	.1820	.0910	.1222	.8850
	Within Groups	465	346.3992	7449		
	Total	467	346.5812			
Q11 Assistant services	Between Groups	2	2.5914	1.2957	1.7633	.1726
	Within Groups	467	343.1724	.7348		
	Total	469	345.7638			
Q12 Bigger rooms in accommodation places	Between Groups	2	1 8820	.9410	9522	386?
	Within Groups	459	453.6159	.9883		
	Total	461	455 4978			
Q13 Nice public areas	Between Groups	2	4.2050	2.1025	1.8896	1523
	Within Groups	467	519.6162	1.1127		
	Total	469	523.8213			
Q17 Anticipation of pilgrims' needs	Between Groups	2	5.8118	2.9059	3.5243	.0303*
	Within Groups	463	381.7590	.8245		
	Total	465	387.5708			
Q18 Have more privecy	Between Groups	2	1.6973	.8486	.7300	.4825
	Within Groups	451	524.3027	1.1625		
	Total	453	526.0000			
Q19 Special requests carreid out	Between Groups	2	4.8885	2.4443	2.4100	.0909
	Within Groups	462	468.5610	1.0142		
	Total	464	473.4495			
Q22 Knowledgable staff	Between Groups	2	9.1132	4.5566	2.8564	.0585
	Within Groups	468	746.5726	1.5952		
	Total	470	755.6858			
Q26 Treatment by policemen	Between Groups	2	0336	.0168	0211	9792
	Within Groups	464	370.1848	.7978		
	Total	466	370 2184			
Q27 Treatment by Mutawefeen staff	Between Groups	2	4 2787	2 1393	2 1099	.1225
	Within Groups	448	454 2490	1.0139		
	Total	450	458 5277			
Q28 Trained employees	Between Groups	2	15.2590	7.6295	4.7035	.0095*
	Within Groups	466	755.8882	1.6221		
	Total	468	771.1471			

Dimention 2: Major facilities / services / features

Q14 Performing Hajj as Sunah	Between Groups	2	.3826	.1913	.3478	.7064
	Within Groups	466	256.2997	5500		
	Total	468	256.6823			
Q15 Reasonable security	Between Groups	2	1.6366	.8183	.9987	.3692
	Within Groups	455	372.8088	.8194		
	Total	457	374.4454			
Q16 Public toilets	Between Groups	2	.3242	.1621	.3078	.7352
	Within Groups	463	243.8668	.5267		
	Total	465	244.1910			
Q20 Common safety	Between Groups	2	2.9009	1.4504	2.9270	.0545
	Within Groups	466	230.9200	.4955		
	Total	468	233.8209			
Q21 Clean places	Between Groups	2	2.1650	1 0825	1.1297	.3240
	Within Groups	468	448.4380	.9582		
	Total	470	450.6030			
Q23 Less crowding	Between Groups	2	7.2672	3.6336	4.3876	0129*
	Within Groups	468	387.5736	.8281		
	Total	470	394.8408			
Q24 Transportation & movement	Between Groups	2	2.1367	1.0684	1.1985	.3026
	Within Groups	467	416.2909	.8914		
	Total	469	418.4277			
Q25 Health care	Between Groups	2	.6092	.3046	.4743	.6226
	Within Groups	468	300.5628	.6422		
	Total	470	301.1720			

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 48:

ANOVA Results for Testing HFSQ By the Pilgrims' Age

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	5	2.8243	5649	.6899	6313
	Within Groups	466	381.5147	.8187		
	Total	471	384.3390			
Q10 Proplems are corrected	Between Groups	5	5.9006	1.1801	1.5480	.1735
	Within Groups	466	355.2519	.7623		
	Total	471	361.1525			
Q11 Assistant services	Between Groups	5	3.0814	.6163	.8215	.5347
	Within Groups	468	351.0811	.7502		
	Total	473	354.1624			
Q12 Bigger rooms in accommodation places	Between Groups	5	13.0216	2.6043	2.6513	.0224*
	Within Groups	460	451.8539	.9823		
	Total	465	464 8755			
Q13 Nice public areas	Between Groups	5	4.2635	8527	.7541	.5834
	Within Groups	468	529.1985	1.1308		
	Total	473	533 4620			
Q17 Anticipation of pilgrims' needs	Between Groups	5	4.109[illegible]	.8219	.9722	.4343
	Within Groups	464	392.2732	.8454		
	Total	469	396.3830			
Q18 Have more privecy	Between Groups	5	3.5529	.7106	.6057	.6956
	Within Groups	453	531.3927	1.1731		
	Total	458	534.9455			
Q19 Special requests carreid out	Between Groups	5	10 9189	2.1838	2.1525	0582
	Within Groups	463	469 7208	1.0145		
	Total	468	480.6397			
Q22 Knowledgable staff	Between Groups	5	29.5372	5.9074	3.7673	.0024*
	Within Groups	469	735.4397	1.5681		
	Total	474	764.9768			
Q26 Treatment by policemen	Between Groups	5	4.1797	.8359	1.0733	.3743
	Within Groups	465	362.1515	.7788		
	Total	470	366.3312			
Q27 Treatment by Mutawefeen staff	Between Groups	5	12.8319	2.5664	2.5449	.0275*
	Within Groups	450	453.7997	1.0084		
	Total	455	466.6316			
Q28 Trained employees	Between Groups	5	26.2746	5.2549	3.2651	.0066*
	Within Groups	467	751.6070	1.6094		
	Total	472	777.8816			

Dimention 2: Major facilities / services / features

Q14 Performing Hajj as Sunah	Between Groups	5	1.9062	.3812	.6881	.6327
	Within Groups	467	258.7365	.5540		
	Total	472	260.6427			
Q15 Reasonable security	Between Groups	5	5.1981	1.0396	1.2753	.2734
	Within Groups	457	372.5470	.8152		
	Total	462	377.7451			
Q16 Public toilets	Between Groups	5	3.5530	.7106	1.3397	.2462
	Within Groups	463	245.5770	.5304		
	Total	468	249.1301			
Q20 Common safety	Between Groups	5	2.6475	.5295	.9956	.4198
	Within Groups	467	248.3672	.5318		
	Total	472	251.0148			
Q21 Clean places	Between Groups	5	4.5676	.9135	.9354	.4576
	Within Groups	469	458.0135	.9766		
	Total	474	462.5811			
Q23 Less crowding	Between Groups	5	6.0630	1.2126	1.4491	.2053
	Within Groups	469	392.4633	.8368		
	Total	474	398.5263			
Q24 Transportation & movement	Between Groups	5	8.4154	1.6831	1.9229	0891
	Within Groups	468	409.6352	.8753		
	Total	473	418.0506			
Q25 Health care	Between Groups	5	10.7431	2.1486	3.4378	.0046*
	Within Groups	469	293.1221	.6250		
	Total	474	303.8653			

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23

Table D 49:

Significant Results of ANOVA Tests Based on HFSQ and the Pilgrims' Age

Question Number Facilities / Services	Group**	Count	Mean	Standard Deviation	Standard Error	F Ratio	F Prob.
Q12 Bigger rooms in accommodation places	Grp 1	40	3.8000	1.3812	.2184	2.6513	.0224*
	Grp 2	128	4.2422	1.0098	.0893		
	Grp 3	145	4.3103	.8938	.0742		
	Grp 4	68	4.0588	1.0349	.1255		
	Grp 5	56	4.0714	.8498	.1136		
	Grp 6	29	3 8621	.8752	1625		
Q22 Knowledgable staff	Grp 1	45	3.7111	1.5757	.2349	3.7673	.0024*
	Grp 2	131	4.2137	1.2710	.1110		
	Grp 3	146	4.3356	1.0257	.0849		
	Grp 4	68	4.0882	1.2899	.1564		
	Grp 5	56	4.2679	1.2134	.1622		
	Grp 6	29	3.4483	1.5943	2961		
Q27 Treatment by Mutawefeen staff	Grp 1	37	4.0000	1.1304	.1858	2.5449	.0275*
	Grp 2	123	4.3577	.8974	.0809		
	Grp 3	143	4.2028	.9536	.0797		
	Grp 4	68	3.9853	1.1524	.1398		
	Grp 5	56	4.1250	.9735	1301		
	Grp 6	29	3.7586	1.1849	2200		
Q28 Trained employees	Grp 1	44	3.5455	1.5768	.2377	3.2651	0066*
	Grp 2	131	4 0229	1.3095	1144		
	Grp 3	145	4 1586	1 0320	.0857		
	Grp 4	68	3.8971	1 2713	.1542		
	Grp 5	56	3 9643	1.2644	.1690		
	Grp 6	29	3 3103	1.6059	2982		
Q25 Health care	Grp 1	45	4.5778	.7534	.1123	3.4378	.0046*
	Grp 2	131	4.5420	.7469	.0653		
	Grp 3	146	4.5411	.6446	.0533		
	Grp 4	68	4.3088	.9184	.1114		
	Grp 5	56	4.3571	.8619	.1152		
	Grp 6	29	4.0000	1.1650	.2163		

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.23
** Grp 1 = under 16, Grp 2 = 16 to 25, Grp 3 = 26 to 35, Grp 4 = 36 to 50, Grp 5 = 51 to 65, Grp 6 = over 65 years

Table D 50:

ANOVA Results for Testing HFSQ By the Number of Previous Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	2	4.4195	2.2098	2.7976	.0620
	Within Groups	469	370.4597	.7899		
	Total	471	374.8792			
Q10 Proplems are corrected	Between Groups	2	1.3412	.6706	.9035	.4059
	Within Groups	469	348.1164	.7423		
	Total	471	349.4576			
Q11 Assistant services	Between Groups	2	1.3166	6583	.8962	4088
	Within Groups	471	345.9408	.7345		
	Total	473	347.2574			
Q12 Bigger rooms in accommodation places	Between Groups	2	8.3889	4.1944	4.3882	.0129*
	Within Groups	463	442.5553	.9558		
	Total	465	450.9442			
Q13 Nice public areas	Between Groups	2	1.4358	.7179	.6420	.5267
	Within Groups	471	526.6654	1.1182		
	Total	473	528.1013			
Q17 Anticipation of pilgrims' needs	Between Groups	2	2.8508	1.4254	1.7329	.1779
	Within Groups	467	384.1364	.8226		
	Total	469	386.9872			
Q18 Have more privecy	Between Groups	2	7.6665	3.8333	3.3911	.0345*
	Within Groups	455	514.3247	1.1304		
	Total	457	521.9913			
Q19 Special requests carreid out	Between Groups	2	1.3653	.6826	.6756	.5094
	Within Groups	466	470.8650	1.0104		
	Total	468	472.2303			
Q22 Knowledgable staff	Between Groups	2	20.1051	10.0526	6 4375	0017*
	Within Groups	472	737 0528	1.5616		
	Total	474	757.1579			
Q26 Treatment by policemen	Between Groups	2	7271	.3636	.4595	.6319
	Within Groups	468	370.2708	.7912		
	Total	470	370.9979			
Q27 Treatment by Mutawefeen staff	Between Groups	2	1.9252	.9626	.9527	.3865
	Within Groups	452	456.7121	1.0104		
	Total	454	458.6374			
Q28 Trained employees	Between Groups	2	17.0482	8.5241	5.3051	.0053*
	Within Groups	470	755.1886	1.6068		
	Total	472	772.2368			
Dimention 2: Major facilities / services / features						
Q14 Performing Hajj as Sunah	Between Groups	2	.5100	.2550	.4651	.6284
	Within Groups	470	257.6888	.5483		
	Total	472	258.1987			
Q15 Reasonable security	Between Groups	2	.8087	.4043	.4954	.6097
	Within Groups	459	374.6567	.8162		
	Total	461	375.4654			
Q16 Public toilets	Between Groups	2	2.8722	1.4361	2.7901	.0624
	Within Groups	467	240.3703	.5147		
	Total	469	243.2426			
Q20 Common safety	Between Groups	2	.5871	.2936	.5868	.5565
	Within Groups	470	235.1380	.5003		
	Total	472	235.7252			
Q21 Clean places	Between Groups	2	2.6588	1.3294	1.3986	.2480
	Within Groups	472	448.6381	.9505		
	Total	474	451.2968			
Q23 Less crowding	Between Groups	2	.8546	.4273	.5109	6003
	Within Groups	472	394.7370	8363		
	Total	474	395.5916			
Q24 Transportation & movement	Between Groups	2	1.4500	.7250	.8186	.4417
	Within Groups	471	417 1681	.8857		
	Total	473	418.6181			
Q25 Health care	Between Groups	2	2.2208	1.1104	1.7482	.1752
	Within Groups	472	299.8087	.6352		
	Total	474	302.0295			

* significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 51:

ANOVA Results for Testing HFSQ By the Pilgrims' Educational Level

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	4	2.3074	.5769	.7029	.5903
	Within Groups	465	381.6415	.8207		
	Total	469	383.9489			
Q10 Proplems are corrected	Between Groups	4	1.7552	.4388	.5685	.6856
	Within Groups	465	358.8937	.7718		
	Total	469	360.6489			
Q11 Assistant services	Between Groups	4	1.9232	.4808	.6355	.6374
	Within Groups	467	353.2951	7565		
	Total	471	355.2182			
Q12 Bigger rooms in accommodation places	Between Groups	4	11.4087	2.8522	2.9041	.0215*
	Within Groups	459	450.7896	.9821		
	Total	463	462.1983			
Q13 Nice public areas	Between Groups	4	3.8585	.9646	.8542	.4914
	Within Groups	467	527.3597	1.1292		
	Total	471	531.2182			
Q17 Anticipation of pilgrims' needs	Between Groups	4	7.8696	1.9674	2 3531	.0532
	Within Groups	463	387.1112	.8361		
	Total	467	394.9808			
Q18 Have more privecy	Between Groups	4	6.0705	1.5176	1.3089	.2658
	Within Groups	451	522.9273	1.1595		
	Total	455	528.9978			
Q19 Special requests carreid out	Between Groups	4	10.4135	2.6034	2.5694	.0374*
	Within Groups	462	468.1047	1.0132		
	Total	466	478.5182			
Q22 Knowledgable staff	Between Groups	4	7.9145	1.9786	1.2253	.2992
	Within Groups	468	755.7261	1.6148		
	Total	472	763.6406			
Q26 Treatment by policemen	Between Groups	4	2.0098	.5025	.6334	6389
	Within Groups	464	368.1010	.7933		
	Total	468	370.1109			
Q27 Treatment by Mutawefeen staff	Between Groups	4	2.5189	6297	.6114	.6546
	Within Groups	448	461.3928	1.0299		
	Total	452	463.9117			
Q28 Trained employees	Between Groups	4	9.8955	2.4739	1.4990	.2014
	Within Groups	466	769.0769	1.6504		
	Total	470	778.9724			
Dimention 2: Major facilities / services / features						
Q14 Performing Hajj as Sunah	Between Groups	4	.8836	.2209	.3849	.8195
	Within Groups	466	267.4518	.5739		
	Total	470	268.3355			
Q15 Reasonable security	Between Groups	4	6.4252	1.6063	1.9306	1043
	Within Groups	455	378.5748	8320		
	Total	459	385.0000			
Q16 Public toilets	Between Groups	4	1.7769	.4442	8602	.4878
	Within Groups	462	238.5828	.5164		
	Total	466	240.3597			
Q20 Common safety	Between Groups	4	2.4830	.6208	1.1771	.3201
	Within Groups	466	245.7505	.5274		
	Total	470	248.2335			
Q21 Clean places	Between Groups	4	1.7520	.4380	.4451	.7760
	Within Groups	468	460.4974	.9840		
	Total	472	462.2495			
Q23 Less crowding	Between Groups	4	6.0877	1.5219	1.8154	.1246
	Within Groups	468	392.3309	.8383		
	Total	472	398.4186			
Q24 Transportation & movement	Between Groups	4	4.9217	1.2054	1.3944	2348
	Within Groups	467	403.7016	.8645		
	Total	471	408.5233			
Q25 Health care	Between Groups	4	1.1252	.2813	.4356	.7829
	Within Groups	468	302.2363	.6458		
	Total	472	303.3615			

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 52:

ANOVA Results for Testing HFSQ By the Pilgrims' Accompanied Persons

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	2	.6868	.3434	.4473	.6397
	Within Groups	444	340.8613	.7677		
	Total	446	341.5481			
Q10 Proplems are corrected	Between Groups	2	.7117	.3558	.5153	.5977
	Within Groups	445	307.2794	.6905		
	Total	447	307.9911			
Q11 Assistant services	Between Groups	2	1.2711	.6356	.9111	.4028
	Within Groups	446	311.1298	.6976		
	Total	448	312.4009			
Q12 Bigger rooms in accommodation places	Between Groups	2	1.0056	.5028	.5251	.5919
	Within Groups	442	423.2506	.9576		
	Total	444	424.2562			
Q13 Nice public areas	Between Groups	2	2.1443	1.0721	.9713	.3794
	Within Groups	446	492.2922	1.1038		
	Total	448	494.4365			
Q17 Anticipation of pilgrims' needs	Between Groups	2	.9514	.4757	.5817	.5594
	Within Groups	443	362.2885	.8178		
	Total	445	363.2399			
Q18 Have more privecy	Between Groups	2	2.8602	1.4301	1.2376	.2911
	Within Groups	438	506.1375	1.1556		
	Total	440	508.9977			
Q19 Special requests carreid out	Between Groups	2	3.6180	1.8090	1.8065	.1654
	Within Groups	442	442.6202	1.0014		
	Total	444	446.2382			
Q22 Knowledgable staff	Between Groups	2	.9213	.4607	.3003	.7408
	Within Groups	446	684.2279	1.5341		
	Total	448	685.1492			
Q26 Treatment by policemen	Between Groups	2	.2861	.1430	.1837	.8323
	Within Groups	444	345.7050	.7786		
	Total	446	345.9911			
Q27 Treatment by Mutawefeen staff	Between Groups	2	1.0943	.5472	.5450	.5803
	Within Groups	436	437.7667	1.0041		
	Total	438	438.8610			
Q28 Trained employees	Between Groups	2	4.3569	2.1784	1.4169	.2436
	Within Groups	444	682 6230	1.5374		
	Total	446	686.9799			
Dimention 2: Major facilities / services / features						
Q14 Performing Hajj as Sunah	Between Groups	2	1.1060	.5530	1.0285	.3584
	Within Groups	444	238 7240	.5377		
	Total	446	239.8300			
Q15 Reasonable security	Between Groups	2	3.1603	1.5801	1.9940	.1374
	Within Groups	441	349 4591	7924		
	Total	443	352.6194			
Q16 Public toilets	Between Groups	2	1 2044	.6022	1 1700	.3113
	Within Groups	441	226.9825	5147		
	Total	443	228.1869			
Q20 Common safety	Between Groups	2	3.2937	1.6469	3.3974	.0343*
	Within Groups	446	216.1985	.4847		
	Total	448	219.4922			
Q21 Clean places	Between Groups	2	.9623	.4811	.5262	.5912
	Within Groups	446	407.8395	.9144		
	Total	448	408.8018			
Q23 Less crowding	Between Groups	2	2.0594	1.0297	1.2381	.2909
	Within Groups	446	370.9295	.8317		
	Total	448	372.9889			
Q24 Transportation & movement	Between Groups	2	2.3713	1.1857	1.3184	.2686
	Within Groups	445	400.1912	.8993		
	Total	447	402.5625			
Q25 Health care	Between Groups	2	.4116	.2058	.3329	.7170
	Within Groups	446	275.7131	.6182		
	Total	448	276.1247			

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 53:

ANOVA Results for Testing HFSQ by the Method Pilgrims Managed their Hajj

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	2	.8964	.4482	.6421	.5268
	Within Groups	388	270.8478	.6981		
	Total	390	271.7442			
Q10 Proplems are corrected	Between Groups	2	.5701	.2851	.4476	.6395
	Within Groups	388	247.1025	.6369		
	Total	390	247.6726			
Q11 Assistant services	Between Groups	2	.3736	.1868	.2719	.7621
	Within Groups	390	267.9368	.6870		
	Total	392	268.3104			
Q12 Bigger rooms in accommodation places	Between Groups	2	.8091	.4045	4416	6434
	Within Groups	384	351.7956	.9161		
	Total	386	352.6047			
Q13 Nice public areas	Between Groups	2	13.5272	6.7636	6.8201	.0012*
	Within Groups	390	386.7679	.9917		
	Total	392	400.2952			
Q17 Anticipation of pilgrims' needs	Between Groups	2	.0827	.0413	.0546	.9469
	Within Groups	386	292.2772	.7572		
	Total	388	292.3599			
Q18 Have more privecy	Between Groups	2	.3049	.1524	.1346	.8741
	Within Groups	375	424.5655	1.1322		
	Total	377	424.8704			
Q19 Special requests carreid out	Between Groups	2	3.8804	1.9402	2.0271	.1331
	Within Groups	386	369.4615	.9572		
	Total	388	373.3419			
Q22 Knowledgable staff	Between Groups	2	4.6306	2.3153	1.4076	.2460
	Within Groups	390	641.5119	1.6449		
	Total	392	646.1425			
Q26 Treatment by policemen	Between Groups	2	1.9349	.9674	1.4506	2357
	Within Groups	388	258.7659	.6669		
	Total	390	260.7008			
Q27 Treatment by Mutawefeen staff	Between Groups	2	5.4713	2.7357	2.8322	0602
	Within Groups	373	360.2920	9659		
	Total	375	365.7633			
Q28 Trained employees	Between Groups	2	3.1935	1.5968	.9438	.3901
	Within Groups	388	656.4536	1.6919		
	Total	390	659.6471			
Dimention 2: Major facilities / services / features						
Q14 Performing Hajj as Sunah	Between Groups	2	.0302	.0151	.0360	.9647
	Within Groups	389	163.5208	.4204		
	Total	391	163.5510			
Q15 Reasonable security	Between Groups	2	.0812	.0406	.0509	.9504
	Within Groups	380	303.0416	.7975		
	Total	382	303.1227			
Q16 Public toilets	Between Groups	2	2.1496	1.0748	2.1795	.1145
	Within Groups	387	190.8478	.4931		
	Total	389	192.9974			
Q20 Common safety	Between Groups	2	0518	0259	.0620	.9399
	Within Groups	388	162 2551	4182		
	Total	390	162.3069			
Q21 Clean places	Between Groups	2	.4897	.2449	.3048	.7375
	Within Groups	390	313.3627	.8035		
	Total	392	313.8524			
Q23 Less crowding	Between Groups	2	.0278	.0139	.0184	9818
	Within Groups	390	295.5345	.7578		
	Total	392	295.5623			
Q24 Transportation & movement	Between Groups	2	4.8262	2.4131	2.9358	.0543
	Within Groups	389	319.7427	.8220		
	Total	391	324.5689			
Q25 Health care	Between Groups	2	3.7585	1.8792	3.2379	.0403*
	Within Groups	390	226.3484	.5804		
	Total	392	230.1069			

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02

Table D 54:

ANOVA Results for Testing HFSQ By the Pilgrims' Annual Income

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	4	.9260	.2315	.3272	.8597
	Within Groups	381	269.5326	.7074		
	Total	385	270.4585			
Q10 Proplems are corrected	Between Groups	4	.6967	.1742	.2481	.9107
	Within Groups	381	267.4898	.7021		
	Total	385	268.1865			
Q11 Assistant services	Between Groups	4	1.0986	.2747	.4162	.7969
	Within Groups	382	252.0642	.6599		
	Total	386	253.1628			
Q12 Bigger rooms in accommodation places	Between Groups	4	1.8841	.4710	.4758	.7535
	Within Groups	375	371.2211	.9899		
	Total	379	373.1053			
Q13 Nice public areas	Between Groups	4	.2032	.0508	.0483	.9956
	Within Groups	382	401.5643	1.0512		
	Total	386	401.7674			
Q17 Anticipation of pilgrims' needs	Between Groups	4	5.6482	1.4120	1.7370	.1411
	Within Groups	379	308.0914	.8129		
	Total	383	313.7396			
Q18 Have more privecy	Between Groups	4	2.9770	.7443	.6722	.6116
	Within Groups	366	405.2440	1.1072		
	Total	370	408.2210			
Q19 Special requests carreid out	Between Groups	4	2.0396	.5099	.5020	.7343
	Within Groups	377	382.9133	1.0157		
	Total	381	384.9529			
Q22 Knowledgable staff	Between Groups	4	2.3195	.5799	.3589	.8378
	Within Groups	383	618.7939	1.6156		
	Total	387	621.1134			
Q26 Treatment by policemen	Between Groups	4	2.9518	.7380	1.0415	.3855
	Within Groups	379	268.5377	.7085		
	Total	383	271.4896			
Q27 Treatment by Mutawefeen staff	Between Groups	4	3.1174	.7794	.8131	.5174
	Within Groups	365	349.8582	.9585		
	Total	369	352.9757			
Q28 Trained employees	Between Groups	4	2.3119	.5780	.3569	.8392
	Within Groups	382	618.6855	1.6196		
	Total	386	620.9974			
Dimention 2: Major facilities / services / features						
Q14 Performing Hajj as Sunah	Between Groups	4	1.9572	.4893	.9750	.4211
	Within Groups	382	191.7069	.5019		
	Total	386	193.6641			
Q15 Reasonable security	Between Groups	4	2.9973	.7493	.9114	.4573
	Within Groups	370	304.1920	.8221		
	Total	374	307.1893			
Q16 Public toilets	Between Groups	4	3.9078	.9770	2.2279	.0654
	Within Groups	379	166.1937	.4385		
	Total	383	170.1016			
Q20 Common safety	Between Groups	4	.9199	.2300	.5262	.7166
	Within Groups	381	166.5205	.4371		
	Total	385	167.4404			
Q21 Clean places	Between Groups	4	3.5239	.8810	1.1820	.3182
	Within Groups	383	285.4658	.7453		
	Total	387	288.9897			
Q23 Less crowding	Between Groups	4	2.7184	.6796	.8690	.4826
	Within Groups	383	299.5290	.7821		
	Total	387	302.2474			
Q24 Transportation & movement	Between Groups	4	6.7069	1.6767	2.1389	.0754
	Within Groups	382	299.4533	.7839		
	Total	386	306.1602			
Q25 Health care	Between Groups	4	4.0705	1.0176	1.8837	.1125
	Within Groups	383	206.9063	.5402		
	Total	387	210.9768			

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.39

Table D 55:

ANOVA Results for Testing HFSQ By the Pilgrims Who Have Travelling Experience

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	2	2.2926	1.1463	1.4547	.2347
	Within Groups	416	327.8076	.7880		
	Total	418	330.1002			
Q10 Proplems are corrected	Between Groups	2	.8012	.4006	.5218	.5938
	Within Groups	416	319.3754	.7677		
	Total	418	320.1766			
Q11 Assistant services	Between Groups	2	4.8301	2.4150	3.3150	.0373*
	Within Groups	418	304.5191	.7285		
	Total	420	309.3492			
Q12 Bigger rooms in accommodation places	Between Groups	2	4.6567	2.3284	2.3519	.0965
	Within Groups	413	408.8721	.9900		
	Total	415	413.5288			
Q13 Nice public areas	Between Groups	2	10.2502	5.1251	4.6791	.0098*
	Within Groups	418	457.8401	1.0953		
	Total	420	468.0903			
Q17 Anticipation of pilgrims' needs	Between Groups	2	5.9887	2.9943	3.5125	.0307*
	Within Groups	414	352.9226	.8525		
	Total	416	358.9113			
Q18 Have more privecy	Between Groups	2	12.7025	6.3512	5.7998	.0033*
	Within Groups	409	447.8873	1.0951		
	Total	411	460.5898			
Q19 Special requests carreid out	Between Groups	2	5.3224	2.6612	2.6071	.0750
	Within Groups	415	423.6178	1.0208		
	Total	417	428.9402			
Q22 Knowledgable staff	Between Groups	2	9.4004	4.7002	3.1178	0453*
	Within Groups	419	631.6541	1.5075		
	Total	421	641.0545			
Q26 Treatment by policemen	Between Groups	2	2.3109	1.1555	1.567^	2098
	Within Groups	417	307.3534	.7371		
	Total	419	309.6643			
Q27 Treatment by Mutawefeen staff	Between Groups	2	11.9271	5.9635	5.9022	.0030*
	Within Groups	408	412.2384	1.0104		
	Total	410	424.1655			
Q28 Trained employees	Between Groups	2	12.8420	6.4210	4.0849	.0175*
	Within Groups	417	655.4699	1.5719		
	Total	419	668.3119			
Dimention 2: Major facilities / services / features						
Q14 Performing Hajj as Sunah	Between Groups	2	1.4616	.7308	1.2609	.2845
	Within Groups	418	242.2676	.5796		
	Total	420	243 7292			
Q15 Reasonable security	Between Groups	2	1.9403	.9701	1.1346	3226
	Within Groups	411	351.4413	.8551		
	Total	413	353.3816			
Q16 Public toilets	Between Groups	2	1 7682	.8841	1 6452	.1942
	Within Groups	414	222.4764	.5374		
	Total	416	224.2446			
Q20 Common safety	Between Groups	2	.5758	2879	5558	.5740
	Within Groups	417	215.9861	.5180		
	Total	419	216.5619			
Q21 Clean places	Between Groups	2	3.5060	1.7530	1.8624	.1566
	Within Groups	419	394.3897	.9413		
	Total	421	397.8957			
Q23 Less crowding	Between Groups	2	8.0159	4.0080	4.7270	.0093*
	Within Groups	419	355.2637	.8479		
	Total	421	363.2796			
Q24 Transportation & movement	Between Groups	2	10.7361	5.3681	6.0224	.0026*
	Within Groups	419	373.4748	.8913		
	Total	421	384.2109			
Q25 Health care	Between Groups	2	.6716	.3358	5224	.5935
	Within Groups	419	269.3473	.6428		
	Total	421	270.0190			

* *Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 3.02*

Table D 56:

ANOVA Results for Testing HFSQ By The Purpose for Coming to This Hajj Season

Ques. # Items	Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Dimension 1: Service Quality						
Q9 Prompt services	Between Groups	3	.8233	.2744	.3630	.7798
	Within Groups	415	313.7924	.7561		
	Total	418	314.6158			
Q10 Proplems are corrected	Between Groups	3	.9858	.3286	.4348	.7282
	Within Groups	415	313.6634	.7558		
	Total	418	314.6492			
Q11 Assistant services	Between Groups	3	.5359	.1786	.2476	.8630
	Within Groups	417	300.8322	.7214		
	Total	420	301.3682			
Q12 Bigger rooms in accommodation places	Between Groups	3	7.6202	2.5401	2.6800	.0466*
	Within Groups	409	387.6486	.9478		
	Total	412	395.2688			
Q13 Nice public areas	Between Groups	3	1.9003	.6334	5884	.6229
	Within Groups	417	448.9216	1.0766		
	Total	420	450.8219			
Q17 Anticipation of pilgrims' needs	Between Groups	3	6.6911	2.2304	2.6709	.0471*
	Within Groups	413	344.8772	.8351		
	Total	416	351.5683			
Q18 Have more privecy	Between Groups	3	9.1113	3.0371	2.8487	.0373*
	Within Groups	402	428.5858	1.0661		
	Total	405	437.6970			
Q19 Special requests carreid out	Between Groups	3	8.4005	2.8002	2.8480	.0373*
	Within Groups	413	406.0599	.9832		
	Total	416	414.4604			
Q22 Knowledgable staff	Between Groups	3	30.5694	10.1898	6.4608	.0003*
	Within Groups	418	659.2623	1.5772		
	Total	421	689.8318			
Q26 Treatment by policemen	Between Groups	3	4.5815	1.5272	2.2505	.0819*
	Within Groups	414	280.9424	.6786		
	Total	417	285.5239			
Q27 Treatment by Mutawefeen staff	Between Groups	3	7.3986	2.4662	2.5271	.0571
	Within Groups	398	388.4124	.9759		
	Total	401	395.8109			
Q28 Trained employees	Between Groups	3	29.5693	9.8564	6.2005	.0004*
	Within Groups	416	661.2783	1.5896		
	Total	419	690.8476			
Dimention 2: Major facilities / services / features						
Q14 Performing Hajj as Sunah	Between Groups	3	.3415	.1138	2001	8963
	Within Groups	417	237.2025	5688		
	Total	420	237.5439			
Q15 Reasonable security	Between Groups	3	7.8808	2.6269	3 1267	0257*
	Within Groups	405	340.2659	8402		
	Total	408	348 1467			
Q16 Public toilets	Between Groups	3	3.5909	1 1970	2 2408	0830
	Within Groups	413	220.6105	.5342		
	Total	416	224.2014			
Q20 Common safety	Between Groups	3	4.1606	1.3869	2.7420	0429*
	Within Groups	416	210.4013	.5058		
	Total	419	214.5619			
Q21 Clean places	Between Groups	3	7.5422	2.5141	2.7629	.0417*
	Within Groups	418	380.3535	.9099		
	Total	421	387.8957			
Q23 Less crowding	Between Groups	3	7.3663	2.4554	3.0977	.0267*
	Within Groups	418	331.3375	.7927		
	Total	421	338.7038			
Q24 Transportation & movement	Between Groups	3	4.8297	1.6099	1.8896	.1307
	Within Groups	417	355.2795	.8520		
	Total	420	360.1093			
Q25 Health care	Between Groups	3	4.1123	1.3708	2.3025	.0765
	Within Groups	419	248.8545	.5953		
	Total	421	252.9668			

* Significant statistical differences among different means occur when F Prob. < .05 and F Ratio > 2.62

GLOSSARY

Al-Hill	The Religious domain of Makkah at the metropolitan level covering some 196 sq. Km.
Al-Juhfa	A Religious point at which pilgrims assume Ihram designated for the people of Al-Sham (Palestine, Lebanon, Syria, and Jordan).
Al-Masha'er Al-Moqadasah	The places at which Hajj is performed, comprised of Mina, Muzdalifah, and Arafat.
Al-Masjid Al-Haram	The Sacred Mosque in Makkah which comprised the Kaa'ba.
Allah	God, Almighty.
Arafat	A religious place lying at 20 Km to the south-east of Makkah. This is the place at which Muslims gather on the 9th day of Dhul-Hijjah, the twelfth month of the Muslim Calendar, every year as part of the Hajj rituals.
Arkan	Pillars of religious rituals (Hajj) in the Islamic Law terminology.
Ash-hur Al-Hajj	The months of Hajj comprised of *Shawal*, *Dhul-Qida'*, and the first ten days of *Dhul-Hijjah*, the last three months of the Muslim calendar.
Ashwat	Rounds.
Ayyam Al-Hajj	The days of the Hajj extending from the eight of Dhul-Hijja to the thirteenth.
Dhat-Irq	A religious point at which pilgrims commence Ihram, designated for the people of Iraq.

Dhu Al-Hulaifa	A religious point at which pilgrims commence Ihram, designated for the people of Medinah.
Dhul-Hijjah	The twelfth month of the Muslim Calendar.
Dhul-Qi'da	The eleventh month of the Muslim Calendar.
Eid al-Adha	A festival on the tenth day of Dhul-Hijjah. It is celebrated with prayers and the exchange of gifts in Muslim communities everywhere.
Eid al-Fitr	A feast-day commemorating the end of the month of Ramadan. See also, *Eid al-Adha.*
Ejtihad & Qiyas	Inductive and deductive methods of reasoning. The Holy Qura'an , the *Sunah* , *Ejtihad*, and *Qiyas* comprise the basic sources of Islamic Law (*Shari'a*).
Fiqh	Jurisprudence, the science of derivation of Mazahib and other religious precepts.
Hadith	Teachings, sayings, and tacit approvals of the prophet Muhammad (peace be upon Him).
Hady / Adhahi	A sacrificial animal.
Hajj	Pilgrimage to Makkah, the fifth pillar of Islam.
Hanafi	A sunni scholl of thought (Mazhab) established by Abu Hanifah.
Hanbali	The fourth school of thought (*Mazhab*) founded by Ahmed bin Hanbal (753-848) one of the students of Al-Shafi'i.
Hijra	Muslim Calendar started in 622.

Ifrad	A mode of the Hajj meaning singleness i.e. Hajj is performed alone.
Ihram	Entering the state of sanctity.
Ijma'a	Consensus of opinion.
Imam	Leader of the prayer.
Jamarat	The three shrines which are pelted by pilgrims on the 10th, 11th, 12th, and 13, of Dhul-Hijjah in Mina.
Jamarat Al-Aqaba	A shrine which is pelted by pilgrims on the tenth of *Dhul-Hijjah* month. It is the first *Jamarah* located in the East of Mina.
Malki	A sunni school of thought established by Malik Bin Anas (715 - 795).
Manasik	The religious rites of the Hajj performed in a prescribed manner.
Mawaqit	The religious points at which pilgrims commence *Ihram* for *Hajj* and/or *Umrah*.
Mazahib	Schools of thought which pilgrims follow (Singular: Mazhab).
Mufrid	A pilgrim who follow the mode of *Ifrad*.
Mutawifin	Couriers, the principal organisers of the Hajj services (singular: Mutawif).
Muzawirin	Agents of *Mutawifin* in Medina.
Najd	The central plateau in the Arabian Peninsula.

Namirah Mosque	A massive mosque in Arafat used for the day of Arafat only.
Qarin	A pilgrim who follows the mode of Qiran.
Qarn Al-Manazil	A religious point at which pilgrims start the Ihram for Hajj and Umrah, designated for the people of Najd.
Qiran	Combination, a mode of Hajj which enables pilgrims to perform both Hajj and Umrah.
Qiyas	Deductive method of reasoning.
Saa'i	A religious ritual based on marching between the Mount of Safa and Marwa, Makkah, seven times; this constitutes an integral part of both *Hajj* and *Umrah.*
Sadaqa	A voluntary charity.
Salat	Is the name for the obligatory prayers which are performed five times a day, and are a direct link between the worshiper and God.
Shafi'i	A sunni school of thought founded by Mohammed Al-Shafi'i (767 - 820).

Shahadah	A simple formula which all the faithful pronounce. In Arabic, the first part is *la ilaha illa'Llaha* - 'there is no god except God' ; *ilaha* (god) can refer to anything which may be tempted to put in place of God - wealth, power, etc. Then comes *illa'Llaha:* 'except God', the source of all Creation. The second part of the *Shadah* is *Muhammadun rasulu'Llah:* 'Muhammad is the messenger of God'.
Shari'a	Islamic Law.
Shawal	The tenth month of the Muslim Hijra year.
Shroot	Bases of foundations of religious rituals (Hajj) in Islamic Law terminology.
Sua'al	Asking, a system of distribution of pilgrims between Couriers put into effect between 1965 and 1975.
Sunan	Preferences in performing religious rituals (Hajj) in Islamic Law terminology.
Sunnah	Teaching from the Prophet Muhammad (peace be upon Him).
Tahalul	Coming out of the state of sanctity.
Talbiya	A special praise to *Allah* which runs:- 'Here I am O Allah, here I am. Here I am; there is no partner unto Thee. Verily, praise and favour belong to Thee, and so also kingdom; there is no partner unto Thee'.
Tamattu'	Enjoyment, a mode of Hajj which enables the pilgrims to remain in a state of sanctity, for the shortest possible period.

Tashreeq Days	The 11th, 12th, 13th days of Dhul-Hijjah.
Tawaf	A religious ritual involving seven successive marches (i.e. circulation) around the Holy Kaa'ba.
Tawaf Al-Qudum	This *Tawaf* is a salutation to the Holy *Ka'aba.*
Tawaf Al-Ifadhah	The *Hajj Tawaf* which is performed after standing in Arafat.
Tawaf Al-Weda'a	The farewell *Tawaf.*
Tawafa	Courier service.
The Haram	The Sanctuary, comprised of the Holy Ka'aba and the religious inviolate zone encircling it.
The Holy Ka'aba	The Qiblah (focus of prayer), the religious shrine to which Muslims turn in their prayer five times a day.
The Holy Qura'an	The pronouncement of Allah is the fundamental source of Islamic Law.
Turuq	The modes of Hajj.
Umrah	A visit to Makkah during which one enters the state of Ihram, performs *Tawaf*, and *Saa'i.*
Wajibat	Conditions of religious rituals (Hajj) in Islamic Law terminology.
Woqoof	Being and staying in Arafat, *Woqoof* is the most important pillar of the Hajj.
Yalamlam	A religious point at which Pilgrims commence Ihram, designated for the people of Yemen.

Yawm Al-Tarweyah	The day of watering, the eighth day of Dhul-Hijjah month. On this day, pilgrims who are not in the state of *Ihram*, do so from their residence in Makkah.
Yawom A'rafah	The Day of Arafat, the ninth day of Dhul-Hijjah month.
Zakat	The third pillar of Islam. In Arabic Means both 'purification' and 'growth'. For most purposes this involves the payment each year of two and half percent of one's capital.
Zam Zam	A divine spring, the water of which is held to be the best on Earth.

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