REDACTION STATEMENT

Please note that the following content has been redacted from the digitised version of this thesis:

Appendix G – which contained the following journal article: "Using the theory of planned behaviour to develop an assessment of attitudes and beliefs towards prosthetic use in amputees" – B. G. Callaghan, M. Johnston and M. E. Condie; Disability and rehabilitation, 2004; vol. 26, no. 14/15, 924-930

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Cognitive Representations and Attitudes as Predictors of Prosthetic Use and Recovery Following Lower Limb Amputation

by
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Thesis abstract

Introduction

Lower limb amputation is a common cause of activity limitations in Scotland with approximately 850 primary amputations being performed each year, 90% of which are caused by peripheral arterial disease. Approximately 65% of transtibial and 25% of transfemoral amputees are fitted with a prosthesis, however, of those fitted, around 40% are known not to use their prosthesis, or to use it only occasionally, following discharge from rehabilitation. Additionally, post-operative rehabilitation programs for lower limb amputees are focused primarily on improving mobility, despite the known impact of irrevocable limb loss on psychological states in addition to physical limitations. At present, however, there is an inadequate evaluation of psychological factors, either as dependant health outcome variables or as predisposing independent variables that may influence rehabilitation behaviours and other health outcomes, in amputees.

There is a growing body of evidence to suggest that a full understanding of health-related behaviours, activity limitations and affective adjustment in chronic physical conditions requires consideration of the psychological processes mediating patients' responses to their condition. Social cognition models are used in health psychology as frameworks for guiding investigations into psychological variables that may determine health-related behaviours and outcomes. Among these models, the self-regulation model and the theory of planned behaviour have successfully identified cognitive representations and attitudes to health behaviours, respectively, that have determined rehabilitation and health outcomes in other physical conditions.

It was hypothesised, therefore, that cognitive representations and attitudes towards prosthetic use (as well as psychological distress, functional limitations, socio-demographic and clinical variables) would play a role in determining being prescribed a prosthesis, subsequent prosthetic use, activity limitations, psychological distress and quality of life in lower limb amputees.

Method

A longitudinal predictive study was conducted at eight Scottish hospitals. Participants were assessed at recruitment (3-4 weeks post-operatively) using the predictor variables, which included cognitive representations, attitudes towards prosthetic use, pre-operative activity limitations, psychological distress and socio-demographic and clinical variables. They were then assisted to complete the outcome variables, in their own homes by a trained amputee visitor, at 1-month and 6-months post-discharge. Outcome variables included prosthetic prescription, prosthetic use, activity limitations, psychological distress and quality of life. Multiple regression equations were used to assess the extent to which the outcome variables could be predicted by the predictor variables.

Results

One hundred and sixty six amputees were recruited to the study, with 142 and 120 being retained at 1-month and 6-months follow-up, respectively. Being prescribed a prosthesis was predicted by social deprivation, level of amputation, diabetes and unilateral/bilateral status, but not by psychological variables. Significant attitudes towards prosthetic use models emerged for predicting prosthetic use, with normative beliefs x motivation to comply with NHS staff and family members being particularly influential. Significant cognitive representation models also emerged for predicting prosthetic use, with timeline cyclical (perceptions of symptoms fluctuating) and treatment control (beliefs about treatment efficacy) being the most prominent determinants. Their influence was stronger at 6-months than at 1-month. Depression predicted indoor prosthetic use at both follow-up times. In relation to predicting activity limitations, timeline cyclical and treatment control were again the most influential cognitive representation at both 1-month and 6-months. Emotional representations (distressing thoughts) also predicted activity limitations, but only at 1-month. Emotional representations were also prominent in predicting psychological distress at both outcome assessment times. No variables achieved significance for predicting quality of life.

Discussion

Many studies have attempted to identify factors relating to prosthetic use and other rehabilitation and health outcomes following lower limb amputation, however, these have focussed primarily on physical factors while psychological factors have been poorly represented. The social cognition models used in this study have provided useful frameworks for identifying psychological variables that predicted prosthetic use, activity limitations and psychological distress in amputees. The implications of these results are that this new knowledge raises the prospect of being able to a) identify patients whose psychological profiles render them at more risk of not rehabilitating as successfully with a prosthesis and not achieving favourable activity limitations and psychological distress outcomes, and b) formulate elements of acute psychological care aimed at increasing the number of patients making effective use of their prosthesis and achieving more successful activity limitations and health outcomes after being discharged from hospital. Further research should be aimed at developing new, or adapt existing, cognitive behavioural therapies to target the predictive psychological variables identifiyed in this study. The efficacy of these interventions could then be assessed in a randomised controlled trial.

Introduction

This study employs psychological models as frameworks for investigating the extent to which psychological variables predicted rehabilitation behaviours and health outcomes in lower limb amputees. The influence of socio-demographic and clinical variables on behaviours and outcomes was also examined.

Chapter one presents and discusses the prevalence and epidemiology of lower limb amputation.

Chapter two reviews the literature relating to amputation and psychology. The review is divided into three distinct categories, a) psychological depression in amputees, b) psychosocial predictors of activity limitations and prosthetic use in amputees, and c) quality of life in amputees.

Chapter three addresses the theoretical background underlying the study and, subsequently, introduces the concept of social cognition models. The chapter goes on to outline and explain in more detail the background of, and the components contained within, each of the social cognition models employed as frameworks to guide the present study. These are the theory of planned behaviour (TPB: Aizen, 1988, 1991) and the self-regulation model (SRM: Leventhal *et al.*, 1980, 1984), as well as perceptions of control over recovery (RLOC: Partridge and Johnston, 1989), derived from social learning theory (SLT: Rotter, 1966), and self-efficacy (Bandura, 1977, 1986), a construct within social cognitive theory (SCT: e.g., Bandura, 1991).

Chapter four reviews the literature relating to the theory of planned behaviour (TPB: Aizen, 1988, 1991) and the self-regulation model (SRM: Leventhal *et al.*, 1980, 1984) and their application to rehabilitation in physical conditions. This review focuses particularly on clinical populations, and evaluates the evidence relating to how cognitive variables within these social cognition models have predicted the performance of rehabilitation behaviours and health outcomes. The chapter concludes with the aims and research questions for the present study. The following null hypotheses were generated:

- Any observed prediction of outcome variables by CS-SRM variables in amputees will be due to chance.

- Any observed prediction of outcome variables by TPB normative-related variables in amputees will be due to chance.

Chapter five presents the methodology of the study, and includes details of the development of a theory of planned behaviour measure, participant recruitment, psychological predictor variables, other predictor variables, outcome variables, procedure and statistical analyses.

Chapters six to ten present the results of the study. Chapter six contains descriptive statistical summaries for the socio-demographic and clinical variables relating to the participants recruited to the study, and the descriptive summaries and internal consistency calculations for the measures used during the course of the study. Results are also shown for tests of sample bias between consenting and non-consenting patients at each assessment period of the study, and for changes in the measures used over the course of the study. Chapter seven presents the results for predicting prosthetic prescription from the predictor variables. Chapters eight to ten show the results for predicting prosthetic use [including TPB results] (chapter 8), activity limitations (chapter 9), and psychological distress and quality of life (chapter 10) from the predictor variables. A summary table of the multiple regression results is presented in Appendix F on page 396.

Finally, chapter eleven discusses the results presented in the preceding chapters with a view to how these may be interpreted. Then, after discussing the social cognition models used and highlighting some limitations of the present study, the chapter ends by examining some of the potential implications that knowledge gained from the study could hold for patients and relevant NHS service providers. Finally, avenues of future research and dissemination following on from the study are suggested.

Chapter 1: The epidemiology of lower limb amputation

In order to understand the epidemiological profile of the patient population under investigation in this study, socio-demographic and clinical data are reported in this chapter that were provided by the Scottish Physiotherapy Amputee Research Group (SPARG) database system. This is a national, standardised system of information collection and analysis for lower limb amputees in Scotland (Condie *et al.,* 1996). The system collects information about the patient, the amputation and the programme of rehabilitation received by each amputee up to the point of discharge from hospital, and it is the most comprehensive and robust national amputee database in the world (Condie, personal communication). Other national amputee database systems exist, however, these have various limitations associated with them, such as a) only providing data from limb-fitting centres, thereby excluding up to 50% of amputees who are not limb-fitted (e.g., National Amputee Statistical Database: NASDAB, 2004), or b) relying solely on voluntary reports of data by surgical departments and prosthetic manufacturers (e.g., Danish Amputation Register: DAR, Ebskov, 1986), or c) effectively consisting entirely of isolated periodical studies, which have not been representative of the entire national output (e.g., Southern Finland: Pohjolainen and Alaranta, 1998). The epidemiology and prevalence/incidence levels of amputee variables are unique to the countries and cultures in which patients reside because of inherent differences in the predisposing and influencing factors associated with these societies. For example, amputees from developed western societies are more likely to be older vascular patients, while those from disease and war-torn societies are more likely to be younger trauma victims. Consequently, a worldwide database of amputee socio-demographic and clinical variables does not exist and would, in any case, be of little value for informing clinicians of the issues that are pertinent to informing the treatment and care of patients in their own countries. However, some similarities and differences are known to exist in socio-demographic and clinical variables between eastern, western and third world cultures and these are highlighted in the incidence and epidemiology section that comprises the remainder of this chapter.

Age and gender

The age and gender summary data for all amputees in Scotland for the years 1999 to 2002 are shown in table 1.0. The overall number of limb amputations performed over this period in Scotland gradually increased (range: 644-831), however, the mean age of amputees remained consistent at 69 years. The rising number of limb amputations was likely, at least in part, to be due to population increases in elderly people (i.e., despite decreases in overall population figures), and an overall improvement in patient healthcare, resulting in increased patient numbers and life expectancy, respectively. The ratio of male vs. female amputees also remained consistent over this period of time, with a typical 65/35 (male/female) distribution. Possible explanations for this offset ratio could involve gender differences known to affect blood circulation, such as variations in average body size and mass between men and women, as well as differences in lifestyle behaviours (e.g., smoking, alcohol overuse, poor diet).

Table 1.0. Age and gender in amputee population, 1999-2002 (Cargill and Condie, 2004)

	1999	**2000**	**2001**	**2002**
No. of amputees	644	761	775	831
Age minimum	0	0	9	10
Age lower quartile	62	61	63	62
Age median	71	70	71.5	71
Age upper quartile	79	79	79	79
Age maximum	95	95	97	100
Mean age	69	69	69	69
Males %	64.25	63.38	63.42	64.12
Females %	35.75	36.62	36.58	35.88

Aetiology of amputation

The incidence of each aetiology of amputation recorded in Scotland from 1999-2002 is shown in table 1.1. Several new items were added to the list of recorded aetiologies in 2001, these are indicated by an asterisk (*).The main cause of amputation in Scotland was peripheral arterial disease (PAD), which consistently accounted for nearly 90% of all cases each year (e.g., 83.39% in 2002). On average, between 40-45% of these PAD cases had concomitant diabetes. Trauma was the next largest reported cause of amputation in Scotland (2.41% in 2002), followed by local infection (1.68% in 2002), venous problems (1.56% in 2002) and tumour (0.84% in

2002). The percentage of PAD cases underlying the need for a limb amputation is very high in western countries compared to eastern and third world countries. Apart from diabetes, typical behavioural determinants of PAD include poor diet, smoking and alcohol consumption, which are prominent concerns in developed western societies. Conversely, the high incidence of trauma cases (e.g., accident at work, road traffic accident, war incidents, etc.) in eastern and third world societies is likely to be due to factors such as a) poorer industrial, agricultural and social safety standards, and b) conflict and landmine issues, respectively.

Table 1.1. Aetiology of amputation in amputee population, 1999-2002 (Cargill and Condie, 2004)

	1999	2000	2001	2002
	N (%)	N (%)	N (%)	N (%)
PAD (Peripheral arterial disease)	299 (46.43)	386 (50.72)	381 (49.16)	424 (51.02)
PAD (Peripheral arterial disease)+ diabetes	270 (41.93)	284 (37.32)	287 (37.03)	269 (32.37)
Trauma	15 (2.33)	25 (3.29)	17 (2.19)	20 (2.41)
Tumour	8 (1.24)	3 (0.39)	10 (1.29)	7 (0.84)
Congenital deformity	2 (0.31)	5 (0.66)	6 (0.77)	2 (0.24)
Drug abuse	1 (0.16)	4 (0.53)	5 (0.65)	2 (0.24)
***Local infection**	--	--	15 (1.94)	14 (1.68)
***Venous problems**	--	--	9 (1.16)	13 (1.56)
***Non-union of fracture**	--	--	6 (0.77)	7 (0.84)
***Failed joint replacement**	--	--	0 (0.00)	2 (0.24)
***Acquired deformity**	--	--	2 (0.26)	5 (0.60)
***Septicaemia**	--	--	3 (0.39)	3 (0.36)
***Burns**	--	--	2 (0.26)	5 (0.60)
***Renal problems**	--	--	1 (0.13)	4 (0.48)
Other	36 (5.59)	42 (5.52)	14 (1.81)	19 (2.29)
Not recorded	13 (2.02)	12 (1.58)	17 (2.19)	35 (4.21)
Total	644 (100)	761 (100)	775 (100)	831 (100)

Level of amputation

Table 1.2 shows the incidence rates of the six levels of amputation in Scotland for the years 1999 to 2002. For amputees who had bilateral amputations (i.e., both limbs amputated) within the period reported, both amputations were included in the data, as were surgical revisions (i.e., further surgery on the same limb that retains the original level of amputation). Transtibial amputations (i.e., below knee amputations) accounted for between 50-55% of all cases (e.g., 50.06% in 2002), and were more common than transfemoral amputations (i.e., above knee amputations; 44.69% in 2002), with hemipelvectomy (i.e., removing part of pelvis; 0.11% in 2002), hip-, knee- and ankle disarticulations (i.e., removal: 0.46%, 1.03% and 0.11%, respectively, in 2002) being much less frequent. Upper limb amputations are extremely rare in comparison to lower limb amputations. This phenomenon is primarily due to the course of PAD, which impacts more severely on peripheral vessels located in the extremities furthest away from the heart (i.e., cells of the lower limbs). Some patients who have had a transtibial amputation will require having a subsequent transfemoral amputation of the same limb due to the chronic course and pathology of PAD. Such re-amputations have cost implications for the NHS. In recent years, there has been an interesting decreasing trend in the percentage of transtibial amputations performed (e.g., 2000: 57.69% - 2001: 50.55%), with a simultaneous increase in the percentage of transfemoral amputations performed (e.g., 2000: 40.28% - 2001: 44.27%), resulting in these data currently approaching comparable levels. These simultaneously observed trends may in part be indicative of increases in surgeons' skill at recognising cases that are likely to be readmitted for re-amputation.

Table 1.2. Levels of amputation in amputee population, 1999-2002 (Cargill and Condie, 2004)

	1999	2000	2001	2002
	N (%)	N (%)	N (%)	N (%)
Transtibial	379 (56.82)	454 (57.69)	410 (50.55)	438 (50.06)
Transfemoral	274 (41.08)	317 (40.28)	359 (44.27)	391 (44.69)
Hemipelvectomy	1 (0.15)	1 (0.13)	0 (0.00)	1 (0.11)
Hip disarticulation	6 (0.89)	2 (0.13)	8 (0.99)	4 (0.46)
Knee disarticulation	1 (0.15)	3 (0.38)	8 (0.99)	9 (1.03)
Ankle disarticulation	4 (0.59)	6 (0.76)	1 (0.12)	1 (0.11)
Other	2 (0.32)	0 (0.00)	6 (0.74)	2 (0.23)
Not recorded	- -	5 (0.64)	19 (2.34)	29 (3.31)
Total	667 (100)	788 (100)	811 (100)	875 (100)

Patients fitted with a prosthesis

The total number of patients fitted with a prosthesis at inpatient or outpatient discharge in Scotland for the years 1999 to 2002 is summarised in table 1.3. On average, only around 45% of all lower limb amputee patients each year in Scotland were fitted with a prosthesis post-surgically (e.g., 42.32% in 2002). To date, however, there are no evidence-based criteria in place for determining which patients are to be fitted with a prosthesis and which patients are not to be fitted. This important decision is typically taken by consensus of the on-site multidisciplinary healthcare team involved in the rehabilitation of amputee patients using clinical testing procedures, in consultation with the patient and his or her own family or carers. Such allied health professional groups determine, during the course of post-surgical rehabilitation, if a patient is a likely candidate for successful rehabilitation with a prosthesis, or would perhaps be better suited to rehabilitation aimed at enhancing adaptive skills without a prosthesis or in a wheelchair instead. The prosthetic prescription process in other western countries (e.g., The United States) differs from that in the UK, in that patients are typically required to score above the threshold of a validated functional capabilities index, such as the Amputee Mobility Predictor (AMPPRO: Gailey *et al.*, 2002), before being deemed suitable for prosthetic fitting during rehabilitation. Such differences in the prosthetic prescriptive processes are probably driven by variations in the respective health care funding systems (i.e., the NHS in the UK; private insurance-based financing in the USA).

Table 1.3. Patients fitted with a prosthesis, 1999-2002 (Cargill and Condie, 2004)

	1999	**2000**	**2001**	**2002**
Number of amputees	644	761	775	831
Number fitted	299	377	356	360
Percentage fitted (%)	(46.43)	(49.54)	(45.94)	(43.32)

Limb-fitting by level of amputation in Scotland is shown in table 1.4. These are illustrated in percentages. Transtibial amputees had more chance of being prescribed with a prosthesis (i.e., around 65% of cases; e.g., 62.56% in 2002) compared to transfemoral amputees (i.e., around 25% of cases; e.g., 26.08% in 2002). Surgeons will typically attempt to preserve the patient's own knee joint (e.g., transtibial amputation) if possible, because doing so is associated with improved chances of successful ambulation and mobility with a prosthesis post-operatively. Amputation above the knee (e.g., transfemoral amputation) is associated with more co-morbidity and is prevalent among older, more infirm patients. Moreover, transfemoral prosthetic limbs have an artificial knee joint inserted into them. Issues such as these, and the loss of the patient's own muscle fibres surrounding the knee, make successful rehabilitation more difficult for transfemoral amputees. Post-surgical wound healing is another important factor associated with successful prosthetic fitting. Wounds are likely to heal earlier if a patient is up and walking in the physiotherapy gym, rather than being sedentary, because this will allow blood circulation to assist in the wound healing process.

Table 1.4. Percentage of patients fitted with a prosthesis by level, 1999-2002 (Cargill and Condie, 2004)

	1999	2000	2001	2002
	%	%	%	%
Transtibial	60.95	66.36	65.82	62.56
Transfemoral	24.82	25.57	25.73	26.08
Other	35.71	43.75	31.82	25.00

Table 1.5 gives a summary of prosthetic fitting outcomes for all amputees in Scotland in 2002. Collapsing all amputee groups together by level of amputation revealed that in 2002, 43.32% of all amputees in total were fitted with a prosthesis, while 41.03% were not fitted, and the remaining 15.64% died while they were still post-operative inpatients. The duration of post-operative rehabilitation is typically around six to eight weeks.

Table 1.5. Summary of prosthetic fitting outcomes for all amputees, 2002 (Cargill and Condie, 2004)

	N (%)
Limb-fitted	360 (43.32)
Not Limb-fitted	341 (41.03)
Died	130 (15.64)

Inpatient mortality

Table 1.6 illustrates the inpatient mortality rates for the years 1999 to 2002 of amputees in Scotland. Inpatient mortality is defined as the proportion of amputees who die before being formally discharged as inpatients. Typically, between 14% and 18% of amputees in Scotland die post-surgically before leaving hospital.

Table 1.6. Inpatient mortality rate in amputee population, 1999-2002 (Cargill and Condie, 2004)

	1999	2000	2001	2002
Number of amputees	644	761	775	831
Deaths before IP discharge	145	140	144	130
Inpatient mortality (%)	15.53	18.40	18.58	15.64

Bilateral amputations

The total numbers of patients who had bilateral amputations by level of amputation, in the same episode of care, are shown in table 1.7 for the years 1999 to 2002. These data illustrate, that only a small number of amputees required to have a bilateral amputation (i.e., both lower limbs removed) during the same period of admission. These cases are typically due to either the severity of the condition or to a traumatic incident. Concurrent bilateral amputations make prosthetic rehabilitation much more difficult for the patient, especially for transfemoral amputees.

Table 1.7. Bilateral patients by level of amputation, 1999-2002 (Cargill and Condie, 2004)

	1999	2000	2001	2002
Transtibial x 2	10	10	9	19
Transfemoral x 2	16	11	17	16
Knee disarticulation x 2	0	0	1	1
Transfemoral & transtibial	3	4	8	7
Transtibial & other	3	0	1	1
Transtibial & ankle disarticulation	0	1	0	0
Total	32	26	36	44

Unilateral and bilateral amputees

Table 1.8 shows the total numbers and percentages of all amputees, unilateral amputees, amputees who became bilateral as a result of a single amputation, amputees who became bilateral as a result of two amputations in the same period of admission, and finally the total number of bilateral amputees for the years 2001 and 2002. Although bilateral patients sometimes require to have both lower limbs removed at the same time (see: table 1.8), it is more likely that they will be re-admitted at a later date to have the second lower limb removed due to the progressive course of peripheral arterial disease. This will give patients a chance to adapt to having one false limb, before they are required to rehabilitate following a second limb amputation.

Table 1.8. Summary of bilateral amputees, 2001 and 2002 (Cargill and Condie, 2004)

	2001	2002
	N (%)	N (%)
Number of amputees	775 (100)	831 (100)
Unilateral	639 (82.45)	667 (80.26)
Bilateral (were unilateral)	100 (12.90)	120 (14.44)
Bilateral (in same episode)	36 (4.65)	44 (5.29)
Bilateral total	136 (17.55)	164 (19.74

Revisions and re-amputations

The numbers of amputees having a revision or re-amputation, as well as the combined figures, are shown in table 1.9 for the years 2001 and 2002. A revision is defined as further primary stump surgery that does not change the level of amputation. A re-amputation is further surgery of the primary stump that does change the level of amputation.

Table 1.9. Revisions and re-amputations, 2001 and 2002 (Cargill and Condie, 2004)

	2001	2002
	N (%)	N (%)
Number of amputations	811 (100)	875 (100)
Number of revisions	18 (2.22)	18 (2.06)
Number of re-amputations	48 (5.92)	47 (5.37)
Total revisions & re-amputations	66 (8.14)	65 (7.43)

In summary, the incidence of socio-demographic and clinical variables and the epidemiological profiles of lower limb amputees are specific to geographical, social and cultural backgrounds. Comprehensive data of this type have been presented in this chapter for amputees in Scotland, in order to illustrate these characteristics, as well as the surrounding influential factors, in the patient population investigated in the current study.

Chapter 2: Amputation and psychology: a review

(see: Appendix A on page 230 for details of literature searches)

A systematic review of the psychology of amputation literature to date revealed that studies in this area can be categorised into three general headings:

1. Psychological depression in amputees
2. Psychosocial predictors of activity limitations and prosthetic use in amputees
3. Quality of life in amputees

Psychological depression in amputees

Outcome assessment in lower limb amputees has traditionally concentrated on measuring activity limitations, which is of particular importance for this patient group because much of the rehabilitation process is aimed at improving mobility and personal independence. Arguably, however, activity limitations should not be considered in isolation and more general aspects of an amputee's mental health and quality of life also need to be considered for a broader and more holistic perspective on patient well-being and care. A review of the psychology literature relating to psychological outcomes in amputees revealed that studies in this area have predominantly attempted to identify incidence and prevalence levels of psychological depression. Overall, depression is found to be a significant factor in amputees, however, the incidence and prevalence of depression reported in the amputation literature has been diverse and has not shown any discerning patterns or trends. This may be due to several factors, including:

a) Diversities in the socio-demographic or clinical characteristics of the samples tested (e.g., young vs. older patients; upper vs. lower limb amputees; traumatic vs. vascular amputees).

b) Variations in the geographical origins of the samples used (e.g., landmine victims from Jaffna - young-traumatic vs. peripheral arterial disease patients from Scandinavia - older-vascular).

c) Differences between the measures that were used to assess psychological depression (e.g., Beck Depression Inventory, BDI: Beck *et al.,* 1961 vs. General Health Questionnaire, GHQ: Goldberg, 1978).

d) The time at which the assessment of depression was measured (e.g., 3 weeks post-operatively vs. 6-months post-discharge). Accordingly, there are a few studies in the amputee literature that have attempted to identify the course of psychological depression over a given time period.

Socio-demographic and clinical effects on depression

Diversities in the socio-demographic and clinical characteristics of the samples tested may account for some of the differences in levels of depression reported in the amputee literature. One of the earliest examples of a study that investigated the prevalence of psychological distress was Shukla *et al.* (1982), which examined "psychiatric manifestations" in 72 traumatic amputees (aged 10+ yrs) during the post-operative period. Nearly 66% of the sample manifested psychiatric symptoms in the form of depression, anxiety, crying spells, insomnia, loss of appetite, suicidal ideas and psychotic behaviour. Moreover, nearly 20% of cases were diagnosed as having "psychotic depressive reactions", 40% as having "depressive neurosis", and 2% as "schizophrenic". This study, however, included traumatic patients as young as 10 years of age, and younger amputees consistently report more psychological depression than older amputees. For example, Frank *et al.* (1984) investigated the effects of age, and time since amputation, on the psychological responses of 66 amputees (aged 18-88 yrs). When classified by age and time since amputation, the results indicated that older amputees exhibited less depression and fewer psychological symptoms and that, in contrast, younger amputees demonstrated increased depression and psychological "symptomatology" the longer the time since their amputation.

Moreover, to further illustrate the influence of age, and aetiology, on prevalence of depression, a study published by Stephen (1982) assessed 55 vascular patients with lower limb amputations (35 participants were 65+ yrs of age, and 66% were male).

The results indicated that levels of "psychiatric morbidity" in this group of elderly vascular amputees were significant, but considerably less severe than those reported in the same year by the above Shukla *et al.* (1982) study, which assessed a sample of young, traumatic, amputees. A more recent study that demonstrated the effects of age on depression was Ahmad *et al.* (2001), which attempted to identify the psychological and social adjustment of 51 amputees (aged 17-70 yrs). Again, the main findings revealed that younger amputees had significantly higher scores regarding depression and anxiety disorders and were less able to adjust than older patients. Although some of the variance in depression may have been accounted for by the incorporated clinical variables (e.g., traumatic aetiology, time since amputation), it is reasonable to assume that age was a singular determinant of depression in these studies given that it was the common variable studied. These observed age effects could theoretically be related to younger amputees experiencing more overall "loss" as they can rationally expect to have longer to live (with a disabling condition).

Kashani *et al.* (1983) is another example of an early psychological distress assessment study with amputees that illustrated demographic influences. This study investigated the prevalence of major depression among 65 amputees (aged 18-88 yrs), and attempted to identify the influence of gender, and aetiology. A 35% prevalence of "major depressive disorder" was found with this sample. Again, however, the inclusion of younger amputees was likely to have inflated the depression outcome scores in this study. Nevertheless, gender differences were also observed, whereby approximately 50% of the female and 30% of the male participants manifested depression.

Clinical variables are also found to singularly account for some of the variance found in depression with amputees. For example, Schubert *et al.* (1992b) investigated the hypothesis that higher scores on a depression scale would be positively correlated with the clinical variable of longer hospital length of stay (LOS). Seventeen amputee patients (aged 29-73 yrs) were assessed on a rehabilitation ward. Correlations between depression scores and LOS were 0.27 (statistical significance not reported) in the hypothesised direction. Explanations considered included a) depression and medical illness each produced morbidity, which summated to require increased LOS, b) depression delayed medical recovery as well as the appearance of medical recovery, and c) discharge planning was complicated by depression. However, this study did not control for age, in that the sample included both younger and older amputees, who, as noted above, exhibit significant differences in levels of depression (e.g., Frank *et al.*, 1984). In addition, other confounding variables that were not controlled, including level of amputation, co-morbidity, wound healing and lack of housing provision, which were also likely to have influenced LOS.

Another more recent study that examined prevalence rates of psychological distress in amputees, and highlighted the possible effects of a clinical variable, was Fukunishi (1999). Twenty-six patients with digital amputations (mean age = 44.4 yrs) completed measures to assess post-traumatic stress (PTSD) and depression. The prevalence rates of PTSD and depression were 18.5% (PTSD) and 7.4% (depression), respectively. The prevalence rate of depression in this sample may have been particularly low (7.4%) compared to the earlier studies because of the type of amputation incurred by this sample of participants (i.e., digits: fingers and toes). That is, it may be that amputations impacting more severely on activity limitations, independence and mobility (e.g., lower limb amputations) are more predictive of psychological distress. Alternatively, it may be that amputations impacting more on overt appearance (e.g., upper limb amputations) are associated with higher levels of psychological distress. In support of this latter theory, Pierre and Tignol (1991) reviewed the psychological and psychiatric status in a sample of 36 patients that included both upper limb and lower limb amputees. Anxiety and depression disorders were found in more than 50% of this amputee sample, which is a higher level of psychological distress compared to those levels found in the majority of the studies that have recruited only lower limb amputees.

More recently, Cansever *et al.* (2003) compared the prevalence of depression between traumatic and surgical amputees. This study also examined the relationship between depression and socio-demographic variables, as well as other clinical characteristics, between these groups. Participants included 49 patients with traumatic lower limb amputation and 35 patients with surgical lower limb amputation. The prevalence of depression was 34.7% in the traumatic amputee group, however, it was significantly, and perhaps surprisingly, higher at 51.4% ($p < .05$) in the surgical amputee group. In addition, for the traumatic group, depression was associated only with time since amputation, however, in the surgical group, depression was associated with age, education level, marital status, economic status, time since amputation, and whether the patient was prescribed a prosthesis. Contrary to this finding, clinical opinion suggests that traumatic cases tend to manifest more depression than surgical cases (personal communications). Again, however, aetiology may serve as a proxy for age in such cases, as most traumatic cases tend to be younger than vascular cases. In any event, this particular study would seem to illustrate that perhaps the influence of socio-demographic and clinical variables on depression in amputees is more complex than was previously thought, and would best be explored using multi-faceted socio-demographic and clinical models as opposed to simple pair-wise comparisons.

Phantom limb sensation and phantom pain are common clinical symptoms following limb amputation, whereby sensation or pain is experienced where the missing limb used to be located. Fisher and Hanspal (1998) sought to determine whether patients who had undergone an amputation experienced emotional distress as a result of phantom limb pain. Participants consisted of 21 patients referred to a prosthetic rehabilitation clinic. Phantom pain was assessed using the Short Form McGill Pain questionnaire (Melzack, 1987), and distress was measured with the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983). The incidence of phantom pain was 31% and the levels of reported depression were "low". The authors concluded that phantom pain was not a function of emotional adjustment. However, in a more recent large-scale study involving many pain-related variables, Kelley (2003) described the results of a survey containing 1500 amputees on several secondary conditions, including amputation-related pain and depression. Amputees who reported residual limb pain, phantom pain, back pain or other limb pain were 2-

4 times more likely to have a depressed mood than those who experienced no pain, which seems to contradict the finding of the Fisher and Hanspal (1998) study above.

Geographical origin effects on depression

Differences in the geographical origins of the amputee samples recruited to studies may also have partially account for the varying degrees of psychological depression reported in the literature. For example, Gunaratnam *et al.* (2003) studied landmine victims in Jaffna, and found very high levels of psychological distress compared to the studies reviewed thus far that have used samples from more developed industrial western cultures. The results of the study were reported as: levels of PTSD (72%), acute stress reaction (73%), anxiety disorder (80%) and depression (73%). Although this study found higher levels of psychological distress in amputees than most other studies, the strong effect was probably, at least in part, influenced by the age of these landmine victims, who were likely to have been younger than the average amputee in western societies. Moreover, the traumatic nature of the amputation may also have influenced the reported levels of psychological distress to some extent, although the influence of aetiology on depression remains unclear (see above: Cansever *et al.*, 2003). It is likely that geographical origin of the sample may have served as a proxy variable for underlying socio-demographic or clinical characteristics which were, realistically, the main determinants of the observed effects on depression.

Assessment measure effects on depression

Differences between the measures that were used to assess psychological distress in the above studies may also have accounted for some of the observed diversities in levels of depression. Some studies did not stipulate which measure were used, while others simply stated that they used measures that adhered to Diagnostic and Statistical Manual of Mental Disorders criteria (e.g., DSM-II, III, III-R, IV, IV-TR). Of the studies that did stipulate the measures and procedures employed, there were notable differences in depressive outcomes reported. For example, Frank *et al.* (1984) assessed participants using the Symptom Checklist-90-R (SCL-90-R: Derogatis *et al.*, 1973), Stephen (1982) administered the Delusions-Symptoms-States Inventory (DSSI: Bedford and Foulds, 1978), Kashani *et al.* (1983) had each patient complete the Beck Depression Inventory (BDI: Beck *et al.*, 1961), Ahmad *et al.* (2001) administered an Arabic version of the Minnesota Multiphasic Personality Inventory (MMPI: Hathaway and McKinley, 1942), Schubert *et al.* (1992b) gave patients the Geriatric Depression Scale (GDS: Yesavage *et al.*, 1983), Pierre and Tignol (1991) assessed patients using the General Health Questionnaire (GHQ: Goldberg, 1978), and Cansever *et al.* (2003) assessed depression using the Hamilton Depression Rating Scale (HRSD: Hamilton, 1960). Although it was not empirically assessed, there appeared at face value to be considerable differences in depression scores between these studies, which may theoretically have been to some extent due to the use of different inventories.

Perhaps the most direct evidence of assessment measure effects on depression comes from Whyte and Niven (2001), which examined depression-in a working-age population of amputees (aged 20-60 yrs). During phase one of the study, 315 amputees completed the General Health Questionnaire (GHQ: Goldberg, 1978) and in phase two, which included a subset of the original sample, the Beck Depression Inventory (BDI: Beck et al., 1961) was used. During phase one, over 50% of the sample reported GHQ scores over the threshold used to detect "caseness" (i.e., a measure of possible minor mental disorder), however, in phase two of the study, only 15% of the subset sample reported moderate to severe symptoms of depression. It should be noted, however, that although only patients who were at least two years post-amputation were recruited to this study, the subset were followed-up one year later, which introduces "time" as another potential variable for the observed decline in depression.

Although diversities in depressive outcomes observed in these studies may be partially accounted for by differences in the measures that were used to assess psychological distress, one would hope that such effects would be negligible, as such measures are often correlated with each other to establish validity during their development. Therefore, assessment measure effects on depression were likely to be less influential than the socio-demographic or clinical characteristics factors already discussed.

Time of assessment effects on depression

Many studies did not stipulate at what point the assessment of depression was actually undertaken. Accordingly, and similar to the phenomenon of "response shift" often found in the quality of life literature whereby a change in one's psychological perceptions is often observed following a change in health status, it is reasonable to assume that there may have been differences in responses on psychological distress inventories from a) pre-operative to post-operative states, b) throughout the rehabilitation process, and c) in-patient to post-discharge from hospital. In support of this theory, some studies used longitudinal designs to investigate changes in psychological distress over time. For example, Schubert *et al.* (1992a) examined the course of depression in 17 amputee patients (aged 29-73 yrs) during the rehabilitation process and found a significant decrease in depression scores in the sample over this period of time. Depression scores decreased even though participants started their rehabilitation with relatively low depression scores. Suggested reasons for this finding included a) the gradually diminishing effects of amputation as a life crisis during the 1-2 month admission period, b) the effects of physical improvement on mood and affect, c) the milieu effects of the medical ward, and d) the tendencies for all psychopathology scale scores to decrease on retest.

More recently, Fisher and Price (2003) investigated the course of psychological distress in 58 patients from their first visit to a limb-fitting centre within a few weeks of amputation until they were assessed again at 4- to 6-months follow-up. This study found an increase in depression at 4- to 6-months follow-up in both an experimental group (received counselling) and a control group (no counselling), whereas the previous study (Schubert *et al.*, 1992a) found a decrease in depression during the rehabilitation period. These combined findings seem to suggest that amputees may experience improved mood during the course of the post-operative rehabilitation, but then experience a decline in mood when leaving the supportive environment of this setting and returning to their homes and social settings. In fact, there is a generally accepted knowledge among amputee healthcare professionals that patient outcomes tend to diminish post-discharge and that, subsequently, a need exists for outreach programs to support amputees returning home from hospital (personal communications).

In summary, levels of psychological distress reported in the amputation literature have been diverse and have focussed almost exclusively on depression (i.e., as opposed to anxiety and stress). The incidence and prevalence of depression reported in this literature provided evidence that depression is a significant factor in this patient population. A disparity in levels of depression reported was observed, however, which may have been due to factors such as discrepancies in the samples' socio-demographic or clinical variables, the influence of factors associated with the samples' cultural origins, the different measures that were used to assess depression, and differentiations in the time at which the assessments of depression were taken.

Psychological variables associated with depression

Several studies have tried to examine psychological variables that either predicted or correlated with depression in amputees. Perhaps these may provide more promising opportunities to formulate therapeutic interventions in order to improve depressive outcomes. Such variables have included social influences (Rybarczyk *et al.,* 1992), body image and perceived social stigma (Rybarczyk *et al.,* 1996), perceived control over disability, finding positive meaning in a disabling condition and optimism (Dunn, 1997), bio-psychosocial factors (Jensen *et al.,* 2002), feelings of vulnerability (Behel *et al.,* 2001), and counselling (Fisher and Price, 2003).

Perhaps the earliest literature reference relating to variables associated with depression in amputees was Ach (1920), which stated, "The mental state of those for whom some part of the body has been amputated requires the careful attention of the applied psychologist. To guard against too great depression, such patients should be brought into company with others whose condition is still worse, but who have succeeded in overcoming their handicaps by their will to work. The methods of treatment must vary according as the patients are choleric, sanguine, phlegmatic, or melancholic in type." This very early study suggested that therapeutic attempts aimed at amputees should a) consider the use of peer support systems, and b) tailor interventions to specific personality types.

There appeared then to be a large gap in time, until around the early 1990s, before other articles began to appear in the literature regarding psychological variables associated with depression in amputees. For example, Rybarczyk conducted a few studies on the effects of psychosocial variables upon psychological distress in amputees in the 1990s. One of these, Rybarczyk *et al.* (1992), examined the relationship between social discomfort and depression in a sample of 89 adults with lower limb amputations at two outpatient clinics. It was hypothesised that individuals who reported being uncomfortable with social contacts involving acknowledgement of their amputation or prosthesis would be more prone to depression than other patients. A set of questions addressing different aspects of social discomfort demonstrated internal consistency and was used as a scale. Social discomfort was significantly correlated with scores on the Centre for Epidemiological Studies Depression Scale (CES-D: Radloff, 1977) ($r = .41$). In addition, multiple regression analysis showed that social discomfort was a significant independent predictor of depression, controlling for the effects of age, gender, social support, time since amputation, reason for amputation, and perceived health. The authors suggested that health care professionals should view the expression of social discomfort by amputee patients as a possible "marker" for depression. In a more recent study, Rybarczyk *et al.* (1996) examined whether body image and perceived social stigma were important predictors of depression following lower limb amputation in 112 patients (aged 21-83 yrs) from five prosthetic clinics. Two scales were developed to measure body image disturbances and perceived social stigma resulting from amputation. Again, the Centre for Epidemiological Studies Depression Scale (CES-D: Radloff, 1977) was used to assess depression. The overall sample level of depression was found to be 28%. Body image emerged as an independent predictor of depression after controlling for the effects of age, level of amputation, time since amputation, self-rated health, and perceived social support. Perceived social stigma also made a significant contribution towards depression.

Dunn (1997) looked at the salutary effects of perceived control over disability, finding positive meaning in a disabling experience and being an optimist on two outcome variables: a) depression, measured using the Centre for Epidemiological Studies Depression Scale (CES-D: Radloff, 1977), and b) self-esteem, measured by the Rosenberg Self-Esteem Scale (Rosenberg, 1965). A postal survey was completed by 138 amputees (aged 19-79 yrs). Regression analyses revealed that finding positive meaning following amputation was linked to lower levels of depression, but not to self-esteem. However, both dispositional optimism and perceived control over disability were predictive of lower scores on depression and higher scores on self-esteem. More recently, Jensen *et al.* (2002) applied a bio-psychosocial model to understand depression in 61 amputees. Participants were administered measures of bio-psychosocial factors (e.g., average phantom limb pain intensity, catastrophising, pain cognitions and appraisals, coping responses, social support, solicitous responses from family members, and resting), and "measures of depression", at 1-month post-amputation, and the "measures of depression" again 5-months later. Multiple regression analyses showed that these bio-psychosocial predictors made a statistically significant contribution to the prediction of depression at 1-month post-amputation, and a significant contribution to the prediction of subsequent change in depression over the next 5-months. The authors concluded that bio-psychosocial factors played an important role in adjustment to depression following limb amputation.

Behel *et al.* (2001) examined the role of feelings of vulnerability in determining post-amputation adjustment problems, including depression. Eighty-four lower limb amputees were assessed at five prosthetic clinics, using the Centre for Epidemiological Studies Depression Scale (CES-D: Radloff, 1977) and a 2-item vulnerability measure. In addition, the participants' prosthetists completed a single-item rating of perceived adjustment. The results showed that feelings of vulnerability accounted for significant portions of the variance in CES-D scores and prosthetists' adjustment ratings. The authors concluded that feelings of vulnerability significantly affected adjustment outcomes, including depression, in persons with amputations. Finally, Fisher and Price (2003) conducted a randomised control trial involving 58 amputee patients to assess the effects of counselling on depression. The follow-up scores for the experimental group who had counselling (N = 18) were compared to the scores of a control group (N = 40) who received no counselling. At their initial appointment, the counselling group showed higher General Health Questionnaire (GHQ: Goldberg, 1978) scores. However, at follow-up the scores of both groups had increased, which suggested more prevalence of emotional distress at 4-6 months post-surgery and that counselling had not been effective.

Although there appeared to be evidence to support a predictive relationship between psychosocial variables and depression in amputees, psychosocial factors were evidently selected at the discretion of the researchers without any discernable theoretical basis or structure. That is, psychological variables appeared to have been chosen at random by the investigators and, hence, they did not adhere to any structured, validated psychological models to guide their inclusion. Moreover, such variables may not have been validly operationalised given that the measures used to assess them sometimes a) contained very few items (e.g., Behel *et al.*, 2001) or, b) with the exception of Rybarczyk *et al.* (1992), were not described well in terms of their item content. Moreover, their psychometric properties were seldom evaluated or reported. Finally, little attention was given to how these psychosocial variables may actually be altered through psychotherapeutic intervention in order to improve the depressive outcomes that they predicted in amputees.

In conclusion, several studies have identified variables that had significant relationships with depression in lower limb amputees. These variables have included socio-demographic variables such as age (Ahmad *et al.*, 2001), clinical variables such as length of stay in hospital (Schubert *et al.*, 1992b), phantom limb pain (Fisher and Hanspal, 1998; Jensen *et al.*, 2002), amputation related pain (Kelley, 2003), socio-demographic and clinical variables combined, such as age and time since amputation (Frank *et al.*, 1984). Psychosocial variables have also been found to influence depression in amputees, such as social discomfort (Rybarczyk *et al.*, 1992), body image and perceived social stigma (Rybarczyk *et al.*, 1996), perceived control over disability, finding positive meaning in a disabling experience and being an optimist (Dunn, 1997), a combination of several bio-psychosocial factors (Jensen *et al.*, 2002) and feelings of vulnerability (Behel *et al.*, 2001).

Psychosocial predictors of activity limitations and prosthetic use in amputees

The studies reviewed so far have all focussed on predictors and correlates of psychological depression in amputees, however, another section of the psychology and amputation literature has focussed on psychosocial variables that have predicted, or correlated with, activity limitations or prosthetic use in amputees

Most prediction and correlation studies with amputees have focussed primarily on physical and behavioural factors associated with activity limitations or prosthetic use outcomes. A particularly seminal example of this type of study was a large scale project undertaken in Canada in the early 1990s to develop the Prosthetic Profile of the Amputee (PPA: Grise *et al.*, 1993) questionnaire. This inventory was developed to evaluate groups of factors related to prosthetic use by lower limb amputees after being discharge from rehabilitation. Based on the PRECEDE theoretical model (Green *et al.*, 1980), an acronym for Predisposing, Reinforcing, and Enabling Constructs in Educational/Environmental Diagnosis and Evaluation factors, the PPA predisposing factors (e.g., amputation level, stump pain, etc.), reinforcing factors (e.g., other people helping, being able to perform activities of daily living, etc), and enabling factors (e.g., locomotor capabilities, use of assistive devices, etc) were all found to be associated with prosthetic use in lower limb amputees.

Other studies have focussed more on attempting to identify specific socio-demographic or clinical variables that predicted, or correlated with, activity limitations and prosthetic use in amputees. Such studied variables have included age (e.g., Taylor *et al.*, 2005) gender, (e.g., Miller and Deathe, 2004), as well as levels of amputation (e.g., Neumann *et al.*, 1998, Taylor *et al.*, 2005) and type of prosthesis used (e.g., Schon *et al.*, 2001). However, studies of psychosocial factors as determinants of activity limitations and prosthetic use in amputees have been less well represented.

As established above, the largest percentage of psychological prediction and correlation studies with amputees have taken an assessment of psychological depression using a variety of measures and attempted to identify socio-demographic, clinical, or psychosocial variables that either determined or were associated with depression. Another group of studies, however, has specifically explored the relationships between psychological depression and activity limitations in amputees.

Psychological depression and activity limitations

Williamson *et al.* (1996) assessed the impact of limb amputation on the lives and emotions of 160 amputees (aged 32-90 yrs). The study revealed that greater activity limitations were closely related to more symptoms of depression. Also, the effects of prosthetic use on depression were mediated by activity limitations. That is, amputees who used a prosthesis less reported more restrictions on routine activities as a result of their amputation, and reported greater depressive "symptomatology". These results suggested that prosthetic use increased activity, which in turn, impacted on mood by perhaps allowing patients to engage in the activities that contributed towards their own subjective quality of life. In the same year, Langer (1996) also examined the relationship between activity limitations and depression in a sample of 107 patients with 'functional limitations' that included 35 amputees. Both the participants own (self-reported) and staff/family (other-reported) ratings of activity limitations were obtained. Self-reported activity limitations were found to be significantly higher and also a better predictor of depression than the other-reported ratings of activity limitations. The author concluded that self-perceptions of activity limitations were related to the subjective experience of depression for certain patients with activity limitations.

Barnfield (1997) explored the role of depression in predicting activity limitations among 29 older lower limb amputees (mean age = 71.03 yrs). Activity limitations were measured using the Functional Independence Measure (FIM: Keith *et al.*, 1987) and levels of depression were measured by the Geriatric Depression Scale (GDS: Yesavage *et al.*, 1983). Stepwise multiple regression analyses determined that depression was a powerful predictor of activity limitations, accounting for 69% of the variance in levels of activity limitations at discharge. Further analyses showed that lower levels of depression were strongly correlated ($r = -.58$, $p < .001$) with higher levels of activity. Linn *et al.* (1998) assessed activity limitations and psychological depression in three groups of inpatients during rehabilitation (i.e., stroke, amputee and hip fracture patients) on admission and at discharge from an inpatient rehabilitation programme. It was hypothesised that psychological depression at admission would provide important predictive information regarding rehabilitation outcomes. Patients were assessed using the Mini-Mental State Examination (MMSE: Cockrell and Folstein, 1988), the Functional Independence Measure (FIM: Keith *et al.*, 1987) and the Brief Symptom Inventory (BSI: Derogatis and Melisaratos, 1983). Contrary to the above findings, the results of this study found no predictive relationships between psychological depression at admittance and activity limitations at discharge. Nevertheless, the authors concluded that depression was an overlooked factor in the rehabilitation process.

In a unique study, Williamson and Walters (1997) examined the effects of sexual-activity 'limitations' on depression in amputees. Seventy-six amputees (aged 29-84 yrs) completed either an interview or a questionnaire assessing perceived amputation-fostered impact on sexual-activity. The Centre for Epidemiological Studies Depression Scale (CES-D: Radloff, 1977) was used to assess depression. Results showed that 75% of the patients reported that their amputation had restricted their sexual-activities to some extent, and higher levels of perceived sexual-activity 'limitations' emerged as a consistent predictor of depression.

In conclusion, the evidence seemed at first glance to support a significant relationship between psychological depression and activity limitations in amputees. However, the majority of studies that appeared in the literature did not control for age when sampling participants, which is known to account for a sizable portion of depression variance in amputees (e.g., Frank *et al.*, 1984). Moreover, not all studies used longitudinal designs, and of those that did, some (e.g., Linn *et al.*, 1998) found no predictive relationships between psychological depression and activity limitations, while others (e.g., Barnfield, 1997) did find a significant relationship between these variables. A longitudinal approach undoubtedly provides more useful therapeutic information for formulating interventions to improve long-term outcomes, therefore, a well designed longitudinal predictive study exploring the predictive relationships between psychological distress variables and prosthetic use (that facilitates activity limitations), which controls for empirically established influential socio-demographic and clinical variables (e.g., age and level/type of amputation) in amputees is warranted.

Psychosocial predictors of activity limitations

A larger section of studies attempted to operationalise psychosocial variables, other than depression, and examine the relationships between these variables and activity limitations. Such psychosocial variables have included cognitive status (Barnfield, 1997), emotional functioning, pain intensity, pain cognitions, physical functioning, social functioning, task-specific self-efficacy, performance outcome and performance style (Rudy *et al.*, 2003) and psychological skills and self-efficacy (Lowther *et al.*, 2002).

In addition to depression effects (see: above), Barnfield (1997) also explored the role of cognitive status in predicting activity limitations among 29 older lower limb amputees (mean age = 71.03 yrs). Activity limitations were measured using the Functional Independence Measure (FIM: Keith *et al.*, 1987), while cognitive status was measured by the Dementia Rating Scale (DRS: Mattis, 1973) and the Wechsler Adult Intelligence Test-Revised Block Design subtest (Wechsler, 1981). Regression analyses revealed that cognitive status was an influential predictor of activity limitations, accounting for 68% of the variance of activity limitations at discharge. Furthermore, higher cognitive functioning was strongly correlated ($r = .59$, $p < .001$) with higher levels of activity.

Rudy *et al.* (2003) tested a psychosocial model designed to evaluate which psychosocial constructs were predictive of activity limitations in a sample of 62 participants with lower limb amputations. Multidimensional psychosocial measures were used to evaluate eight theoretical predictive constructs: emotional functioning, pain intensity, pain cognitions, physical functioning, social functioning, task-specific self-efficacy, performance outcome and performance style. The outcome variables used to assess activity limitations were standardised lifting and wheel-turning tasks, with sub-measures for static strength, endurance, lifting speed, and lateral and anterior-posterior sway. Regression analyses indicated that more than 90% of the variance in activity limitations was predicted by the psychosocial factors, with self-efficacy, perceived emotional and physical functioning, pain intensity and pain cognitions having the highest predictive value. In a unique study that also highlighted the role of self-efficacy in determining activity limitations in amputees, Lowther *et al.* (2002) examined the relationships between psychological skills, self-efficacy, and "performance" among football players participating in the Amputee World Cup. The participants (15 male players, aged 19-28 yrs) completed a two-item self-efficacy measure one hour before the competition and a two-item self-referenced performance measure an hour after competition. Self-efficacy showed a significant relationship with self-referenced performance and, in addition, several psychological skills (e.g., relaxation skills used in training and competition) were related to higher self-efficacy and successful performance. The authors suggested that future research should investigate the effectiveness of applied sport psychology interventions designed to enhance self-efficacy in amputees through increasing the usage of psychological skills in training and competition.

In conclusion, several studies supported the existence of psychosocial predictors of activity limitations in amputees. Moreover, much of the rehabilitation effort of amputees in focussed on restoring mobility and independence (activity limitations) with a prosthesis. Although there seemed to be predictive relationship between psychosocial variables and activity limitations, the variables used to operationalise psychosocial variables varied widely in these studies, with the exception of self-efficacy. For example, they included cognitive status (Barnfield, 1997), emotional functioning, pain intensity, pain cognitions, physical functioning, social functioning, task-specific self-efficacy, performance outcome and performance style (Rudy *et al.*, 2003) and psychological skills and self-efficacy (Lowther *et al.*, 2002). The Rudy *et al.* (2003) study in particular may have been in danger of including too many predictive variables within a regression analyses, given that it used a relatively limited sample size of 62 participants. The variables used to operationalise activity limitations in the studies reviewed here were similarly diverse and perhaps not always particularly relevant to elderly amputees. These variables included functional independence (Barnfield, 1997), standardised lifting and wheel-turning tasks, with sub-measures for static strength, endurance, lifting speed, and lateral and anterior-posterior sway (Rudy *et al.*, 2003) and football "performance" (Lowther *et al.*, 2002). Finally, some of the studies reviewed in this section seemed to have used particularly small sample sizes, such as 29 participants (Barnfield, 1997) and 15 participants (Lowther *et al.*, 2002). This may have compromised conclusions based on the results of these studies, due to the increased risk of these samples not being representative of the target amputee populations of interest.

Cognitive impairment and prosthetic use

Finally, a number of studies have focussed on the influence of cognitive impairment on prosthetic use. Cognitive status is an important consideration in older amputees with arterial disease because, in addition to peripheral vascular dysfunction, there is a high risk of concomitant cerebral vascular complications that may cause or exacerbate cognitive impairment (Phillips *et al.*, 1993). Also, prosthetic use is a particularly important consideration in amputee rehabilitation because this particular outcome facilitates the chances of achieving better mobility and independence, to assist with engaging in activities and social participation, post-operatively. As a result of these two important aspects of amputee rehabilitation, a number of studies have reported the influence of cognitive impairment on prosthetic use in amputees.

Perhaps the earliest example of one such study was Pinzur *et al.* (1988), which tested 60 adult patients on "objective psychological tests" and found that six (10%) had severe deficits in cognitive ability, eight (13%) had "covert psychiatric illness", and three (5%) had both. Of the 17 patients (28%) who were deemed to be poor candidates for prosthetic limb fitting, only four (6%) were capable of even minimal use of a prosthesis, and none of the cases approached their pre-amputation level of ambulation. The authors of this early study concluded that psychological testing of cognitive status and psychiatric illness played an important role in determining the prosthetic rehabilitation and functional potential of dysvascular amputees. Cognitive impairment (and socio-demographic, clinical and patient satisfaction variables) were explored in relation to prosthetic use in a study by Bilodeau *et al.* (2000). This study found, descriptively, that 81% of a sample comprising of 65 unilateral vascular amputees (aged 60+ yrs) wore a prosthesis every day, and that 89% of this group wore a prosthesis six hours or more per day. Moreover, less prosthetic use was significantly related to cognitive impairment (and age, female gender, possession of a wheelchair, level of physical disability, poorer self-perceived health and the amputee's dissatisfaction). However, a multiple regression analysis showed that satisfaction, not possessing a wheelchair or cognitive integrity, explained 46% of the variance in prosthetic use. The influence of cognitive impairment on prosthetic use appeared to be considerably less in this study than in the previous study (i.e. Pinzur *et al.*, 1988).

The influence of cognitive impairment on prosthetic use was more recently investigated by Larner *et al.* (2003). This study explored the ability of psychological tests administered at admission to a rehabilitation ward post-amputation to predict whether lower limb amputees would learn to use a prosthesis during the ensuing inpatient rehabilitation programme. Participants comprised of 43 consecutive patients with peripheral arterial disease (mean age = 66.35 yrs) who had received an amputation on average 19 days previously on a surgical ward and were subsequently transferred for rehabilitation and assessment for prosthetic prescription. During their stay in the rehabilitation unit (mean length of stay = 42 days), 31 patients learned to use a prosthesis and 12 did not. A forward stepwise logistic regression revealed that cognitive impairment scores, as measured by the Kendrick Object Learning Test (Kendrick and Watts, 1999) on admission, correctly predicted outcome in 70% of cases. The predictive power rose to 81% correct when the amputation level (i.e., transfemoral or transtibial) was included amongst the predictors. Moreover, anxiety, depression and recovery locus of control scores were not significant predictors of prosthetic use in this study. The authors concluded, and recommended, that a simple test of learning ability, and the amputation site, be assessed to help predict the patient's ability to learn to use a prosthesis following amputation. Similarly, Hanspal and Fisher (1997) conducted a study some years earlier to test the hypothesis that cognitive impairment would reliably predict mobility with a prosthesis following standard limb fitting and rehabilitation practices. The study involved 32 amputees (mean age = 66.4 yrs). Cognitive and psychomotor assessments were taken using the full version of the Clifton Assessment Procedures for the Elderly (CAPE: Pattie and Gilleard, 1979). Six scores were derived from the CAPE given at 2-4 weeks and participants were followed-up at 8-14 months post-amputation. Results showed that intellectual status accounted for about 20% of the variance explained in function with a prosthesis, which is considerably lower than the 70% found in the previous study (i.e., Larner *et al.*, 2003). The authors concluded that there was, nevertheless, a significant correlation between intellectual ability and final mobility with a prosthesis.

In conclusion, predicting prosthetic use is an important aim for healthcare providers because much of the rehabilitation effort for amputees is aimed at restoring former levels of mobility to reduce activity limitations. Moreover, prosthetic construction and development, as well as prosthetic patient rehabilitation, are expensive services and, subsequently, successfully identifying suitable candidates for prosthetic fitting and rehabilitation would be economically more efficient in the long term. There was some conflicting evidence, however, as to whether cognitive impairment was important in predicting prosthetic use in lower limb amputees (e.g., Pinzur *et al.*, 1988) or whether other variables such as patient satisfaction were more influential (Bilodeau *et al.*, 2000). This dissonance in the literature may be have been caused by several considerations. Firstly, there is a distinct possibility that differences existed in the number of patients who were excluded from participating in these studies, specifically by virtue of that fact that they were cognitively impaired. This is a particularly important consideration for all outcome studies involving amputees because authors will typically infer their results back to the entire target population (e.g., all lower limb amputees) even though a significant percentage of patients may have been excluded from the sample at recruitment due to cognitive deficits. Another possible reason for the confounding results noted above may have been as a result of differences in the rigours and demands placed on participants by the different measures used to assess cognitive impairment. For example, the full version of the Clifton Assessment Procedures for the Elderly (CAPE: Pattie and Gilleard, 1979) used by Hanspal and Fisher (1997) is a particularly lengthy and arduous inventory compared to the brief Kendrick Object Learning Test (Kendrick and Watts, 1999) used by Larner *et al.* (2003). Such differences may have influenced the index scores achieved for cognitive impairment, or, moreover, patients may have dropped out of the Hanspal and Fisher (1997) study because they were unable to complete the lengthy CAPE inventory. Finally, outcome assessments appeared to have been taken at critically different times in the studies reviewed here, which may have accounted for differences in levels of prosthetic use scores. For example, Bilodeau *et al.* (2000) and Hanspal and Fisher (1997) assessed prosthetic use in amputees post-discharge from hospital when they were more likely to have been relatively experienced and skilled with using a prosthesis, whereas Larner *et al.* (2003) assessed prosthetic use during inpatient rehabilitation when patients would just have been learning to use a prosthesis.

Quality of life in amputees

Health-related vs. individualised quality of life

Another section of the psychology literature relating to limb amputation has focussed on assessing the health-related quality of life of this patient population. Quality of life is an abstract and multidimensional concept that is difficult to define and, hence, also difficult to measure. Two types of quality of life assessment inventories appear in the health care and rehabilitation literature, which can be broadly categorised as either health-related or individualised instruments. A defining characteristic of health-related quality of life (HRQoL) measures is that the developer determines which domains and categories contribute towards a person's quality of life and the importance and weights that are attributed to each of these factors. Such measures, for example, the World Health Organization Quality of Life measures (WHOQOL-100: WHOQOL Group, 1998a; WHOQOL-BREF: WHOQOL Group, 1998b) and the Short Form-36 Health Survey (SF-36: Ware *et al.*, 1993) are typically developed using prominent models endorsed by the World Health Organisation as a foundational theoretical framework, particularly the International Classification of Functioning, Disability and Health (ICF: 2001), or the earlier International Classification of Impairments, Disabilities and Handicaps (ICIDH: 1980). As a result, HRQoL measures effectively assess the WHO domains of health status (i.e., physical, mental and well-being) and function (i.e., ability to perform certain tasks and social dysfunction). Subsequently, they adhere to a uniform standard of classifying and measuring health and rehabilitation outcomes, with the advantage facilitating comparisons of standardised data between different cultures and patient groups. They also have the additional advantage of being relatively simple to complete by respondents. However, they offer minimal expression beyond that of health status and function and they are not particularly in accordance with modern person centred approaches in healthcare. In addition, severely disabled individuals have self-reported having a good quality of life despite having activity limitations and being socially isolated (Albrecht and Devlieger, 1999), which seems directly contrary to the idea of health and function being the sole contributors towards quality of life.

A different approach, therefore, views that only individuals themselves can realistically determine the criteria that contribute towards their own quality of life. Contrary to HRQoL measures then, subjective individualised measures have been developed, which allow respondents to nominate, score and weight unique criteria that impact on their own particular quality of life. Examples of such measures are the Schedule for the Evaluation of Individual Quality of Life (SEIQoL: McGee *et al.*, 1991), and the Patient Generated Index (PGI: Ruta *et al.*, 1994), which was recently adapted and validated for use with amputees (Callaghan and Condie, 2003). Individualised measures offer an insight into the unique needs and goals of each patient, facilitating the possibility of a) formulating tailor made treatments and b) response shift investigations over the course of the rehabilitation and recovery period. However, they are more difficult to complete than HRQoL measures and, as such, often need to be administered by a trained interviewer. This drawback has resource and cost implications in both clinical and research contexts. Furthermore, individualised quality of life measures are not suitable for use with cognitively impaired patient populations, nor can they be completed by proxy a respondent, which prohibits their usefulness and application with some of the more mentally vulnerable patient groups (e.g., stroke, cerebral palsy, etc.).

Individualised quality of life

A study that has assessed amputees using an individualised quality of life measure was Callaghan and Condie (2003). This study assessed 41 lower limb unilateral transfemoral amputees (aged 16+ yrs) using an adapted Patient Generated Index (PGI: Callaghan and Condie, 2003). The adapted PGI measure invites patients to a) nominate the five most important areas or aspects of their life that have been affected by their amputation and its treatment, b) rate how badly these have been affected, and c) evaluate the relative subjective importance of these areas or aspects. Participants were required to have been fitted with a prosthesis and discharged into the community for at least one-year following post-operative rehabilitation. The most commonly mentioned factors contributing towards quality of life were hobbies/interests, social life, mobility/access, health, independence, work/finance and family. The median PGI score was 3.08 (range 0-9, SD 2.25, possible range 0-10). Furthermore, the construct validity of the PGI was assessed by comparing it with the HRQoL Short Form-12 Health Survey (SF-12: Ware *et al.*, 1996). The median SF-12 (physical) health score was 32.50 (range 17.01-52.05, SD 8.71, possible range 0-100) and the median SF-12 (mental) health score was 48.04 (range 20.15-68.57, SD 13.08, possible range 0-100). A Pearson's Correlation Coefficient of 0.56 ($p < .001$) was obtained when comparing PGI scores with those obtained on the mental health component scores on the SF-12 Health Survey, and a coefficient of 0.12 (n.s.) was obtained when comparing PGI scores with those obtained on the physical health component scores. Furthermore, multiple linear regression analysis showed that combined SF-12 physical health and mental health component scores explained 31.5% of the variance in the PGI scores, however, the SF-12 mental health component scores alone explained 31.2% of the variance in the PGI scores. The results supported the existence of a strong relationship between mental health and quality of life and a weak relationship between physical health and quality of life in lower limb amputees. These findings were particularly interesting considering that practically all the routine standardised rehabilitation efforts for these patients are focussed on restoring physical aspects of health, while little, if any, are currently focussed on improving mental health or cognitive variables.

Most studies relating to quality of life in amputees, however, have assessed health-related quality of life (HRQoL). These studies have either a) compared HRQoL between amputees and a control group, b) used amputee specific HRQoL measures, c) assessed HRQoL over the course of some time period, or d) attempted to identify variables that determined or correlated with HRQoL.

Comparing health-related quality of life between amputees and controls

Pell *et al.* (1993) evaluated the HRQoL of 149 amputees from one hospital using the Nottingham Health Profile (NHP: Hunt and McKenna, 1989) and compared the data to those of a control group matched for age and gender. One hundred and thirty (87%) amputees and 115 (77%) controls responded to the questionnaire. In addition to finding that lower limb amputations for peripheral arterial disease were performed predominantly on elderly populations with poor social support and concomitant medical problems, the study also found that amputees reported significantly more problems with mobility, social isolation, lethargy, pain, sleep and emotional disturbance than controls ($p < .001$). However, the differences in social isolation and emotional distress lost their significance after adjustment for mobility. The authors concluded that overall quality of life following lower limb amputation for peripheral arterial disease cases was poor compared to matched non-limb amputated individuals, but that much of this was secondary to restricted mobility. They suggested, therefore, that rehabilitation following amputation should focus on attempts to improve mobility.

More recently, de Godoy *et al.* (2002) also evaluated the HRQoL of patients after lower limb amputations and compared scores to those of a non-clinical control group. Using the Short-Form 36 (SF-36: Ware *et al.*, 1993) to assess HRQoL, the experimental group consisted of 30 consecutive patients (aged 26-77 yrs; 21 male, 9 female) who had previously undergone amputation of a lower limb and then attended a follow-up clinic. The causes of amputation were peripheral arterial disease (28 patients) and trauma (2 patients). A Mann-Whitney test revealed that HRQoL was unsatisfactory for the members of the experimental group compared to the control group in six out of the eight topics investigated. There were significant differences in the domains of physical capacity ($p < .0001$), physical aspects ($p < .0001$), emotional aspects ($p < .001$), social aspects ($p < .0001$), pain ($p < .01$) and general state of heath ($p < .05$), but non-significant differences in mental health ($p = .74$) and vitality ($p = .76$). In the same year, Hagberg and Branemark (2002) also employed a control group and used a postal design to study HRQoL in Swedish amputees. Participants consisted of 97 amputees with unilateral transfemoral amputations, however, the cause of amputation in this sample was due to non-vascular factors. These patients were also assessed using the Short Form-36 Health Survey (SF-36: Ware *et al.*, 1993) (Swedish version) and a structured questionnaire. HRQoL scores were significantly lower than Swedish age and gender-matched norms. The most frequently reported problems leading to a reduction in HRQoL in amputees were heat/sweating in the prosthetic socket (72%), sores/skin irritation (62%), inability to walk in woods and fields (61%) and inability to walk quickly (59%). Close to half of the sample were troubled with stump pain, phantom limb pain, back pain, and pain in the other non-amputated leg, and around a quarter of the sample considered themselves to have a poor or an extremely poor overall quality of life.

In conclusion, amputees seemed to have poorer HRQoL than controls, however, studies in this area have gone on to identify amputee specific variables that apparently mediate this observed reduction in HRQoL, including: loss of mobility (Pell *et al.*, 1993), physical and social factors relating to amputees (de Godoy *et al.*, 2002) and problems associated with a prosthesis (Hagberg and Branemark, 2002). It should also be noted, however, that these observed mediating variables may themselves have been influenced to some extent by diversities in further underlying variables brought about by the different types of samples and procedures used between these studies, such as: peripheral arterial disease cases completing a questionnaire (Pell *et al.*, 1993), a mixture of arterial disease and trauma cases attending a follow-up clinic (de Godoy *et al.*, 2002) and unilateral transfemoral non-vascular cases responding to using a postal survey (Hagberg and Branemark, 2002).

Amputee specific health-related quality of life measures

Two validated, self-acclaimed HRQoL, measures have been specifically developed for use with amputees to date: the Prosthetic Evaluation Questionnaire (PEQ: Legro *et al.*, 1998) and the Trinity Amputation and Prosthesis Experience Scales (TAPES: Gallagher and MacLachlan, 2000). The PEQ was developed with particular attention to the issues involved with lower limb prosthetic use, and responses are organised into designated groups using nine scales: prosthetic function (usefulness, residual limb health, and appearance), mobility (ambulation and transfers), psychosocial response (perceived responses, frustration, and social burden), well-being and satisfaction. Scoring is accomplished using a linear analogue scale, with poor responses rated as zero and excellent responses rated as 100. The TAPES is somewhat different, in that it aims to enable an examination of the psychosocial processes involved in adjusting to a prosthesis, the specific demands of wearing a prosthesis and the potential sources of maladjustment. It comprises sub-scales for psychosocial adjustment (general, social and adjustment to limitation), activity restriction (athletic, social and functional) and prosthetic satisfaction (functional, aesthetic, weight) domains. It also explores the experience of residual limb pain, phantom limb pain and other medical problems. The measure has demonstrated reliability and validity (Gallagher and MacLachlan, 2000). Neither of these so called amputee specific health-related quality of life measures has been particularly widely used to date, nor does either appear to have adhered closely to any of the WHO models as a foundational theoretical framework during construction.

In a study that used the PEQ (Legro *et al.*, 1998), Harness and Pinzur (2001) evaluated HRQoL in patients with dysvascular transtibial amputations. Sixty adults with transtibial amputations (46 male, 14 female) completed the measure. All participants had their amputations because of peripheral arterial disease or non-salvageable diabetic foot infection and 44 were diabetic. The inclusion criteria also required participants to have used a prosthesis for a minimum of 6-months. The results showed that mobility scores were the lowest (ambulation = 55.3, transfers = 64.6). Functional scores were slightly better (usefulness = 65.7, residual limb health = 79.7, and appearance = 73.3), psychosocial response scored best (perceived responses = 86.6, frustration = 69.1, and social burden = 66.4), while the overall well-being scale graded at 67.0, and overall satisfaction scored at 65.2. The authors concluded that although some rehabilitation clinicians might expect function and mobility scores to be highest and psychosocial scores to be lowest, this population actually demonstrated the reverse to be true.

In a study that used the TAPES (Gallagher and MacLachlan, 2000), the developers of the measure investigated which aspects of the "prosthetic experience" were most strongly associated with quality of life (Gallagher and MacLachlan, 2004). Using a cross-sectional survey, 63 people (aged 18+ yrs) with unilateral lower-limb amputations completed the TAPES and the World Health Organization Quality of Life Questionnaire-Brief Version (WHOQOL-BREF: WHOQOL Group, 1998a) at a prosthetic limb-fitting centre. The results indicated that there were no significant differences in any of the quality of life domain scores (physical health, psychological, social relationships, environmental) between the two measures. However, there were significant differences within the TAPES scores depending on the length of time living with the prosthesis and the degree of prosthetic use. The authors concluded that these findings supported the claim that the TAPES can be used to evaluate quality of life for this patient group. On a cautionary note, however, O'Carroll *et al.* (2000) questioned the validity of the WHOQOL-BREF (WHOQOL Group, 1998a) to measure social aspects of life quality of life, and advised using the lengthier WHOQOL-100 (WHOQOL Group, 1998b) for such assessments.

In conclusion, two validated amputee specific health-related measures have appeared in the rehabilitation literature. These have not been particularly widely used to date, however, and, especially in the case of the TAPES, have been mostly used in studies that were conducted by the developers of the measures themselves, or by extended members of their research groups. As these measures do not appear to have been developed by adhering closely to standardised WHO criteria, perhaps they would be best described as prosthetic-related or amputee-related, rather than health-related, quality of life measures.

Time of assessment effects on HRQoL

A study that measured the course of HRQoL over time was Bak *et al.* (2003), which assessed the short-term changes in HRQoL and functional independence in 64 lower limb amputees undergoing inpatient rehabilitation. The Short Form-36 Health Survey (SF-36: Ware *et al.,* 1993) assessed HRQoL, and functional independence was assessed using the Functional Independence Measure (FIM: Keith *et al.,* 1987), both on admission and at discharge. Improvements were found on both of the main components of the SF-36 (i.e., physical and mental components), as well as on the eight individual sub-domains that make up these components (i.e., *physical*: physical function, role physical, bodily pain, general health; and *mental*: vitality, social function, role emotion, mental health) Also, functional independence improved from 69.3 to 78.4 points (possible range = 18 to 126), as measured by the FIM. In conclusion, both HRQoL and function improved over the relatively short period of rehabilitation.

Variables associated with heath-related quality of life

Among the studies that have attempted to identify variables that correlated with HRQoL in amputees, Sener *et al.* (1995) assessed a) the HRQoL of rehabilitated lower limb amputees using the Reintegration of Normal Living (RNL: Wood-Dauphinee *et al.,* 1988) questionnaire, and b) the physical condition of the residual stump. Participants comprised of 39 transfemoral amputees (mean age = 31.46 yrs). Of these amputees, 18 were immediately given a prosthesis post-operatively, while 21 were fitted after the stump had been stabilised in shape. Mann-Whitney test analysis showed that achieving a "physiological stump" through early fitting was an important factor in improving health-related quality of life after lower limb amputation.

van der Schans *et al.* (2002) also assessed HRQoL in a population of lower limb amputees and investigated potential "amputation -related" determinants, including walking distance, stump pain and phantom pain. The study examined data from 437 patients (mean age = 65 yrs) with a lower limb amputations using a cross-sectional design. Amputation-related problems were investigated using a purpose designed questionnaire, and HRQoL was measured using the RAND-36 (Hays *et al.,* 1993) (Dutch Language Version). Amputees with phantom pain had a poorer HRQoL than amputees without phantom pain. In general, however, the most important amputation-specific determinants of HRQoL were found to be walking distance and stump pain.

Finally, Demet *et al.* (2003) also assessed factors related to HRQoL in amputees. The Nottingham Health Profile (NHP: Hunt and McKenna, 1989) was administered to 1011 participants with amputations of one or more limbs, and the response rate was 53.3%. Multivariate regression analysis was used to study the six categories of distress explored by the NHP, as well as age, gender, cause and level of amputation and the rehabilitation programme. Results indicated that HRQoL was mostly impaired in the categories of physical disability, pain and energy level. Young age at the time of amputation, traumatic origin and upper limb amputation were independently associated with better HRQoL in this study.

In conclusion, some studies have identified variables that significantly correlated with, or predicted, HRQoL in amputees. These included physiological variables, such as physical condition of the stump (Sener *et al.* (1995), clinical variables, such as time of amputation, traumatic origin and upper limb amputation (Demet *et al.*, 2003), specific pain variables, such as phantom pain and stump pain (van der Schans *et al.* (2002) and general pain (Demet *et al.*, 2003), and mobility variables, such as walking distance (van der Schans *et al.*, 2002). Studies examining psychological or psychosocial variables associated with HRQoL in amputees were less well represented in the literature.

In summary, quality of life is assessed either in terms of individualised-quality of life or health-related-quality of life. Most quality of life studies with amputees have assessed health-related quality of life (HRQoL), as opposed to individualised quality of life. Theses HRQoL studies have compared amputee HRQoL to controls, developed and administered amputee-specific HRQoL measures, assessed HRQoL over time, or identified variables that were associated with HRQoL. No studies were identified in the literature that explored predictors of individualised quality of life in amputees.

In over all conclusion to this chapter, a systematic review of the psychology of amputation literature to date revealed that studies in this area could be categorised into the general headings of a) psychological depression in amputees, b) psychosocial predictors of activity limitations and prosthetic use in amputees and c) quality of life in amputees. In relation to psychological depression in amputees, variations in observed depression levels between studies may have been due to socio-demographic and clinical effects on depression, geographical origin effects on depression, assessment measure effects on depression, time of assessment effects on depression. Other psychosocial variables were also found to be associated with depression in amputees. In relation to psychosocial predictors of activity limitations and prosthetic use in amputees, studies explored psychological depression and activity limitations, other psychosocial predictors of activity limitations, and how cognitive impairment influenced prosthetic use. In relation to quality of life in amputees, studies looked at individualised quality of life, compared health-related quality of life between amputees and controls, developed amputee specific health-related quality of life measures, explored time of assessment effects on HRQoL, and studied variables associated with heath-related quality of life.

Arguably, the studies reviewed here have gone some way towards identifying the most relevant outcomes for amputees, by basic virtue of the fact that these are the outcomes that have been predominately explored presumably by clinicians experienced with this patient population (i.e., psychological depression, activity limitations, prosthetic use, and HRQoL). Having said that, no studies appeared to have addressed the question of predicting prosthetic prescription (i.e., determinants of a patient receiving a prosthesis), which is logically a potentially important precursor to all of the other outcomes. Nevertheless, this review revealed substantial evidence to support the fact that each of the outcomes studied were significantly compromised following limb amputation. This review has also provided some evidence that factors above and beyond socio-demographic and clinical variables can influence these salient outcomes (e.g., psychosocial variable), however, there remains uncertainly about the most important determinants of health and rehabilitation outcomes in amputee. Moreover, few studies appeared to have incorporated multivariate designs to enable the exploration of multifaceted determinants of outcomes. Additionally, despite the information that has been yielded from this review, limitations in study designs and methodology have rendered the picture even more unclear and unsatisfactory. For example, most studies employed a cross-sectional design, with inherent difficulties in identifying the direction of causality between the variables under investigation. Moreover, there was some evidence to suggest that salient outcomes changed over time in any case (e.g., Fisher and Price, 2003), which provides further justification for incorporating a longitudinal study design. Also, several studies used a relatively small sample size, which presents confidence difficulties when inferring results back to the target population. Furthermore, few, if any, of the studies reviewed here tested for evidence of sample bias, which may be a particularly important factor when attempting to recruit elderly vascular patients with potential cerebral vascular complications. That is, more elderly and infirm patients were probably less likely to have consented to take part in these studies, which would have resulted in the recruitment of an unrepresentative sample. On this latter point, there appeared to be no evidence of cognitive screening during the sampling stages of the studies reviewed, and cognitive deficits have been shown to influence outcomes (e.g., Larner *et al.*, 2003). Socio-demographic and clinical variables were also shown to discriminate between outcomes, for example, younger patients experience more depression (Ahmad *et al.*, 2001), and vascular patients experience more depression (Cansever *et al.*, 2003), however, such variables were seldom controlled for during the sampling procedures or analyses in these amputee studies. Furthermore, the psychometric properties of the measures operationalised, developed or employed to assess various constructs were rarely, if ever, evaluated or stated. Taking into consideration the points made above, there is justification for the requirement of a well controlled and designed study to identify the determinants of the most important outcomes relating to amputees when they return home from post-operative rehabilitation therapy following their amputation.

Socio-demographic variables such as age (e.g., Ahmad *et al.*, 2001) and clinical variables such as amputation aetiology (e.g., Cansever *et al.*, 2003) have extensively been found to be associated with depression in amputees. The influence of psychosocial variables on depression in amputees, however, has been explored to a lesser extent and, even so, not conclusively established. Moreover, the limited amount of psychosocial variables that have been studied in relation to predicting or correlating with depression in amputees have been randomly selected at, what appears to be, the discretion of individual investigators. In conclusion, there is justification for undertaking a theoretically driven investigation to attempt determining whether psychological variables explain any variance observed in depression beyond that already accounted for by established socio-demographic and clinical variables.

Similarly, psychosocial predictors of activity limitations and prosthetic use in amputees have been less well represented in the literature compared with socio-demographic predictors variables such as gender (e.g., Miller and Deathe, 2004) and clinical variables such as amputation level (e.g., Schon *et al.*, 2001). Moreover, the psychosocial variables operationalised in this limited amount of studies appear to have been selected on an ad hoc basis and, furthermore, were seldom, if ever, tested in relation to how much of the observed variance they explained in activity limitations and prosthetic use over and above the variance already accounted for by socio-demographic and clinical variables. There is justification, therefore, for undertaking a more evidence-based selection of variables and systematic analyses in the current study, to attempt determining whether psychological variables explain any variance observed in activity limitations and prosthetic use beyond that already accounted for by socio-demographic and clinical variables.

As mentioned, some studies have identified psychological variables that predict important outcomes in amputees, however, no studies to date have been reported in the scientific literature that have employed a formal structured social cognition model or theory to guide the investigation. Social cognition models have been used successfully to predict outcomes in other physical patient population, such as cancer (Donovan, 2004), diabetes (Eiser *et al.*, 2002), rheumatoid arthritis (Scharloo *et al.*, 1999), osteoarthritis (Orbell *et al.*, 1998) and chronic fatigue syndrome (Moss-Morris *et al.*, 1996), therefore, there is some justification for applying such models to exploring psychological determinants of important outcomes in amputees.

The next chapter will introduce the social cognition models, and elements within such models, that will be used as a structural foundation to guide such an investigation.

Chapter 3: Theoretical background

Social cognition models

Explaining human behaviour is complex and can be approached from many levels. Factors influencing behaviour can range from those intrinsic to the individual, such as physiological structures and processes or demographic and personality variables, to those extrinsic to the individual, such as peer pressure and social policies or cultural norms and values. Social psychologists, and more recently health psychologists, have focussed on intrinsic cognitive factors that mediate the effect of other intrinsic and extrinsic environmental variables on behaviour, and health behaviours. Cognitive factors typically consist of thought processes, perceptions, beliefs, attitudes and knowledge. Three of the main justifications for focussing on cognitions as proximal determinants of behaviour are that a) such factors tend to have relatively enduring characteristics, b) they are able to differentiate between individuals from the same social environment in terms of performing behaviours, and c) although having relatively enduing characteristics, they are reasonably amenable to change by therapeutic intervention. This latter point distinguishes their particular advantage over personality trait variables.

Theoretical models incorporating how cognitive processes may influence various behaviours are referred to as social cognition models (SCMs). These have provided valuable frameworks for better understanding which cognitive processes influence or predict certain behaviours, thereby indicating which specific cognitions to target via interventions designed to change those behaviours. Broadly speaking, SCMs assume that an individual's behaviour is best understood in terms of how that individual perceives the social environment and his or her relationship with it. The SCMs most commonly used to predict health-related behaviours include the health belief model (HBM: e.g., Becker, 1974), social learning theory (SLT: Rotter, 1966), protection motivation theory (PMT: e.g., Maddux and Rogers, 1983), the theory of reasoned action (TRA: e.g., Aizen and Fishbein, 1980), the theory of planned behaviour (TPB: Aizen, 1988, 1991), social cognitive theory (SCT: e.g., Bandura 1991), self-regulation model (SRM: Leventhal *et al.*, 1980, 1984), the trans-theoretical model of change (TTM: Prochaska and DiClemente, 1984), the precaution adoption process (PAP: Weinstein, 1988), and the theory of trying (Bagozzi, 1992). There is considerable overlap between the variables these models identify as being important in predicting behaviour, which may be taken as convergent evidence that the key cognitions have been identified.

The advantages of using SCMs in health psychology are summarised as follows:

Standardising research
They provide a clear theoretical background and standardised framework for research, guiding the selection of variables to measure and supplying procedures for developing valid and reliable instruments.

Understanding and prediction
They further our knowledge and understanding of how these variables combine to determine and predict health and rehabilitation behaviours and outcomes.

Explanation and intervention
They explain the causal determinants of human behaviour enabling the development of effective interventions targeting the cognitions underlying maladaptive behaviours and detrimental outcomes.

The current study makes use of the following four SCMs:

1. **Theory of planned behaviour** (TPB: Aizen, 1988, 1991).
2. **Self-regulation model** (SRM: Leventhal *et al.,* 1980, 1984).
   Also referred to as the 'common sense' or 'parallel processing' model
3. Social learning theory (Rotter, 1966)
   In particular, **recovery locus of control** (Partridge and Johnston, 1989), derived from health locus of control (HLC: e.g., Wallston *et al.,* 1978) and the locus of control construct contained within social learning theory.
4. Social cognitive theory (SCT: e.g., Bandura, 1991)

In particular, **self-efficacy** (Bandura, 1977, 1986), a construct within social cognitive theory.

These SCMs will now be discussed in more detail.

The theory of planned behaviour

Background

An attitude is a disposition to respond favourably or unfavourably to an object, person, institution or event (Aizen, 1988). Attitudes are hypothetical evaluative constructs that can only be inferred from a variety of measurable responses. These responses have typically been classified within three categories:

1. Cognitions (beliefs about an attitude object)
2. Affect (feelings towards an attitude object)
3. Conation (action tendencies in relation to an attitude object)

These responses are normally assessed using standard scaling techniques that result in a score locating the individual on an evaluative dimension (i.e., positive or negative) in relation to the attitude object.

Dispositional attitudes

Broad dispositional attitudes (Wicker, 1969), like general personality traits (Mischel, 1968), have consistently shown low empirical correlates with behaviour. Wicker's (1969) review on the consistency of broad dispositional attitudes in predicting behaviours concluded that the association was very weak and even suggested that psychologists should abandon the concept of attitude completely (Wicker, 1971). Social psychologists did not give up on the idea of attitude-behaviour consistency, however, and explored a number of ideas to better understand the relationship between these concepts. One such idea was the principle of aggregation.

The principle of aggregation

A basic psychometric principle assumes that any single measure of behaviour or psychological concept (i.e., single-act criterion) is not reliable. There is usually a lot of error associated with each single measure (e.g., tone of wording, choice of words, etc.). This problem is typically overcome by using multiple measures (multiple-act criteria) and adding them all together (aggregating). One proposed solution, therefore, to the problem of the poor predictability of attitudes was to aggregate specific behaviours across different occasions, situations and forms of actions (Fishbein and Aizen, 1974). The assumption was that an example of behaviour reflects the influence of several factors unique to the particular occasion, situation and action, in addition to the influence of a general disposition. By aggregating the behaviour (i.e., observing it on different occasions and in different situations) these other sources of influence were reasoned to cancel each other out, leaving a more valid measure of the underlying attitude influencing the behaviour. For example, Fishbein and Aizen (1974) used multiple attitude and behavioural measures to determine if religious attitudes were consistent with religious behaviour. To measure attitudes towards religion, they had participants fill out numerous attitude scales. To measure religious behaviour, they stipulated 100 different religious behaviours (e.g., donate money to church, pray before or after meals, etc.) and asked the participants if they engaged in them. When the attitudes were correlated bivariately with each of the 100 behaviours (single-act), the correlations were low (0.12 - 0.14), however, when aggregating several behaviours (multiple-act) into one score, it increased the correlations significantly (0.6 - 0.7). Other studies have also demonstrated the working of the principle of aggregation by showing that general attitudes (e.g., Sjöberg, 1982) and personality traits (e.g., Jaccard, 1974) predicted behavioural aggregates much better than they predicted specific behaviours. The principle of aggregation, however, did not explain behavioural variability across situations, nor did it permit the prediction of a specific behaviour in a given situation. The theories of reasoned action (TRA: e.g., Aizen and Fishbein, 1980) and planned behaviour (TPB: Aizen, 1988, 1991) were, therefore, designed to predict and explain human behaviour in specific contexts.

The TPB is underpinned by a number of preceding models and theories, including the tripartite model of attitude (Rosenberg and Hovland, 1960), the principle of compatibility (Aizen and Fishbein, 1977), the expectancy-value framework (Peak, 1955), and the theory of reasoned action (TRA: Aizen and Fishbein, 1980, Fishbein and Aizen, 1975).

The tripartite model of attitude

The tripartite model of attitude is a hierarchical model. It considers cognition, affect and conation as first order factors and attitude as a single second order factor. In this view, an attitude affects a behaviour by the following system: the presence of an attitude object elicits either a favourable or unfavourable evaluative reaction (i.e., a global attitude towards the object). This attitude, in turn, is predisposed by underlying cognitive, affective and conative responses to the object. These responses will have an evaluative tone that is consistent with the overall attitude. The influence of the tripartite model of attitude is evident in the TRA and TPB models by specific accessible beliefs being reasoned to directly underpin and predict more general global attitudes within the framework of these models.

The principle of compatibility

The principle of compatibility evolved from the recognition that attitude objects need not necessarily be a person, group, institution or policy, but that they can also be defined in terms of particular behaviours. It further advanced from the recognised difficulties associated with a) trying to predict specific behaviours from global attitudes, and b) predicting multiple acts (i.e., aggregating behaviours) from dispositional attitudes adding little to our understanding of the factors that determine a given behaviour. In view of these problems, Aizen and Fishbein (1977) formulated the principle of compatibility, which stated that any measure of behaviour can be defined in terms of four elements: the *target* at which it is directed, the particular *action* involved, the *context* in which it occurred and the *time* of its occurrence. In this view, two indicators of a given disposition are said to be compatible with each other to the extent that their *target*, *action*, *context* and *time* elements are assessed at identical levels of generality or specificity. That is, according to the principle of compatibility, the more similar these four elements are defined and assessed between one variable (e.g., belief) and another (e.g., behaviour), the stronger the statistical relationship between them will be.

Expectancy-value theory

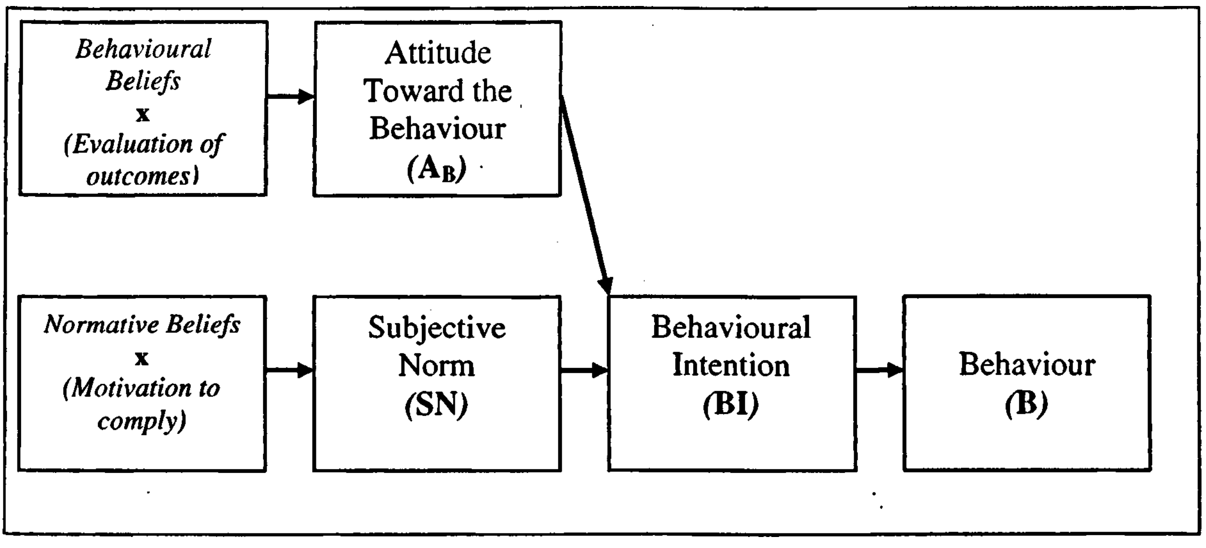
Each of the SCMs assumes that individuals are active participants in the process of influencing their own behaviour. That is, people are considered to make rational decisions about whether or not to perform the behaviour, based on deliberate and systematic processing of the available information. This subjective cost-effect analysis towards likely outcomes approach has its foundations in the expectancy-value theory (Peak, 1955). This theory assumed that the usefulness or appeal of performing a behaviour was based on the summed products of a) the probability (expectancy) of certain outcomes resulting from the behaviour, and b) the utility (value) placed on these outcomes by the individual. While models based on this framework have demonstrated explanatory and predictive power, some authors have noted that they have provided an inadequate description of how individuals actually make decisions. For example, Frisch and Clemen (1994) contended that a good decision-making process must be concerned with how (and whether) decision makers evaluate potential consequences of decisions, the extent to which they accurately identify all relevant consequences, and the way in which they make final choices.

The theory of reasoned action

The theory of reasoned action (TRA: Aizen and Fishbein, 1980, Fishbein and Aizen, 1975) made two basic underlying assumptions: a) human beings are rational agents that make systematic use of the information available to them, and b) they consider the implications of their actions before they decide to engage or not engage in certain behaviours.

The TRA model itself, shown in figure 3.0, begins by considering the behaviour of interest. Behaviour (***B***) is the manifest, observable response in a given situation with respect to a given target. Barring unforeseen events, people are expected to act in accordance with their behavioural intention ***(BI)***. This is the cognitive representation of a person's readiness to perform a given behaviour and is proposed to capture the motivational factors that influence a given behaviour. The TRA proposes intention as being the immediate antecedents to behaviour. It is hypothesised that the stronger a person's intention to perform a particular behaviour, the more likely they are expected to perform that behaviour.

Figure 3.0. The theory of reasoned action (TRA: Aizen and Fishbein, 1980, Fishbein and Aizen, 1975)



Intentions can also change over time. The longer the time period between intention and behaviour, the greater the likelihood that unforeseen events will produce changes in intentions. Because Aizen and Fishbein were not only interested in predicting behaviour but understanding it, they began trying to identify the determinants of behavioural intentions. They proposed that intentions are a function of two basic influences: attitude toward the behaviour (A_B) and subjective norm (*SN*).

- Attitude toward the behaviour (A_B) is the degree to which performance of the behaviour in question is positively or negatively valued or appraised.

- Subjective norm (*SN*) is the perceived social pressure to engage or not to engage in the behaviour.

In general, therefore, individuals intend to perform a behaviour when they evaluate it positively and when they believe that important others think they should perform it.

In keeping with the goal of explaining human behaviour and not merely predicting it, the TRA denotes the antecedents of attitude and subjective norm. At its most basic level, the model indicates that behaviour is a function of salient beliefs (i.e., those readily accessible in memory) relevant to the behaviour. Individuals may hold a great number of beliefs about a given behaviour but they are only able to attend to a few of these at any given moment (Miller, 1956). It is these beliefs that are considered to be the prevailing determinants of an individual's intentions and actions. Within the TRA model's framework, salient beliefs in relation to a given behaviour are also reasoned to predict global evaluative attitudes, which are, effectively, summaries of these beliefs. In other words, specific beliefs concerning the likely outcomes of behaviour provide the informational foundation underlying attitudes and subjective norms. Taken together, this informational base provides a detailed explanation of an individual's tendency to perform, or not to perform, a particular behaviour.

According to expectancy-value theory, attitude toward the behaviour (A_B) is determined by the total set of salient *behavioural* beliefs. A behavioural belief links the behaviour of interest to an expected outcome. More specifically, it is the subjectively held probability that the behaviour will produce a given outcome. It is postulated that an individual's salient behavioural beliefs, in combination with the subjective values placed on the expected outcomes, determine the prevailing attitude toward the behaviour. Theoretically, the strength of each behavioural belief (**b**) regarding a specific outcome ($_i$) is weighted by the evaluation (**e**) of its outcome ($_i$), and the products are aggregated, as shown in the following equation.

$$A_B \ \alpha \ \Sigma \mathbf{b}_i \mathbf{e}_i$$

In summary, an individual's global attitude A_B is directly proportional α to the sum of behavioural beliefs ($\mathbf{b}_i$) weighted by evaluations ($\mathbf{e}_i$).

Similarly, it is proposed that subjective norm (*SN*) is determined by the total set of salient *normative* beliefs. Normative beliefs refer to the perceived behavioural expectations of important referent individuals or groups, such as one's spouse, family, friends, teacher, doctor, supervisor, co-workers, etc. It is hypothesised that these normative beliefs, in combination with the person's motivation to comply with the different referents, determine the prevailing subjective norm. Mathematically, the strength of each normative belief (**n**) pertaining to each referent ($_i$) is weighted by the motivation to comply (**m**) with the referent in question ($_i$). The products are then aggregated, as shown in the following equation.

$$SN \alpha \Sigma \mathbf{n_i m_i}$$

In summary, an individual's subjective norm *SN* is directly proportional α to the sum of normative beliefs ($\mathbf{n_i}$) weighted by motivations to comply ($\mathbf{m_i}$).

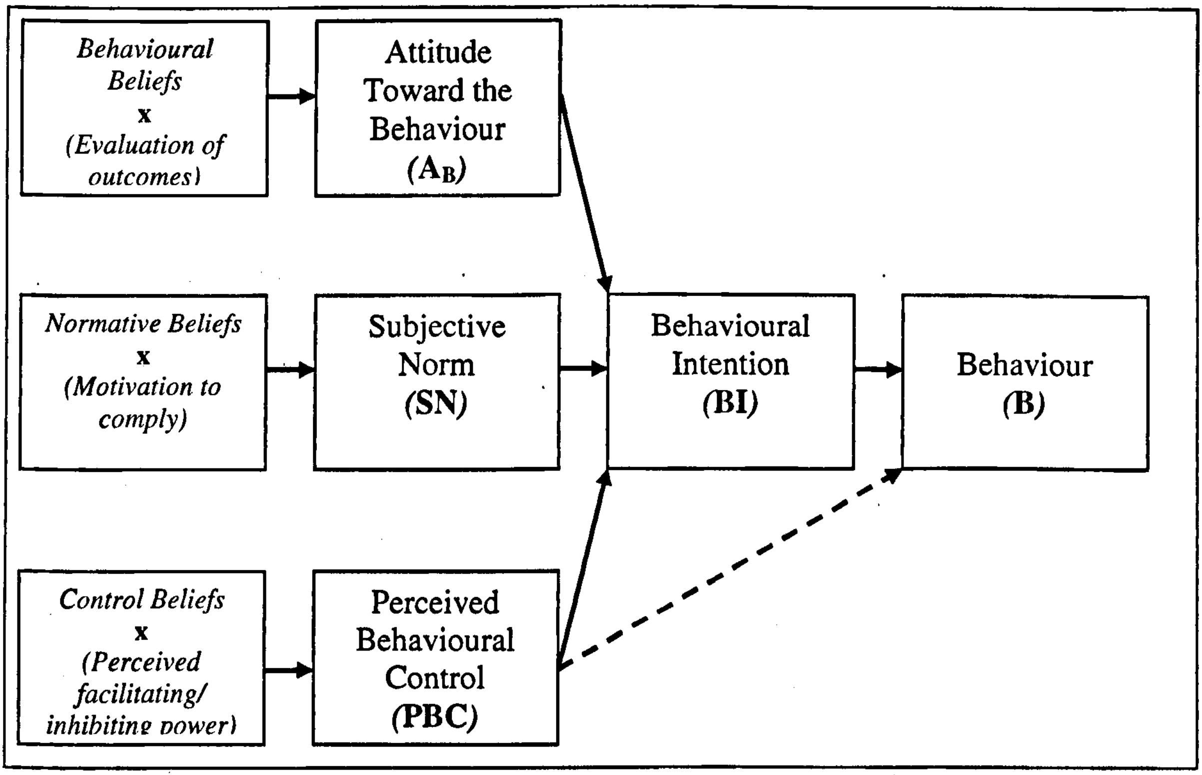
Perceived behavioural control

The TRA was explicitly developed to provide a framework for understanding and predicting volitional behaviours. It is an inadequate model, however, for applying to behaviours that are not under volitional control. For example, an individual may have the intention to give up smoking, however, fail to do so because of actual or perceived controlling factors. The degree of success will not only be dependent on motivational factors, but also partly on factors such as availability of requisite opportunities and resources, both intrinsic and extrinsic to the individual. Those who intend to perform a behaviour may lack the information, skills or abilities to do so. Such factors, at least in principle, can be overcome, but individuals are often not held responsible for behaviours performed under stress or in the presence of strong emotions. That is, little behavioural control is typically attributed to those who are deemed to be overcome by emotion. Also impacting upon an individuals attainment of goals are situational or environmental factors, which facilitate or interfere with the performance of a behaviour (e.g., the dependence on another person). In reality, behaviours will typically fall somewhere on a continuum, represented at one extreme by purely volitional acts, and at the other by those that are completely beyond volitional control. Given the mediation of control factors in behavioural performance, the intention to perform a behaviour may best be interpreted as an intention to attempt the performance of a behaviour, since factors beyond the individual's control have the potential to prevent its successful execution. In order to provide a conceptual framework to address this issue of incomplete volitional control, Aizen developed the theory of planned behaviour (TPB: Aizen, 1988, 1991), which is an extension of the theory of reasoned action. The TPB, shown in figure 3.1, postulates three, rather than two, conceptually independent determinants of behavioural intention ***(BI)***. In addition to attitude toward the behaviour (A_B) and subjective norm (*SN*), it introduces perceived behavioural control (***PBC***) as another antecedent of intention.

- Perceived behavioural control (***PBC***) refers to peoples' perceptions of the ease or difficulty of performing a given behaviour.

Successful performance of a behaviour depends not only on a favourable intention but also on a sufficient level of behavioural control. To the extent that perceived behavioural control is accurate (i.e., accounts for some of the realistic constraints that may exist), it can serve as a proxy of actual control and is used for the prediction of behaviour. This relationship is depicted by the dashed arrow in figure 3.1.

Figure 3.1 The theory of planned behaviour (TPB: Aizen, 1988, 1991)



It is proposed that perceived behavioural control (*PBC*) is determined by the total set of accessible *control* beliefs. Control beliefs refer to the perceived presence of requisite factors that may facilitate or impede performance of the behaviour. Such factors may entail external variables, such as available resources or opportunities, or internal variables, such as compulsions or self-efficacy. It is hypothesised that these control beliefs, in combination with the perceived power of each control factor, determine the general perceived behavioural control. Specifically, the strength of each control belief (**c**) about each individual control factor ($_i$) is weighted by the perceived facilitating or inhibiting power (**p**) of the control factor ($_i$), and the products are aggregated, as shown in the following equation.

$$PBC \propto \Sigma c_i p_i$$

In summary, an individual's perceived behavioural control ***PBC*** is directly proportional α to the sum of control beliefs (c_i) weighted by their perceived power (p_i).

Perceived behavioural control, together with behavioural intention, is used to predict the behaviour. That is, in the TPB, behaviour is a function of a) compatible intentions, and b) perceptions of behavioural control. Conceptually, perceived behavioural control is expected to moderate the effect of intention on behaviour, such that a favourable intention produces the behaviour only when perceived behavioural control is strong. In practice, however, intentions and perceptions of behavioural control are often found to have main effects on behaviour, but no significant interaction (Aizen, 1988).

To recap, there are two important features of the TPB over and above the TRA. Firstly, the TPB assumes that PBC has motivational implications for behavioural intentions. Individuals who believe that they do not posses the necessary resources or opportunities to perform a certain behaviour are unlikely to form the motivational intentions to do so. Secondly, there is the suggestion of a direct link between PBC and the behaviour. This exists because PBC may be considered a partial proxy for a measure of actual control. In other words, if the individual genuinely has no required resources to perform a behaviour (e.g., no artificial leg to ambulate), then the behaviour will not be performed. Thus, the dashed arrow in figure 3.1 indicates that the link between PBC and behaviour is expected to emerge only when there is some agreement between perceptions of control and an individual's actual control over the behaviour.

In summary, the TPB posits that individuals intend to perform a behaviour if their personal evaluations of it are favourable, if they think that important others would approve of it, and if they believe that the required resources and opportunities will be available. Taken together, this informational base, which is assessed within the TPB framework, provides a detailed explanation of an individual's tendency to perform, or not to perform, a particular behaviour.

Self-regulation model

Self-regulation processes can be defined as those "mental and behavioural processes by which people enact their self-conceptions, revise their behaviour, or alter the environment so as to bring about outcomes in it [that are] in line with their self-perceptions and personal goals" (Fiske and Taylor, 1991: 181). In this view, the individual is seen as being an active participant in the process of setting goals, cognitive preparations, employing coping behaviours and the ongoing monitoring and evaluation of goal directed activities.

Foundational assumptions

Leventhal *et al.* (1980, 1984) developed a model of self-regulation, sometimes entitled the common-sense or parallel-processing model, to explore how individuals interpret and cope with health threats. The basic foundational assumptions proposed by this involve four levels of processing: active, parallel, stages, and hierarchical.

1. *Active processing.* Behaviour and experiences are the products of an underlying information processing system. This system combines incoming stimuli information with those inherent to the individual and those already learned and residing in memory. One's experience of the environment, emotional reactions to it, and coping behaviours are organised and updated each moment by this information processing system.

2. *Parallel processing.* The processing system is divided into two parallel pathways. One involves the cognitive representations of the illness threat and the development of a coping plan for managing the threat. The second involves the emotional responses to the threat and the development of a coping plan for managing the emotions. The two pathways are able to interact in the face of each specific situation.

3. *Stages of processing.* The information processing system operates in distinct stages. The first stage involves defining or creating a mental representation of

the threat and the accompanying emotional responses. The second stage concerns the development and execution of coping strategies. The goals identified in the coping phase are guided by the cognitive representations and emotional responses. The third stage is where the individual appraises or evaluates the effectiveness of the coping strategies in bringing him or her closer to the goals specified by the representations. The system is recursive, in that information from the appraisal stage loops back into the previous stages. Here, it can change the individual's coping strategies and/or the way the threat is defined or represented and/or the actual illness condition. Each pass through the model alters the underlying memory structures and thereby changes subsequent adaptive episodes.

4. *Hierarchical processing.* The processing system is hierarchical in its organisation in that it operates at both a concrete and an abstract level. Subsequently, behavioural episodes (e.g., coping with a headache) can involve concrete elements (e.g., chest pain) and abstract elements (e.g., I am having a heart attack) in the representation, coping and appraisal stages. Discrepancies may exist between the two levels, for example, an individual may be told that a medical treatment made an improvement to their condition (abstract: e.g., reduced the size of a tumour) and yet the patient actually feels worse (concrete: e.g., nausea).

Direct sources of information

Illness representations can be influenced by three direct sources of information. Firstly, a general pool of lay information that has already been assimilated by an individual may guide them. This information may derive from earlier social communications and general cultural knowledge that already exist in relation to the illness. Secondly, information may be obtained, also from the external social environment, from other individuals of perceived significance and authority, such as a doctor or a parent. Thirdly, an individual's illness representations will be influenced by their current experiences with the illness. These current experiences can be in the form of somatic or symptomatic factors, but can also encompass knowledge of how effective previous ways of coping with the illness have been. Beyond these three sources, it has been argued that personality type and cultural background variables may also be influential (e.g., Diefenbach and Leventhal, 1996).

Abstract versus concrete sources of information

Information from these direct sources leads to the individual forming illness representations influenced initially by two different levels: abstract-conceptual and concrete-perceptual. As outlined in the model's assumptions section (see: *Hierarchical processing*), an abstract representation may comprise of, say, a schematic diagnostic label of the illness or symptom, whereas a concrete source may be derived from a somatic sensation. Leventhal (1990) described the 'symmetry rule', where physical symptoms are linked with diagnostic labels automatically and intuitively. Ultimately, it is the interpretation of these different sources of information that leads to the construction of the illness representations, which in turn stimulate coping procedures and appraisal processes.

Dynamic versus static process

Another attribute of the Leventhal *et al.* model is its dynamic nature. That is, it is a dynamic processing system in which cognitive representations, emotional responses, and coping behaviours change over time. Subsequently, the relationships between these variables are not static as in other SCMs (e.g., The theory of planned behaviour), but rather, they are reasoned to change and be updated by each other as the individual evolves through the health condition.

Cognitive representations

Researchers have established that cognitive illness representations can be categorised into a number of logical themes or dimensions. These include identity, cause, consequences and timeline (e.g., Meyer *et al.,* 1985) and the more recently added cure/control (e.g., Lau *et al.,* 1989), as well as illness coherence and timeline (cyclical) components (Moss-Morris *et al.,* 2002). Identity refers to beliefs about the illness, diagnosis or condition label (e.g., influenza, amputation) and beliefs about its symptoms (e.g., makes my head/leg sore). The cause dimension represents the etiological factors that are perceived as being responsible for causing the illness or condition. A number of underlying causal dimensions have been identified in research, including biological causes (e.g., immune system, germ or viral: Heijmans, 1998), emotional causes (e.g., stress, depression: Moss-Morris *et al.*, 1996), environmental causes (pollution, chemicals: Heijmans, 1998) and psychological causes (mental attitude, overwork, personality: Moss-Morris *et al.*, 2002). It is worth noting, that some of the causal items (e.g., depression) may be categorised within either of the emotional or psychological causal domains. The consequences dimension refers to beliefs regarding the impact of the illness or condition on variables affecting a person's overall quality of life or how it may influence functional ability and well-being. Timeline refers to the individual's beliefs about the course of their illness or condition and the time scale of the associated symptoms. These are typically subcategorised into episodic, acute or chronic. More recently, the construct of timeline (cyclical) has been operationalised (Moss-Morris *et al.*, 2002), which pertains to perceptions of symptoms fluctuating. The cure/control dimension refers to beliefs relating to the efficacy of a) treatments, or b) the sensation of personal empowerment concerning performance of coping behaviours (Lau *et al.*, 1989). Along with the recent addition of the illness coherence construct (i.e., understanding one's condition: Moss-Morris *et al.*, 2002), these attributes combine to define goals and targets for coping, and then coping is appraised or evaluated against these goals and targets.

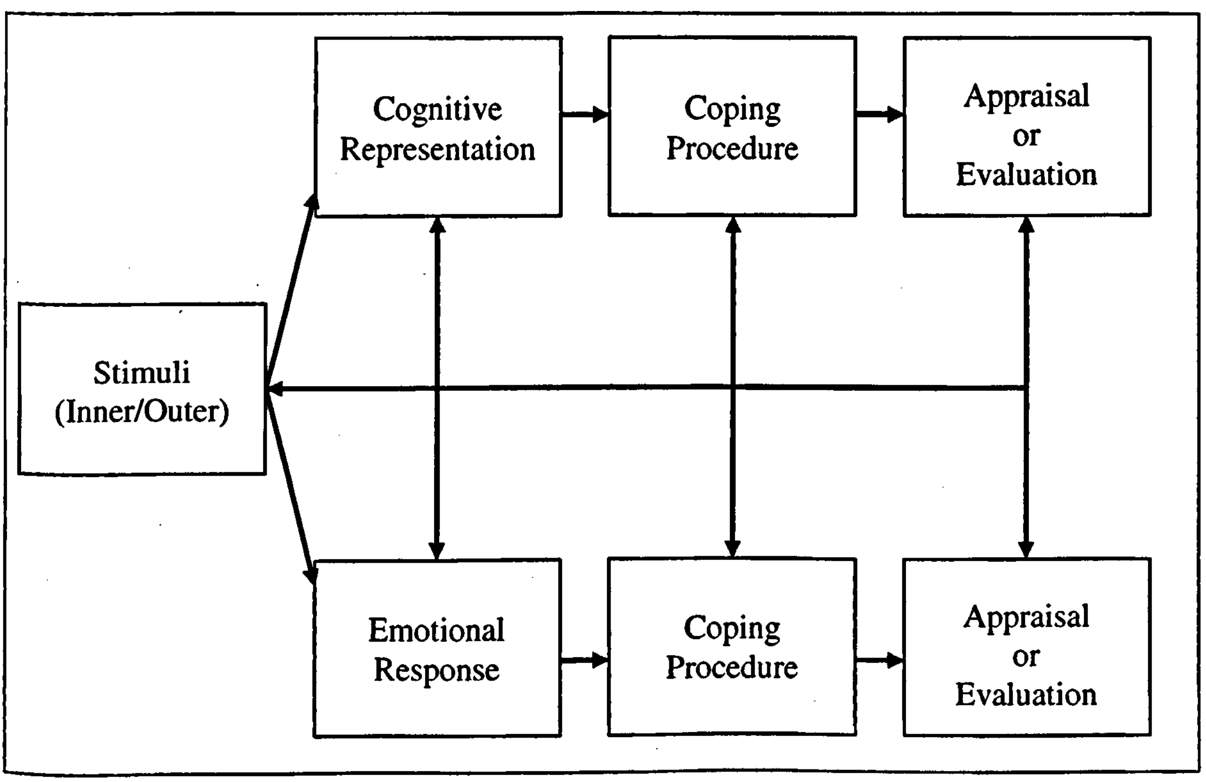
Emotional responses

Leventhal *et al.* also proposed that emotional responses are stimulated along with cognitive representations. Problem-focussed and emotional-focussed motivational processes can operate in parallel, and they can operate partially independent of each other. That is, they may serve to motivate the same coping behaviours or they may motivate contrasting coping behaviours. Leventhal *et al.* (1980) developed the parallel-processing model of self-regulation based on the premise that people make simultaneous cognitive representations and emotional responses of their illness or health condition. Thus, although less researched, emotional responses may be equally as important as cognitive representations in determining coping strategies and outcomes (Moss-Morris *et al.*, 2002).

The Leventhal et al. model

Figure 3.2 provides a schematic representation of the Leventhal *et al.* model of self-regulation. Initial illness or condition stimuli may stem from internal (inner) sources, such as previous experience, information stored in memory and somatic sensations, or from external (outer) sources, such as lay information, social support and symptomatic diagnoses. These stimuli are reasoned to simultaneously trigger cognitive representations and emotional responses. The known dimensions of cognitive representations (see: *Cognitive representations*) effectively combine to weigh up the seriousness and significance of the illness or condition. Emotional responses typically entail negative affect variables such as fear, anger, worry, stress and psychological distress (e.g., anxiety, depression). In some cases, however, positive affect variables such as relief (e.g., when a diagnostic classification disconfirms a more serious condition) may be experienced.

Figure 3.2. The Leventhal *et al.* self-regulation model (SRM: Leventhal *et al.*, 1980, 1984)



Recently, there has been a growing realisation that illnesses may have positive consequences (e.g., Petrie *et al.,* 1999, Folkman and Greer, 2000). For example, being confronted by one's mortality may call into question basic values, beliefs and goals, which may lead to positive changes such as a more positive self-image, better relationships and a greater appreciation of life.

Cognitive representations and emotional responses, in turn, are reasoned to initiate their respective coping strategies and styles. On a broad level, these will comprise of adaptive tasks that can be illness related (e.g., dealing with pain, hospital environment, treatment procedures, developing and maintaining relationships with healthcare professionals), or related to more general issues (e.g., preserving emotional balance, a self-image, competence and mastery, sustaining relationships with family and friends, preparing for an uncertain future). More specifically, coping skills triggered by cognitive representations involve either a) appraisal-focussed coping (e.g., cognitive restructuring, logical analysis, mental preparation), or b) problem-focussed coping (e.g., seeking information and support, learning new skill, taking medications). Coping procedures triggered by emotional responses involve emotion-focussed coping (e.g., avoidance, denial, acceptance, expressing emotions, distraction, substance abuse). Coping strategies are then appraised to evaluate the effectiveness of the coping styles and strategies that were triggered by the cognitive representations and emotional responses. These may be assessed against a variety of outcome variables (e.g., disease state, physical functioning, activity limitations, beliefs, attitudes, perceptions, psychological/emotional distress, well-being, role/social functioning vitality, quality of life). More specifically, there is a complex reciprocal relationship between all the components of the Leventhal *et al.* model, so that each component may theoretically have an affect on any other component.

Linking emotional response and cognitive representation

Research guided by this model on the interactions between emotions and cognitions, has identified a number of established influences of anxiety on coping behaviours and illness representations. For example, a review by Cameron (2003) concluded that anxiety had motivational influences on behaviour and its influence were sustained over a prolonged period of time. Research has also highlighted that anxiety and stress can affect information processing mechanisms. For example, anxiety has been found to enhance vigilance in processing risk information and promote rumination of threat-related information over prolonged periods (Slovic, 2001). Anxiety has also been found to enhance attention to concrete cues, while inhibiting processing of abstract information (Gray, 2001), and to encourage attention to short-term outcomes (Gray, 1999). Research has also identified conditions in which worry predicts health-related behaviours whereas risk judgments do not. Cameron and Diefenbach (2001), for example, found that worry about breast cancer independently predicted greater interest in genetic testing, whereas perceived risk did not. Also, Ying and Cameron (personal communication), in a recent study of skin cancer detection behaviours in young adults, found that worry predicted skin self-examinations whereas risk judgments did not.

Social learning theory

Perceived locus of control

The concept of perceived locus of control has its original foundations in Rotter's social learning theory (Rotter, 1954). The main principle of this theory states that the key determinants of a behaviour occurring in any given situation are, firstly, the individual's expectancy that the behaviour will result in certain reinforcements and, secondly, the extent to which those reinforcements are valued by the individual. The theory also allows for individuals to have general expectancies that remain reasonably stable across different situations, and it was from this notion that the concept of locus of control originated. Rotter (1966) distinguished between two locus of control belief orientations: internal and external. An internal locus of control refers to the generalised belief that one's outcomes are under the personal control of one's own behaviour, whereas an external locus of control alludes to the belief that events are unrelated to one's own actions and thereby determined by factors beyond their personal control.

A number of theories have elements of perceived control with similarities and differences. In fact, Skinner (1996) proposed an integrative framework, which was designed to organise the heterogeneous constructs related to control. Rotter's (1966) concept of perceived locus of control is similar to other constructs that emphasise an element of control perceptions, including mastery (Pearlin and Schoder, 1978), self-efficacy (Bandura, 1977, 1982, 1986), personal causation (DeCharms, 1976) and perceived competence (Smith *et al.*, 1991). However, the construct differs crucially from Aizen's (1988, 1991) perceived behavioural control construct, in that perceived behavioural control refers to perceptions of the ease or difficulty of performing a particular behaviour at a given time, thereby varying across situations and forms of action, while Rotter's perceived locus of control is a general expectancy that one's actions are instrumental to goal attainment, which remains stable across time and situational contexts.

The locus of control construct was first measured using the internal-external scale, which was developed by Rotter (1966). Early research making use of this scale (see: Strickland, 1978, for a review) supported the hypotheses that individuals with an internal locus of control orientation, as opposed to external, were more likely to a) employ efforts to control their environment, b) take personal responsibility for their own behaviour, c) seek out and process information, d) demonstrate better learning, and e) demonstrate more autonomous decision making.

Health locus of control

Wallston *et al.* (1976) applied the internal-external construct to the realm of health behaviours with the development of the health locus of control (HLOC) scale. They predicted that individuals with an internal locus of control would take more active responsibility for their health and would be more likely to engage in health promoting behaviours as a result. However, the amount of variance in health behaviours explained by this construct was typically low. In addition, Levenson (1974) argued that within the external control belief construct, it was possible to distinguish between control exerted by powerful others, and control influenced by chance or fate variables. Against this background, Wallston *et al.* (1978) then developed the widely used multidimensional health locus of control (MHLC) scale.

The MHLC scale measures perceived locus of control beliefs in relation to health behaviours along three dimensions: internal, powerful others, and chance.

1. *Internal HLC.* Health is a result of an individual's own actions.
2. *Powerful others HLC.* Health is under the control of influential other people.
3. *Chance HLC.* Health is due to chance or fate.

It is generally hypothesised that having an internal locus of control will be more beneficial, in that it will lead to individuals being more likely to engage in health enhancing behaviours. There may be some cases, however, when an external locus of control could be more advantageous (Wallston, 1989). For example, during acute or chronic illness, patients may be more inclined to engage in health promoting behaviours if advised to do so by healthcare staff that they believe to be in control of the course of their condition. In relation to chance HLC, it is now generally accepted that such beliefs are orthogonal to internal HLC beliefs (Wallston, 1992), and that individuals scoring high on this dimension will be less likely to engage in health behaviours.

According to Rotter's social learning theory, in which the locus of control construct is embedded, the relationship between health locus of control and health promoting activities should only hold for those who value their health highly. Many authors have, however, employed the health locus of control paradigm to their research without including a measure of how much the participants value their own health (Wallston, 1991). Perhaps this oversight derives from the unchallenged assumption that all individuals value health (Lau *et al.,* 1986), and that including a measure of value would, therefore, effectively add little to the predictive power of the construct. A few studies have, however, assessed how combining both constructs determined behaviours, including compliance of persons with diabetes mellitus (Schlenk and

Hart, 1984), EMG biofeedback training (Carlson *et al.*, 1982), and maternal compliance in immunisation of preschoolers (Rosenblum *et al.*, 1981).

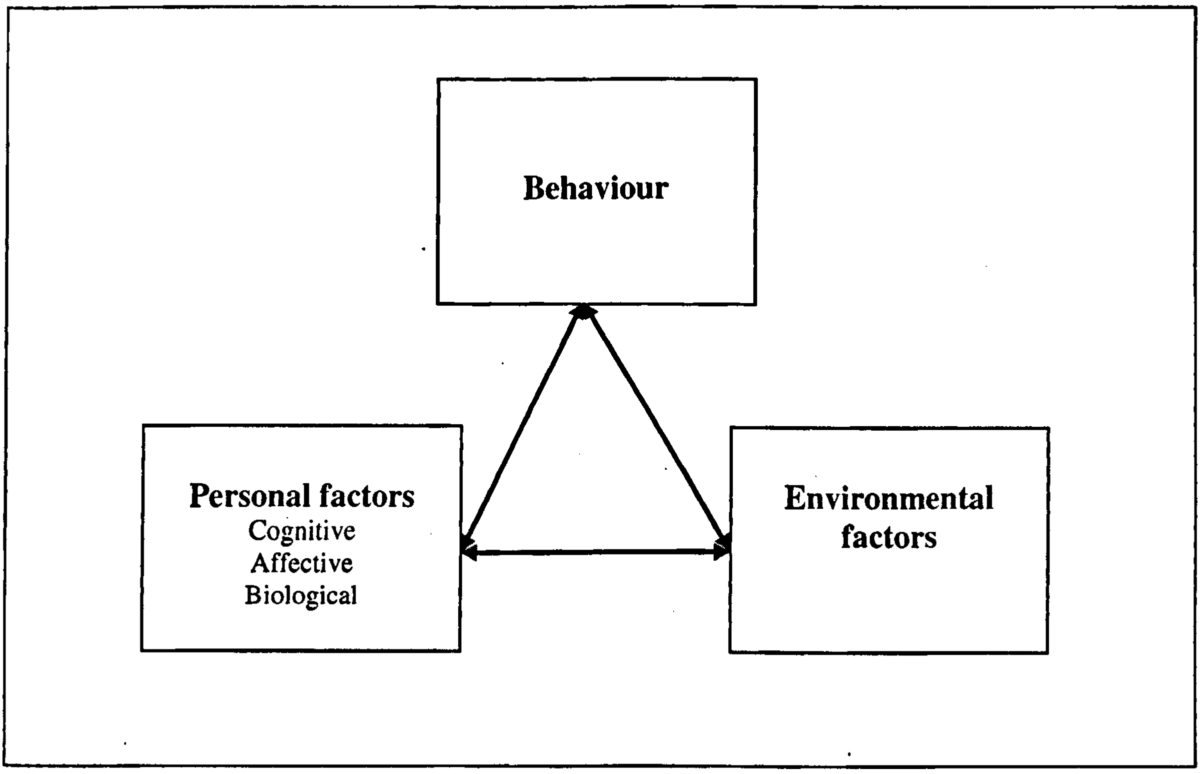
Recovery locus of control

Rotter (1975) suggested that in order to maximise the potential predictive power of the locus of control concept, situation-specific measures should be developed for behaviours in a particular context. In addition, the HLOC and MHLC scales both focus on preventative health behaviours and, consequently, are unsuitable for investigating the perceived locus of control in those individuals with existing physical disabilities. As a result, Partridge and Johnston (1989) developed the Recovery Locus of Control (RLOC) scale, which measures the extent to which individuals perceive their recovery to be under internal or external control while adapting and progressing with rehabilitation.

Social cognitive theory

Bandura (1986) proposed a view of human activity that abandons the environmental association learning view of behaviourism, and the hidden inner impulse drives view of psychoanalysis, in favour of what is termed social cognitive theory. This theory gives a key role to cognitive, vicarious, self-regulatory and self-reflective processes in human behaviour. From this viewpoint, human activity is seen as resulting from the interplay between a) personal, b) behavioural, and c) environmental influences. The dynamic inter-play between these factors, illustrated in figure 3.3, forms the basis of triadic reciprocality (Bandura, 1986). That is, personal factors (i.e., cognitive, affective and biological), one's own behaviours, and environmental factors interact with each other in order to determine how people process information and self-regulate.

Figure 3.3. The triadic reciprocal determinants of human functioning in social cognitive theory (Bandura, 1986)



Social cognitive theory is embedded in a view of human agency where individuals are agents proactively engaged in their own development. Moreover, they are able to influence their own personal outcomes by their own actions. Key to this sense of agency is the fact that, among other personal factors, individuals possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings and actions. The theory provides a view of human behaviour in which the beliefs that people have about themselves are critical elements in the exercise of control and personal agency. Thus, individuals are viewed both as products and producers of their own environments and social systems.

One of the main appeals of social cognitive theory is that the reciprocal nature of the determinants of human functioning makes it possible for therapeutic efforts to be directed at personal, behavioural or environmental factors. That is, strategies for increasing well-being can be aimed at improving biological, emotional, cognitive or motivational processes, increasing behavioural competencies, or altering social environmental conditions.

SCT and distinct human capabilities

The social cognitive perspective defines specific human cognitive capabilities that include, symbolising, forethought, vicarious learning, self-regulation and self-reflection. Symbolising refers to extracting meaning from the environment, constructing guides for action, problem solving, representing new knowledge, reflecting on past events and communicating with others over distance, time and space. It provides people with a sense of structure, meaning and continuity in their lives. Forethought enables people to plan courses of action and to anticipate the likely outcomes of these actions. It also provides individuals with the means to set goals and challenges, which serve to motivate, guide and regulate their activities. Vicarious learning allows people to learn novel behaviours by observing others. In relation to human capabilities, it affords individuals the opportunity to learn the outcomes of behaviours without having to undergo the behaviours themselves. Self-regulation provides individuals with the means of potential self-directed change, while self-reflection allows them to make sense of their personal experiences, explore their own cognitions (e.g., beliefs, attitudes), engage in self-evaluation and alter their thinking and behaviour accordingly. For Bandura (1986) self-reflection is the capability that is most distinctly human.

Self-efficacy

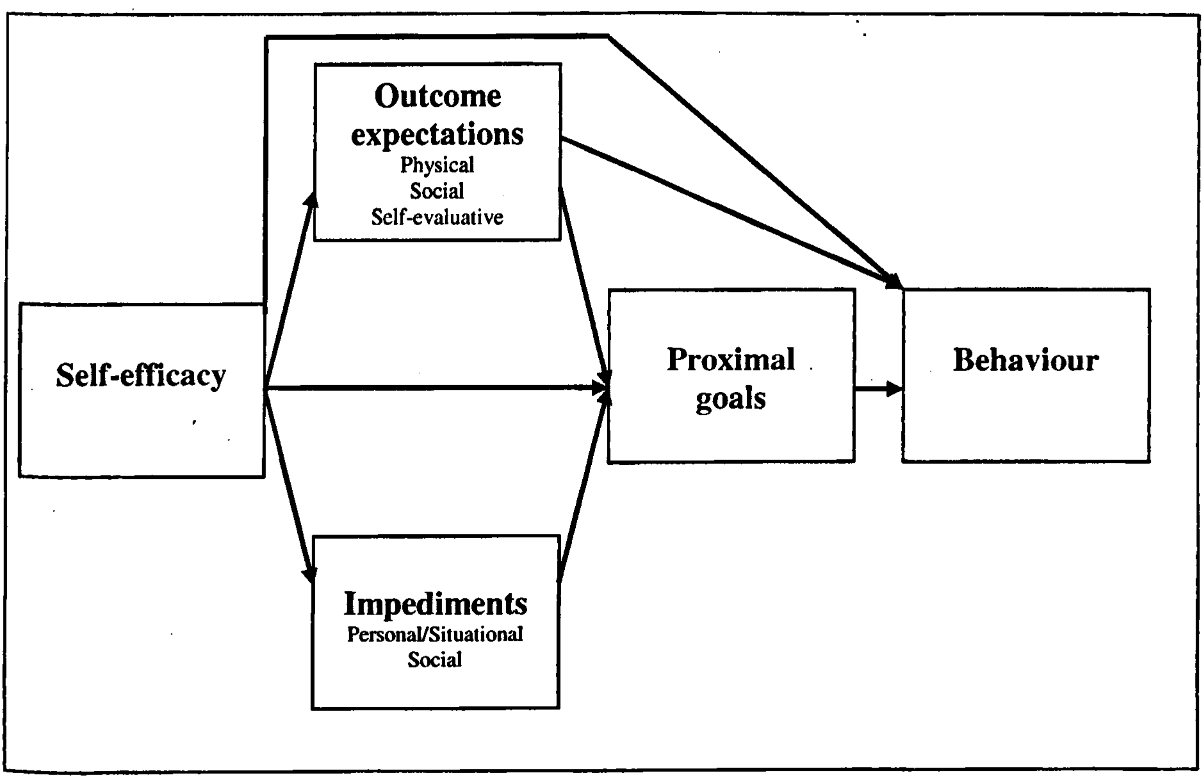
Perceived self-efficacy refers to beliefs in one's capabilities to organise and execute the courses of action required to produce given levels of attainment or manage prospective situations (Bandura, 1986). Beliefs of personal efficacy occupy a pivotal regulative role in the causal structure of social cognitive theory (SCT: e.g., Bandura, 1991).

Social cognitive model

Social cognitive theory posits a multifaceted causal structure in which self-efficacy beliefs operate in concert with personal goals, outcome expectations and perceived environmental impediments in the regulation of human motivation, thought, action and well-being (see: figure 3.4). It is important to distinguish between social cognitive theory and the self-efficacy component within the theory, which operates in tandem with the other determinants in the model. Social cognitive theory addresses both the development of competencies and the regulation of actions (Bandura, 1986). In its entirety, it specifies factors governing the acquisition of skills and capabilities that can profoundly affect physical and emotional well-being, as well as the self-regulation of habits, including health and rehabilitation habits (Bandura, 2000).

Figure 3.4 illustrates that self-efficacy beliefs have a central regulative place in the causal structure of social cognitive theory (Bandura, 1997). Such beliefs have the unique potential capability to influence all of the other components within the model's framework.

Figure 3.4. Self-efficacy in the causal structure of the social cognitive model (Bandura, 2000)



Outcome expectations can influence goals and behaviours, including health behaviours (Bandura, 2000). While perceived self-efficacy refers to a judgement of one's ability to organise and execute given types of performances, outcome expectation is a judgment of the likely consequences that such performances will produce. Outcomes anticipated as being positive are reasoned to elicit the behaviour, whereas negatively perceived outcomes are deemed to inhibit performance. According to social cognitive theory, outcome expectations are defined within three subcategories (i.e., physical, social and self-evaluative). Physical outcome expectations that accompany a behaviour include positive effects such as pleasant sensory experiences and physical sensations, or negative effects such as pain and other forms of physical discomfort. Positive and negative social influences constitute a second class of outcome expectations. Positive social influences include expressions of interest, approval, social recognition, monetary compensation and conferral of status or power, while negative forms include disinterest, disapproval, social rejection, censure, deprivation of privileges and imposed penalties. In keeping with social cognitive theory's rejection of strict behaviourism, which views human behaviour as being solely determined by external rewards and punishments, it introduces the idea of self-evaluative outcome expectancies. Individuals are reasoned to adopt personal standards, which impose sanctions on and regulate their own behaviour. Positive self-evaluative outcome expectancies include self-satisfaction, pride and a sense of self-worth, while negative influences include self-dissatisfaction, self-devaluation and self-censure. This third class of outcome expectancies, although not incorporated by most other social cognition models, is one of the more influential contributors towards behaviour (Bandura, 1997). Within the theories of reasoned actions and planned behaviour, for example, normative influences regulate actions through social sanctions, while in social cognitive theory, actions are reasoned to be influenced by both social and self-sanctions.

Perceived impediments or barriers to behaviour constitute another important factor in determining the formulation of goals and subsequent actions according to social cognitive theory. Two types of impediments are distinguished within the theory: a) personal or situational impediments, and b) social impediments. Personal or situational impediments form an important component when developing items to assess self-efficacy. That is, self-efficacy assessments should be measured in conjunction with perceived barriers to performing the behaviour (e.g., use one's prosthesis even if they are tired, or in bad weather). Social impediments to behaviour refer to external resources or agencies that may impact on the performance (e.g., how the health service is structured and funded).

In social cognitive theory, goals provide further incentives that guide behaviour (Bandura, 1986). Such goals may be either distal, in that they serve an end-point, or proximal, in that they regulate efforts and guide action at the present time. Proximal goals are comparable with behavioural intentions in the theory of planned behaviour, in so much as they may represent what a person proposes or intends to do (Bandura, 2000).

The effects of self-efficacy

Although a sense of personal efficacy entails perceived capabilities to produce effects, there are several factors over which one's personal influence can be exercised. In consideration of this, perceived self-efficacy is typically measured in relation to specific abilities and behaviours in tandem with perceived barriers. More specifically, in social cognitive theory, self-efficacy beliefs operate as one of several influences to regulate an individual's emotions, cognitive processes, motivation, behaviour and changing of environmental conditions.

In terms of cognitive processes affecting emotions, individuals with a low sense of self-efficacy tend to harbour beliefs that tasks are more difficult than they actually are, which in turn, can lead to anxiety, depression, feelings of helplessness and low self-esteem. Conversely, a high sense of self-efficacy can engender feelings of composure while performing activities (Bandura, 1997). In this way, cognitions and emotions serve as mediating variables of self-efficacy that exert a powerful influence over the levels of accomplishment that one actually achieves.

A strong sense of self-efficacy can also enhance one's motivation to act. Individuals with high self-efficacy often select more challenging tasks to perform, set higher goals to achieve, invest more effort, persist longer and recover more readily in the face of set-backs than those with low self-efficacy (e.g., Locke and Latham, 1990). As a result, self-efficacy beliefs can impact on the choices individuals make in relation to the activities that they pursue and engage in. People tend to select behaviours that they feel confident and competent in. Furthermore, they will tend to engage in behaviours that they feel capable of accomplishing. People with a strong sense of self-efficacy often regard barriers to objectives as challenges to be overcome, rather than insurmountable threats. They are also inclined to maintain a strong commitment to goals and objectives and sustain their efforts in the face of adversities.

Levels of motivation, affective states and actions are based more on what people believe than on what is objectively true (Bandura, 1997). As a result, self-efficacy beliefs about one's capabilities of performing a behaviour often predict behaviour better than one's actual capabilities. More concisely, perceptions of self-efficacy often determine what an individual actually does with the skills and knowledge that they possess.

Self-efficacy influencing health

Bandura (1992) defined two levels on which a sense of personal efficacy can influence health: a) by directly impacting on physiology, or b) through health-related behaviours. On a more fundamental level, individuals' beliefs in their ability to cope with environmental stressors will directly activate biological systems that impact on health and disease. Exposure to stressors without the perceived efficacy to control or cope with them has been found to activate autonomic, catecholamine and endogenous opioid systems, however, after increasing perceived coping efficacy the same stressors were managed without the same extent of physiological reactions (O'Leary and Brown, 1995). Also, exposure to stressors that people perceived limited control over has been found to impair the function of the immune system (Herbert and Cohen, 1993a). In addition, some studies have provided empirical support for the physiological strengthening effects of mastery over stressors by successful coping (e.g., Dienstbier, 1989). A low sense of efficacy to control variables that are highly valued has lead to depression (Bandura, 1991), and, in addition, low efficacy in one's ability to develop social support mechanisms has also resulted in depression (Holahan and Holahan, 1987). Moreover, depression can act as a mediating variable by which perceived self-efficacy can affect health functioning, and it has been shown to impact on the immune system by weakening its effect, thereby heightening susceptibility to disease (Herbert and Cohen, 1993b).

The other level on which self-efficacy beliefs can affect health is through perceived control over health behaviours. Peoples' beliefs in their ability to regulate their own motivation and behaviour will impact on their personal growth and ability to change. Specifically, high perceived self-efficacy can result in the increased likelihood of engaging in and sustaining the efforts required to adopt and maintain health-promoting behaviour. It will also influence vulnerability to relapses and coping with setbacks.

Enhancing self-efficacy

Self-efficacy beliefs are formed and enhanced by individuals interpreting information that is derived from four sources: mastery experiences, vicarious modelling, social persuasions, and somatic/emotional states (Bandura, 1977). Mastery is the most influential source of information and is derived from one's previous experiences of performing the behaviour. Individuals interpret the results of engaging in tasks and activities and then develop beliefs about their capabilities to perform these behaviours again. Self-efficacy beliefs are also instilled through vicarious modelling, where another person is seen to be rewarded or punished for performing a behaviour. Although less effective than mastery, when individuals are uncertain about their own abilities or have limited personal experience with performing a behaviour (e.g., using a prosthesis) they become more sensitive to this mode of developing beliefs of self-efficacy in relation to that behaviour. Vicarious experience is also particularly strong when observers see similar attributes between themselves and the model (e.g., age, gender, health condition). Observing the success of such models contributes to self-beliefs in one's own capabilities (i.e., "If they can do it, so can I!"). Conversely, observing models with similar attributes being unsuccessful in performing a behaviour can undermine self-efficacy beliefs.

Social persuasions constitute another source of developing a sense of self-efficacy. Individuals can acquire a sense of belief in their abilities to perform activities by verbal communications enhancing their confidence. Those who are persuaded that they possess the capabilities to complete tasks successfully are likely to mobilise and sustain greater effort to master them, thereby promoting the development of skills to do so. In order to build beliefs of self-efficacy through social persuasions, it is advantageous to create scenarios where the individual is likely to achieve success in attempting the behaviour (i.e., thereby enhancing mastery) rather than placing them in situations where they are liable to fail.

Individuals also rely partly on their somatic and emotional states in estimating and believing in their capabilities. Such informative mood states may comprise, for example, arousal, anxiety or stress. Positive mood states enhance perceived self-efficacy, while negative mood states diminish it. While contemplating an action, such states may influence peoples' confidence about succeeding or failing in that action. Negative affective reactions may be interpreted as vulnerability, which has the potential to directly affect performance of a behaviour, thereby decreasing self-efficacy further. Another way of modifying self-efficacy, therefore, is to reduce stress reactions by altering interpretations of physiological reactions. That is, divert attributions of negative physiological reactions from one's inabilities or skill deficiencies to another source. It is how individuals perceive somatic and mood states that is important, rather than their duration or intensity. To illustrate, individuals with high self-efficacy are likely to attribute arousal as a facilitator towards performance, while those with low self-efficacy, who harbour self-doubt, will likely see such physiological reactions as debilitating. Physiological indicators of self-efficacy become more prominent in the area of health functioning, rehabilitation and other physical activities, where physiological systems are more involved.

In summary, social cognition models (SCMs) are theoretical models incorporating how cognitive processes influence behaviours. The SCMs used to guide the current study were the theory of planned behaviour (TPB: Aizen, 1988, 1991), the self-regulation model (SRM: Leventhal *et al.,* 1980, 1984), the construct of recovery locus of control (Partridge and Johnston, 1989), derived from social learning theory (Rotter, 1966), and self-efficacy (Bandura, 1977, 1986), a construct within social cognitive theory (SCT: e.g., Bandura, 1991)

Justifying the choice of models

In summary, the current study makes use of the following two main social cognition models:

1. **Theory of planned behaviour** (TPB: Aizen, 1988, 1991).
2. **Self-regulation model** (SRM: Leventhal *et al.,* 1980, 1984).
    a. Also referred to as the 'common sense' or 'parallel processing' model

The study also incorporates single components from within a further two social cognition models:

3. Social learning theory (Rotter, 1966)
    a. In particular, **recovery locus of control** (Partridge and Johnston, 1989), derived from health locus of control (HLC: e.g., Wallston *et al.,* 1978) and the locus of control construct contained within social learning theory.
4. Social cognitive theory (SCT: e.g., Bandura, 1991)
    a. In particular, **self-efficacy** (Bandura, 1977, 1986), a construct within social cognitive theory.

These particular models, or elements contained within them, were selected primarily on the basis that they were theoretically relevant to the issues under investigation in this study. Having been developed to identify psychological variables that predict certain behaviours, the theory of planned behaviour (TPB: Aizen, 1988, 1991) was selected to investigate attitudes and beliefs that predicted the behavioral intention and actual behaviour of 'prosthetic use' in lower limb amputees. Studies have found that the TPB improved the predictability of health-related behavioral intention compared to the theory of reasoned action in various health-related fields such as condom use leisure, exercise, and diet. The TPB takes account of people's volitional behaviours, which cannot be explained by the theory of reasoned action. That is, an individual's behavioral intention cannot be the exclusive determinant of behavior where an individual's control over the behavior is incomplete. By adding perceived behavioral control, the TPB can explain the relationship between behavioral intention and actual behavior. Within this framework, prosthetic use, a health-related behaviour, can present a number of internal and external factors that might inhibit or facilitate the use of one's artificial limb. Therefore, the TPB was deemed to be an appropriate and relevent social cognition model to facilitate an investigation into attitudes and beliefs that determine this particular health-related behaviour. In addition, it is feasible to operationalise the TPB by utilising clear guidelines and instructions that are available in relation to developing valid and reliable measures of salient befliefs and attitudes relevant to the specific behaviour under investigation.

The TPB is not without some limitations, however, particularly in that it overlooks emotional variables such as threat, fear, mood and, indeed, positive emotions such as determination and confidence, when determining behavioural predictors. This may be a decisive drawback for predicting health-related behaviours particularly, given that most individuals' health behaviours may be influenced by their personal emotion and affect-laden nature (Dutta-Bergman, 2005). There is, however, scope for assessing the influence of emotional variables in the self-regulation model (SRM: Leventhal *et al.,* 1980, 1984), which posits that cognitive representations and emotional responses will directly impact on coping procedures and strategies, which will, in turn, be appraised as to their effectiveness. Within this framework, the use of one's prosthetic limb may reasonably be viewed as one such coping behaviour and, subsequently, it would be of clinical use to identify those cognitive representations and emotional responses that predicted this particular health-related behaviour.

Moreover, the SRM is also a feasible model to operationalise with the development of the Illness Perception Questionnaire - Revised (IPQ-R: Moss-Morris et al., 2002). Within both the TPB and the SRM there are "control" constructs (i.e., TPB: perceived behavioural control; SRM: personal/treatment control). Moreover, there are also control constructs derived from social learning theory (SLT: recovery locus of control) and social cognitive theory (SCT: self-efficacy). There is some debate as to whether these control variables are mutually exclusive constructs or if there is some degree of overlap between them. For example, Fishbein and Cappella (2006) recently stated that self-efficacy is actually the same as perceived behavioural control. By exploring the influence of the control constructs contained within these social cognition models, it may be possible to make some comment towards this debate and to perhaps identify those control variables that are more influential in predicting prosthetic use and other important outcomes for lower limb amputees.

Then next chapter will review the empirical evidence pertaining to the TPB and the SRM in rehabilitation with physical conditions.

Chapter 4: Social cognition models and rehabilitation in physical conditions: a review

(see: Appendix A on page 230 for details of literature searches)

There is a growing body of evidence to suggest that a full understanding of activity limitations and affective adjustment in chronic conditions requires consideration of the psychological processes mediating patient responses to their condition (Petrie and Weinman, 1997).

Johnston (1997) proposed using the theory of planned behaviour (TPB: Aizen, 1988, 1991) to predict activity limitations, and amputees face considerable activity limitations when attempting to rehabilitate with a prosthesis following lower limb amputation.

Moreover, within the self-regulation model (SRM: Leventhal *et al.*, 1980, 1984), the influence of cognitive representations on activity limitations might be mediated by coping efforts directed at the relevant mental representation. Within this framework, therefore, prosthetic use may be considered as a coping response that could mediate the relationships between cognitive representations and activity limitation and affective adjustment following lower limb amputation. This chapter will review literature relating to the two main social cognition models used in this study (i.e., TPB and SRM), as applied to understanding how psychological processes affect outcomes in other physical conditions, in an attempt to provide support for the use of these models as frameworks for investigating how psychological processes might affect outcomes in lower limb amputees. Literature pertaining to the other two social cognition models related to this study (SLT and SCT) will not be reviewed in this chapter because only one singular control component from within each of these models was incorporated, which did not form part of the research questions. This was done primarily in order to potentially identify differences in the predicting powers between these control constructs and those from the main social cognition models used. In any case, such reviews would result in considerably lengthening, in fact doubling, what is already a somewhat lengthy chapter.

The theory of planned behaviour and rehabilitation in physical conditions

A literature search of the theory of planned behaviour (TPB: Aizen, 1988, 1991) applied to rehabilitation in physical conditions revealed three distinct categories of studies.

1. The TPB in exploring physical activity with non-clinical populations.
2. The TPB in exploring physical exercise with clinical populations a) at follow-up and b) during inpatient rehabilitation.
3. Applying the TPB to the use of assistive devices.

The TPB in physical activity with non-clinical populations

Several studies have applied the TPB to predicting physical activity in non-clinical populations. These studies have predominately focussed on sampling older adults and have for the most part recruited sizable samples from this population. For example, Wankel *et al.* (1994) investigated the utility of various social psychological variables within the TPB and the theory reasoned action (TRA) for predicting intention to engage in physical activity within a national population. Data were collected on 3,679 participants (aged 19-60 yrs). The participants completed measures of physical activity, attitude toward exercise, perceived behavioural control, and perceptions of social support/subjective norm and physical activity intention. The TPB accounted for a substantially greater percentage of variance in activity intention than the TRA. Perceived behavioural control and attitudes were better predictors of intention to engage in physical activity than social support/subjective norm. However, social support contributed more to the prediction of intention to exercise among participants who were aged 60+ yrs.

Courneya (1995) used the TPB to examine whether beliefs concerning attitude evaluation, perceived social pressure, perceived control, and intention were related to stages of readiness for regular physical activity in older individuals. A postal survey was used to collect data from 288 older people. Frequency data indicated that over 50% of the sample had been engaging in regular physical activity for longer than 6-

months. Analysis of variance (ANOVA) results showed that all the selected variables shared significant variance with stages of readiness, and discrimination among the stages by the selected variables was successful. Path analysis indicated that attitude, perceived control and intention had direct relationships with stage of readiness. The authors concluded that these TPB variables were useful for understanding individual differences in stage of readiness for regular physical activity.

Also using an older non-clinical sample, Michels and Kugler (1998) surveyed a sample from a former military population (aged 65-70 yrs) to determine factors affecting exercise participation that are important in early retirement. The participants completed TPB predictor measures and measurements of physical activity. The percentage of respondents who exercised regularly (61.2%) was not significantly different from that in national normative samples. Results of a TPB regression model indicated that attitude, social norm, and perceived behavioural control were strongly associated with intention to exercise and to exercise itself in this sample. The addition of habit significantly added to this model. The authors concluded that the TPB was a valid model for predicting both the intention to exercise and actual exercise in older adults.

Conn *et al.* (2003) examined the relationships between TPB constructs, including exercise intention, and exercise behaviour in older women. The TPB constructs of behavioural beliefs, normative beliefs, and perceived control beliefs were examined in a sample of 225 women (aged 65+ yrs). Exercise was measured by interview with the Baecke Physical Activity Scale (Baecke *et al.*, 1982). Significant TPB predictors of exercise intention were behavioural beliefs, normative beliefs, and perceived control beliefs. Significant TPB predictors of exercise behaviour were behavioural beliefs, and perceived control beliefs. Specific belief items predicting exercise behaviour were a) that exercise is good for health, and b) that exercise is difficult because of tiredness, lack of commitment, and time. The authors suggested that these findings provided partial support for the application of the TPB to exercise in older women, and that interventions should focus on increasing confidence in women that they can overcome barriers to exercise.

Although the above studies provided empirical support for the TPB using large non-clinical samples of older adults, no discerning pattern emerged as to which TPB variables were consistently prominent in determining intention, exercise, or physical activity. This observation may reasonably be due to differences in the samples used (e.g., national population, veterans, women).

The TPB in exercise with clinical populations at follow-up

Some studies have applied the TPB to predicting exercise in clinical populations at some follow-up time. For example, Courneya *et al.* (2002) used a randomised controlled trial (RCT) to examine adherence to exercise in cancer survivors using TPB variables and the Five Factor Model of personality (FFM: e.g., Digman and Inouye, 1986). Cancer survivors were randomly assigned during group psychotherapy classes to either a waiting-list control group (n = 45), or a home-based moderate intensity exercise program (n = 51). At baseline, participants completed measures of the TPB, the FFM, past exercise, physical fitness, medical variables, and socio-demographics. They were then monitored for exercise over a 10-week follow-up period by weekly self-reports. Hierarchical multiple regression analyses indicated that the independent predictors of overall exercise across both conditions were past exercise, assignment to experimental condition, gender, and intention. For exercise adherence in the exercise condition, the independent predictors were gender, extraversion, normative beliefs, and perceived behavioural control. The authors concluded that the correlates of exercise adherence differed in kind, as well as in degree, across the two conditions.

Blanchard *et al.* (2002a) evaluated the TPB as a framework for understanding exercise intention and behaviour in survivors of breast and prostate cancer. Participants comprised of 83 survivors of breast cancer and 46 survivors of prostate cancer, who had been diagnosed within the previous 4-years and had completed treatment. Participants completed a mailed self-administered questionnaire that assessed exercise during the previous week, socio-demographic, medical and the TPB variables. For survivors of breast cancer, regression analyses indicated that attitude, subjective norm, and perceived behavioural control explained 45% of the variance in exercise intention, with attitude, subjective norm, and perceived behavioural control each uniquely contributing to intention. Furthermore, exercise intention explained 30% of the variance in exercise behaviour, however, perceived behavioural control added no unique significance to the model. For survivors of prostate cancer, attitude, subjective norm, and perceived behavioural control explained 36% of the variance in exercise intention, but only perceived behavioural control made a significant unique contribution to intention. Furthermore, intention explained 36% of the variance in exercise behaviour, however, perceived behavioural control again added no unique significance to the model. According to the authors, the results suggested that nurses could use the TPB as a model for understanding the determinants of exercise intention and behaviour in survivors of breast and prostate cancer.

Carroll and White (2003) reported a pilot study that investigated factors predicting chronic back pain sufferers' intentions to adhere to practitioner-recommended exercise. The study evaluated the usefulness of both the TRA and the TPB as frameworks to predict intention and behaviour. Participants comprised of 20 patients who had been prescribed exercise regimes. Overall adherence levels were found to be "low". The results suggested that the TRA was a more useful model for studying intention and adherence in pain patients who were prescribed exercise by physiotherapists. The authors concluded that interventions should focus on increasing positive attitudes.

Finally, more recently, Johnston *et al.* (2004) used perceived behavioural control (PBC) and intention, proximal predictors within the TPB, to predict cardiovascular risk behaviours in 597 patients 1-year after diagnosis with coronary heart disease. The outcomes assessed were self-reported exercise, objective measures of fitness (distance walked in 6-min), and cotinine-confirmed smoking cessation. Using multivariate analyses, PBC was found to be effective in predicting exercise, distance walked, and smoking cessation. Intention was not found to be a reliable independent predictor of any of the health behaviours measured. The authors concluded that in coronary patients, behavioural change needs to address issues of action implementation rather than motivational factors alone.

In conclusion, no clear pattern was discernable as to which TPB variables were the most influential in determining exercise outcomes in clinical populations at follow-up. However, this may have been due to several confounding factors between the studies in this area. For example, there were differences in the types of clinical populations under investigation, such as survivors of breast and prostate cancer (Blanchard *et al.*, 2002a), chronic back pain sufferers (Carroll and White, 2003) and patients with coronary heart disease (Johnston *et al.*, 2004). Moreover, patients were sometimes assigned to different conditions within studies (Courneya *et al.*, 2002) or suffered from different variants of their condition (Blanchard *et al.*, 2002a). Also, there were differences in the follow-up times ranging from 10-weeks (Courneya *et al.*, 2002) to 4-years (Blanchard *et al.*, 2002a), as well as considerable differences in sample sizes, ranging from 20 patients (Carroll and White, 2003) to 597 patients (Johnston *et al.*, 2004). Finally, differences in the actual measures of exercise outcome may also have led to the unclear picture regarding TPB variables that predicted this outcome in clinical populations at follow-up.

The TPB in exercise with clinical populations during inpatient rehabilitation

Some studies have applied the TPB to predicting exercise in clinical populations during inpatient rehabilitation. Courneya and colleagues have conducted a number of TPB studies with cancer patients to explore exercise during inpatient rehabilitation. For example, Courneya and Friedenreich (1997) examined determinants of exercise during colorectal cancer treatment using the TPB. Using a retrospective survey, the participants consisted of 110 randomly selected survivors of colorectal cancer (aged 26-77 yrs, mean age = 61, 63% male) diagnosed between 1992 and 1995 who had undergone adjuvant therapy. Exercise was assessed using the Godin Leisure Time Exercise Questionnaire (Godin and Shepherd, 1985). Results showed that exercise during cancer treatment was determined by intention and perceived behavioural control. Intention was determined solely by attitude. Salient beliefs about exercise were different for patients with cancer as compared to a healthy population. The authors concluded that the TPB may be a viable framework on which to base interventions to promote exercise in patients with colorectal cancer during rehabilitation. They further suggested that oncology nurses needed to have an understanding of motivational factors relating to exercise during cancer treatment in order to assist patients with cancer to initiate and maintain exercise regimes. The reliability of participants' memories in this early TPB study, however, may have influenced the results to some extent, in that the TPB components were assessed retrospectively.

More recently, Courneya *et al.* (1999) again evaluated the TPB as a framework for understanding exercise motivation in cancer patients. Participants were 66 post-surgical colorectal cancer patients. They completed a baseline questionnaire that assessed exercise pre-diagnosis, socio-demographic and medical variables, and TPB constructs. Post-surgical exercise was self-monitored during rehabilitation over a 4-month period and reported by telephone on a monthly basis. Hierarchical regression analyses demonstrated that a) intention and exercise pre-diagnosis were significant determinants of post-surgical exercise, and b) attitude was the sole significant determinant of intention. The authors again concluded that the TPB may be a viable framework on which to base interventions designed to promote exercise in colorectal cancer patients.

Courneya *et al.* (2000) used a prospective design to evaluate the TPB as a framework for understanding exercise motivation and behaviour in bone marrow transplantation (BMT). Participants comprised of 37 BMT patients (aged 24-70 yrs). On admittance to the hospital, they completed a baseline questionnaire that assessed TPB constructs and then monitored the frequency and duration of self-initiated cycle ergometer exercise during their hospitalisation. Hierarchical regression analyses showed that intention and perceived behavioural control explained 36% of the variance in exercise behaviour when the analyses were restricted to non-thrombocytopenic patients (n = 28). Moreover, attitude and perceived behavioural control explained 68% of the variance in exercise intention. The authors concluded that the TPB provided an excellent understanding of exercise intention in this population during rehabilitation, and that its ability to predict exercise behaviour could be improved by taking into account significant medical complications.

Trafimow and Trafimow (1998) examined the correlates of intention to adhere to performance of exercises prescribed by physicians during treatment in back pain sufferers. On the bases of the TRA and TPB, attitude, subjective norm, and two types of perceived behavioural control were measured in a sample of American patients. Attitude and subjective norm failed to predict intention to exercise in accordance with the physician's orders, but each of the perceived behavioural control measures did moderately well as independent predictors, and quite well when combined in a multiple regression analysis.

Blanchard and colleagues have applied the TPB to cardiac rehabilitation. For example, Blanchard *et al.* (2002b) evaluated the TPB as a framework for understanding exercise motivation during and after phase II cardiac rehabilitation (CR). Eighty-one patients (57 male, 24 female) completed a TPB questionnaire that included measures of attitude, subjective norm, perceived behavioural control, and exercise intention pre- and post-phase II CR. During phase II CR, regression analyses indicated that attitude, subjective norm, and perceived behavioural control explained 38% of the variance in exercise intention, while intention explained 23% of the variance in exercise adherence. This study also examined outcomes at post-rehabilitation follow-up. Attitude, subjective norm, and perceived behavioural control explained 51% of the variance in exercise intention at follow-up, while intention explained 23% of the variance in exercise adherence. The authors concluded that the TPB was a useful framework for understanding exercise intention and behaviour both during and after phase II CR.

More recently, Blanchard *et al.* (2003) conducted another study to evaluate the TPB as a framework for understanding exercise adherence during phase II cardiac rehabilitation (CR). This time, a total of 215 patients completed a baseline questionnaire that included the TPB constructs, and an assessment of past exercise. Exercise adherence was measured via program attendance during phase II CR.

Hierarchical regression analyses indicated that attitude evaluation, subjective norm, and perceived behavioural control explained 30% of the variance in exercise intention, with attitude, subjective norm, and perceived behavioural control each making significant unique contributions to intention. Furthermore, exercise intention explained 12% of the variance in exercise adherence. Finally, the behavioural, normative, and control beliefs that predicted attitude, subjective norm, perceived behavioural control, and exercise intention during phase II CR provided novel information. The authors again concluded that the TPB was a useful framework for understanding exercise intention and adherence during phase II CR.

In summary, the TPB variables found to be influential in determining intention and actual exercise during rehabilitation have been diverse. This appears to be, at least in part, a factor of the patient populations under investigation. For example, attitude in cancer patients, perceived behavioural control in back pain sufferers, and all TPB variables in cardiac rehabilitation, emerged as prominent predictors of exercise intention. Nevertheless, despite diversities in the studies reviewed above in terms of patient groups, sample sizes, study designs, outcome measures used, etc., there was considerable evidence to suggest that TPB variables played an influential role in explaining some of the variance in exercise intention and outcome with clinical populations at follow-up and during inpatient rehabilitation.

The TPB in the use of assistive devices

Some studies have applied the TPB to the use of assistive devices. For example, Aminzadeh and Edwards (2000) used the TPB to examine factors associated with cane use among community dwelling older adults. They used a cross-sectional survey and a convenience sample of 106 community dwelling older adults (aged 65+ yrs) residing in Canada. Using stepwise discriminant analysis, subjective norm, attitude, and age surfaced as the key variables associated with cane use in this sample. A discriminant function accounted for 67% of the variance in cane use and correctly classified 91% of cases. The authors concluded that these findings a) provided evidence for the utility of the TPB to understanding cane use in older persons, and b) have important implications for designing theory-based fall-prevention interventions to enhance the acceptance and effective use of mobility aids.

Wiesner and Tesch-Romer (1996) used the TPB to investigate cognitive determinants of hearing aid use in elderly adults. Participants comprised of 54 men and women with presbyacusis (aged 54-87 yrs). The analyses revealed that actual hearing aid use was influenced mainly by intention to use a hearing aid and by normative beliefs. Intention to use a hearing aid was influenced mainly by attitude towards using hearing aids. The authors concluded that changing attitude towards hearing aid use and asking important members of the social network to participate actively in the aural rehabilitation process could possibly improve aural rehabilitation.

In conclusion, attitude and normative factors within the TPB seem to be associated with intention to use, and subsequent use of, assistive devices in older patients. It may be that the same cognitive variables will be influential in predicting prosthetic use in elderly amputees.

In summary, rehabilitation for lower limb amputees involves physical exercise and the use of an assistive device (prosthesis). This established, there is evidence from other physical conditions that the TPB is a viable framework for investigating predictors of these outcomes in amputees.

The self-regulation model and rehabilitation in physical conditions

The self-regulation model (SRM: Leventhal *et al.*, 1980, 1984) has been applied to a broad range of physical conditions, such as multiple sclerosis (Jopson and Moss-Morris, 2003), Addison's disease (Heijmans, 1999), rheumatoid arthritis (Schiaffino and Cea, 1996), psoriasis (Fortune *et al.*, 2002) to name a few. The following review contains the application of this model to 15 unique health conditions. One of the main distinctions between these studies, however, was the different criterion variables that were studied as outcomes. These were able to be categorised and reviewed under the following headings:

1. The SRM in coping procedures as outcomes
2. The SRM in activity limitations and psychological distress outcomes
3. The SRM in quality of life outcomes
4. The SRM in various/numerous/multiple outcomes

A further class of studies compared cognitive representations between different patient groups.

The SRM in coping procedures as outcomes

The SRM denotes that cognitive representations and emotional responses in relation to a health condition will initiate coping behaviours and procedures. Petrie *et al.* (1996) examined whether patients' initial perceptions of their myocardial infarction (MI) predicted a subsequent range of coping procedures, including attendance at a cardiac rehabilitation course, return to work, activity limitations (measured by the Sickness Impact Profile questionnaire, SIP: Bergner *et al.*, 1981), and sexual dysfunction. In a longitudinal design, patients' perceptions of their illness were measured at admission with their first MI, and at follow-up three and six months later. Participants comprised of 143 patients (aged < 65 yrs). Attendance at the rehabilitation course was significantly related to a stronger belief during admission that the illness could be cured or controlled. Return to work within six weeks was significantly predicted by the perception that the illness would last a short time and have less grave consequences for the patient. Patients' beliefs that their heart disease would have serious consequences was significantly related to later activity limitations in work around the house, recreational activities, and social interactions. A strong illness identity was significantly related to greater sexual dysfunction at both three and six months. The authors concluded that patients' initial perceptions of illness were important determinants of different aspects of recovery after myocardial infarction, and that specific cognitive representations need to be identified at an early stage as a basis for optimising outcomes from rehabilitation programmes.

More recently, Whitmarsh *et al.* (2003) identified psychological variables in poor/non-attendance at cardiac rehabilitation (CR). The study investigated whether attendees and poor/non-attendees differed in relation to components of the self-regulation model and coping, and which of these variables were the best predictors of attendance behaviour. A cross-sectional between groups design was used, in which 61 individuals who had been invited to attend CR completed the Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996), the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983), and the Coping Orientation to Problems Experienced (COPE: Carver *et al.*, 1989). Participants completed self-report measures shortly before the start date of the CR programme, and univariate and logistic regression analyses were used to analyse the data. Attendees differed from poor/non-attendees in that they perceived a greater number of symptoms and consequences of their illness, greater distress, and fewer beliefs that their illness had been caused by a germ or virus, and used problem-focused and emotion-focused coping more frequently. The best predictors of poor/non-attendance were fewer perceptions of symptoms and lower controllability/curability of illness scores, as well as less frequent use of problem-focused and more frequent use of maladaptive coping strategies. The authors concluded that attendees and poor/non-attendees at CR were distinguished by illness representations, distress and usage of coping strategies. They further suggested that the variables found to be the best predictors of attendance could be used a) to screen those unlikely to attend, and b) to develop interventions for enhancing attendance.

In another study involving heart patients, Gump *et al.* (2001) investigated if cognitive representations differed as a function of age and how these representations, in conjunction with age, predict post-operative health behaviours following coronary artery bypass graft surgery. Participants consisted of 309 patients (aged 35-86 yrs, 70% male) scheduled for surgery. At baseline, they provided information on socio-demographics and illness representation (i.e., perceptions of cause and future course of illness and perceived control over illness). Six months post-surgery, participants answered questions on self-reported health behaviours. Older participants were significantly more likely than younger participants to report beliefs that old age was the cause of their coronary heart disease (CHD) and significantly less likely to report beliefs that genetics, health-damaging behaviours, health-protective behaviours, and emotions were the cause of their CHD. In addition, older participants were significantly more likely than younger participants to believe that they had no control over the disease, that the disease would be gone after surgery, and they reported fewer post-operative health behaviour changes. The authors concluded that these findings demonstrated significant differences in cognitive representations as a function of age in CHD patients.

Other physical conditions have also been explored in terms of how cognitive representations within the self-regulation model have determined coping procedures. Heijmans (1999) examined the relationships between illness representations, coping behaviours and adaptive outcomes in patients with Addison's disease (AD). In accordance with Leventhal's self-regulation model, it was hypothesised that cognitive representations would be directly associated with coping and, via coping, with adaptive outcomes. Cognitive representations were assessed in 63 patients (mean age = 41.9 yrs) with a diagnosis of AD. The patients were found to differ highly in the subjective experience of their disease. Patients who viewed their illness as a serious condition with both frequent and serious symptoms and consequences, patients who believed their illness was chronic, and patients who considered their illness uncontrollable were found to engage more in passive coping strategies and to report higher levels of activity limitations with regard to physical functioning, social functioning, mental health and general vitality than those who believed the opposite. In addition, cognitive representations were found to be better predictors of adaptive outcomes than were coping scores.

Watkins *et al.* (2000) used the self-regulation model to examine the relationships between cognitive representations of diabetes, diabetes-specific health behaviours, and quality of life. A postal design survey was completed by 296 adults (ages 20-90 yrs). Using structural equation modelling, the findings indicated that levels of understanding diabetes and perceptions of control over diabetes were the most significant predictors of outcomes. However, diabetes-specific health behaviours were related to an increased sense of burden that was negatively associated with quality of life. Multi-group analyses indicated that the self-regulation model provided a good fit for individuals with type I diabetes, those with type II diabetes who took insulin, and those with type II diabetes who did not take insulin. The authors concluded that these findings advanced what is known about cognitive representations of illness and the self-regulation of diabetes, as well as the relationships between cognitive representations of illness, behavioural factors, and quality of life.

Finally, Donovan (2004) explored the role of cognitive representations and emotional responses in cancer symptom management. Guided by an extended version of Leventhal's self-regulation model, a postal survey design was used to evaluate the relationships between illness-related, and symptom-related, representations, symptom-related coping efforts, and appraisal of coping success. Participants consisted of 713 women with ovarian cancer. Hierarchical regression revealed that illness and symptom representations accounted respectively for 16% and 26% of the variance in coping efforts, 15% and 22% of the variance in satisfaction with symptom management and 8% and 15% of the variance in life satisfaction. The author concluded that illness and symptom representations had an important influence on coping efforts and appraisal of coping success in women with a history of ovarian cancer. It was further suggested that the extended self-regulation model could provide important information on responses to cancer and symptoms, and that this information could provide clinicians and researchers with critical information to guide interventions to assist women cope with cancer symptoms.

In conclusion, evidence from the rehabilitation literatures seemed to support the prediction of coping mechanisms from various cognitive representations within the self-regulation model. However, certain drawbacks and dissimilarities between these studies were noted that may have compromised the standard of this evidence. For example, sample sizes, which have implications for the power of inference back to the target population, ranged from 61 (Whitmarsh *et al.*, 2003) to 713 (Donovan, 2004). Moreover, most studies (with the exception of Petrie *et al.*, 1996 and Gump *et* *al.*, 2001) did not control for the effects of age on coping behaviours. On this note, coping behaviours themselves varied considerably, ranging from attendance at a follow-up clinic (Petrie *et al.*, 1996 and Whitmarsh *et al.*, 2003) to "diabetes-specific health behaviours" (Watkins *et al.*, 2000), which may have little in common with each other, nor with the coping behaviour of prosthetic use. Additionally, with the exception of Watkins *et al.* (2000) who studied diabetes patients, the studies reviewed here mainly focussed on coronary related patients (e.g., Petrie *et al.*, 1996; Whitmarsh *et al.*, 2003; and Gump *et al.*, 2001), who may not have that much in common with amputee patients. Finally, differences in study designs employed will have had implications for power differences in the studies reviewed above (e.g., longitudinal: Petrie *et al.*, 1996; cross-sectional: Whitmarsh *et al.*, 2003; and postal-survey: Donovan, 2004). Despite these diversities, there was still arguably sufficient merit and justification for applying the SRM to the exploration of prosthetic use as a coping mechanism, and other rehabilitation and health outcomes, in a sample of lower limb amputees.

The SRM in activity limitations and psychological distress outcomes

Many studies that have employed the SRM to investigate determinants of outcomes with physical populations have incorporated activity limitations and psychological distress as outcomes within the same study design. For this reason, a review of studies with both of these outcomes will be combined under the same heading. For example, Orbell *et al.* (1998) tested the role of cognitive representations in determining patient responses to a surgical intervention for osteoarthritis. Cognitive representations were assessed amongst a consecutive sample of patients with osteoarthritis of the knee or hip, prior to undergoing joint replacement surgery. Depression and activity limitations were assessed pre-operatively, and at 3- and 9-months post-surgery. At pre-operative assessment, depression and activity limitations were univariately associated with the perceived consequences of osteoarthritis. Path analyses using longitudinal data demonstrated that cognitive representations had predictive value in explaining both depression and activity limitations. Depression at 3-months was associated with higher pre-operative perceived control beliefs, suggesting that patients who have high control pre-operatively may have been at risk for temporary depressed mood in the immediate aftermath of surgery, however, this effect was not maintained at 9-months. Depression at 9-months was lower amongst patients who were more active at 3-months, who did not attribute their condition to wear and tear, and who had higher expectations of surgery. Activity limitations at 9-months were higher amongst those who did not attribute their condition to growing older, and who perceived more control over symptoms. Socio-demographic variables were not associated with changes in depression or activity limitations over the course of surgery. The authors concluded that these results provided support for a cognitive representations approach in explaining depression and activity limitations outcomes following surgery.

Moss-Morris *et al.* (1996) investigated the relationships between cognitive representations, coping, activity limitations, and "psychological adjustment" in the context of chronic fatigue syndrome (CFS). Self-reported cognitive representations, coping, activity limitation levels and "psychological well-being" were assessed in a sample of 233 (aged 18-81 yrs) CFS sufferers. Regression analyses indicated that cognitive representations explained a greater percentage of the variance in levels of activity limitations and psychological well-being than did the coping strategies used by the participants to manage their illness. The cognitive representations components of illness identity, emotional causes, controllability, and consequences had the strongest overall association with adjustment, in that participants with a strong illness identity, who believed their illness was not within their control, caused by stress, and had serious consequences were most disabled and psychologically impaired. Disengagement coping strategies and venting emotions were also associated with greater activity limitations and poorer psychological well-being, while positive reinterpretation and seeking social support were positively related to psychological well-being.

More recently, cognitive representations were again applied to CFS sufferers in a study by Edwards *et al.* (2001), which evaluated the role of cognitive representations in a clinic sample of CFS patients assessed by both a physician and a psychiatrist. Participants consisted of 126 patients (mean age = 43.3 yrs), who were randomly selected from a clinic database. They completed the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983) and the Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996), while activity limitations were operationalised by using the Fatigue Scale (Chalder *et al.*, 1993). The cognitive representation components studied were consequences, illness identity, causes, the ability to control/cure the illness and expected timeline of the illness. Regression models revealed that these components accounted for 15% of the variance in levels of fatigue, 28% in depression, and 30% in anxiety. Two of the cognitive representations components (consequences and illness identity) were stronger predictors of fatigue score than mood scores. The authors concluded that these findings confirmed that cognitive representations are associated with variation in both activity limitations (fatigue) and psychological adjustment in CFS.

In a study looking at diabetic patients, Eiser *et al.* (2002) assessed "psychological well-being" and individuals' cognitive representations of their condition in 96 patients with type I diabetes and 139 patients with type II diabetes. Type II patients were older and experienced more complications than type I patients, and women reported lower psychological well-being than men. Type I and type II patients did not differ in terms of well-being, but the cognitive predictors of well-being were different for the two groups. In both groups, well-being was related to control beliefs (confidence in self-management and ability to delay complications) and to less perceptions of the extent to which diabetes interfered with everyday activities. However, for type I patients only, well-being was also related to a tendency to perceive their diabetes as having minimal impact on their lives. The authors argued that well-being was a function both of cognitive representations and the actual experience of complications, which were more prevalent among those with type II than type I diabetes.

Fortune *et al.* (2002) examined the contribution of medical variables, cognitive representations, coping, and alexithymia (deficit in emotional cognition) to the variance in stress, distress and activity limitations in 225 patients (aged 18-70 yrs) with psoriasis. Participants completed the Hospital Anxiety and Depression Scale

(HADS: Zigmond and Snaith, 1983), the Penn State Worry Questionnaire (PSWQ: Meyer *et al.*, 1990), the Coping Orientation to Problems Experienced (COPE: Carver *et al.*, 1989), the Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996), the Toronto Alexithymia Scale (Taylor *et al.*, 1985), the Psoriasis Activity limitations Index (Finlay and Kelly, 1987), the Psoriasis Life Stress Inventory (Gupta and Gupta, 1995), and the Psoriasis Area and Severity Index (Fredriksson and Pettersson, 1978). Demographics, clinical history and extent of disease were the least successful variables for explaining variance in stress, distress or activity limitation outcomes. Cognitive representations were the most prominent variables in accounting for the variance in these outcomes. The effects of coping were negligible in both activity limitations and everyday stress, but moderately important in accounting for additional variance in depression and anxiety outcomes, and in explaining the variance in pathological worrying. Alexithymia accounted for significant additional variance in anxiety, and to a lesser extent in depression, worrying, and psoriasis-related life stress. The authors concluded by citing the importance of cognitive factors in stress, distress and activity limitations with psoriasis patients.

Jopson and Moss-Morris (2003) investigated whether multiple sclerosis (MS) patients' cognitive representations impacted on their adjustment to this illness, even when controlling for the severity of their condition. One hundred and sixty-eight MS patients completed a questionnaire booklet comprised of the Illness Perception Questionnaire - Revised (IPQ-R: Moss-Morris *et al.*, 2002) and a range of adjustment variables, including the Sickness Impact Profile (SIP: Bergner *et al.*, 1981), the Fatigue Scale (Chalder *et al.*, 1993), the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983), and the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The severity of patients' MS was measured by the type of MS, length of illness, remission status, and ambulatory ability. Hierarchical multiple regression analyses demonstrated that illness severity accounted for the majority of the variance in physical and role dysfunction, while patients' cognitive representations were the most significant predictors of levels of social dysfunction, fatigue, anxiety, depression, and self-esteem. The authors concluded that patients' cognitive representations played a significant role in adjustment to MS.

Finally, Vaughan *et al.* (2003) also explored the cognitive representations of individuals with multiple sclerosis (MS), and investigated the relationships of these beliefs to only psychological outcome (not activity limitations). A total of 99 participants were assessed on the Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996) using a cross-sectional correlation design. Participants' cognitive representations of MS were consistent with the medical nature and understanding of this illness. Some inter-relationships among the cognitive representation components were demonstrated. For example, strong illness identity, a chronic time-line view, and perceptions of low control were related to perceptions of more serious consequences. Higher levels of depression were associated with perceptions of stronger illness identity, more serious consequences, acute time-line, and low control. The authors concluded that the concept of cognitive representations provided a useful framework for understanding the psychosocial effects of this illness.

In conclusion, a variety of cognitive representations within the SRM emerged as significant predictors of activity limitations and psychological distress outcomes in physical patient populations. However, it was difficult to discern variables within the SRM that were more inclined to influence activity limitations than distress, and vice versa. The fact that no clear pattern of stronger cognitive representation predictors emerged for predicting these outcomes may be due to several factors. Firstly, there were considerable differences in the health conditions studied and, as a result, it is reasonable to assume that there may have been very different cognitive considerations for the patients in view of this observation. For example, patients suffering from psoriasis (Fortune *et al.*, 2002) and CFS (Moss-Morris *et al.*, 1997; Edwards *et al.*, 2001) may have believed that there condition was ultimately curable, whereas those suffering with OA (Orbell *et al.*, 1998) and diabetes (Eiser *et al.*, 2002) may not have held such beliefs. In support of this confounding variable, Eiser *et al.* (2002) found differences in the SRM variables that predicted outcomes in subgroup samples of the same physical condition (i.e., type I diabetes and type II diabetes). Again, methodological differences may also have confused the issue of prominent SRM predictor variables due to issues such as: differences in sample sizes ranging from 96 (Eiser *et al.*, 2002) to 225 (Fortune *et al.*, 2002), disparities in study designs (e.g., cross-sectional: Vaughan *et al.*, 2003); longitudinal: Orbell *et al.*, 1998) and studies not controlling for age effects (e.g., age range = 18-81: Moss-Morris *et al.*, 1997; age range = 18-70: Fortune *et al.*, 2002). Moreover, some of the studies reviewed used the Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996) to assess cognitive representations, rather than the more recent Illness Perception Questionnaire - Revised (IPQ-R: Moss-Morris *et al.*, 2002), which will have excluded the assessment of cognitive representations such as illness coherence and timeline-cyclical. An interesting patter that did emerge was the observation that cognitive representation themselves seemed to be more influential in determining outcomes than actual coping behaviour (e.g., Orbell *et al.*, 1998; Moss-Morris *et al.*, 1997). Furthermore, within the same study, Fortune *et al.* (2002) found that coping predicted psychological distress, but did not predict activity limitations. At first glance, these observations seemed somewhat contrary to the dynamic structure of the self-regulation model, however, there is scope within the model for each element contained therein to influence all the other elements. Finally, the unclear picture of specifically influential cognitive representations on activity limitations may also have been influenced by ambiguities in operationalising this outcome variable. For example, some studies even used 'fatigue' as a proxy measure of activity limitations (Edwards *et al.*, 2001; Jopson and Moss-Morris, 2003).

The SRM in quality of life outcome

Some studies have explored health-related quality of life (HRQoL) or self-rated quality of life (QoL), as a factor of cognitive representations and coping in physical conditions. For example, Hendriks *et al.* (2000) investigated the effects of cognitive representations and coping on the HRQoL of 203 patients with reflex sympathetic dystrophy (RSD: pain, stiffness, swelling, and discoloration of the hands). Participants completed the Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996), an assessment of coping and appraisal, and the RAND-36 (Hays *et al.*, 1993) to measure HRQoL. Regression analyses showed that 36% of the variance in HRQoL was explained by cognitive representations and coping. Emotion-focused coping, attribution of complaints and problem-focused coping emerged as significant predictors of HRQoL, however, cognitive representations were stronger predictors of HRQoL than coping. In an examination of the RAND-subscales separately, it appeared that pain (36%) and mental health (36%) were explained by the predictor variables.

Similarly, Rutter and Rutter (2002) tested whether quality of life and other outcomes in irritable bowel syndrome (IBS) were influenced by patients' representation of their illness and by their coping strategies. Participants were 209 patients (aged 19-88 yrs) who completed the Illness Perception Questionnaire (IPQ: Weinman *et al.,* 1996), the Coping Orientation to Problems Experienced (COPE: Carver *et al.,* 1989), the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983), and rated their quality of life (QoL) and their satisfaction with their health. The reporting of serious consequences was associated with lower QoL and lower satisfaction with health, and with higher scores for anxiety and depression. Weaker control beliefs were related to lower QoL, lower satisfaction with health, and higher depression scores. Lower illness identity scores were associated with more satisfaction with health, but not with QoL. Psychological causal attributions of IBS were positively correlated with anxiety and depression. Path analyses based on multiple linear regressions demonstrated that a) the reporting of serious consequences was a strong independent predictor of outcomes, b) coping mediated the link between illness representation and outcomes, and c) when predicting depression, coping strategies were predictive independently of representation dimensions.

More recently, Johnson and Folkman (2004) used Leventhal's self-regulation model to investigate how cognitive and emotional representations of physical problems related to HRQoL and adherence to care outcomes in the context of HIV treatment. A sample of 109 HIV+ adults on highly active antiretroviral treatment (HAART) was interviewed using self-administered and interviewer-administered measures of side effects and disease-symptom representations, HRQoL, and adherence to HAART. The results suggested that a) side effects of the disease were as important as symptoms of illness in their relationships with HRQoL, b) studying individual physical complaints in depth explained the association of symptoms with HRQoL better than aggregating symptoms and side effects, and c) the self-regulation model offered a useful framework from which to evaluate and intervene upon side effects and symptoms-related experiences. The authors concluded that these findings offered guidance for research and clinical practice relating HIV+ adults.

Finally, Stamogiannou *et al.* (2004) applied a cognitive representations framework to examine patients' beliefs about erectile dysfunction (ED) and the association between those beliefs and reported quality of life (QoL). Participants comprised of 41 patients attending two secondary care clinics, who completed questionnaires examining illness representations, QoL, sexual functioning, and perceptions of masculinity. Masculinity, sexual function, positive emotions, and beliefs about consequences were significantly positively correlated with QoL. Multiple regression analysis revealed a model that accounted for almost 35% of the variance in QoL. The strongest predictor of higher QoL was better sexual functioning, followed by more positive beliefs about the effects of ED on masculinity. The authors suggested that when assessing the QoL of men with ED, patients' cognitive representations should be considered along with their levels of sexual functioning and the effects of ED on masculinity.

In conclusion, there appeared to be some support in the literature that cognitive representations within the SRM predicted quality of life in physical patient groups. Perhaps this conclusion should be treated with some caution, however, primarily due to conflicting views about what constitutes quality of life. That is, two of the studies reviewed assessed health-related QoL as an outcome (i.e., Hendriks *et al.*, 2000; Johnson and Folkman, 2004), while the remaining two studies used a simple self-rating of QoL (Rutter and Rutter, 2002; Stamogiannou *et al.*, 2004). Moreover, familiar methodological concerns emerged in these studies, including a low sample size of 41 (Stamogiannou *et al.*, 2004), and not controlling for age effects (e.g., age range = 19-88: Rutter and Rutter, 2002). Finally, all of the studies reviewed in this section used different patient populations, including reflex sympathetic dystrophy (Hendriks *et al.*, 2000), irritable bowel syndrome (Rutter and Rutter, 2002), HIV+ (Johnson and Folkman, 2004) and erectile dysfunction (Stamogiannou *et al.*, 2004), which may have accounted for some of the differences observed in reported cognitive representations about (as well as the prediction of) their respective health conditions.

The SRM in various/numerous/multiple outcomes

Several self-regulation studies with physical populations have used a battery of outcome measures. Notably, a number of these studies have been carried out by Scharloo and colleagues using different patient groups. For example, Scharloo *et al.* (1999) sought to determine whether coping strategies and cognitive representations would predict outcomes in a longitudinal study of patients with rheumatoid arthritis (RA). A group of 71 patients with RA was examined on two occasions, one year apart. Multiple regression models were used to examine which cognitive representations and coping strategies explained variance in the following outcome variables and measures: visits to the outpatient clinic, number of hospital admissions, the Health Assessment Questionnaire (HAQ: Fries *et al.*, 1980), pain, tiredness, and the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983). Beliefs in adverse consequences of the disease were associated with more visits to the outpatient clinic, more tiredness, and higher anxiety scores. Less perceived control and less expression of emotion were associated with more hospital admissions. Higher scores on coping, involving fostering reassuring thoughts, were associated with less activity limitations. More passive coping was associated with more activity limitations and higher anxiety scores. More perceived symptoms (illness identity) were associated with more pain, more tiredness, and more depression. More avoidant coping was associated with more tiredness. Beliefs that the illness would last a long time were associated with higher anxiety scores. The authors concluded that after controlling for the potential effects of intervening medical variables, coping strategies and cognitive representations contributed towards health on several outcome variables in patients with RA.

Scharloo *et al.* (2000a) also studied the contribution of coping and cognitive representations to outcomes in patients with chronic obstructive pulmonary disease (COPD). Using a longitudinal study design, 64 patients (aged 43-79 yrs) completed the Medical Outcomes Study SF-20 Health Survey (Stewart *et al.*, 1988), and the Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996). Data on coping and severity of illness (measured by spirometry) were also collected. Regression analyses showed that initial cognitive representations and coping significantly contributed towards the prediction of social functioning, mental health, health perceptions, total functioning scores, and to the prediction of visits to the outpatient clinic, and adherence to prescribed medication 1-year later. The authors concluded that these results had important implications for the medical management of patients with COPD.

Similarly, Scharloo *et al.* (2000b) used a longitudinal study (two measurements taken with a 1-year interval), in which 69 patients with psoriasis completed the Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996), the Medical Outcomes Study SF-20 Health Survey (Stewart *et al.*, 1988), and the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983). Data on coping, using the Utrecht Coping List (UCL: Schreurs *et al.*, 1993) and severity of illness (measured by body surface scores) were also collected. Results of the regression analyses indicated that a strong illness identity was associated with more visits to the outpatient clinic, and worse outcomes on physical health, social functioning, mental health, health perceptions, and depression. Strong beliefs that the disease was controllable/curable related to more clinic visits, and strong beliefs that the disease had disabling consequences were related to more negatively perceived health. Patients who initially engaged in coping that was characterised by more expressions of emotions, seeking more social support, seeking more distraction, as well as less passive coping, were prescribed a lower number of different therapies, were less anxious, less depressed, and had better physical health 1-year later. The authors maintained that these results had implications for the management of patients with psoriasis, which reinforced modern views on integrating psychosocial aspects into clinical care.

Finally, Figueiras and Weinman (2003) examined whether the degree of congruence between patients' and partners' perceptions of myocardial infarction (MI) would influence a range of recovery outcomes in the MI patients. The MI perceptions of 70

Portuguese couples (aged 35-73 yrs), in which the male had suffered a first heart attack, were assessed at 3-months after discharge from hospital, using the Illness Perception Questionnaire (IPQ: Weinman *et al.,* 1996). Several dimensions of patient recovery were assessed at 3-, 6- and 12-months post-MI, using standardised measures of psychological well-being, return to work, activity limitations, social functioning, sexual functioning, and indices of lifestyle changes. The degree of congruence in each couples' cognitive representations was assessed and related to each outcome measure. The results of this rather novel study revealed that of the couples who had similar positive perceptions of the identity and consequences of the MI, patients showed a) better physical and psychological functioning, b) better sexual functioning, and c) less impact of MI on social and recreational activities.

In conclusion, some studies have examined the influence of cognitive representations on a multitude of outcome variables and measures with several physical patient populations, including rheumatoid arthritis (Scharloo *et al.*, 1999), chronic obstructive pulmonary disease (Scharloo *et al.*, 2000a), psoriasis (Scharloo *et al.*, 2000b) and myocardial infarction (Figueiras and Weinman, 2003). Moreover, the studies by Scarloo and colleagues also tested the influence of coping mechanisms, which is in accordance with the SRM. All studies reviewed in the above section used longitudinal designs, which increased confidence in the direction of causality, and used moderately sized samples ranging from 64 (Scharloo *et al.*, 2000a) to 71 (Scharloo *et al.*, 1999). Finally, however, despite these positive observations it was, perhaps, unadvisable to have included so many outcomes in these studies using such moderate sample sizes because of the reduction in statistical power associated with using multiple regression analyses by so doing.

Comparing cognitive representations between patient groups

A few studies have specifically compared cognitive representations between different patient groups with physical conditions. For example, Schiaffino and Cea (1996) used the Implicit Models of Illness Questionnaire (IMIQ: Turk *et al.*, 1986) to assess cognitive representations of rheumatoid arthritis (RA), multiple sclerosis (MS), and HIV+. Data were collected and compared between three different samples: 63 RA patients (mean age = 53 yrs), 101 MS patients (mean age = 42 yrs), and 71 college students. Representations differed across illnesses and respondent status (patient vs. student). Students rated RA as significantly more curable than either MS or HIV+. Students rated individuals as having more personal responsibility for RA or MS than did patients. The differences between patient and student ratings were greater with respect to MS than they were for RA. Patients were more aware of the changeable nature of RA and MS symptoms than students. According to the authors, these results suggested that cognitive representations differed as a function of personal experience and personal relevance.

More recently, Moss-Morris and Chalder (2003) investigated the strength of chronic fatigue syndrome (CFS) patients' negative cognitive representations by comparing a) cognitive representations, and b) self-reported activity limitations, in patients with CFS and rheumatoid arthritis (RA). Participants comprised of 74 RA patients and 49 CFS patients, who completed the Illness Perception Questionnaire - Revised (IPQ-R: Moss-Morris *et al.*, 2002) and the 36-item Short-Form Health Survey (SF-36: Ware *et al.*, 1993). When compared to the RA group, the CFS group attributed a wider range of everyday somatic symptoms to their illness, perceived the consequences of their illness to be more profound and were more likely to attribute their illness to a virus or immune system dysfunction. Both groups reported equivalent levels of physical activity limitations, however the CFS group reported significantly higher levels of activity limitations. The authors concluded that although the symptoms of CFS were largely medically unexplained, CFS patients had more negative views about their symptoms and the impact that these had on their lives than did patients with a clearly defined and potentially disabling medical condition, and they cited the importance of patients' cognitive representations in perpetuating CFS disorder.

In conclusion, the two studies reviewed above support the position that cognitive representations can vary considerably between patient populations and between those who have actually experienced the condition and those who have not. To this extent, it is perhaps difficult to determine which cognitive representations provide the most predictive power for salient patient outcomes by reviewing conditions that, on the surface, may appear similar (e.g., physical conditions). This established, an exploration of the actual condition under investigation should perhaps be undertaken, assessing those individuals from that group who have actually experienced the condition, in order to glean the most accurate and useful information in order to inform the formulation of therapeutic interventions for that specific patient population.

In summary, a literature search of the theory of planned behaviour (TPB: Aizen, 1988, 1991) applied to rehabilitation in physical conditions revealed three distinct categories of studies. These were: the TPB in exploring physical activity with non-clinical populations, the TPB in exploring physical exercise with clinical populations a) at follow-up and b) during inpatient rehabilitation, and applying the TPB to the use of assistive devices. A literature search of the self-regulation model (SRM: Leventhal *et al.*, 1980, 1984) applied to rehabilitation in physical conditions revealed five main categories of studies. These were: the SRM in coping behaviour outcomes, the SRM in activity limitations and psychological distress outcomes, the SRM in quality of life outcomes, the SRM in various/numerous/multiple outcomes, and comparing cognitive representations between patient groups.

Changing cognitions to influence clinical outcomes

Most of the health-related research carried out using the TPB and CS-SRM models has focussed on exploring the association between psychological variables and clinical outcomes, whereas fewer studies have reported the design and efficacy of therapeutic interventions based on these models. Health psychologists have, however, become increasingly involved in developing and evaluating such interventions. For example, Michie *et al.* (2005) reported the development of a consensus on a theoretical framework that could be used in implementation research to change professional behaviour.

Changing TPB variables to influence clinical outcomes

Some recent studies have tested interventions based on the TPB. For example, Tsorbatzoudis (2005) tested the effectiveness of an intervention that manipulated variables within the TPB on exercise habits with 366 high school students. The participants were divided into intervention and control groups and questionnaires were administered to measure TPB components and exercise habits, which were assessed using the Baecke Physical Activity Scale (Baecke *et al.,* 1982). The intervention, which lasted twelve weeks, included posters and lectures promoting participation in physical activity. Analyses showed that the intervention had been effective in improving attitudes towards physical activity, perceived behavioural control, behavioural intention, and actual self-reported behaviour. The author concluded that the results provided useful information for physical education teachers interested in promoting students' positive attitudes towards physical activity.

The same author undertook a study to test the effectiveness of an intervention program based on the TPB with the aim of altering adolescents' healthy eating attitudes and behaviours. The sample consisted of 335 participants, who were divided into intervention and control groups. Again, the intervention lasted twelve weeks and this time included posters and lectures promoting healthy eating. The measures included a questionnaire assessing the TPB components and a food frequency measure, which assessed eating habits. Analyses showed that the intervention had been effective in improving attitudes toward healthy eating and attitude strength, behavioural intention, perceived behavioural control and healthy eating behaviour.

Kelley and Abraham (2004) evaluated a TPB based intervention using a randomised controlled trial to promote healthy eating and physical activity amongst people aged over 65 years attending hospital out-patient clinics. Participants (N = 252) were randomly allocated to a control or intervention group and cognitions and behaviour were measured pre-intervention and at two-weeks follow up. The intervention group made significantly higher gains in perceived behavioural control, intention and behaviour for both target behaviours.

Changing CS-SRM variables to influence clinical outcomes

Other studies have demonstrated the effects of changing CS-SRM variables to benefit patient outcomes. For example, Petrie *et al.* (2002) examined whether a brief hospital intervention designed to alter patients' perceptions about their myocardial infarction (MI) would result in better recovery and reduced activity limitations. Participants (N = 65) with their first MI were assigned to receive an intervention or usual care. Participants were assessed in hospital before and after the intervention and at 3-months after discharge from hospital. The intervention caused significant positive changes in patients' views of their MI. Participants in the intervention group also reported they were better prepared for leaving hospital ($p<.05$) and they returned to work at a significantly faster rate than the control group ($p<.05$). At the 3-months follow-up, participants in the intervention group reported a significantly lower rate of angina symptoms than control subjects (14.3 vs. 39.3, $p<.05$). The authors concluded that an in-hospital intervention designed to change patients' cognitive perceptions can result in improved functional outcome after MI.

Fortune *et al.* (2004) investigated the effects of a cognitive-behavioural psoriasis symptom management programme on patient-held perceptions. The Illness Perception Questionnaire (IPQ: Weinman *et al.*, 1996) was used to assess participants' (N = 40) beliefs about illness, while an age- and gender-matched cohort received standard pharmacological care only. Results suggested that at 6-months follow-up, participants in the intervention group showed significant reductions in illness identity, strength of beliefs in severity of the consequences of their illness, and attributions for emotional causes of their psoriasis. The authors concluded that these findings were supportive of the CS-SRM-based intervention.

In summary, an increasing amount of research employing the TPB and CS-SRM models has demonstrated the effectiveness of therapeutic interventions based on these models on behavioural and health-related outcomes.

The evidence from reviewing the application of these two social cognition models to exploring how psychological processes predicted and influenced rehabilitation and health outcomes in physical conditions has provided justification for employing them as frameworks to investigate how psychological variables predict important outcomes in lower limb amputees. Therefore, these two social cognition models, and components from two other models, will be brought to bear in order to assist the understanding of a) prosthetic prescription, b) prosthetic use, c) activity limitations, psychological distress, and d) quality of life in lower limb amputees. As a result, the aims and specific research questions for the current study are as follows:

Aims

- To determine to what extent being prescribed a prosthesis during post-operative rehabilitation will be predicted by activity limitations (e.g., mobility, independence) at 6-months pre-amputation and by patients' cognitive representations (i.e., beliefs about their condition), levels of psychological distress (i.e., anxiety and depression) and attitudes towards prosthetic use during post-operative rehabilitation following lower limb amputation.

- To determine the extent to which patients' attitudes towards prosthetic use during post-operative rehabilitation have predictive value for influencing the extent to which they use their prosthesis at 1-week follow-up post-discharge from the rehabilitation centre.

- To determine the extent to which patients' cognitive representations and levels of psychological distress during post-operative rehabilitation have predictive value for influencing the extent to which they use their prosthesis at 1-month and 6-months follow-up post-discharge from the rehabilitation centre.

- To determine the extent to which patients' cognitive representations during post-operative rehabilitation have predictive value for influencing their activity limitations and levels of psychological distress at 1-month and at 6-months follow-up post-discharge from the rehabilitation centre, and quality of life at 6-months follow-up.

Research questions

1. Is being prescribed a prosthesis predicted by pre-operative activity limitations, the SRM and psychological distress?

2. Does the TPB predict prosthetic use at 1-week post-discharge?

3. Does the SRM and psychological distress predict prosthetic use at 1-month and 6-months post-discharge?

4. Does the SRM predict activity limitations at 1-month and 6-months post-discharge?

5. Does the SRM predict psychological distress at 1-month and 6-months post-discharge, and quality of life at 6-months post-discharge?

No discerning pattern of CS-SRM variables emerged in the literature review for predicting outcomes with other physical conditions, which made generating a specific null hypothesis difficult for CS-SRM variables predicting outcomes in the current study with amputees. However, TPB normative variables were found to predict the use of assistive devices in the literature review, which enabled a more specific null hypothesis to be generated. Null hypotheses in relation to the current research, therefore, were as follow:

- Any observed prediction of outcome variables by CS-SRM variables in amputees will be due to chance.

- Any observed prediction of outcome variables by TPB normative-related variables in amputees will be due to chance.

Chapter 5: Method

This chapter outlines the methodology used in the study, and provides details under the following headings: development of a theory of planned behaviour measure, participant recruitment, measures, psychological predictor variables, other predictor variables, outcome variables, procedure and statistical analyses.

Development of a theory of planned behaviour measure

A paper was published on the development of a theory of planned behaviour measure for the study (i.e., Callaghan BG, Johnston M, Condie ME (2004). Using the theory of planned behaviour to develop an assessment of attitudes and beliefs towards prosthetic use in amputees. *Disability and Rehabilitation* **26**, 924-930.). (This publication can be seen in Appendix G on page 399).

Participant recruitment

The study sample comprised of a 12-month cohort of transtibial and transfemoral lower limb amputees undergoing post-operative rehabilitation therapy at eight Scottish hospitals (Raigmore Hospital, Aberdeen Royal Infirmary, Ninewells Hospital, Astley Ainslie Hospital, Southern General Hospital, Glasgow Royal Infirmary, Ayr Hospital and Queen Margaret Hospital). These participants were required to be over fifty years of age, fluent in English, and had to pass a screening test for cognitive and communication problems. The primary aetiology of their amputation was required to be peripheral arterial disease (PAD).

Psychological predictor variables (see: Appendix B on page 239 for all study measures)

Cognitive representations

Cognitive representations (SRM constructs) were assessed using the Illness Perception Questionnaire - Revised (IPQ-R: Moss-Morris *et al.*, 2002). These cognitions comprise of:

- *identity* (the number of symptoms the patient associates with the illness)

Identity is scored by summing the total number of symptoms mentioned.

However, the remaining constructs are assessed on a 5-point Likert-type ordinal response scale (Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree), which is scored from 1 to 5 for each item. The remaining IPQ-R constructs are as follows:

- *timeline-acute/chronic* (perceived duration of the condition) (6-items)
- *timeline-cyclical* (perception of symptoms fluctuating) (4-items)
- *consequences* (expected effects and outcomes of the condition) (6-items)
- *personal control* (beliefs that one's condition is self-controlled) (6-items)
- *treatment control* (beliefs that one's condition is controlled by their treatment) (5-items)
- *illness coherence* (how much patient understands or comprehends their condition) (5-items)
- *emotional representations* (emotional responses generated by the condition) (6-items)
- *causal attributions* (personal ideas about the aetiology of the condition) (17-items)

Causal attribution items are typically subjected to principle components analysis to reveal factor subscales (e.g., risk behaviour, emotional/psychological factors, past events, external influences).

Attitudes towards prosthetic use

Attitudes towards prosthetic use were assessed on items contained within a questionnaire that was constructed based on the Theory of Planned Behaviour methods (TPB: Aizen, 1988, 1991). The TPB attitude cognitions included assessments of the following variables:

- *behavioural intention* (a person's mental readiness to use a prosthesis) (3-items)
- *attitudes to behaviour* (the degree to which using a prosthesis is positively or negatively valued) (5-items)
- *subjective norm* (the perceived social pressure to use, or not use, a prosthesis) (4-items)

- *perceived control* (people's perceptions of their ability to use a prosthesis) (4-items)

Beliefs about prosthetic use

(see above: derived from Callaghan *et al.*, 2004)

- *behavioural beliefs x outcome evaluations* (the subjective probability that using a prosthesis will produce given outcomes) (6-items)
  - *getting about* (2-items)
  - *being independent* (2-items)
  - *participating in activities* (2-items)
- *normative beliefs x motivation to comply* (the perceived expectations of important individuals or groups to use a prosthesis) (8-items)
  - *one's family* (2-items)
  - *the NHS staff (e.g., doctors, nurses, physiotherapists, etc.)* (2-items)
  - *one's friends* (2-items)
  - *the other patients* (2-items)
- *control beliefs x control power* (the perceived presence of factors that may facilitate or impede using a prosthesis) (8-items)
  - *a lot of stairs* (2-items)
  - *slippery and rough surfaces* (2-items)
  - *disabled facilities (e.g., access, toilets)* (2-items)
  - *people helping* (2-items)

Perceived control over recovery

Recovery locus of control was assessed using the Recovery Locus of Control Scale (RLOC: Partridge and Johnston, 1989). This measure is made up of 9-items (five internal and four external items) which are assessed on a 5-point Likert-type ordinal response scale (Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree). Items are scored from 1 to 5 in the direction of internal locus of control, resulting in a possible score range of 9-45. The RLOC was shown to have good internal consistency and predictive value when used with adults disabled by a stroke or wrist fracture (Partridge and Johnston, 1989).

Self-efficacy

Self-efficacy measures must be tailored to the domain of psychological functioning being explored (Bandura, 1986). That is, it is important to know the nature of the skills required to successfully perform a particular behaviour and such beliefs should be explored in relation to the behaviour and context in question. Subsequently, four prosthetic use self-efficacy items were developed using the salient control beliefs (i.e., impediments) identified in the TPB measure study (i.e., I am confident that I can use my artificial leg to move about during my first week at home *..even if there are a lot of stairs, ..even on slippery or rough surfaces, ..even if there are no disabled facilities, ..even if there are no people helping me*). These 4-items were assessed on a 5-point Likert-type ordinal response scale (Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree). Items were scored from 1 to 5, resulting in a possible score range of 4-20.

Psychological distress

Psychological distress was assessed using the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983). This measure is easy to administer and was designed to assess respondents with somatic symptoms. It contains 14-items for psychological distress, with subscales for anxiety (7-items) and depression (7-items). Each item has a unique 4-point ordinal response scale. These are scored from 0 to 3, resulting in a possible range of 0-21 for each subscale, or 0-42 for the overall scale. The HADS has achieved construct validity (Johnston *et al.*, 2000).

Other predictor variables

Socio-demographic predictor variables

Socio-demographic variables included age, gender and deprivation index. Deprivation indices were calculated by postcodes using the Scottish Index of Multiple Deprivation (SIMD 2004). The range of the actual SIMD 2004 scores is 0.54 to 87.57, but theoretically these could range from 0 to 100, since this is the range of scores in the individual sub-domains. The larger the SIMD 2004 score the more deprived the data zone. The domains and indicators underlying this index comprise of the following variables: current income deprivation, employment deprivation, health deprivation, education and skills and training deprivation, geographic access and telecommunications deprivation, and housing deprivation.

Clinical predictor variables

Clinical variables included level of amputation (transtibial or transfemoral), co-morbidity (i.e., diabetes), unilateral/bilateral status, length of inpatient stay (days) and activity limitations (basic/advanced).

An activity limitation was operationalised by locomotor function (i.e., levels of mobility and personal independence). This was measured using the Locomotor Capabilities Index (LCI: Gauthier-Gagnon *et al.,* 1998), which is contained within the Functional Measure for Amputees (FMA: Functional Measure for Amputees: © ReTIS/SPARG 1998). The LCI contains subscales for basic activity limitations (7-items) and advanced activity limitations (7-items). The measure asks patients if they are able to perform a range of tasks, which are assessed on a 4-point ordinal response scale (No / Yes, if someone helps me / Yes, if someone is near me / Yes, alone). Scoring is from 0-3 for each item, resulting in a possible range of 0-21 for each subscale, or 0-42 for the overall scale. The LCI has satisfied tests for internal consistency and content validity (Gauthier-Gagnon *et al.,* 1998), test-retest reliability (Callaghan *et al.,* 2002), as well as for sensitivity (Treweek and Condie, 1998).

Initial LCI assessment

Attempts were made to hone the validity of the initial LCI assessment, which, because of practical limitations, relied on patients' memory recall of their pre-operative activity limitations. Firstly, patients were not asked to recollect their locomotor function beyond a period of 8-months. Mancuso and Charlson (1995) found recollection error in hip replacement patients who were asked to recall their pre-operative condition 'several years' after surgery. However, more recently, Legler *et al.* (2000) found high agreement between an assessment of pre-diagnostic activity limitations and a 6-month retrospective recall of activity limitations with prostate cancer patients. Secondly, patients were asked to recall their locomotor function at the Easter or Christmas before their operation, whichever was more recent. Several authors have supported the initial findings of Brown and Kulik's (1977) 'flashbulb memory' phenomenon, which showed that recollections are more vivid and accurate during events considered to be of particular significance to the individual, and that emotional arousal served to enhance the scope of memory (e.g., Libkuman *et al.*, 1999). Finally, where possible, efforts were made to verify patients' responses with family members, friends and relevant pre-operative healthcare clinicians.

Outcome variables

Prosthetic prescription

Prosthetic prescription was treated as a simple self-reported dichotomous binomial variable (i.e., yes/no) (1-item).

Behavioural intention

Behavioural intention (to use a prosthesis) was determined using the new TPB measure (3-items).

Prosthetic use

Specifically for the purpose of exploring variables within the TPB framework, prosthetic use during the first week at home was assessed using two open-ended questions. Specifically, hours per day during the first week at home (1-item), and number of days during the first week at home (1-item). For all other purposes, prosthetic use at 1-month and 6-months post-discharge was evaluated using items from the Functional Measure for Amputees (FMA: Functional Measure for Amputees: © ReTIS/SPARG 1998). This measure was derived from the Prosthetic Profile of the Amputee (PPA: Grise *et al.*, 1993). The PPA was developed using the PRECEDE model (Green *et al.*, 1980) as a theoretical framework. Subsequently, it contains questions based on three categories of factors that influence behaviour: predisposing, reinforcing and enabling factors, as well as a number of dependent variable questions relating to prosthetic use. The FMA retained questions from each of the PRECEDE categories, however, it is shorter than the PPA (i.e., PPA: 44-questions, FMA: 15-questions). Both of these measures can be used to evaluate factors relating to prosthetic use. The current study made use of the dependent variable questions in the FMA to assess prosthetic use. These questions measure the percentage of moves made indoors and outdoors using a) a wheelchair, b) a prosthesis, or c) no prosthesis, on a 5-point percentage scale (0% / 25% / 50% / 75% / 100%), as well as the hours per day (1-item) and number of days per week (1-item) of prosthetic use (open-ended response scales). The FMA has achieved test-retest reliability (Callaghan *et al.*, 2002) and the PPA has satisfied construct validity and test-retest reliability (Gauthier-Gagnon *et al.*, 1994).

Activity limitations

Activity limitations were operationalised using the LCI (see: above).

Psychological distress

Psychological distress was the determined using the HADS (see: above).

Quality of life

Quality of life was assessed using the Patient Generated Index (PGI: Callaghan and Condie, 2003), which was adapted from the original PGI (Ruta *et al.*, 1994) for specific use with a lower limb amputee population. This is a subjective quality of life measure, which allows respondents to select criteria constituting the salient areas or activities of their lives, and to rate and score these according to how important they are, and how much they have been compromised by the health condition and its treatment. Specifically, the amputee PGI is completed in three stages as an interview administered questionnaire. In stage one, patients are asked to nominate the five most important areas or activities of their lives affected by the amputation and its treatment. There is also one additional item representing all other areas not mentioned. Stage two asks the patients to rate how badly affected they are in each of these six criteria on a scale of between 0 and 10. In the third stage, patients are asked to imagine that they are given 12 points to spend on the relative importance to them of each area or activity of life nominated in stage one. To generate an index, the ratings for each area are multiplied by the proportion of points awarded to that area divided by 12, and then summed to give a score between 0 and 10, which is taken to represent a measure of the patient's quality of life. The PGI has satisfied reliability, validity and responsiveness requirements in four common clinical conditions (Ruta *et al.,* 1999), and has been tested for test-retest reliability and construct validity with a lower limb amputee population (Callaghan and Condie, 2003).

Procedure

Approval from the multi-centred research ethics committee (MREC) was obtained prior to submission of the full grant application to the Chief Scientist Office (CSO) Scottish Government Health Department. Subsequently, ethical approval was obtained from a) the relevant local research ethics committees (LRECs) relative to each participating site, b) the local research and consultancy management committees at their own request, and c) the University of Strathclyde research ethics committee. The Research Fellow (author) was involved in the inception, application, preparation, write-ups and submission of the final report (Callaghan *et al.,* 2005).

The objective for the first six months of the study was to develop a valid theory of planned behaviour (TPB: Aizen, 1988, 1991) measure to assess patients' attitudes, beliefs and intentions towards prosthetic use. This was achieved by two individual studies, which were, subsequently, published in a journal article.

During the next three months, research materials (i.e., questionnaires, consent forms, information sheets, etc.), were set up prior to commencing patient recruitment and data collection. Also during this period of time, the author (Research Fellow) met with all the Senior Physiotherapists involved in the study, at the National Centre for Prosthetics and Orthotics (NCPO), located in the University of Strathclyde, Glasgow, to introduce them to the research materials and guide them in how they were to be completed. Furthermore, a training day was held in the same department for the Murray Foundation (MF) visiting volunteers (N = 20), to familiarise them with the outcome questionnaires and to teach them interview-related skills. The MF is a charitable organisation that provides a support and counselling service for amputees and their families in Scotland (see: Appendix C on page 265 for an outline of the MF training day and information on the MF health visitors' scheme). The MF members had participated successfully in another recent study in a similar capacity (i.e., Callaghan and Condie, 2003), and were committed and keen to assist again in the current study.

Patient recruitment began in October 2002, and the first interviews commenced in November 2002. All amputees undergoing rehabilitation therapy who fulfilled the inclusion criteria were identified by the Senior Physiotherapist onsite, and initially received an information sheet outlining the purpose and details of the study, and a patient consent form stressing that they were under no obligation to participate in the study. After receiving consent, the Senior Physiotherapist who was a member of SPARG (see: *Expertise available*) at each centre, and the Research Fellow, evenly shared responsibility for first interviews and data collection from patients. At between 3- and 4-weeks post-operatively, socio-demographic and clinical details were recorded on a patient information card for both consenting and non-consenting patients, and letters were posted to the participants' General Practitioners (GPs) and Consultants (see: Appendix D on page 268 for GP/Consultant letter, patient information card, information sheet and patient consent form). Cognitive screening was undertaken at this stage using the information and orientation section of the Clifton Assessment Procedures for the Elderly (CAPE: Pattie and Gilleard, 1979), which tested for cognitive and communication problems. It contains 12 questions with an open-ended response set. Scoring is from 0-12, where scores of 11 or 12 are considered normal, scores between eight and 10 indicate mild cognitive impairment, and seven points or less suggests severe cognitive impairment. This is a simple measure that has demonstrated good sensitivity and specificity (Johnston *et al.*, 1987). At first interview, participants completed the predictor variables, which included an LCI assessment, however, this asked patients to recall their activity limitations before their amputation (see: *Initial LCI assessment*). At 1-month and 6-months post-discharge from the rehabilitation centre, patients were visited in their homes by a trained visiting volunteer from the MF, who was also an amputee, and who assisted them to complete the outcome measures. At 1-month follow-up, participants completed the LCI, HADS, FMA items and the RLOC, and at 6-months follow-up they completed all of the outcome measures (i.e., LCI, HADS, FMA, RLOC and PGI).

Expertise available

The Scottish Physiotherapy Amputee Research Group (SPARG) is a well-established network comprised of Senior Physiotherapists from all the major amputating hospitals throughout Scotland, and of senior representatives from associated organisations, such as the British Association of Prosthetists and Orthotists (BAPO), and the British Association of Chaptered Physiotherapists in Amputee Rehabilitation (BACPAR). SPARG is now an integral part of the wider Rehabilitation Technology Information Service (ReTIS) network, and has routinely collected and analysed data on all lower limb amputees in Scotland since 1992 (Condie *et al.,* 1996) (see: chapter one). The high level of personal commitment and multi-professional nature of SPARG ensures co-operation between disciplines and, hence, that the opportunity for the co-ordinated application of changes in clinical practice following this study are excellent.

Statistical analyses

Statistical tests used

The means, standard deviations and ranges of all continuous socio-demographic, clinical, psychological and outcome variables were calculated. Percentages were calculated for all categorical variables.

The socio-demographic and clinical predictor variables were compared between consenting and non-consenting patients at the three data collection times, and for consenting patients over the three data collection times. For between-subjects comparisons, Chi-Square analyses were used for categorical data, and two-sample t-tests (or Mann-Whitney U statistics if Kolmogorov's Smimov test form normal distribution was significant) were used for continuous data.

Internal consistency estimates for all the measures used were computed using Cronbach's alpha coefficients (Cronbach, 1951) to ensure that all items were related to their constructs. A principal components analysis was used on the causal items of the IPQ-R measure, to identify possible scales (i.e., factors/themes) relating to causal attributions.

Multivariate analysis of variance (MANOVA) tested for changes in the measures used over the three data collection times.

A correlation matrix tested for the relationships between cognitive status and outcome variables.

To develop models of the role of cognitive representations, attitudes towards prosthetic use, psychological distress, recovery locus of control, self efficacy, socio-demographic and clinical variables in predicting post-operative prosthetic fitting, prosthetic use, activity limitations, psychological distress, and quality of life, the post-operative outcome measures were entered into multiple regression equations in order to assess the extent to which they could be predicted by the predictor variables. Multiple logistic regression was used for categorical outcome variables, and multiple linear regression was used for continuous outcome variables.

Statistical power

Data from the latest available SPARG audit at the time indicated that approximately 360 patients would fulfil the inclusion criteria at the initial six hospitals over a 1-year period (Scovell *et al.,* 2000). Combining typical post-operative mortality rates (10-14%) (Condie *et al.,* 1996) with normal consent rates for this group of patients (50-60%) (Callaghan *et al.,* 2002), it was estimated that the final sample would comprise of approximately 180-200 patients. Tabachnik and Fiddel (1989) suggested that in order to detect a medium effect size using multivariate regression analyses, the sample size should be no less than 50 + (8* the number of predictor variables). Given the predictor measures in the current study, and their combined internal components, this was anticipated to be an adequate amount of participants to investigate the number of predictor variables in multiple regression equations with sufficient power (0.80) to detect a medium effect. The largest number of predictor variables that were entered into a multiple regression equation at any one time was ten (i.e., the SRM cognitive representations), which, according to the Tabachnik and Fiddel (1989) equation, would require a sample size of 130.

In conclusion, this chapter reported the methodology of the study. In particular, a theory of planned behaviour measure was first developed. Thereafter, participants who fulfilled the inclusion criteria were recruited were cognitively screened and assessed on predictor measures during inpatient rehabilitation. Predictor measures included socio-demographic and clinical variables, as well as psychological variables guided by social cognition models. Participants were then visited in their homes by a trained amputee volunteer at two follow-up times post-discharge, and assessed on outcome variables including prosthetic prescription, prosthetic use, activity limitations, psychological distress and quality of life. All data were then entered onto spreadsheets and analysed using appropriate statistical tests in order to determine to what extent outcome variables could be determined by predictor variables.

Chapter 6: Results for sample and measures

(see: Appendix E, pages 276 - 295 for SPSS output for this chapter)

This chapter reports a summary of descriptive data, at each of the three interview times, relating to the participants recruited and the assessment measures that were used during the study. In particular, results are shown for a) the socio-demographic and clinical data of recruited participants, b) comparisons between consenting and non-consenting patients on demographic and clinical variables, c) means, standard deviations, ranges and Cronbach's alphas for all measures, and d) changes in measures over time.

Participants recruited

Socio-demographic and clinical sample characteristics at each interview time are summarised in table 6.0. At recruitment, 166 participants were included. At 1-month follow-up post-discharge from rehabilitation therapy, 143 participants were retained (86.14% of original sample). Eleven declined the follow-up interview, two were lost to follow-up, eight died, and two were too ill to complete the materials. At 6-months follow-up, 120 participants were retained (72.30% of original sample, and 83.92% of 1-month follow-up sample). Ten declined follow-up interview, three were lost to follow-up, seven died, and three were too ill to complete the materials.

A GP later requested to have one patient's outcome data excluded at 1-month follow-up, and this patient was, subsequently, not followed-up at 6-months.

Table 6.0. Summary of the means, standard deviations, ranges and percentages for socio-demographic and clinical sample characteristics at each interview time (Recruitment N = 166, 1-month follow-up N = 143, 6-months follow-up N = 120)

Sample characteristics	Interview time			
Age	*Recruitment*	Mean = 66.73	SD = 10.33	Range = 50-91
	1-month follow-up	Mean = 66.43	SD = 10.56	Range = 50-91
	6-months follow-up	Mean = 66.39	SD = 10.31	Range = 50-89
Gender ratio	*Recruitment*	Male = 115 (69.3%)		Female = 51 (30.7%)
	1-month follow-up	Male = 99 (69.2%)		Female = 44 (30.8%)
	6-months follow-up	Male = 83 (69.2%)		Female = 37 (30.8%)
Level of amputation	*Recruitment*	Transtibial = 122 (73.5%)		Transfemoral = 44 (26.5%)
	1-month follow-up	Transtibial = 106 (74.1%)		Transfemoral = 37 (25.9%)
	6-months follow-up	Transtibial = 88 (73.3%)		Transfemoral = 32 (26.7%)
Unilateral/Bilateral	*Recruitment*	Unilateral = 147 (88.6%)		Bilateral = 19 (11.4%)
	1-month follow-up	Unilateral = 126 (88.1%)		Bilateral = 17 (11.9%)
	6-months follow-up	Unilateral = 106 (88.3%)		Bilateral = 14 (11.7%)
Scottish index of multiple deprivation (0-100: higher = more deprived)	*Recruitment*	Mean = 24.49	SD = 17.90	Range = 1.88-80.76
	1-month follow-up	Mean = 23.65	SD = 17.31	Range = 1.88-77.69
	6-months follow-up	Mean = 22.23	SD = 17.71	Range = 1.88-77.69
Length of inpatient stay (days)		Mean = 77.98	SD = 52.07	Range = 3-389
Fitted with a prosthesis	*Recruitment*	Yes = 150 (90.4%)		No = 16 (9.6%)
	1-month follow-up	Yes = 116 (81.7%)		No = 26 (18.3%)
	6-months follow-up	Yes = 103 (85.8%)		No = 17 (14.2%)
Co-morbidity (Diabetes)	*Recruitment*	Yes = 83 (50.0%)		No = 83 (50%)
CAPE score (0-12)	*Recruitment*	Mean = 11.64	SD = 0.80	Range = 7-12

Consenters vs. non-consenters

Importantly, during the course of the data gathering period, qualitative reports from the Senior Physiotherapists at the eight participating centres indicated that between 25% and 33% of patients were unable to take part in the study due to being "too ill" mentally or physically to complete the materials. Consequently, these patients were not approached to take part in the study. Despite a good initial consent rate by those patients who were approached to take part (i.e., consent rate = 70.9%), socio-demographic and clinical variables between the consenting and non-consenting patients were compared to identify possible issues that may have influenced individuals consenting, or not consenting, to take part in the study at the three assessment times. The variables compared were age, gender, level of amputation, unilateral/bilateral status, and deprivation category.

Consenters vs. non-consenters at recruitment

The consent rate at recruitment was 70.9% (i.e., consenters = 166, non-consenters = 68). Comparisons between consenting and non-consenting patients on demographic and clinical variables revealed significant differences in age (Mann-Whitney U = 3515.000, $N_1 = 165$, $N_2 = 67$, $p < .001$, two-tailed), level of amputation (Chi-square = 1.598, df = 1, $p = .001$), and Scottish Index of Multiple Deprivation (SIMD) scores (Mann-Whitney U = 4659.000, $N_1 = 164$, $N_2 = 68$, $p = .049$, two-tailed), but not in gender or unilateral/bilateral status. That is, at recruitment, consenting patients were younger, more likely to be transtibial amputees, and lived in marginally less deprived areas than non-consenting patients.

Consenters vs. non-consenters at 1-month follow-up

The consent rate at 1-month follow-up was 92.9% (i.e., consenters = 143, non-consenters = 11, lost for other reasons = 12). There was a significant difference between consenters and non-consenters in Scottish Index of Multiple Deprivation (SIMD) scores (Mann-Whitney U = 434.000, $N_1 = 142$, $N_2 = 11$, $p < .05$, two-tailed), however, there were non-significant differences in age, gender, level of amputation and unilateral/bilateral status. That is, at 1-month follow-up, consenting patients had lived in more deprived areas (prior to recruitment) than non-consenting patients. However, this result should be treated with some caution, as there were only 11 non-consenting patients at 1-month follow-up, resulting in their deprivation scores having a large standard deviation.

Consenters vs. non-consenters at 6-months follow-up

The consent rate at 6-months follow-up was 92.3% (i.e., consenters = 120, non-consenters = 10, lost for other reasons = 13). There were non-significant differences in age, gender, level of amputation, unilateral/bilateral status, and Scottish Index of

Multiple Deprivation (SIMD) scores, between consenters vs. non-consenters at 6-months follow-up.

Assessment measures

(see: Appendix H, pages 408 - 410 for correlation matrices of all study variables)

Predictor measures at recruitment

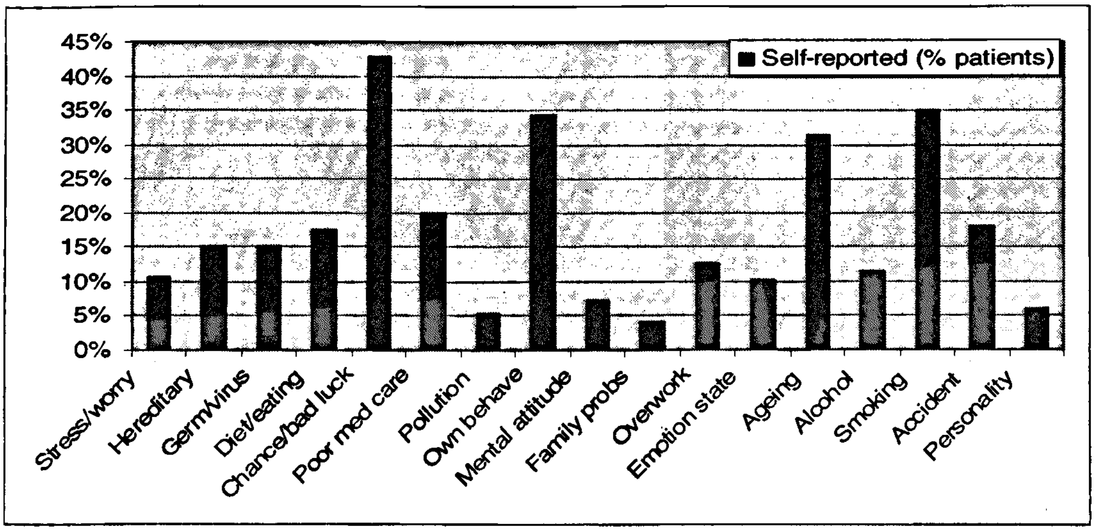
A summary of the descriptive data of all the predictor measures used at recruitment is illustrated on table 6.1, which shows the means, standard deviations, ranges, possible ranges, and internal consistency statistics (i.e., Cronbach's alpha) for each measure. The number of participants who completed the TPB measure was 153 (i.e., rather than 166) because this was only completed by patients who were to be prescribed a prosthesis. Internal consistency analysis was not applicable (N/A) for the TPB beliefs items, because these pertained to individual mutually exclusive beliefs and were not, subsequently, developed into a scale.

Table 6.1. Summary of the means, standard deviations, ranges and Cronbach's alphas for predictor measures used at recruitment

Measure	Mean	Standard deviation	Range (possible range)	Cronbach's alpha
HADS				
Anxiety	4.43	3.87	0-17 (0-21)	.80
Depression	4.58	3.53	0-15 (0-21)	.72
Psychological distress (total)	9.02	6.45	0-32 (0-42)	.83
RLOC				
Internal control	39.47	4.13	24-45 (9-45)	.72
IPQ-R				
Time line (acute/chronic)	19.51	2.61	11-26 (6-30)	.89
Time line (cyclical)	9.72	3.32	4-20 (4-20)	.82
Consequences	18.13	3.27	9-25 (6-30)	.71
Personal control	20.17	2.11	13-27 (6-30)	.79
Treatment control	15.17	1.86	10-21 (5-25)	.77
Illness coherence	11.81	2.67	5-25 (5-25)	.85
Emotional representations	14.69	4.18	6-30 (6-30)	.80
Causes (risk)	10.55	3.93	5-23 (5-25)	.64
Causes (emotional/psychological)	8.30	3.22	5-21 (5-25)	.77
LCI				
- at 6-months pre-op				
Basic locomotor function	18.57	5.05	0-21 (0-21)	.93
Advanced locomotor function	16.04	6.91	0-21 (0-21)	.93
Locomotor function (total)	34.60	11.33	1-42 (0-42)	.95
TPB				
Behavioural intention	6.64	0.86	1-7 (1-7)	.90
Attitudes to behaviour	5.38	1.04	2.60-7 (1-7)	.75
Subjective norm	6.32	1.02	1.67-7 (1-7)	.87
Perceived behavioural control	6.23	0.91	2.67-7 (1-7)	.61
Behavioural beliefs x Outcome evaluations	46.65	15.56	4-63 (-63-63)	N/A
Normative beliefs x Motivation to comply	-44.18	30.13	-84-84 (-84-84)	N/A
Control beliefs x Control power	-6.27	17.28	-66-33 (-84-84)	N/A
Self-efficacy scale				
Prosthetic use self-efficacy	13.72	3.60	4-20 (4-20)	.84

A frequency summary of the self-reported causes of amputation, as measured by the IPQ-R causal items, is shown in table 6.2. The most frequently cited causes were chance or bad luck (reported by 42.7% of patients), smoking (35.0%), one's own behaviour (34.3%), and ageing (31.3%).

Table 6.2. Self-reported causes of amputation (N = 166)



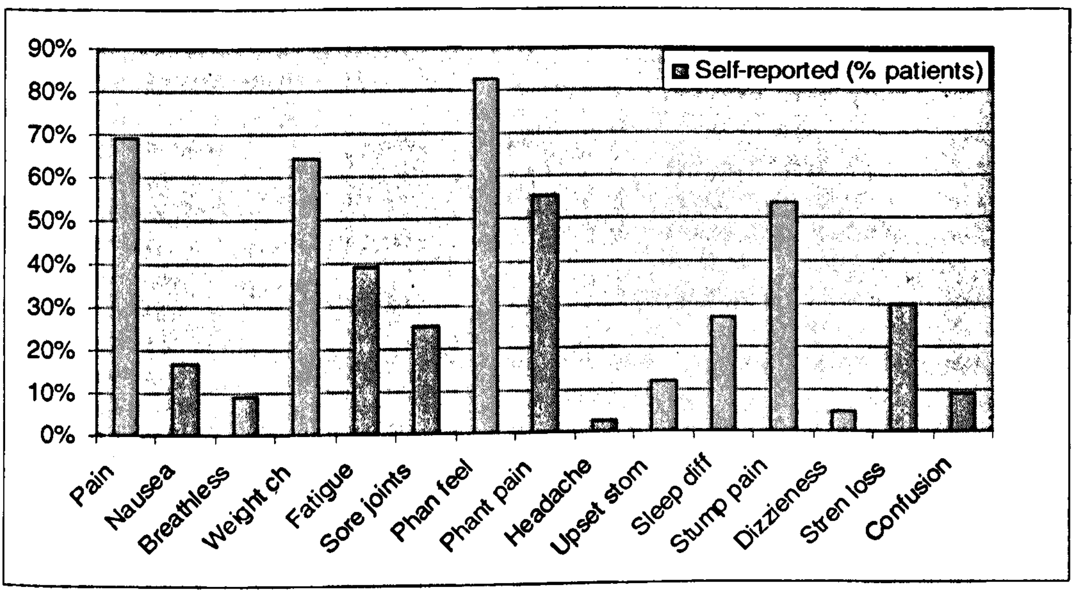
A principal components analysis with a varimax rotation was performed on the IPQ-R causal items (N = 17) as advised by Moss-Morris *et al.* (2002). The use of a cut-off item-to-factor correlation statistic of greater than 0.4 revealed five components. However, one of these components returned only two significant items, therefore, a four component model was forced. Only two of the subsequent four forced components achieved Cronbach's alpha coefficients of greater than 0.5, which were termed, in accordance with IPQ-R classification, as 1) risk behaviour factors (α = 0.63) and 2) emotional/psychological factors (α = 0.68). Minor movement of items in accordance with logical item groupings from all components with a view to achieving scales with the highest internal consistencies in these factors resulted in two causal attribution scales being developed that achieved Cronbach's alphas of greater than 0.6. One was for risk behaviour factors (α = 0.63) and the second was for psychological/emotional factors (α = 0.77). The rotated component matrix table for these analyses is shown in table 6.3.

Table 6.3. Principal component analysis with varimax rotation of the causal items from the IPQ-R forced into a two-component solution (N = 166)

	Component	
	Emotional/psychological factors	Risk behaviour factors
Diet or eating habits	.290	**.439**
My own behaviour	.120	**.785**
Overwork	.376	**.479**
Alcohol	.105	**.663**
Smoking	-.102	**.637**
Stress or worry	**.767**	-.124
My mental attitude **- thinking about life negatively**	**.542**	.502
Family problems/worries	**.767**	.048
My emotional state **- feeling down, lonely, etc.**	**.710**	.274
My personality	**.582**	.435

A frequency summary of the self-reported symptoms at recruitment, as measured by the IPQ-R identity items, is shown in table 6.4. The most frequently cited symptoms were phantom limb feelings (reported by 82.5% of patients), pain (69.3%), weight change (64.5%), phantom pain (55.4%), and stump pain (53.6%).

Table 6.4. Self-reported symptoms at recruitment (N = 166)



Outcome measures at 1-month follow-up

A summary of the descriptive data for all the outcome measures used at 1-month follow-up is illustrated on table 6.5. Of the 142 patients assessed on outcome measures at 1-month follow-up, 116 (81.7%) had been prescribed with a prosthesis, and the remaining 26 (18.3%) had not been prescribed with a prosthesis. Notably, the large standard deviations on the FMA - percentage of moves made (with a wheelchair or prosthesis) data, indicated that patients had a tendency to make either all moves, or no moves, using one or the other of these assistive devices.

Table 6.5. Summary of the means, standard deviations, ranges and Cronbach's alphas for outcome measures used at 1-month follow-up

Measure	Mean	Standard deviation	Range (possible)	Cronbach's alpha
HADS				
Anxiety	4.85	4.09	0-19 (0-21)	.83
Depression	5.11	3.70	0-18 (0-21)	.73
Psychological distress (total)	9.96	6.97	0-32 (0-42)	.86
RLOC				
Internal control	39.89	4.78	19-45 (9-45)	.82
FMA				
Percentage of moves made indoors				
Using a wheelchair	45.95	39.35	0-100 (0-100)	N/A
Using a prosthesis	49.12	39.88	0-100 (0-100)	N/A
Without a prosthesis	6.34	21.15	0-100 (0-100)	N/A
Percentage of moves made outdoors				
Using a wheelchair	46.83	45.92	0-100 (0-100)	N/A
Using a prosthesis	41.90	44.62	0-100 (0-100)	N/A
Without a prosthesis	2.11	12.80	0-100 (0-100)	N/A
Hours per day - first week at home	5.00	4.87	0-18 (0-24)	N/A
Hours per day - at 1-month follow-up	8.82	4.98	0-19 (0-24)	N/A
Days per week - first week at home	5.33	2.83	0-7 (0-7)	N/A
Days per week - at 1-month follow-up	6.20	2.01	0-7 (0-7)	N/A
LCI - at 1-month follow-up				
Basic locomotor function	15.74	6.77	0-21 (0-21)	.92
Advanced locomotor function	11.49	7.61	0-21 (0-21)	.91
Locomotor function (total)	27.23	13.65	0-42 (0-42)	.95

Outcome measures at 6-months follow-up

A summary of the descriptive data for all the outcome measures used at 6-months follow-up is illustrated on table 6.6. Of the 120 patients assessed on outcome measures at 6-months follow-up, 103 (85.8%) had been prescribed with a prosthesis, and the remaining 17 (14.2%) had not been prescribed with a prosthesis. Again, the large standard deviations on the FMA - percentage of moves made (with a wheelchair or prosthesis) data, indicated that patients often reported either 0% or 100% of movement using a wheelchair or a prosthesis. Internal consistency analysis was not appropriate for the PGI scores, because each individual respondent subjectively stipulated the items that contributed towards their own quality of life.

Table 6.6. Summary of the means, standard deviations, ranges and Cronbach's alphas for outcome measures used at 6-months follow-up

Measure	Mean	Standard deviation	Range (possible)	Cronbach's alpha
HADS				
Anxiety	4.63	4.00	0-19 (0-21)	.83
Depression	4.57	3.47	0-14 (0-21)	.77
Psychological distress (total)	9.20	6.64	0-27 (0-42)	.86
RLOC				
Internal control	39.17	4.76	25-45 (9-45)	0.80
FMA				
Percentage of moves made indoors				
Using a wheelchair	42.92	42.40	0-100 (0-100)	N/A
Using a prosthesis	55.46	41.45	0-100 (0-100)	N/A
Without a prosthesis	3.75	13.62	0-100 (0-100)	N/A
Percentage of moves made outdoors				
Using a wheelchair	45.42	46.01	0-100 (0-100)	N/A
Using a prosthesis	53.96	46.40	0-100 (0-100)	N/A
Without a prosthesis	1.46	10.40	0-100 (0-100)	N/A
Hours per day - at 1-month follow-up	10.01	4.86	0-22 (0-24)	N/A
Days per week - at 1-month follow-up	6.37	1.91	0-7 (0-7)	N/A
LCI (6-months follow-up)				
Basic locomotor function	16.47	6.73	0-21 (0-21)	.94
Advanced locomotor function	12.13	7.70	0-21 (0-21)	.92
Locomotor function (total)	28.59	13.68	0-42 (0-42)	.95
PGI	4.37	2.97	0-10 (0-10)	N/A

Changes in measures over the three data collection times

Total scores data for psychological distress, perceived control over recovery and activity limitations over the three assessment periods were entered into a separate spreadsheet. MANOVA analyses revealed no significant changes over time in psychological distress or perceived control over recovery, HADS ($F_{2, 216} = 2.72$, p = .068), or RLOC ($F_{2, 216} = 1.12$, p = 0.37), however, there was a significant change over time in activity limitations, LCI ($F_{2, 216} = 20.33$, p < .001). Post hoc analyses (Tukey HSD) revealed that the significant univariate relationships were between LCI assessments taken at a) 6-months pre-amputation and 1-month follow-up (mean difference = 7.37, p < .001), and b) 6-months pre-amputation and 6-months follow-up (mean difference = 6.01, p < .001). There was no significant difference found between the LCI assessments taken at 1-month and 6-months follow-up (mean difference = 1.36, p = 0.54). These results demonstrated that a) low psychological distress and highly perceived control over recovery remained stable over the three assessment times, and b) although activity limitations levels improved marginally between 1-month and 6-months post-discharge (n.s.), they significantly never returned to pre-operative levels.

As measured by the FMA, there was a significant increase in the percentage of movements made outdoors using a prosthesis between 1-month and 6-months follow-up (t = -3.16, p < 0.01), but not in the percentage of moves made indoors using a prosthesis between these two assessment times. Also, there was a significant improvement in hours per day of prosthetic use between 1-month and 6-months follow-up (t = -2.71, p < 0.01), but not in days per week of prosthetic use between these two assessment times.

Cognitive screening and correlation with outcomes

The cut-off score for cognitive screening on the information and orientation sections of the Clifton Assessment Procedures for the Elderly (CAPE: Pattie and Gilleard, 1979) was not specified. However, only one participant scored seven on the measure, which is taken to indicate severe cognitive impairment. The remaining scores were eight (N = 1), nine (N = 2) and 10 (N = 11), all taken to indicate mild cognitive impairment, followed by 11 ($N = 22$) and 12 ($N = 126$), indicating normal cognitive function. Three data sets were missing.

A two-tailed Pearson's correlation matrix featuring CAPE scores and study outcome variables revealed significant associations between cognitive status and days of prosthetic use at 1-week ($p < 0.01$), hours wearing a prosthesis at 1-month ($p < 0.01$), percentage of moves made with a prosthesis indoors at 1-month ($p < 0.05$) and 6-months ($p < 0.05$), basic activity limitations at 1-month ($p < 0.05$) and 6-months ($p < 0.05$), as well as advanced activity limitations at 1-month ($p < 0.05$) and 6-months ($p < 0.01$).

In summary, cognitive integrity predicted the following outcomes:

At 1-week follow-up

- More days of prosthetic use that week.

At 1-month follow-up

- A higher percentage of moves made indoors with a prosthesis.
- More days per week of wearing a prosthetic.
- Basic and advanced activity.

At 6-months follow-up

- A higher percentage of moves made indoors with a prosthesis.
- Basic and advanced activity.

Moreover, a similar pattern of correlations emerged when using non-parametric statistics (i.e., Kendall tau and Spearman's rho) to compensate for the unequal distribution of CAPE scores.

In conclusion, this chapter reported the results of descriptive data relating to a) the sample of patients recruited to take part in the study, and b) the assessment measures used, throughout the three assessment periods of the study. Results are also reported relating to significant differences in selected socio-demographic and clinical variables between patients who consented to take part in the study and patients who did not consent to take part over the three assessment periods. Finally, results are reported for changes in assessment measures over the three data collection times and CAPE correlations with outcomes.

Chapter 7: Results for predicting prosthetic prescription

(see: Appendix E, pages 296 - 301for SPSS output for this chapter)

This chapter reports a summary of the results for predicting prosthetic prescription. In particular, results are shown for a) the descriptive statistics of patients prescribed with a prosthesis, and b) the inferential statistics relating to predicting prosthetic prescription from variables related to the research questions (i.e., pre-operative activity limitations and post-operative cognitive representations and psychological distress) and predicting prosthetic prescription from variables not related to research questions (i.e., attitudes towards using a prosthesis, perceived control over recovery, self-efficacy, demographic variables and clinical variables).

Descriptive statistics for prosthetic prescription

Prosthetic prescription

Summary descriptive data are presented in table 7.0 relating to the percentage of participants who were prescribed with a prosthesis during inpatient rehabilitation following their amputation.

Table 7.0. Summary of patients prescribed with a prosthesis (N=166)

Prescribed with a prosthesis	Yes = 150 (90.4%)	No = 16 (9.6%)	N = 166

Inferential statistics relating to predictor variables specific to research questions

Predicting prosthetic prescription

A non-significant pre-operative activity limitations regression model emerged, with neither basic nor advanced activity limitations significantly predicting prosthetic prescription. A non-significant SRM cognitive representations regression model emerged, with none of the psychological variables significantly predicting prosthetic prescription. A non-significant psychological distress regression model emerged, with neither anxiety nor depression significantly predicting prosthetic prescription (see: table 7.1). That is, pre-operative activity limitations and psychological variables did not predict amputees being prescribed with a prosthesis.

Table 7.1. Summary of the extent to which being prescribed a prosthesis post-operatively is predicted by pre-operative activity limitations, SRM cognitive representations and psychological distress (N=166)

Predictor variables	Prosthetic fitting (Exp B)	95.0% C.I .for (Exp B)	
		Lower	Upper
LCI			
- at 6-months pre-op			
Basic locomotor function	1.033	.895	1.191
Advanced locomotor function	1.032	.918	1.159
	Model Chi-square = 2.198 (n.s.)		
	Cox & Snell R^2 = .013		
IPQ-R			
Identity (No. symptoms)	.893	.703	1.134
Timeline (acute/chronic)	.965	.868	1.072
Timeline (cyclical)	.886	.744	1.056
Consequences	.951	.822	1.100
Personal control	1.172	.959	1.432
Treatment control	.927	.743	1.155
Illness coherence	.861	.691	1.073
Emotional reps	1.074	.926	1.245
Causes (risk)	1.050	.891	1.238
Causes (emotional/psychological)	.976	.787	1.210
	Model Chi-square = 8.856 (n.s.)		
	Cox & Snell R^2 = .052		
HADS			
Anxiety	1.052	.900	1.230
Depression	.917	.785	1.071
	Model Chi-square = 1.145 (n.s.)		
	Cox & Snell R^2 = .007		

n.s. = non-significant $p < .05$* $p < .01$** $p < .001$*** Multiple logistic regression results using the enter method

Inferential statistics relating to predictor variables not specific to research questions

Predicting prosthetic prescription

Non-significant TPB attitude cognitions, recovery locus of control and self-efficacy regression models emerged for predicting prosthetic prescription. A significant demographic variables regression model did, however, emerge for predicting prosthetic prescription, with deprivation index being the sole significant variable within the model (see: table 7.2). That is, within this model, amputees who lived in less deprived areas were more likely to be prescribed a prosthesis. A significant clinical variables regression model also emerged, with amputation level, co-morbidity (diabetes) and unilateral/bilateral status being significant variables within the model (see: table 7.2). That is, within this model, transtibial amputees with a unilateral amputation, who also had diabetes, were more likely to be prescribed a prosthesis.

Table 7.2. Summary of the extent to which being prescribed a prosthesis post-operatively is predicted by TPB attitude cognitions, recovery locus of control, self-efficacy, socio-demographic and clinical variables (N=166)

	Prosthetic fitting (Exp B)	95.0% C.I .for (Exp B)	
		Lower	Upper
TPB			
Behavioural intention	.000	.000	.
Attitudes to behaviour	.540	.155	1.887
Subjective norm	1.219	.273	5.445
Perceived behavioural control	.659	.093	4.666
Behavioural beliefs x Outcome evaluations	1.039	.968	1.114
Normative beliefs x Motivation to comply	1.017	.973	1.063
Control beliefs x Control power	.980	.930	1.034
	Model Chi-square = 7.195 (n.s.)		
	Cox & Snell R^2 = .046		
RLOC			
Internal control	1.010	.893	1.143
	Model Chi-square = .026 (n.s.)		
	Cox & Snell R^2 = .000		
Self-efficacy scale			
Prosthetic use self-efficacy	.922	.723	1.175
	Model Chi-square = .454 (n.s.)		
	Cox & Snell R^2 = .003		
Demographic variables			
Age	.949	.895	1.006
Gender	.590	.186	1.868
Deprivation index	.969*	.943	.997
	Model Chi-square = 8.728*		
	Cox & Snell R^2 = .052		
Clinical variables			
Amputation level	.155**	.038	.633
Diabetes	6.463*	1.300	32.127
Unilateral/Bilateral	13.600**	2.542	72.759
Time in hospital	1.010	.993	1.028
LCI			
- at 6-months pre-op			
Basic locomotor function	.970	.821	1.146
Advanced locomotor function	1.111	.970	1.272
	Model Chi-square = 24.753***		
	Cox & Snell R^2 = .143		

n.s. = non-significant $p < .05$* $p < .01$** $p < .001$*** Multiple logistic regression results using the enter method

In conclusion, this chapter reported the results for predicting prosthetic prescription. In particular, 90.4% of the recruited sample was prescribed with a prosthesis, and this was only predicted by demographic and clinical variables that did not form part of the relevant research question.

Chapter 8: Results for predicting prosthetic use

(see: Appendix E, pages 302 - 346 for SPSS output for this chapter)

This chapter reports a summary of the descriptive and inferential statistical results for predicting prosthetic use. In particular, results are shown relating to a) the TPB variables (i.e., attitudes towards using a prosthesis) in predicting prosthetic use at 1-week post-discharge from rehabilitation and b) the SRM variables (i.e., cognitive representations) and psychological distress for predicting prosthetic use at 1-month post-discharge and 6-months post-discharge follow-up. Variables that were not related to the research questions (i.e., perceived control over recovery, self-efficacy, demographic variables and clinical variables) were also explored for their ability to predict prosthetic use at 1-month and 6-months follow-up.

Descriptive statistics for TPB outcome variables

Behavioural intention to use a prosthesis

Summary descriptive data are presented in table 8.0 relating to participants intentions (while they were undergoing post-operative inpatient rehabilitation) to use their prosthesis one week after being discharged. Behavioural intention is also summarised as a psychological predictor variable in chapter six, as it is viewed as both an outcome and a predictor variable within the TPB framework. One hundred and fifty three (153) participants completed the TPB questionnaire at recruitment, although 150 participants were actually prescribed with a prosthesis. That is, three patients completed the TPB questionnaire who were not, subsequently, prescribed with a prosthesis, perhaps because they believed themselves to be candidates for prosthetic rehabilitation at that time.

Table 8.0. Summary of patients' intention to use a prosthesis (N=153)

Intention to use a prosthesis (0-7)	Mean = 6.64	SD = .86	N = 153

Prosthetic use during the first week at home

Summary descriptive data are presented in table 8.1 relating to participants use of their prosthesis during the first week after being discharged from post-operative inpatient rehabilitation. These data were gathered at 1-month follow-up and report the hours per day and number of days during that particular week of prosthetic use. Of the 150 participants who were prescribed with a prosthesis at recruitment, there were only 116 completed data sets available (from a possible 142) relating to prosthetic use. That means that despite 90.4% of patients being prescribed with a prosthesis at recruitment, only 81.7% reported actually using a prosthesis when interviewed at 1-month follow-up. This is probably due largely to the residual 8.7% of the recruited sample being unsuccessful at rehabilitating with a prosthesis between inpatient discharge and 1-months follow.

Table 8.1. Summary of patients' prosthetic use during the first week at home (N=116)

Prosthetic use during first week at home	Mean	SD	N
Hours per day	5.00	4.87	116
Days per week	5.33	2.83	116

Inferential statistics relating to TPB predictor variables

Predicting hours per day of prosthetic use during the first week at home

A non-significant TPB behavioural regression model emerged for predicting hours per day of prosthetic use during the first week at home (see: table 8.2). That is, behavioural intention and perceived control did not determine how many hours per day amputees used their prosthesis during their first week at home. Note, that despite 116 data sets being available for prosthetic use outcomes at 1-month follow-up (relating to prosthetic use at 1-week post-discharge and 1-month follow-up), only 113 were able to be entered into TPB multiple regression equations. This means that there was a slight disparity between patients who completed the TPB predictor variables at recruitment and those who completed the prosthetic use outcome variables at 1-month follow-up.

Table 8.2. Summary of regression analysis for TPB variables predicting hours per day of prosthetic use during the first week at home (N=113)

Predictor variables	B	Std Error	β (Beta)
Behavioural intention	.535	.517	.103
Perceived control	.046	.506	.009
			F = .620
			Ad R^2 = -.007

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Predicting days per week of prosthetic use during first week at home

A significant TPB behavioural regression model emerged for predicting days per week of prosthetic use during the first week at home, with 9.9% of the variance in days per week of prosthetic use being explained by the variance in behavioural intention ($p < .05$) and perceived control ($p < .05$) (see: table 8.3). That is, amputees with a) mental readiness (i.e., behavioural intention), and b) positive beliefs during rehabilitation in their ability to use a prosthesis, did so more days during their first week at home.

Table 8.3. Summary of regression analysis for TPB variables predicting days per week of prosthetic use during the first week at home (N=113)

Predictor variables	B	Std Error	β (Beta)
Behavioural intention	.682	.274	.233*
Perceived control	.537	.268	.188*
			F = 7.180***
			Ad R^2 = .099

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Predicting intention to use a prosthesis

In accordance with the TRA and TPB models, behavioural intention was entered into multiple regression with attitude evaluation and subjective norm (TRA) at step one, with perceived control being entered at step two (TPB). A significant TRA behavioural intention regression model emerged at step one, with 14.3% of the variance in behavioural intention scores being explained by the variance in attitude evaluation and subjective norm scores. However, subjective norm emerged as the only significant predictor variable in this model (see: table 8.4). A significant TPB behavioural intention regression model also emerged at step two, with 16.7% of the variance in behavioural intention scores being explained by the variance in attitude evaluation, subjective norm and perceived control scores. Subjective norm and perceived control emerged as the significant predictor variables in this model (see: table 8.1). That is, during rehabilitation, amputees who a) perceived social pressure to engage in prosthetic use, and b) perceived that they would be able to successfully use a prosthesis, were more likely to form intentions to use a prosthesis.

Table 8.4. Summary of hierarchical regression analysis for TPB variables predicting intention to use a prosthesis (N=153)

	Predictor variables	B	Std Error	β (Beta)
Step 1				
	Attitudes to behaviour	.085	.069	.102
	Subjective norm	.284	.071	$.336^{***}$
				$F = 13.638^{***}$
				Ad $R^2 = .143$
Step 2				
	Attitudes to behaviour	-.004	.078	-.005
	Subjective norm	.281	.070	$.333^{***}$
	Perceived control	.193	.083	$.204^{*}$
				$F = 11.158^{***}$
				Ad $R^2 = .167$

p < .05* p < .01** p < .001*** Multiple linear regression results using the hierarchical step method

Predicting attitudes to behaviour from behavioural beliefs x outcome evaluations

In accordance with the TPB model, attitudes to behaviour were entered into a multiple regression equation with behavioural beliefs x outcome evaluations. A significant attitudes to behaviour regression model emerged, with 29.4% of the variance in attitudes to behaviour scores being explained by the variance in behavioural beliefs x outcome evaluations scores. Getting about ($p < .01$) and participating in activities ($p < .001$) emerged as the significant predictor variable in this model (see: table 8.5). That is, during rehabilitation, amputees who believed that using their prosthesis would enable them to get about and would enable them to participate in activities, and they valued these outcomes, were more likely to view using a prosthesis positively rather than negatively.

Table 8.5. Summary of regression analysis for TPB behavioural belief variables predicting attitudes to behaviour (N=153)

Predictor variables	**B**	**Std Error**	**β (Beta)**
Getting about	.035	.010	.294**
Being independent	.008	.010	.073
Participating in activities	.022	.006	.306***
			$F = 22.118$***
			Ad $R^2 = .294$

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Predicting subjective norm from normative beliefs x motivation to comply

In accordance with the TPB model, subjective norm was entered into a multiple regression equation with normative beliefs x motivation to comply. A significant subjective norm regression model emerged, with 30.9% of the variance in subjective norm scores being explained by the variance in normative beliefs x motivation to comply scores. One's family (p < .001) and the NHS staff (p < .001) emerged as the significant predictor variable in this model (see: table 8.6). That is, during rehabilitation, amputees who believed that their families and the NHS staff were important people in relation to using their prosthesis, and they were motivated to comply with these people, were more likely to perceive social pressure to use a prosthesis.

Table 8.6. Summary of regression analysis for TPB normative belief variables predicting subjective norm (N=153)

Predictor variables	B	Std Error	β (Beta)
One's family	.020	.005	.295***
The NHS staff	.030	.007	.346***
One's friends	-.001	.006	-.014
The other patients	.005	.006	.076
			$F = 17.979$***
			Ad $R^2 = .309$

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Predicting perceived control from control beliefs x control power

In accordance with the TPB model, perceived control was entered into a multiple regression equation with control beliefs x control power. A non-significant perceived control regression model emerged (see: table 8.7). That is, during rehabilitation, amputees' beliefs in control factors (e.g., stairs and disabled facilities), and the power of these factors, did not influence the perceptions of their ability to use a prosthesis.

Table 8.7. Summary of regression analysis for TPB control belief variables predicting perceived control (N=153)

Predictor variables	B	Std Error	β (Beta)
A lot of stairs	.000	.007	-.004
Slippery and rough surfaces	.011	.008	.121
Disabled facilities	.009	.005	.160
People helping	.003	.005	.005
			$F = 1.698$
			Ad $R^2 = .018$

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Descriptive statistics for other prosthetic use outcome variables

Prosthetic use at 1-month and 6-months post-discharge

Summary descriptive data are presented in table 8.8 relating to participants use of a prosthesis at 1-month and 6-months post-discharge from post-operative inpatient rehabilitation. These data report the percentage of moves made using a prosthesis (both indoors and outdoors), as well as the average hours per day and days per week of prosthetic use at these times. At 1-month follow-up, there are data from all of the respondents on the items relating to percentage of moves made using a prosthesis (N = 142) because these items offered respondents the chance to also select the percentage of moves made using a wheelchair, and hence all respondents were able to complete these items. In contrast, the hours per day, and days per week, of prosthetic use items were only relevant to respondents who actually reported using a prosthesis and, subsequently, were only completed by such participants (N = 116). To this end, these latter data (i.e., hours per day and days per week) do not distinguish prosthetic users from non-users, but rather, the extent of use (by prosthetic users). Similarly, at 6-months follow-up, all respondents completed the items offering a wheelchair variable (N = 120), while only those individuals reporting the use of a prosthesis completed the hours and days of prosthetic use variables (N = 103). Of further note in relation to these data are the large standard deviations relating to the percentage of moves made using a prosthesis questions. This suggests that participants had a tendency to report using their prosthesis for 100% of their moves or, alternatively, for 0% of their moves, both indoors and outdoors. Finally, there was a slight improvement on all four outcome variables assessing prosthetic use between 1-month and 6-months follow-up.

Table 8.8. Summary of patients' prosthetic use at 1 and 6 months post-discharge

Prosthetic use	Mean	SD	N
At 1-month follow-up			
Percentage of moves made using a prosthesis indoors	49.12%	39.88	142
Percentage of moves made using a prosthesis outdoors	41.90%	44.62	142
Hours per day	8.82	4.98	116
Days per week	6.20	2.01	116
At 6-months follow-up			
Percentage of moves made using a prosthesis indoors	55.46%	41.45	120
Percentage of moves made using a prosthesis outdoors	53.96%	46.40	120
Hours per day	10.01	4.86	103
Days per week	6.37	1.91	103

Inferential statistics relating to SRM and distress predictor variables

(see: table 8.9)

Predicting prosthetic use at 1-month

A significant SRM cognitive representations model emerged for predicting indoor prosthetic use at 1-month. Timeline (cyclical) emerged as the sole significant predictor variable within the model, while treatment control and causal attributions (risk factors) approached significance. Therefore, within this model, amputees who perceived during rehabilitation that their physical symptoms fluctuated less, used a prosthesis more indoors at 1-month post-discharge.

A significant psychological distress model emerged for predicting indoor prosthetic use at 1-month, with depression emerging as the sole significant predictor variable within the model. Subsequently, amputees who were less depressed during rehabilitation, used a prosthesis more indoors at 1-month post-discharge.

Predicting prosthetic use at 6-months

A significant SRM cognitive representations model emerged for predicting indoor prosthetic use at 6-months. Timeline (cyclical) and treatment control emerged as significant predictor variables within this model. This meant, that amputees who perceived during rehabilitation that a) their physical symptoms fluctuated less, and b) their treatment would be effective in controlling their condition, used a prosthesis more indoors at 6-months post-discharge.

A significant SRM cognitive representations model also emerged for predicting outdoor prosthetic use at 6-months. Timeline (cyclical), treatment control, and causal attributions (emotional/psychological) emerged as significant predictor variables within the model. Therefore, amputees who perceived during rehabilitation that a) their physical symptoms fluctuated less, b) their treatment would be effective in controlling their condition, and c) their condition was caused by emotional/psychological factors (e.g., stress, mental attitude, personality, etc.), used a prosthesis more outdoors at 6-months post-discharge.

A SRM cognitive representations model also significantly determined hours per day of prosthetic use at 6-months (by the 103 amputees who reported using a prosthesis), with timeline (cyclical) and causal attributions (risk factors and emotional/psychological factors) emerging as significant predictor variables within the model. So, amputees who perceived during rehabilitation that a) their physical symptoms fluctuated less, b) their condition was *not* caused by risk factors (e.g., diet, overwork, smoking, etc.), but was caused by emotional/psychological factors (e.g., stress, mental attitude, personality, etc.), used a prosthesis more hours per day at 6-months post-discharge.

A significant psychological distress model emerged for predicting indoor prosthetic use at 6-months, with depression emerging as the sole significant predictor variable within the model. Subsequently, amputees who were less depressed during rehabilitation, used a prosthesis more indoors at 6-months post-discharge.

Table 8.9. Summary of to what extent SRM cognitive representations and psychological distress predict whether the patient uses a prosthesis at 1 and 6 months post-discharge

	Prosthetic use at 1-month (β)				**Prosthetic use at 6-months (β)**			
	Indoor	Outdoor	Hours	Days	Indoor	Outdoor	Hours	Days
IPQ-R								
Identity (No. symptoms)	-.029	-.049	.015	.045	.053	-.081	.055	.149
Timeline (acute/chronic)	-.060	.029	-.108	-.188	-.150	-.092	-.102	-.198
Timeline (cyclical)	-.178*	-.155	-.200	-.126	-.364***	-.307**	-.405***	-.234*
Consequences	-.031	-.048	.167	.027	.005	-.019	.050	.147
Personal control	-.091	-.112	.013	-.050	-.105	-.097	-.032	.156
Treatment control	.211	.229*	.186	.000	.247*	.253*	-.007	-.034
Illness coherence	-.101	-.115	-.114	.007	-.192	-.043	-.111	-.054
Emotional reps	-.134	-.123	-.133	-.102	-.158	-.027	-.123	-.108
Causes (risk)	.184	.082	.111	.054	-.080	-.037	-.285*	-.222
Causes (emotional/psychological)	.086	.144	-.070	-.020	.141	.224*	.226*	.062
	F = 2.288* Ad R^2 = .084	*F* = 1.638 Ad R^2 = .043	*F* = 1.379 Ad R^2 = .032	*F* = .783 Ad R^2 = -.019	*F* = 2.948** Ad R^2 = .141	*F* = 2.703** Ad R^2 = .125	*F* = 2.394* Ad R^2 = .120	*F* = 1.723 Ad R^2 = .066
HADS								
Anxiety	-.049	-.072	-.149	-.081	-.017	-.017	-.040	-.070
Depression	-.202*	-.126	-.073	-.095	-.253*	-.147	-.122	-.140
	F = 3.911* Ad R^2 = .040	*F* = 2.136 Ad R^2 = .016	*F* = 2.261 Ad R^2 = .021	*F* = 1.350 Ad R^2 = .006	*F* = 4.303* Ad R^2 = .053	*F* = 1.452 Ad R^2 = .008	*F* = 1.082 Ad R^2 = .002	*F* = 1.755 Ad R^2 = .015

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Inferential statistics relating to predictor variables not specific to research questions

(see: table 8.10)

Predicting prosthetic use at 1-month

Theory of planned behaviour variables are reasoned to adhere to the principle of compatibility (Aizen and Fishbein, 1977), whereby variables of a given disposition are said to be compatible with each other to the extent that their *target, action, context* and *time* elements are assessed at identical levels of generality or specificity. That is, the more similar these four elements are defined and assessed between one variable (e.g., a belief or an attitude) and another (e.g., a behaviour), the stronger the statistical relationship between them will be. This requisite has been adhered to in the

TPB analyses above (e.g., beliefs about, and subsequent behaviour of, prosthetic use *during one's first week at home*), however, prosthetic use outcome variables at 1-month and 6-months follow-up were also entered into regression equations with TPB predictor variables to explore if any significant relationships emerged. The only significant TPB attitude cognitions regression model to emerge predicted indoor prosthetic use at 6-months, however, no single TPB variable reached significance within this model. Perhaps, this finding can be taken as some evidence to support the stronger statistical relationships achieved by adhering to the principle of compatibility.

A significant recovery locus of control model emerged for predicting indoor and outdoor prosthetic use, and a significant self-efficacy model emerged for predicting outdoor prosthetic use only at 1-month. These were effectively bivariate regressions because only two variables were being compared in each case. Effectively, amputees with internal perceptions of control over their recovery during rehabilitation used a prosthesis more indoors and outdoors at 1-month post-discharge, and amputees with strong self-efficacy beliefs in their prosthetic capabilities during rehabilitation used a prosthesis more (outdoors only) at 1-month post-discharge.

Demographic variables regression models were non-significant for predicting prosthetic use at 1-month, however, clinical variables regression models were significant in predicting indoor and outdoor prosthetic use, with diabetes emerging as the sole significant variable for predicting indoor prosthetic use, and pre-operative activity limitations (advanced locomotor function) emerging as the sole significant variable for predicting outdoor prosthetic use, respectively, within these models. That is, within these clinical variables models, amputees with diabetes used a prosthesis more indoors, and those with better advanced pre-operative activity limitations used a prosthesis more outdoors at 1-month post-discharge.

Predicting prosthetic use at 6-months

Significant recovery locus of control and self-efficacy models also emerged for predicting both indoor and outdoor prosthetic use at 6-months. Hence, amputees with internal perceptions of control over their recovery, and with strong self-efficacy beliefs in their prosthetic capabilities during rehabilitation, used a prosthesis more indoors and outdoors at 6-months post-discharge.

Demographic variables models were again non-significant for predicting prosthetic use at 6-months, however, clinical variables regression models were highly significant in predicting indoor and outdoor prosthetic use, with amputation level emerging as a significant variable in both models, and time in hospital also being a significant variable within the model predicting indoor prosthetic use. Thus, within the clinical variables models, transtibial amputees, who spent less time in hospital during rehabilitation, used a prosthesis more indoors at 6-months post-discharge, however, only transtibial amputees used a prosthesis more outdoors at 6-months post-discharge.

Table 8.10. Summary of to what extent TPB attitude cognitions, recovery locus of control, self-efficacy, socio-demographic and clinical variables predict whether the patient uses a prosthesis at 1 and 6 months post-discharge

	Prosthetic use at 1-month (β)				Prosthetic use at 6-months (β)			
	Indoor	Outdoor	Hours	Days	Indoor	Outdoor	Hours	Days
TPB								
Behavioural intention	.025	.048	.139	.224*	.201	.211	.195	-.010
Attitudes to behaviour	.068	.065	.265*	.153	-.007	.036	.036	-.077
Subjective norm	.061	.022	-.096	-.062	.142	.105	-.078	-.016
Perceived control	-.016	-.037	-.281*	-.020	.130	-.020	-.089	.157
Behavioural beliefs x Outcome evaluations	.197	.278*	.217	-.031	.099	.141	.200	.035
Normative beliefs x Motivation to comply	.073	.064	.033	.025	.134	.148	.023	-.043
Control beliefs x Control power	.051	.072	.000	-.046	.031	.008	.105	.085
	F = 1.172 Ad R^2 = .009	*F* = 1.895 Ad R^2 = .046	*F* = 1.845 Ad R^2 = .050	*F* = 1.008 Ad R^2 = .001	*F* = 2.235* Ad R^2 = .073	*F* = 1.559 Ad R^2 = .034	*F* = 1.379 Ad R^2 = .026	*F* = .442 Ad R^2 = -.041
RLOC								
Internal control	.168*	.212*	.165	.138	.183*	.251**	.047	.063
	F = 4.077* Ad R^2 = .021	*F* = 6.571* Ad R^2 = .038	*F* = 3.206 Ad R^2 = .019	*F* = 2.216 Ad R^2 = .010	*F* = 4.104* Ad R^2 = .025	*F* = 7.914** Ad R^2 = .055	*F* = .228 Ad R^2 = -.008	*F* = .396 Ad R^2 = -.006
Self-efficacy scale								
Prosthetic use self-efficacy	.134	.189*	.088	.038	.224*	.264**	.164	.102
	F = 2.365 Ad R^2 = .010	*F* = 4.826* Ad R^2 = .028	*F* = .874 Ad R^2 = -.001	*F* = .165 Ad R^2 = -.008	*F* = 5.736* Ad R^2 = .041	*F* = 8.195** Ad R^2 = .061	*F* = 2.706 Ad R^2 = .017	*F* = 1.030 Ad R^2 = .000
Demographic variables								
Age	-.003	-.095	-.055	.008	-.025	-.071	-.007	-.021
Gender	.038	.130	.013	-.013	-.024	.104	-.056	.007
Deprivation index	-.030	-.031	-.040	-.006	-.132	-.065	-.136	-.251*
	F = .114 Ad R^2 = -.019	*F* = 1.434 Ad R^2 = .009	*F* = .171 Ad R^2 = -.022	*F* = .011 Ad R^2 = -.026	*F* = .660 Ad R^2 = -.009	*F* = .887 Ad R^2 = -.003	*F* = .696 Ad R^2 = -.009	*F* = 2.170 Ad R^2 = .033
Clinical variables								
Amputation level	.133	.132	.000	.016	.242**	.318***	.186	.083
Diabetes	.225**	.098	.145	.192	-.056	-.094	-.104	-.033
Unilateral/Bilateral	.080	-.016	-.146	-.101	.115	.075	-.014	-.051
Time in hospital	.024	.048	-.062	-.022	-.199*	-.140	-.148	-.139
LCI - at 6-months pre-op								
Basic locomotor function	.010	-.055	.099	-.119	.079	.159	-.057	.003
Advanced locomotor function	.181	.298*	.077	.168	.177	.228	.127	.088

	F = 2.836* Ad R^2 = .073	*F* = 2.204* Ad R^2 = .049	*F* = 1.059 Ad R^2 = .003	*F* = 1.001 Ad R^2 = .000	*F* = 3.985*** Ad R^2 = .132	*F* = 6.623*** Ad R^2 = .222	*F* = 1.055 Ad R^2 = .003	*F* = .529 Ad R^2 = -.029

$p < .05$* $p < .01$** $p < .001$*** **Multiple linear regression results using the enter method**

Inferential statistics relating to hierarchical step regression analyses

(see: tables 8.11 – 8.14)

In order to provide potentially more useful information to healthcare professionals and providers (e.g., clinical managers), significant variables from the above analyses were entered into hierarchical step regression analyses to predict outcomes at 6-months follow-up. These were entered into linear regression equations in the following order:

Step 1. Significant socio-demographic variables

Step 2. Significant clinical variables

Step 3. Significant psychological variables

The purpose of these analyses was to see if psychological variables explained any variance in prosthetic use at 6-months follow-up over and above that already accounted for by socio-demographic and clinical variables.

Predicting percentage of moves made indoors using a prosthesis at 6-months

Table 8.11. Summary of hierarchical step regression analysis for significant variables predicting percentage of moves made indoors using a prosthesis at 6-months follow-up

	Predictor variables	B	Std Error	β (Beta)
Step 1				
	Amputation level	15.713	8.477	.170
	Time in hospital	-.248	.089	-.256**
				$F = 5.438^{**}$
				Ad $R^2 = .075$
Step 2				
	Amputation level	14.148	7.993	.153
	Time in hospital	-.251	.085	-.259**
	Timeline (cyclical)	-3.850	1.115	-.301**
	Treatment control	.292	1.123	.025
	Internal locus of control	.964	.907	.095
	Prosthetic use self-efficacy	1.613	1.041	.145
				$F = 5.269^{***}$
				Ad $R^2 = .189$

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$ Multiple linear regression results using the hierarchical step method

No socio-demographic variables predicted percentage of moves made indoors using a prosthesis at 6-months. However, the addition of psychological variables at step two explained a further 11.4% of the variance accounted for by the clinical variables of amputation level and time in hospital (i.e., 7.5%) at step one. In particular, time in hospital and timeline cyclical emerged as significant variable within step two of the model. This meant that amputees who had spent less time in hospital post-operatively made a higher percentage of moves indoors using a prosthesis at 6-months post discharge, however, perceptions of symptoms fluctuating (i.e., particularly pain-related) during inpatient rehabilitation were also important in determining this outcome.

Predicting percentage of moves made outdoors using a prosthesis at 6-months

Table 8.12. Summary of hierarchical step regression analysis for significant variables predicting percentage of moves made outdoors using a prosthesis at 6-months follow-up

	Predictor variables	B	Std Error	β (Beta)
Step 1				
	Amputation level	25.694	9.812	$.243^{*}$
				$F = 6.857^{*}$
				Ad $R^2 = .051$
Step 2				
	Amputation level	21.579	9.121	$.204^{*}$
	Timeline (cyclical)	-3.962	1.265	$-.271^{**}$
	Treatment control	.270	1.272	.020
	Causes (emotional/psychological)	2.280	1.252	.160
	Internal locus of control	2.586	1.014	$.222^{*}$
	Prosthetic use self-efficacy	2.397	1.175	$.189^{*}$
				$F = 5.998^{***}$
				Ad $R^2 = .214$

$p < .05^{*}$ $p < .01^{**}$ $p < .001^{***}$ Multiple linear regression results using the hierarchical step method

No socio-demographic variables predicted percentage of moves made outdoors using a prosthesis at 6-months. However, the addition of psychological variables at step two explained a further 16.3% of the variance accounted for by the clinical variable of amputation level (i.e., 5.1%) at step one. In particular, amputation level, timeline cyclical, internal locus of control and prosthetic use self-efficacy emerged as significant variables within step two of the model. This meant that transtibial amputees made a higher percentage of moves outdoors using a prosthesis at 6-months post discharge, however, perceptions of symptoms fluctuating, internal perceptions of control over recovery, and strong self-efficacy beliefs in prosthetic capabilities during inpatient rehabilitation were also important determinants of this outcome.

Predicting hours per day of wearing a prosthesis at 6-months

Table 8.13. Summary of hierarchical step regression analysis for significant variables predicting hours per day of wearing a prosthesis at 6-months follow-up

	Predictor variables	B	Std Error	β (Beta)
Step 1				
	Timeline (cyclical)	-.591	.143	-.383***
	Causes (risk)	-.328	.124	-.270**
	Causes (emotional/psychological)	.313	.155	.209*
				$F = 7.427$***
				Ad $R^2 = .159$

$p < .05$* $p < .01$** $p < .001$*** Multiple linear regression results using the hierarchical step method

No socio-demographic or clinical variables predicted hours per day of wearing a prosthesis at 6-months, however, psychological variables explained 15.9% of the variance in this outcome. In particular, timeline cyclical, attributions of risk-related and emotional/psychological-related causes emerged as significant variables within the model. That is, amputees wore their prosthesis more hours per day at 6-months post-discharge if they had fewer perceptions of symptoms fluctuating during inpatient rehabilitation and believed that their condition a) was not caused by risk factors (e.g., diet, overwork, smoking, etc), but, b) was caused by emotional/psychological factors (e.g., stress, mental attitude, personality, etc).

Predicting days per week of wearing a prosthesis at 6-months

Table 8.14. Summary of hierarchical step regression analysis for significant variables predicting days per week of wearing a prosthesis at 6-months follow-up

	Predictor variables	B	Std Error	β (Beta)
Step 1				
	Deprivation index	-.027	.011	.247*
				$F = 6.585^*$
				Ad $R^2 = .052$
Step 2				
	Deprivation index	-.023	.011	-.214*
	Timeline (cyclical)	-.121	.058	-.199*
				$F = 5.543^{**}$
				Ad $R^2 = .082$

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$ Multiple linear regression results using the hierarchical step method

No clinical variables predicted days per week of wearing a prosthesis at 6-months. However, the addition of psychological variables at step two explained a further 3% of the variance accounted for by the socio-demographic variable of deprivation index (i.e., 5.2%) at step one. In particular, deprivation index and timeline cyclical emerged as significant variables within step two of the model. This meant that amputees wore their prosthesis more days per week at 6-months post-discharge if they lived in less deprived areas and had fewer perceptions of symptoms fluctuating during inpatient rehabilitation.

Qualitative data relating to prosthetic use

At 6-months follow-up, participants were given two open-ended questions about why and when they used their prosthesis. There were 102 responses on each question (i.e., total number = 204).

The majority of responses as to why participants used their prosthesis related to issues of mobility (e.g., getting about, walking, etc), which accounted for around 78% of responses. The second largest category related to appearance-based factors (e.g., looking normal, for dress, to stop people staring, etc), which accounted for around 11% of responses. The remaining 11% of responses were varied and at times quite humorous (e.g., I can't hop!).

The majority of responses about when participants used their prosthesis primarily related to always using it (e.g., every day, when awake, etc), which accounted for around 72% of responses. The second largest category related to specific occasions or times (e.g., to do housework, in the mornings, etc), which accounted for around 23% of responses and the remaining 7% consisted of various other responses.

In conclusion, this chapter reported the results for predicting prosthetic use. In particular, results are presented relating to a) descriptive data for TPB outcome variables (including prosthetic use at 1-week post-discharge), and b) inferential statistics relating to TPB predictor variables. Results are also presented relating to c) descriptive data for other prosthetic use outcome variables (prosthetic use at 1-month and 6-months post-discharge), and d) inferential statistics relating to SRM and distress predictor variables. Finally, results are presented for inferential statistics relating to predictor variables not specific to research questions, hierarchical step regression analyses and qualitative data.

Chapter 9: Results for predicting activity limitations

(see: Appendix E, pages 347 - 368 for SPSS output for this chapter)

This chapter reports a summary of the descriptive and inferential statistical results for predicting activity limitations. In particular, results are shown relating to the SRM variables (i.e., cognitive representations) for predicting activity limitations at 1-month post-discharge and 6-months post-discharge follow-up. Variables that were not related to the research questions (i.e., TPB variables, psychological distress, perceived control over recovery, self-efficacy, demographic variables and clinical variables) were also explored for their ability to predict activity limitations at 1-month and 6-months follow-up.

Descriptive statistics for activity limitations variables

Activity limitations at 6-months pre-amputation, and at 1-month then 6-months post-discharge

Summary descriptive data are presented in table 9.0 relating to participants activity limitations at 6-months pre-amputation, and at 1-month then 6-months post-discharge from post-operative inpatient rehabilitation. These data report both basic locomotor function and advanced locomotor function. At 6-months pre-amputation, there are data from 164 participants (from a possible 166), which was probably due to two participants not completing the LCI inventory because they were using a wheelchair six months before their operation. In contrast, 116 participants and 103 participants completed the LCI inventory at 1-month follow-up and 6-months follow-up as expected, as these were the numbers of patients who reported using a prosthesis at those times. Although there was a marginal improvement in activity limitations between 1-month follow-up and 6-months follow-up (on both basic locomotor capabilities and advanced locomotor capabilities), functional activity never returned to 6-months pre-operative levels.

Table 9.0. Summary of patients' activity limitations at 6-months pre-amputation and 1 and 6 months post-discharge

Activity limitations	Mean	SD	N
At 6-months pre-amputation			
Basic locomotor function (0-21)	18.57	5.05	164
Advanced locomotor function (0-21)	16.04	6.91	164
At 1-month follow-up			
Basic locomotor function (0-21)	15.74	6.77	116
Advanced locomotor function (0-21)	11.49	7.61	116
At 6-months follow-up			
Basic locomotor function (0-21)	16.47	6.73	103
Advanced locomotor function (0-21)	12.13	7.70	103

Inferential statistics relating to SRM predictor variables

(see: table 9.1)

Predicting activity limitations at 1-month

A significant SRM cognitive representations model emerged for predicting both basic activity limitations and advanced activity limitations at 1-month. Timeline (cyclical), treatment control, emotional representations, and causal attributions (emotional/psychological) emerged as significant variables within both models. That is, amputees were more mobile and independent (basic and advanced activity limitations) at 1-month post-discharge, if they perceived during rehabilitation that a) their physical symptoms fluctuated less, b) their treatment would be effective in controlling their condition, c) they did not have negative emotional representations (e.g., whose conditions made them worried, angry, afraid, etc.), and d) their condition was caused by emotional/psychological factors (e.g., stress, mental attitude, personality, etc.).

Predicting activity limitations at 6-months

A significant SRM cognitive representations model emerged for predicting activity limitations (advanced activity limitations only) at 6-months. Timeline (cyclical) and treatment control emerged as significant predictor variables within the model, meaning that amputees had better advanced mobility and independence at 6-months post-discharge, if they perceived during rehabilitation that a) their physical symptoms fluctuated less, and b) their treatment would be effective in controlling their condition.

Table 9.1. Summary of to what extent SRM cognitive representations and TPB attitude cognitions predict activity limitations at 1 and 6 months post-discharge

	Activity limitations at 1-month (β)		Activity limitations at 6-months (β)	
	Basic	Advanced	Basic	Advanced
IPQ-				
Identity (No. symptoms)	-.011	-.021	.052	.055
Timeline (acute/chronic)	.007	.096	-.060	.061
Timeline (cyclical)	-.194*	-.242*	-.290**	-.339**
Consequences	.084	.121	.089	.006
Personal control	-.091	-.210	-.070	-.152
Treatment control	.311**	.356**	.246	.302*
Illness coherence	-.103	.000	-.083	-.070
Emotional reps	-.382***	-.347**	-.073	-.158
Causes (risk)	.048	.025	-.110	-.085
Causes (emotional/psychological)	.204*	.240*	.128	.192
	$F = 3.107$** Ad $R^2 = .155$	$F = 3.699$*** Ad $R^2 = .190$	$F = 1.499$ Ad $R^2 = .047$	$F = 2.027$* Ad $R^2 = .091$

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Inferential statistics relating to predictor variables not specific to research questions

(see: table 9.2)

Predicting activity limitations at 1-month

A significant TPB model predicted advanced activity limitations at 1-month, with behavioural beliefs x outcome evaluations emerging as the sole significant component within the model. That is, amputees who believed that using a prosthesis would produce certain valued outcomes had better advanced functional activity at 1-month post-discharge.

Significant psychological distress (although not anxiety or depression variables univariately within the equations), recovery locus of control, and self-efficacy models emerged for predicting both basic activity limitations and advanced activity limitations at 1-month. Effectively, amputees with internal perceptions of control over their recovery, and strong self-efficacy beliefs in their prosthetic capabilities during rehabilitation, demonstrated better mobility and independence (basic and advanced activity limitations) at 1-month post-discharge.

Demographic variables models were significant in predicting advanced activity limitations only at 1-month, with gender emerging as the sole significant variable within the model. This meant, that males had better advanced mobility and independence at 1-month post-discharge within the model.

Clinical variables regression models were also significant in predicting both basic and advanced activity limitations at 1-month, with diabetes being the only significant variable within the model predicting basic activity limitations, and amputation level and advanced pre-operative activity limitations emerging as the significant variables in the model predicting advanced activity limitations. That is, within these models, diabetic amputees had better mobility and independence at 1-month post-discharge, and transtibial amputees, who had high advanced mobility and independence pre-operatively, had better advanced mobility and independence at 1-month post-discharge.

Predicting activity limitations at 6-months

A significant TPB model predicted advanced activity limitations at 6-months, with normative beliefs x motivation to comply emerging as the sole significant component within the model. That is, amputees who were motivated to comply with the perceived expectations of important individuals or groups to use a prosthesis had better advanced functional activity at 6-months post-discharge.

Non-significant psychological distress and recovery locus of control models emerged for predicting both basic activity limitations and advanced activity limitations at 6-months, and self-efficacy predicted advance activity limitations only. Subsequently, amputees with strong self-efficacy beliefs in their prosthetic capabilities during rehabilitation had better advanced mobility and independence at 6-months post-discharge.

Demographic variables models were non-significant for predicting activity limitations at 6-months. Clinical variables regression models were, however, significant for predicting both basic and advanced activity limitations at 6-months. No variables reached significance within the model predicting basic activity limitations, but amputation level and pre-operative activity limitations (advanced only) emerged as the significant variables in the model predicting advanced activity limitations. In other words, transtibial amputees, who had better pre-operative advanced mobility and independence, went on to have better post-operative advanced mobility and independence at 6-months post-discharge.

Table 9.2. Summary of to what extent psychological distress, recovery locus of control, self-efficacy, socio-demographic and clinical variables predict activity limitations at 1 and 6 months post-discharge

	Activity limitations at 1-month (β)		Activity limitations at 6-months (β)	
	Basic	Advanced	Basic	Advanced
TPB				
Behavioural intention	.125	.103	.168	.156
Attitudes to behaviour	.135	.070	.022	.031
Subjective norm	.106	.088	.025	.118
Perceived control	.001	.082	.167	.129
Behavioural beliefs x Outcome evaluations	.145	.265*	-.008	.172
Normative beliefs x Motivation to comply	.150	.160	.125	.262*
Control beliefs x Control power	.100	.116	.064	.057
	$F = 1.830$	$F = 3.013$**	$F = 1.080$	$F = 2.238$*
	Ad R^2 = .049	Ad R^2 = .112	Ad R^2 = .006	Ad R^2 = .080
HADS				
Anxiety	-.125	-.115	-.133	-.090
Depression	-.149	-.201	.017	-.079
	$F = 3.409$*	$F = 4.701$*	$F = .799$	$F = 1.081$
	Ad R^2 = .040	Ad R^2 = .060	Ad R^2 = -.004	Ad R^2 = .002
RLOC				
Internal control	.234*	.218*	.146	.135
	$F = 6.602$*	$F = 5.699$*	$F = 2.214$	$F = 1.863$
	Ad R^2 = .046	Ad R^2 = .039	Ad R^2 = .012	Ad R^2 = .008
Self-efficacy scale				
Prosthetic use self-efficacy	.216*	.300***	.115	.299**
	$F = 5.419$*	$F = 10.97$***	$F = 1.306$	$F = 9.606$**
	Ad R^2 = .038	Ad R^2 = .082	Ad R^2 = .003	Ad R^2 = .080
Demographic variables				
Age	-.094	-.166	-.091	-.081
Gender	.118	.182*	.087	.083
Deprivation index	-.138	-.027	-.024	-.012
	$F = 1.651$	$F = 2.685$*	$F = .618$	$F = .516$
	Ad R^2 = .017	Ad R^2 = .042	Ad R^2 = -.011	Ad R^2 = -.014
Clinical variables				
Amputation level	.110	.184*	.103	.219*
Diabetes	.195*	.133	-.055	.023
Unilateral/Bilateral	-.030	-.093	.098	.004
Time in hospital	-.074	-.070	-.180	-.115
LCI				
- at 6-months pre-op				
Basic locomotor function	.044	-.038	.009	.082
Advanced locomotor function	.258	.398**	.264	.350*

$F = 2.569$*	$F = 3.587$**	$F = 2.545$*	$F = 4.311$***
Ad R^2 = .076	Ad R^2 = .120	Ad R^2 = .084	Ad R^2 = .164

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Inferential statistics relating to hierarchical step regression analyses

(see: tables 9.3 – 9.4)

Hierarchical step regression analyses tested if psychological variables explained any variance in activity limitations at 6-months follow-up over and above that already accounted for by socio-demographic and clinical variables.

Predicting basic activity limitations at 6-months

Table 9.3. Summary of hierarchical step regression analysis for significant variables predicting basic activity limitations at 6-months follow-up

	Predictor variables	B	Std Error	β (Beta)
Step 1	Timeline (cyclical)	-.542	.206	-.253* $F = 6.926$* Ad R^2 = .055

p < .05* p < .01** p < .001*** Multiple linear regression results using the hierarchical step method

No socio-demographic or clinical variables predicted basic activity limitations at 6-months, however, one psychological variable (i.e., timeline cyclical) explained 5.5% of the variance in this outcome. That is, amputees were more active at 6-months post-discharge if they had fewer perceptions of symptoms fluctuating during inpatient rehabilitation.

Predicting advanced activity limitations at 6-months

Table 9.4. Summary of hierarchical step regression analysis for significant variables predicting advanced activity limitations at 6-months follow-up

	Predictor variables	B	Std Error	β (Beta)
Step 1				
	Amputation level	4.125	1.654	.232*
	Advanced locomotor function -at 6-months pre-op	.408	.103	.367***
				$F = 9.908^{***}$ Ad $R^2 = .153$
Step 2				
	Amputation level	3.876	1.637	.218*
	Advanced locomotor function -at 6-months pre-op	.288	.112	.259*
	Timeline (cyclical)	-.382	.225	-.159
	Treatment control	.136	.229	.059
	Normative beliefs x Motivation to comply	.024	.024	.098
	Prosthetic use self-efficacy	.396	.229	.187
				$F = 4.801^{***}$ Ad $R^2 = .187$

p < .05* p < .01** p < .001*** Multiple linear regression results using the hierarchical step method

No socio-demographic variables predicted advanced activity limitations at 6-months. However, the addition of psychological variables at step two explained a further 2.4% of the variance accounted for by the clinical variables of amputation level and advanced pre-operative locomotor function (i.e., 15.3%) at step one. Having said that, none of the psychological variables achieved statistical significance within the regression model at step two.

In conclusion, this chapter reported the results for activity limitations. In particular, results are presented relating to a) descriptive data for activity limitations at 6-months pre-amputation, and at 1-month then 6-months post-discharge, and b) inferential statistics relating to SRM predictor variables. Results are also presented for c) inferential statistics relating to predictor variables not specific to research questions and hierarchical step regression analyses.

Chapter 10: Results for predicting psychological distress and quality of life

(see: Appendix E, pages 369 - 395 for SPSS output for this chapter)

This chapter reports a summary of the descriptive and inferential statistical results for predicting psychological distress and quality of life. In particular, results are shown relating to the SRM variables (i.e., cognitive representations) for predicting psychological distress and quality of life at 1-month post-discharge and 6-months post-discharge follow-up. Variables that were not related to the research questions (i.e., TPB variables, psychological distress, perceived control over recovery, self-efficacy, demographic variables and clinical variables) were also explored for their ability to predict psychological distress and quality of life at 1-month and 6-months follow-up.

Descriptive statistics for psychological distress and quality of life variables

Psychological distress at recruitment, and at 1-month then 6-months post-discharge, and quality of life at 6-months post-discharge

Summary descriptive data are presented in table 10.0 relating to participants psychological distress at recruitment, and at 1-month then 6-months post-discharge from post-operative inpatient rehabilitation. These data report both anxiety and depression. Descriptive data are also presented for subjective quality of life at 6-months post-discharge. All participants completed the HADS questionnaire (psychological distress) at each of the three data gathering periods, however, one data set was missing for the PGI inventory (quality of life) at 6-months follow-up. Anxiety an depression scores were consistently low across the three data gathering periods and quality of life scores were slightly below average.

Table 10.0. Summary of patients' psychological distress at 1 and 6 months post-discharge and quality of life at 6 months post-discharge

Psychological distress	**Mean**	**SD**	**N**
At recruitment			
Anxiety (0-21)	4.43	3.87	166
Depression (0-21)	4.58	3.53	166
At 1-month follow-up			
Anxiety (0-21)	4.85	4.09	142
Depression (0-21)	5.11	3.70	142
At 6-months follow-up			
Anxiety (0-21)	4.61	4.02	120
Depression (0-21)	4.57	3.47	120
Quality of life			
At 6-months follow-up			
Patient generated index (0-10)	4.37	2.97	119

Inferential statistics relating to SRM predictor variables

(see: table 10.1)

Predicting psychological distress at 1-month

Significant SRM cognitive representations models emerged for predicting both anxiety and depression at 1-month. Treatment control and emotional representations emerged as the significant variables within the model predicting anxiety, while illness coherence and emotional representations were significant variables within the model predicting depression. That is, amputees who perceived during rehabilitation that a) their treatment would not be effective in controlling their condition, and b) they had negative emotional representations (e.g., whose conditions made them worried, angry, afraid, etc.), were more anxious at 1-month post-discharge, and amputees who perceived during rehabilitation that a) they had a clear understanding of their condition, and b) they had negative emotional representations, were more depressed at 1-month post-discharge.

Predicting psychological distress at 6-months

Significant SRM cognitive representations models also emerged for predicting both anxiety and depression at 6-months. Timeline (acute/chronic), personal control, and emotional representations emerged as the significant variables within the model predicting anxiety, and emotional representations emerged as the sole significant variable within the model predicting depression. Subsequently, amputees who believed during rehabilitation that a) their condition would last a short time, b) the course of their condition was self-controlled, and c) they had negative emotional representations (e.g., whose conditions made them worried, angry, afraid, etc.) were more anxious at 6-months post-discharge, and amputees who had negative emotional representations during rehabilitation were more depressed at 6-months post-discharge.

Predicting quality of life at 6-months

No significant models emerged for predicting subjective individualised quality of life at 6-months. Moreover, when quality of life outcome was entered into a regression equation with being prescribed a prosthesis, a non-significant model also emerged.

Table 10.1. Summary of to what extent SRM cognitive representations and TPB attitude cognitions predict psychological distress at 1 and 6 months post-discharge and quality of life at 6 months post-discharge

	Distress at 1-month (β)		**Distress at 6-months (β)**		**Quality of life (β)**
	Anxiety	Depression	Anxiety	Depression	
IPQ-R					
Identity (No. symptoms)	-.007	-.036	.011	.032	.017
Timeline (acute/chronic)	-.165	-.123	-.219*	-.170	-.103
Timeline (cyclical)	.094	.030	.118	.131	-.127
Consequences	.050	.014	.208	.037	.175
Personal control	.120	-.079	.253*	.009	-.022
Treatment control	-.249*	-.118	-.206	-.042	-.038
Illness coherence	.114	.253**	-.025	.148	-.084
Emotional reps	.422***	.532***	.306**	.370***	-.288*
Causes (risk)	-.125	.065	-.034	.039	-.188
Causes (emotional/psychological)	.120	.041	.129	-.048	.206
	F = 4.164***	*F* = 5.308***	*F* = 3.528***	*F* = 2.138*	*F* = 1.224
	Ad R^2 = .183	Ad R^2 = .234	Ad R^2 = .175	Ad R^2 = .087	Ad R^2 = .019

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Inferential statistics relating to predictor variables not specific to research questions

(see: table 10.2)

Predicting psychological distress at 1-month

A significant TPB model predicted depression at 1-month, with behavioural beliefs x outcome evaluations emerging as the sole significant component within the model. That is, amputees who did *not* believe that using a prosthesis would produce certain valued outcomes experienced more depression at 1-month post-discharge.

Significant psychological distress (at recruitment) models emerged for predicting both anxiety and depression at 1-month. Anxiety predicted anxiety, while both anxiety and depression predicted depression within these models. Interestingly, within the anxiety equation, depression at recruitment had a negative association with anxiety at 1-month follow-up. That is, albeit not statistically significant, patients who were less depressed at recruitment were more anxious at 1-month post-discharge.

Recovery locus of control predicted both anxiety and depression at 1-month, while self-efficacy predicted depression only at 1-month. That is, amputees with external perceptions of control over their recovery during rehabilitation were more anxious and depressed at 1-month post-discharge, and those with weak self-efficacy beliefs in their prosthetic capabilities during rehabilitation were more depressed at 1-month post-discharge.

A demographic variables model was significant for predicting anxiety only, with age emerging as the sole significant variable within the model. This meant that younger amputees were more anxious at 1-month follow-up. The clinical variables models were non-significant for predicting psychological distress at 1-month follow-up.

Predicting psychological distress at 6-months

No significant TPB models emerged for predicting anxiety or depression at 6-months. That is, there was no evidence to support any TPB variables influencing an amputee's psychological distress at 6-months post-discharge.

Significant psychological distress (at recruitment) models emerged for predicting both anxiety and depression at 6-months. As at 1-month, anxiety predicted anxiety, while both anxiety and depression predicted depression. Again, within the anxiety equation, depression at recruitment had a negative association with anxiety at 1-month follow-up.

Recovery locus of control predicted of both anxiety and depression at 6-months. That is, amputees with external perceptions of control over their recovery during rehabilitation were more anxious and depressed at 6-months post-discharge.

A demographic variables model was significant for predicting anxiety only, with age emerging as the only significant variable within the model. This meant that younger amputees were more anxious at 6-months follow-up. The clinical variables model was significant in predicting depression only, with diabetes, unilateral/bilateral status, and pre-operative activity limitations (basic) emerging as the significant variables with in the model. That is, unilateral amputees, without diabetes, who had less basic pre-operative activity limitations, were more depressed at 6-months post-discharge.

Predicting quality of life at 6-months

No significant models emerged for predicting subjective individualised quality of life at 6-months. That is, there was no evidence to support any variables influencing an amputee's quality of life at 6-months post-discharge.

Table 10.2. Summary of to what extent psychological distress, recovery locus of control, self-efficacy, socio-demographic and clinical variables predict psychological distress at 1 and 6 months post-discharge and quality of life at 6 months post-discharge

	Distress at 1-month (β)		Distress at 6-months (β)		Quality of life (β)
	Anxiety	Depression	Anxiety	Depression	
TPB					
Behavioural intention	-.015	.051	-.241*	-.034	.222
Attitudes to behaviour	-.020	-.059	.011	-.110	-.022
Subjective norm	-.020	.099	-.038	.061	.135
Perceived control	.002	-.018	.069	.023	.103
Behavioural beliefs x Outcome evaluations	-.252*	-.400***	-.175	-.250*	.006
Normative beliefs x Motivation to comply	-.108	-.024	-.048	-.044	.248
Control beliefs x Control power	-.038	-.143	-.002	-.074	-.036
	F = 1.133 Ad R^2 = .007	*F* = 3.561** Ad R^2 = .120	*F* = 1.657 Ad R^2 = .040	*F* = 1.390 Ad R^2 = .024	*F* = 1.214 Ad R^2 = .014
HADS					
Anxiety	.512***	.227**	.604***	.224*	-.137
Depression	-.034	.351***	-.133	.293**	.030
	F = 22.645*** Ad R^2 = .235	*F* = 23.578*** Ad R^2 = .243	*F* = 26.064*** Ad R^2 = .296	*F* = 14.321*** Ad R^2 = .183	*F* = .930 Ad R^2 = -.001
RLOC					
Internal control	-.242**	-.230**	-.207*	-.220*	.108
	F = 8.698** Ad R^2 = .052	*F* = 7.826** Ad R^2 = .046	*F* = 5.281* Ad R^2 = .035	*F* = 5.986* Ad R^2 = .040	*F* = 1.376 Ad R^2 = .003
Self-efficacy scale					
Prosthetic use self-efficacy	-.068	-.224**	-.002	-.102	-.010
	F = .603 Ad R^2 = -.003	*F* = 6.869** Ad R^2 = .043	*F* = .000 Ad R^2 = -.009	*F* = 1.145 Ad R^2 = -.001	*F* =.011 Ad R^2 = -.009
Demographic variables					
Age	-.211*	-.028	-.240**	-.055	.020
Gender	-.129	-.053	-.150	.033	.096
Deprivation index	.091	.101	.139	.116	-.028
	F = 3.292* Ad R^2 = .047	*F* = .682 Ad R^2 = -.007	*F* = 4.176** Ad R^2 = .075	*F* = .764 Ad R^2 = -.006	*F* = .388 Ad R^2 = -.016
Clinical variables					
Amputation level	-.036	.041	.014	.063	.067
Diabetes	.020	.019	.038	-.159*	-.032
Unilateral/Bilateral	-.061	-.011	.137	.204*	-.007
Time in hospital	-.004	.028	-.049	.089	-.006
LCI					
- at 6-months pre-op					
Basic locomotor function	-.028	.028	-.055	-.301*	.147

Advanced locomotor function	-.083 $F = .429$ Ad R^2 = -.025	-.009 $F = .089$ Ad R^2 = -.041	-.099 $F = .699$ Ad R^2 = -.016	.071 $F = 2.415$* Ad R^2 = .067	-.001 $F = .492$ Ad R^2 = -.027

p < .05* p < .01** p < .001*** Multiple linear regression results using the enter method

Inferential statistics relating to hierarchical step regression analyses

(see: tables 10.3 – 10.4)

Hierarchical step regression analyses tested if psychological variables explained any variance in psychological distress at 6-months follow-up over and above that already accounted for by socio-demographic and clinical variables.

Predicting psychological anxiety at 6-months

Table 10.3. Summary of hierarchical step regression analysis for significant variables predicting psychological anxiety at 6-months follow-up

	Predictor variables	B	Std Error	β (Beta)
Step 1				
	Age	-.101	.035	-.263** $F = 8.124$** Ad $R^2 = .061$
Step 2				
	Age	-.079	.035	-.206*
	Timeline (acute/chronic)	-.035	.054	-.056
	Illness coherence	-.102	.121	-.080
	Emotional reps	.267	.086	.311**
	Behavioural intention	-.888	.424	-.190*
	Internal locus of control	.031	.094	.032 $F = 5.895$*** Ad $R^2 = .211$

p < .05* p < .01** p < .001*** Multiple linear regression results using the hierarchical step method

No clinical variables predicted psychological anxiety at 6-months. However, the addition of psychological variables at step two explained a further 15% of the variance accounted for by the socio-demographic variable of age (i.e., 6.1%) at step one. In particular, age, emotional representations and behavioural intention emerged as significant variables within step two of the model. This meant that younger amputees experienced more psychological anxiety at 6-months follow-up, however, negative emotional responses generated by one's condition and not intending to use a prosthesis during inpatient rehabilitation were also important determinants of anxiety.

Predicting psychological depression at 6-months

Table 10.4. Summary of hierarchical step regression analysis for significant variables predicting psychological depression at 6-months follow-up

	Predictor variables	B	Std Error	β (Beta)
Step 1				
	Diabetes	-1.179	.634	-.172
	Unilateral/Bilateral	1.397	1.136	.117
	Basic locomotor function -at 6-months pre-op	-.176	.065	-.258**
				$F = 3.630^{*}$ Ad $R^2 = .067$
Step 2				
	Diabetes	-.941	.600	-.137
	Unilateral/Bilateral	1.358	1.085	.113
	Basic locomotor function -at 6-months pre-op	-.136	.062	-.199*
	Emotional reps	.208	.073	.268**
	Behavioural beliefs x Outcome evaluations	-.041	.020	-.185
	Internal locus of control	.005	.085	.006
				$F = 4.784^{***}$ Ad $R^2 = .171$

$p < .05$* $p < .01$** $p < .001$*** Multiple linear regression results using the hierarchical step method

No socio-demographic variables predicted psychological depression at 6-months. However, the addition of psychological variables at step two explained a further 10.4% of the variance accounted for by the clinical variables of diabetes, unilateral/bilateral status and basic pre-operative locomotor function (i.e., 6.7%) at step one. In particular, basic pre-operative locomotor function and behavioural beliefs (x outcome evaluations) emerged as significant variable within step two of the model. This meant that amputees that had less basic function 6-months before their amputation, and that experienced negative emotional responses generated by their condition during inpatient rehabilitation were more depressed at 6-months post-discharge.

In conclusion, this chapter reported the results for psychological distress and quality of life. In particular, results are presented relating to a) descriptive data for psychological distress at recruitment, and at 1-month then 6-months post-discharge, and quality of life at 6-months post-discharge, and b) inferential statistics relating to SRM predictor variables. Results are also presented for c) inferential statistics relating to predictor variables not specific to research questions and hierarchical step regression analyses.

Chapter 11: Discussion

Patient recruitment

Significant differences were found in certain socio-demographic and clinical variables between the 166 consenting and 68 non-consenting patients at recruitment. The reasons for these observations are likely to be due to a disproportionate amount of younger, healthier transtibial patients consenting to take part in the study, compared to older, more cognitively impaired transfemoral patients. Accordingly, perhaps the sample was not strictly representative of a new cohort of Scottish lower limb amputees, and any subsequent interventions resulting from this study may not be applicable or effective with more vulnerable patients.

The evidence to support this position is, however, unclear. For example, Resnick and Daly (1997) suggested that rehabilitation of older adults, both with and without cognitive impairments, resulted in improvements in activity limitations. Although their findings indicated that patients with cognitive impairments had lower functional performance at each testing period, their activity limitations improved during the course of rehabilitation, and they maintained their discharge level of functioning for 1-year post-discharge. Conversely, however, Pinzur *et al.* (1988) found that out of 17 patients who were deemed to be poor candidates for prosthetic limb fitting and gait training, based on objective psychological testing, only four were capable of even minimal use of a prosthesis, and none of the sample approached their pre-amputation level of ambulation.

Difficulties were experienced in recruiting the proposed number of patients during the data gathering period of the current study due to approximately 25% to 33% of patients being cognitively impaired and, subsequently, unable to participate in the study. Specifically, at 6-months into the proposed 12-month data gathering period it became apparent that the number of patients recruited to the study was approximately a third short of the number expected at that stage based on a careful examination of national incidence and demographic data from the preceding years (i.e., expected = 90, actual = 60). A thorough investigation into the cause of this shortfall revealed that, on average, a third of patients who fulfilled the inclusion criteria had significant cognitive deficits, which rendered them incapable of completing a study questionnaire. Subsequently, two more hospitals were incorporated into the study and a 3-month extension period was introduced at all participating hospitals in order to recruit more patients, thus augmenting the patient numbers.

Furthermore, in relation to cognitive deficits, the inclusion criteria stipulated that all participants were required to have peripheral arterial disease (PAD) as the main underlying aetiology, however, Phillips *et al.* (1993) proposed that cognitive deficits may be the result of unrecognised concomitant cerebrovascular disease in PAD patients. These authors maintained that cognitive deficits were part of a generalised pattern of vascular disease, and their study found significant trends toward poorer performances in PAD patients on certain measures of oral fluency, concentration, reasoning, visuo-perceptual organisation, and constructional skills. In summary, the prevalence of cognitive deficits in amputee patients, and the extent to which such mental disabilities may influence successful prosthetic rehabilitation and health outcomes, are not clear issues.

Cognitive status in the present study predicted prosthetic use and activity limitations at both follow-up assessment times, which is consistent with the findings of studies reviewed in chapter two (i.e., prosthetic use: Pinzur *et al.*, 1988; Bilodeau *et al.*, 2000; Larner *et al.*, 2003; Hanspal and Fisher, 1997), and activity limitations: Barnfield, 1997). The current results should perhaps be treated with some caution, however, because only a basic measure of cognitive impairment was taken for screening purposes using the small 12-item information and orientation section of the Clifton Assessment Procedures for the Elderly (CAPE: Pattie and Gilleard, 1979).

Another aspect of concern was the loss of participants to follow-up at both of the post-discharge data gathering times. That is, of the 166 participants recruited to the study, 142 (85.5%) were retained at 1-month follow-up, and 120 (72.3%) were retained at 6-months follow-up. The loss of just over a quarter of the original sample at 6-months follow-up may have had implications for the study results, as there may have been more systematic 'positive' aspects associated with the participants who remained in the study, which could potentially have influenced the outcome statistics and, hence, the chances of achieving significance in some predictive relationships.

Prosthetic prescription

Most of the 166 patients recruited to participate in the study were prescribed with a prosthesis (90.4%), however, this figure is unrepresentative of the national trend, where approximately 50% of patients will typically receive a prosthesis. The reason for this occurrence in the present sample is likely to be that a disproportionate amount of transtibial amputees consented to take part in the study compared with transfemoral amputees, and transtibial amputees are more likely to be prescribed with a prosthesis than transfemoral amputees (i.e., transtibial = around 65%; transfemoral = around 25%: Cargill and Condie, 2004). In addition, the Senior Physiotherapists who were responsible for patient recruitment to the study, reported that they often did not approach amputees to participate in the study who were "too ill" mentally or physically, and that such patients were predominately transfemoral amputees, who were not candidates for prosthetic prescription.

There was no evidence to support psychological variables predicting prosthetic prescription in the current sample, which implies that psychological profiling is not a good indicator for deciding which patients should be fitted with an artificial limb. However, demographic and clinical variables did determine this outcome within their respective regression models. It is possible that amputees who lived in more deprived areas were prescribed a prosthesis less often because of the morbidity associated with poorer environmental and behavioural variables in their living conditions. That is, amputees from such areas may be more ill, and hence less suitable for prosthetic fitting, due to environmental factors such as poorer diet, fewer medical facilities, poorer sanitation, as well as higher levels of illness related behaviours such as smoking and alcohol consumption. It is unlikely that amputees who lived in more deprived areas were prescribed a prosthesis less often because their dwelling accommodations were not suitable for such rehabilitation (e.g., upstairs flat in a tenement building). The reason for this is that efforts are increasingly being made in such cases to re-house amputees into more appropriate accommodation where possible. In addition, amputees are more likely to return to their homes with more personal support than has been the case in previous years. To illustrate this phenomenon, in 1993, around 40% of amputees in Scotland returned home alone, whereas in 2002, considerably less (about 10%) returned home alone (Cargill and Condie, 2004). Transtibial amputees who had a unilateral amputation were probably more likely to receive a prosthesis because these clinical variables are associated with less co-morbidity. Hence, such patients will have been healthier and have had a better chance of successful prosthetic rehabilitation than, say, transfemoral amputees who had a bilateral amputation. Furthermore, preserving the patient's own knee joint (i.e., transtibial amputation), and only having one leg amputated (i.e., unilateral amputation) are known clinically to be associated with improved chances of successful ambulation and mobility with a prosthesis (personal communication). The finding that diabetic amputees were more likely to be prescribed with a prosthesis than non-diabetic amputees is consistent with the literature (e.g., Pohjolainen *et al.*, 1989). The reason for this peculiar phenomenon is likely to be due to the fact that diabetes affects peripheral vessels more than proximal vessels and is, hence, more prevalent among transtibial amputees as opposed to transfemoral amputees (Jones, personal communication). In support of this theory, there was a significant positive correlation between diabetes and transtibial amputation in the current sample ($r = 0.25$, $p < .01$), although there was not a significant correlation between diabetes and age.

Prosthetic use

Prosthetic use increased between 1-month and 6-months post-discharge on all four levels of prosthetic use outcome measurement, however, only two of these differences reached statistical significance. Specifically, improvements were observed over this 5-month period in the percentage of moves made with a prosthesis indoors (n.s.), and outdoors ($p < 0.01$), as well as in hours per day ($p < 0.01$), and days per week (n.s.) of prosthetic use.

The prosthetic use analyses within the TPB framework concluded that patients who formed intentions to use a prosthesis (behavioural intention), and believed that they could do so (perceived control), during rehabilitation, went on to use a prosthesis more days during their first week at home than those who did not hold these beliefs. Although these patients went on to use a prosthesis more days during their first week at home, they did not go on to use it more hours per day during their first week at home. It may have been the case, therefore, that days per week of prosthetic use represented the necessity to use a prosthesis in order to achieve certain adaptive aims (e.g., shopping, visiting, socialising, etc.), whereas hours per day of prosthetic use may be more indicative of endurance and perseverance. However, forming intentions to use a prosthesis because of wanting to achieve certain adaptive aims did not seem to be supported by the TPB results, because attitudes to behaviour did not significantly determine the formation of behavioural intentions. Another possibility, therefore, is that the TPB variables predicted the single act of fitting the prosthesis each day, whereas 'hours' represented a different type of behaviour.

Although attitudes to behaviour did not significantly predict the formation of behavioural intentions (to use a prosthesis), subjective norm and perceived control did significantly predict this particular outcome variable. Put simply, the degree to which using a prosthesis was positively or negatively valued overall had no impact on forming intentions to use a prosthesis, however, a) perceived social pressure to use, or not use, a prosthesis, and b) perceptions of one's own ability to use a prosthesis did determine the formation of intentions to use a prosthesis. As such, it may have been that elderly amputee patients were more conditioned to put faith in the clinical staff in accordance with the older medical model of disability, by which illness or disability is simply viewed as the result of a physical condition. This is opposed to the more modern psychosocial model of disability, which stresses that activity limitations are also caused by psychological factors and physical barriers in society. Moreover, perhaps these elderly patients were more infirm and, hence, more dependent upon family and friends for support than were younger, fitter amputees. In relation to control perceptions, these appear to have been supported, at least to some extent, by the fact that significant recovery locus of control and self-efficacy models also emerged for predicting some aspects of prosthetic use. This latter point also suggests that there may be some degree of overlap between these SCM control variables in terms of the underlying constructs that they represent.

Despite the fact that attitudes to behaviour did not significantly predict intentions to use a prosthesis, behavioural beliefs x outcome evaluations did significantly predict attitudes to behaviour. Specifically, getting about and participating in activities determined the degree to which using a prosthesis was positively or negatively valued. However, as attitude to behaviour had no impact on behavioural intention, and the overall goal of any therapeutic intervention would be to increase levels of prosthetic use by increasing intention, it is difficult to see how this information would be therapeutically useful if adhering strictly to the dynamics of the TPB model. Moreover confidence in the face of impediments (control beliefs), including a lot of stairs, slippery or rough surfaces, having no disabled facilities, and having no people helping, did not significantly predict perceived control. Again, although perceived control predicted the formation of intentions to use a prosthesis, and days per week of actual prosthetic use, it is difficult to see how targeting specific control beliefs would increase perceived control because none of the salient control beliefs influenced overall perceived control. More promisingly though, certain normative beliefs strongly predicted the subjective norm component of the TPB. This provided support that patients perceived social pressure to use a prosthesis if they perceived indirect beliefs that NHS staff and their family members were keen for them to do so. Furthermore, patients who perceived such social pressure formed intentions to use a prosthesis and, subsequently, did so more days during the week. This established, formulating interventions with the aim of enhancing beliefs about valuing, and complying with, the expectations of these salient individuals may be a promising way forward with a view to increasing prosthetic use. Having said that, however, such interventions would seem, on the surface, to suggest something of a throwback to the old medical model, at least where relying on the expectations of the NHS staff is concerned, as opposed to encouraging individuals to adopt a more modern patient-centred self-empowerment approach.

Normative influences are not noted as being the most successful predictors of behaviours within the TPB literature (see: Armitage and Conner, 2001, for a review), but they were very influential in the present study. This may be due to a number of factors. Firstly, prosthetic use is a novel behaviour for the vast majority of amputees, unlike habitual behaviours, such as dietary habits or condom use often explored, so patients may be more inclined to turn more to others referent individuals and groups for social support, guidance, and advice. Secondly, the average age of the current sample was 66 yrs, and older patients may be a) less confident in their own physical and mental agility, and as previously mentioned b) more conditioned to the outdated medical model of healthcare, which encouraged patients to rely more on the authority of healthcare professionals, rather than their own judgments.

For the self-regulation model analyses, the word "illness" was replaced by the word "condition" in relation to cognitions, because amputation cannot reasonable be regarded as an illness as such. Interestingly though, following this alteration, about half of the sample at recruitment (i.e., those interviewed by the Research Fellow) were asked informally what the word "condition" meant to them, in relation to their current health status. Most of these participants maintained that the term "condition" suggested disability, rather than limb loss, and that, accordingly, their condition would be temporary rather than permanent. Albeit, this may still have been the case even if patients were asked about their condition, illness or diagnosis. Nevertheless, the subsequent qualitative feedback following the alteration may have provided information about a confounding variable in relation to the timeline (acute/chronic) construct of the SRM model, whereby the patients were commenting on the likely time course of two separately perceived conditions. That is, a limb amputation would last indefinitely, but a disability could be overcome by acquiring prosthetic skills. In any case, this particular SRM variable was not successful in predicting any of the outcome variables in the study. The cognition constructs of timeline (cyclical) and treatment control were the predominant underlying psychological variables within the SRM that determined whether a patient used a prosthesis, both at 1-month and 6-months post-discharge from rehabilitation (especially at 6-months). The SRM timeline (cyclical) construct related to the perception that one's physical symptoms fluctuated on a regular basis. The most frequently reported physical symptoms in the current sample were related to pain (i.e., phantom pain/sensation, stump pain, general pain). Patients who perceived that their symptoms were coming and going during rehabilitation experienced less favourable prosthetic use (and activity limitations) outcomes.

Cognitive beliefs about pain, particularly catastrophising, have been found to impact on quality of life outcome in chronic pain patients (e.g., Lame *et al.*, 2005), and cognitions have also been found to influence self-reported phantom limb pain, as well as physical and psychosocial dysfunction, in amputees (Hill *et al.*, 1996).

The SRM treatment control construct related to beliefs that one's treatment would be effective in curing or controlling their condition. Irrespective of the qualitative evidence of disparity in what patients perceived their condition to be (i.e., amputation or disability), those who held such beliefs experienced better outcomes in prosthetic use (as well as in activity limitations and psychological distress). It may be then, that having more confidence in the efficacy of their therapy, these patients were more eager to follow the advice of the allied healthcare professions involved in their rehabilitation and, subsequently, they may have adhered more closely to, and engage more readily in, and persevered more through, their prescribed treatment regimes with a prosthesis.

Both of the SRM causal attribution representations (i.e., risk factors and emotional/psychological factors) were influential in determining prosthetic use at 6-months, but not at 1-month post-discharge. However, there was a negative correlation figure denoting the significant relationship between risk factors and prosthetic use, as opposed to a positive correlation figure denoting the significant relationship between emotional/psychological factors and prosthetic use. In effect, this meant that patients who held beliefs that their condition was <u>not</u> caused by diet or eating habits, their own behaviour, overwork, alcohol or smoking (i.e., risk factors) used their prosthesis more. Whereas, patients who held beliefs that their condition was caused by stress or worry, their mental attitude - thinking about life negatively, family problems/worries, their emotional state - feeling down, lonely, or their personality (i.e., emotional/psychological factors) used their prosthesis more. It may be the case that patients who never smoked, had healthy diets and had always led a low risk lifestyle in general were more inclined to look after themselves and have a positive determined outlook on life and, hence, perhaps they persevered more with using a prosthesis. Or, such patients could have been experiencing some degree of denial as a coping procedure for emotional responses, and may, therefore, have been more able to ignore the negative aspects of their lives, such as losing a leg, and adopt a more positive approach by simply getting on with matters (e.g., using a prosthesis, engaging in activities). Conversely, it may be the case that patients who were more stressed, worried and experienced more negative affect in general during inpatient rehabilitation, used their prosthesis more post-discharge as a coping mechanism to manage such poor emotional/psychological effects. Or, they may have felt that they needed to compensate for having had negative thoughts which, in their view, led to requiring an amputation in the first instance, by becoming more positive about their rehabilitation (e.g., using a prosthesis, engaging in activities).

Notably, the effects of all the prominent SRM cognitive representations were significantly stronger for determining prosthetic use at 6-month rather than at 1-month. Thus, the influence of psychological variables on prosthetic use did not diminish, but in fact increased in strength, as a factor of time since discharge from rehabilitation. Also, within the SRM framework, cognitive representations are reasoned to influence problem-focussed coping procedures, of which prosthetic use may conceptually be regarded. Moreover, coping procedures are also reasoned to impact on emotional responses. To this end, some additional analyses revealed that more hours per day of prosthetic use at 1-month significantly predicted less anxiety ($r = -.28$, $p < .01$) and less depression ($r = -.27$, $p < .01$) at six months, and more days per week of prosthetic use at 1-month also significantly predicted less anxiety ($r = -.28$, $p < .01$) at six months. These additional prosthetic use findings would further seem to support the theoretical framework of the SRM. That is, the use of a prosthesis undoubtedly increased mobility, independence and participation in activities, all of which are subjectively important factors to amputees (Callaghan and Condie, 2003), which, in turn, has impacted positively on emotional outcomes.

The study results revealed a significant association between depression during rehabilitation and using a prosthesis indoors, but not outdoors, at both follow-up times. This finding may be reflective of depressed amputees spending more time indoors, and not engaging as much in outdoor social activities. And, therefore, by being less independent (e.g., perhaps not shopping) and not engaging in social participation activities, it is likely that these amputees could be more at risk of experiencing continued psychological distress post-discharge.

Amputees who perceived that they a) were predominantly in control of their own recovery (internal perceptions of control over recovery), and b) had confidence in their own prosthetic capabilities (prosthetic use self-efficacy), used a prosthesis more, both indoors and outdoors, at both 1-month and 6-months post-discharge. At first glance, this locus of control finding may seem to contradict the earlier SRM treatment control construct finding, where patients who scored high on perceived treatment-efficacy, conceivably synonymous with an external locus of control, had more favourable prosthetic use outcomes. However, perhaps a more parsimonious explanation is that patients with an internal locus of control, confidence in their prosthetic capabilities, and conviction in their treatment regimes, were more likely to engage in therapeutic behaviours such as prosthetic rehabilitation. This, in turn, would plausibly have resulted in less activity limitations, which may, conceivably and sequentially, have lead to lower levels of anxiety and depression. Another possibility may simply be that beliefs in any control (self or treatment) are important in determining health behaviours (e.g., Wallston, 1992).

In terms of clinical variables determining prosthetic use, diabetic amputees used a prosthesis more at 1-month follow-up, although this effect only held for indoor prosthetic use. This observation was likely to be due to the high incidence of diabetes found in transtibial amputees, who made up 73.5% of the sample recruited to the study. Greive and Lankhorst (1996) found that diabetic lower limb amputees (as opposed to non-diabetic amputees) showed more diversity in functional outcomes 5-months post-operatively, compared with their pre-operative functional abilities, and the sample used in their study was also mainly comprised of transtibial amputees.

Perhaps, less surprisingly, amputees with less activity limitations 6-months before their operation (better advanced function only), used a prosthesis more at follow-up, although this effect held for 1-month follow-up only. Also, transtibial amputees probably used a prosthesis more at 6-months post-discharge than transfemoral amputees because there is a) less co-morbidity (with the exception of diabetes) associated with transtibial amputation, and b) more chance of rehabilitating successfully with a prosthesis when the patient's own knee joint is preserved. Finally, amputees who spent more time in hospital during rehabilitation used a prosthesis less at 6-months post-discharge, and this outcome was probably indicative of a longer stay in hospital being associated with more infirmity and, hence, less prosthetic use capabilities.

Activity limitations

There was marginal improvement in overall activity limitations between 1-month and 6-months post-discharge, although this increase was not statistically significant. There were also marginal improvements in both the basic activity limitations and advanced activity limitations subscales between 1-month and 6-months post-discharge, but these increases were not statistically significant either. However, there were significant differences in overall activity limitations over the three assessment periods according to MANOVA analyses ($F_{2,216}$=20.334, df = 2, $p < 0.001$). In particular, significant differences were found following post hoc analyses (i.e., Tukey HSD), between 6-months pre-operative levels and 1-month follow-up ($p < .001$), and between 6-months pre-operative levels and 6-months follow-up ($p < .001$). This latter result demonstrated that although activity levels with a prosthesis steadily improved between the two follow-up assessment periods, they never significantly returned to pre-operative levels of activity.

In relation to predicting activity limitations, the SRM constructs of timeline (cyclical) and treatment control were again the predominant psychological predictor variables within the SRM model for determining activity limitations. This was, perhaps, not unexpected considering that these constructs also significantly predicted prosthetic use and only amputees using a prosthesis at follow-up completed the inventory operationalising activity limitations. As with predicting prosthetic use, the influence of the SRM timeline (cyclical) and treatment control constructs on activity limitations was evident at both 1-month and 6-months follow-up.

Again, within the dynamics of the SRM framework, it is feasible to view prosthetic use as a coping procedure, which facilitated amputees being more active (i.e., mobile and independent) in their environments, which, in turn, impacted on mood and quality of life outcomes. That is, improved activity limitations may subsequently be appraised or evaluated by individuals as a positive consequence of this coping procedure (i.e., engaging in prosthetic use), which may subsequently influence other constructs within the model (e.g., emotional responses). In support of this position, additional analyses revealed that overall activity limitations at 1-month follow-up significantly predicted both anxiety ($r = -.25$, $p < .05$), and depression ($r = -.27$, $p < .01$) at 6-months follow-up.

SRM emotional representations, and to a lesser extent causal attributions (emotional/psychological), also contributed towards the prediction of activity limitations, but only at 1-month follow-up. That is, the influence of the emotionally related SRM cognitive variables (i.e., emotional representations and emotional/psychological causal attributions) was lost at 6-months on activity limitations. This finding suggested that emotionally orientated cognitions influenced activity limitations, but that the effect was ephemeral or short-lived, because it was not sustained to influence activity limitations at 6-months follow-up.

Interestingly, internal perceptions of recovery over control during rehabilitation significantly predicted activity limitations at 1-month follow-up, but did not predict activity limitations at 6-months follow-up. This finding indicated that recovery locus of control influenced early efforts in the rehabilitation process, but did not influence long-term efforts. There were no significant changes in the recovery locus of control scores across the three measurement times ($F_{2, 216} = 1.12$, df = 2, p = 0.37), which suggested that the observed changes reported in activity limitations over these assessment times did not necessarily result in a reduction in one's beliefs relating to their abilities to influence their own recovery. Prosthetic use self-efficacy, however, determined activity limitations at both follow-up times, which indicated that this construct predicted both early and sustained effort in the rehabilitation process. This finding is consistent with the social cognition model (SCT), in which self-efficacy is contained, because individuals with a low sense of self-efficacy tend to harbour beliefs that tasks are more difficult than they actually are. Conversely, a high sense of self-efficacy can engender feelings of composure while performing activities (Bandura, 1997). A strong sense of self-efficacy can also enhance one's motivation to act. Individuals with high self-efficacy often select more challenging tasks to perform, set higher goals to achieve, invest more effort, persist longer and recover more readily in the face of set-backs than those with low self-efficacy (e.g., Locke and Latham, 1990). Also, people with a strong sense of self-efficacy tend to engage in behaviours that they feel capable of accomplishing and often regard barriers to objectives as challenges to be overcome, rather than insurmountable threats. Finally, they are also inclined to maintain a strong commitment to goals and objectives and sustain their efforts in the face of adversities.

Within the demographic variables regression models, male amputees demonstrated less activity limitations at follow-up, but this effect held only for advanced function at 1-month follow-up (i.e., not for basic function at 1-month follow-up nor for basic function or advanced function at 6-months follow-up). It may be possible that males attempted to return to strenuous activities (i.e., work) sooner than females shortly after leaving hospital, given perceived social expectations (particularly of elderly generation) upon males to maintain employment and provide a supportive income for the family, but that these expectations were somewhat unrealistic in view of their physical limitations post-discharge.

In terms of clinical variables models determining activity limitations, it was observed that amputation level (i.e., transtibial amputees), advanced pre-operative capabilities, and co-morbidity (i.e., diabetic amputees), emerged as prominent variables within the models for predicting better activity at both follow-up times. As these variables are similar to those that predicted prosthetic use, the reasons for these influences were likely to be the same as those already discussed above in the prosthetic use section.

Psychological distress

Psychological distress remained at a low level, compared to normative scale values, over the three assessment times. That is, from a possible scale range of 0-42, the mean scores were 9.02, 9.96 and 9.20, over the three assessment times, respectively. Furthermore, these scores did not alter significantly over the three assessment times (HADS: $F_{2,216}$=2.72, df = 2, p = 0.07).

Within the SRM cognitive representations regression models, amputees who believed during rehabilitation that their condition would last a long time were less anxious at 6-months post-discharge. Perhaps, these individuals were less disappointed, and subsequently depressed, because they had less expectations of recovering from their condition during this period of time. That is, their expectations of recovery may have been more synonymous with their actual recovery, resulting is less frustration and subsequent psychological distress, compared to amputees with more disparity between these two variables. As mentioned above, however, the interpretation of the word "condition" in relation to health was left to each individual patient, so that, for example, the term may have denoted having a leg amputated, or being temporarily disabled, or perhaps the sum of their co-morbidities. Such disparity may have introduced a confounding variable and, as such, perhaps this result should be interpreted with some caution.

Also, within the SRM cognitive representations regression models, amputees who perceived the course of their condition to be self-controlled were more anxious at 6-months post-discharge. This finding seemed to contradict the perceptions of control over recovery results for predicting psychological distress (see below), which found that an internal locus of control orientation determined less anxiety. This observed discrepancy may be due to the IPQ-R and RLOC inventories tapping distinctly different underlying psychological control constructs. That is, the IPQ-R is concerned with one's illness or health condition, whereas the RLOC focuses on recovery. The fact that patients who perceived personal control over the course of their condition (IPQ-R) were more anxious at 6-months, may possibly indicate that they assumed more responsibility for improving from their condition, and when this fell short of expectations, they experienced anxiety.

The SRM regression models also revealed that amputees who perceived to understand more about their condition during rehabilitation were more depressed at 1-month post-discharge. Perhaps these patients were more realistic in appraising the gravity of their situation, while others adopted a more optimistic, yet less accurate, schematic of their disposition. Or, perhaps these latter individuals were engaging in more emotion-focussed coping procedures during the acute post-operative period, such as denial and distraction. Psychological distress was also strongly predicted by SRM emotional representations at both outcome assessment times. This result meant that patients who self-reported negative affective feelings while thinking about their condition during rehabilitation (e.g., fear, anger, worry, etc.), went on to report feeling anxious and depressed at 1-month and 6-months after going home from hospital. The strong statistical relationship between these two constructs would seem to lend support to the position that there may be problems with distinguishing emotional responses and psychological distress. That is, perhaps these two theoretical constructs are, to a large extent, tapping the same underlying phenomena.

Amputees who were more anxious and depressed during rehabilitation, were more anxious and depressed at 1-month and 6-months post-discharge. As there were some significant changes in the other outcome variables over the assessment times (e.g., prosthetic use and activity limitations), it is reasonable to assume that psychological distress may have been a trait disposition in these particular individuals, as opposed to being related to fluctuations in their health condition, behaviour, or activity limitations.

Amputees with internal perceptions of control over their recovery during rehabilitation were significantly less anxious and depressed at both 1-month and 6-months post-discharge from hospital. However, those with strong prosthetic use self-efficacy beliefs were less depressed only, and this effect was evident only at 1-month follow-up. The marginal explanatory power of self-efficacy in determining long-term distress in the current sample may have been due to self-efficacy being assessed specifically in relation to confidence in prosthetic use, as opposed to general trait self-efficacy.

Within the demographic variables model, younger amputees were found to have higher levels of anxiety at both 1-month and 6-months follow-up, which is a finding that is consistent with the rehabilitation literature (e.g., Laatsch and Shahani, 1996), as well as the age and anxiety literature in general. In addition, this effect held even though the youngest amputee in the current sample was 50 years of age. It could be reasoned that, anxiety in younger amputees is synonymous with perceptions of having "more to lose", in terms of the likelihood of being compromised for a longer period of time, on variables relating to employment potential, relationships, social activities, etc. Interestingly, age did not predict depression, which has been found in several studies with amputees (e.g., Frank *et al.*, 1984). This finding may have been due to all of the participants in the current study sample being over 50 years of age.

In terms of clinical variables within regression models influencing distress, amputees who had diabetes were significantly less depressed at 6-months post-discharge. Perhaps, this was because they were more used to living with a health condition (i.e., diabetes). The effect is not due to diabetes serving as a proxy for transtibial amputation, as may have been suspected, because level of amputation did not predict psychological distress outcomes in this study. Also, surprisingly, unilateral amputees were more depressed than bilateral amputees at 6-months post-discharge, within the clinical variables regression models. This effect may have been due to shortcomings in the expected levels in activity achievements of unilateral amputees at this follow-up time, although this theory was not supported by any actual significant difference in activity limitations at 6-months between unilateral and bilateral amputees (p = .15). Finally, within the clinical variables regression models, amputees with higher basic pre-operative activity limitations were more depressed at 6-months post-discharge. However, this particular predictor variable (i.e., basic function only) did not register as significant within any of the other clinical regression models that attempted to predict prosthetic prescription, prosthetic use, activity limitations, or quality of life, at either of the follow-up times.

Quality of life

The mean subjective quality of life score at 6-months follow-up was just below mid-scale in the present study sample (i.e., 4.37 out of a possible score of 10).

No regression models whatsoever in the current study predicted quality of life outcome. This was probably due, chiefly, to the type of quality of life measure used in the study. The amputee specific patient generated index (PGI: Callaghan and Condie, 2003) is a subjective individualised quality of life measure, which allows patients to nominate their own unique criteria that contribute towards their quality of life. Thus, in effect, the variables that accounted for the variance in quality of life scores were individualised for each individual patient, and not consistent throughout the study sample. Hence, because the PGI is not a standardised quantitative instrument, it was difficult for the predictor models, measures, and variables used in this longitudinal predictive study, to account for the variance in the subjective quality of life scores, as these were essentially mediated by a wide range of unstandardised qualitative criteria. Nevertheless, themes and categories of responses were reported on the PGI measure, which can be determined in post hoc analyses, as they were in a previous study by Callaghan and Condie (2003), and the most influential of these factors in determining amputees' subjective quality of life can be identified. Moreover, such analyses would be useful in examining the response shift theory, whereby the reported subjective elements may change over time.

Theoretical models

The results of this study are consistent with the literature on the theoretical social cognition (psychological) models employed. For example, in relation to predicting other rehabilitation behaviours using the TPB, Aminzadeh and Edwards (2000) examined factors associated with cane use among community dwelling older adults, and found that attitude evaluation, subjective norm, and age, surfaced as the key variables associated with this particular rehabilitation behaviour. Furthermore, evidence has previously shown, that cognitive representations within the SRM contributed significantly towards self-regulation behaviours (e.g., Watkins *et al.*, 2000) and psychological distress (e.g., Vaughan *et al.*, 2003; Orbell *et al.*, 1998), and that changing patients' illness cognitions resulted in improved activity limitations (e.g., Petrie *et al.*, 2002). Perceptions of control over recovery have determined outcomes such as activity limitations (e.g., Johnston *et al.*, 2004) and levels of psychological distress (e.g., Johnston *et al.*, 1999; Morrison *et al.*, 2000), at follow-up in other physical patient populations, and self-efficacy has predicted outcomes in amputees (Rudy *et al.*, 2003). Furthermore, participants' cognitions in the present study were consistent with the medical nature and clinical understanding of lower limb amputation (personal communications).

Although the two main social cognition models used as frameworks to guide this investigation proved to be useful in identifying predictors of salient outcomes in amputees, these models are not without their limitations. For example, an inherent assumption of social cognition models is that people consider the implications of their actions before they decide to engage or not engage in a certain behaviour, which is not always true. That is, these models assume that human beings are rational and make systematic use of information available to them. Moreover, a common criticism often levelled at the TPB is that it overlooks emotion variables such as threat, fear, mood and negative or positive feelings. Particularly in health-related behaviour situations, given that most individuals' health behaviours are influenced by their personal emotions, this is a decisive drawback for predicting health-related behaviours (Dutta-Bergman, 2005). Moreover, the TPB is only able to determine predictors of nested behaviours and, as a result, could not be used to identify variables that predicted salient amputee outcomes beyond prosthetic use (intention and behaviour) in the current study. Another consideration in the current study was whether or not the TPB questionnaire captured everything that was relevant in terms of salient behavioural beliefs, normative beliefs and control beliefs for amputees. The pilot work undertaken to ascertain these beliefs was conducted with a relatively small sample size and with a convenient group of local patients, which reduced the chances of them being truly representative of the target population. In relation to the SRM exploration, it is possible that all the relevant symptoms associated with limb amputation were not identified and, subsequently, assessed. These items were included simply on the basis of clinical knowledge and experience with amputees (personal communications). Nevertheless, it may be reasoned that the symptoms that were added (to those already existing on the IPQ-R questionnaire) were, in fact, relevant because the participants tended to select these items. Finally, it is possible that the quality of the principle components analyses was not 100% efficient in terms of the manual selection of items and the labelling of factors. However, in defence of this criticism, the subsequent causal attribution scales do appear to be similar to those used in other SRM driven studies (i.e., the emotional/psychological factors and the risk behaviour factors).

Other study limitations

Participants were assessed at between 3-4 weeks post-operatively in relation to their attitudes, beliefs and perceptions concerning prosthetic use and the process of their recovery. It is possible, therefore, that at this baseline assessment time they already had a portion of experience with prosthetic use and the process of their recovery, which may to some extent have influenced the formation of their predictor cognitions. Consequently, this phenomenon may have introduced some causal direction ambiguity, or at least some noise, to the study design. It would have been better, therefore, to have assessed patients pre-operatively in order to have avoided such problems. However, this was not feasible due to a) practical considerations (e.g., obtaining pre-operative consent from patients, their GPs and consultants prior to the first interview), and b) patients typically being very ill at that particular time and unlikely to have been able to cope with an interview. Furthermore, it may prove to be more feasible in future to administer any therapeutic interventions based on the results of this study during post-operative rehabilitation, which arguably provides further justification for taking an assessment of psychological predictor variables at that particular time in the current study.

A further study limitation relates to the use of the term "condition" on the IPQ-R measure to describe how patients perceived their current health status. Permission was obtained from the developers of this measure to substitute the word "illness" as it appears on the original inventory to "health condition", as amputation is not an illness per se. However, this presented a further dilemma in that patients may have had different perceptions of what constituted their "health condition" (e.g., loss of leg, activity limitations, diabetes, etc). This, in turn, is likely to have systematically influenced some of the responses on the IPQ-R measure. For example, the loss of an original limb is a chronic disposition (relating to the timeline acute/chronic items), whereas activity limitations resulting from such a loss may be regarded as acute and temporary. Perhaps, the best solution would have been to provide an item on the IPQ-R measure that allows patients to nominate what they perceive as their health condition, which would then allow analyses to be performed on data that represented homogenous cognitions.

Another study limitation related to the use of the term "wearing" one's prosthesis in the hours per day and days per week questions at follow-up. These items were taken from the functional measure for amputees (FMA: Functional Measure for Amputees: © ReTIS/SPARG 1998), which achieved test-retest reliability (Callaghan *et al.*, 2002). However, it may arguably have been more clinically useful to assess actually "using" the prosthesis (e.g., to mobilise, for daily activities and social participation, etc) in accordance with International Classification of Functioning, Disability and Health (ICF: 2001) criteria, rather than simply "wearing" it (e.g., for cosmetic reasons).

Also, some of the multiple regression analyses from 6-months follow-up outcomes involved 103 data-sets using 10 predictor variables (i.e., for the CS-SRM analyses).

This falls short [by N = 27] of the number of participants recommended for such analyses by Tabachnik and Fiddel (1989), who suggested that in order to detect a medium effect size using multivariate regression analyses, the sample size should be no less than 50 + (8* the number of predictor variables). It may have been more prudent, therefore, to have started participant recruitment and incorporated more hospitals at an earlier stage of the study.

Finally, despite the use of a strong longitudinal study design, well validated theoretical models and the clear identification of different outcome variables, there were further possible limitations inherent in the current study. Namely, there are always inbuilt concerns as to whether the right measures were used, whether the participants were assessed at the right times and whether the statistical analyses were sufficient to be able to draw the conclusions that were drawn. On this latter note, it is always possible that predictive strengths may have been overestimated or underestimated to some degree. Having said that, however, the enter method of regression was predominantly used (with the exception of the theory driven hierarchical step method for the TRA - TPB analyses), often using a large number of predictor variables (e.g., 10 illness cognitions, 7 clinical variables). In such regression equations, predictor variables may have been given a diminished chance of explaining the variance in the criterion variables, therefore, a certain amount of confidence might reasonably be attributed to the predictive power of those variables that did achieve significance within these equations. In any case, further analyses were undertaken in an effort to make the study results more useful to clinical managers, by using the hierarchical step method of regression to determine if psychological variables accounted for any variance in the outcome variables at 6-months follow-up, over and above significant socio-demographic and clinical variables.

Importance to NHS and possible implementations

Many studies have attempted to identify factors relating to prosthetic use and recovery following lower limb amputation, however, these studies have focussed primarily on physical factors, while psychological factors have been poorly represented. Knowledge gained from the present study is valuable in that it has identified the predictive relationships between specific psychological variables and rehabilitation and health outcomes in amputees, using valid social cognition models. Knowledge of these predictive relationships can impact on NHS service delivery in several ways. Firstly, it may be used to identify patients whose psychological profile renders them at more risk of a) not rehabilitating as successfully with a prosthesis, and b) not achieving favourable activity limitation and psychological distress outcomes. Secondly, it raises the prospect of being able to formulate new psychotherapeutic interventions, or adapt existing cognitive behavioural therapies, aimed at influencing these psychological variables with the goal of increasing the numbers of patients a) making effective use of a prosthesis, and b) achieving successful long term rehabilitation and health outcomes, on physical, behavioural, and psychological levels. However, before implementing any clinical interventions based on the current findings, it will be necessary to formulate these (using the results of this study) and to then conduct further research to assess their effectiveness.

Future research

Specifically, the results of this study have implications for future research in terms of a) designing and evaluating the effectiveness of intervention studies developed to influence NHS practice, and b) further longitudinal predictive studies. For example, it was found that patients formed weak intentions to use a prosthesis because of limited perceived approval from family and NHS staff. This finding drives a theory for changing those perceptions in such a way so as to influence better use of one's prosthesis. In addition, cognitive behavioural therapies can be developed to target influential SRM cognitive representations , such as timeline (cyclical) (e.g., self-monitoring techniques), treatment control (e.g., pre-operative communications), and emotional representation (e.g., attribution change). Such evidence-based interventions could be developed to influence outcomes, and their efficacy analysed in randomised controlled trials. Moreover, future work, following on from this study, could involve successfully rehabilitated amputees again in the formulation and development, as well as the administration and intervention, of resulting psychotherapies. It is also possible to further investigate the influence of psychosocial variables on health and rehabilitation outcomes in amputees by using other prominent psychological social cognition models, such as social cognitive theory (SCT: e.g., Bandura, 1991) as a whole. Furthermore, following on from the individually distinct single theory analyses performed in this study, it is possible to combine the theories employed in order to facilitate examining whether there is a better psychological prediction when cognitions about both the condition and the behaviour are combined and considered in multiple regression models (e.g., Orbell *et al.*, 2006; Molloy *et al.*, in press). The dataset of this particular study presents a unique opportunity to answer some practical, as opposed to theoretical, questions to facilitate that possibility. To this end, the additional hierarchical step regression analyses performed in the current study have gone some ways to showing that psychological variables explain a significant amount of variance in important amputee outcomes at 6-months follow up, over and above the variance already explained by socio-demographic and clinical variables.

Furthermore, in accordance with activity limitations being viewed as a 'behavioural' (e.g., Johnston, 1997), the TPB could feasibly be applied to the prediction of the activity limitations data gathered in this study.

However, also in relation to future research, the following points should also be noted with regards to the current study: Firstly, the TPB did not perform as expected on the attitude and perceived behavioural control dimensions. That is, significant outcome expectations x evaluations (i.e., getting about and participating in activities) predicted global attitudes (i.e., positive evaluations of using a prosthesis), however, global attitudes did not, in turn, predict patients forming intentions to use their prosthesis. Moreover, although perceived behavioural control predicted forming intentions to use a prosthesis and actual behaviour (i.e., days per week of prosthetic use during the first week at home), none of the specific underlying control beliefs x perceptions of power of these to facilitate or impede using a prosthesis, determined perceived behavioural control.

Moreover, the predictor inventory in its entirety, consisting of many incorporated questionnaires, was rather long for participants to have endured during an interview at recruitment just 3-4 weeks after their amputation. This assessment was undertaken while the elderly participants were attempting to come to terms with the loss of a limb and, simultaneously, undergo a demanding and arduous program of inpatient rehabilitation with a prosthesis. In retrospect, therefore, it may have been more sensitive and prudent to have conducted initial pilot work using the IPQ-R measure with a smaller sample of new amputees, to find out which items on the measure were likely to be the most important predictor variables within the CS-SRM. This would have potentially resulted in a reduction in the amount of questions it would have been necessary to ask of the main large sample from the IPQ-R measure.

Dissemination

The research findings from this study will be disseminated by a) presenting at conferences and congresses, including those of the European Health Psychology Society, British Psychological Society Division of Health Psychology, and International Society for Prosthetics and Orthotics, b) publishing in scientific journals, including those relating to health psychology, rehabilitation, and prosthetic and orthotics, c) organising local workshops for physiotherapists and allied healthcare professionals involved in amputee rehabilitation at regional centres, and giving talks at national Scottish Physiotherapy Amputee Research Group (SPARG) meetings, and d) incorporating research findings into short courses presented at the National Centre for Prosthetics and Orthotics, University of Strathclyde, Glasgow, Scotland, UK (NCPO), which are intended for relevant allied health care professionals involved in the care, management, and rehabilitation of amputee patients.

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Appendix A

Literature searches for chapter one

The following literature searches were carried out using PsychINFO, PubMed and RECAL (a specialist "physical disability" database):

Amputation OR amputee OR prosthetic OR prosthesis...

...AND psychology AND psychological AND psychosocial AND cognitive AND cognition AND affect AND emotion AND mood AND motivation AND anxiety AND depression AND distress AND stress AND self regulation AND quality of life AND mental.

Literature searches for chapter three

The following literature searches were carried out in PsychINFO and PubMed and RECAL (specialist "physical disability" database):

1. Theory of planned behaviour/behavior OR attitudes OR beliefs...
2. Self regulatory OR self regulation OR common sense model OR parallel processing model OR illness perceptions OR illness representations OR illness cognitions...
3. Locus of control...
4. Self efficacy OR social cognitive theory...

...AND health behaviour/behavior (omitted) AND rehabilitation AND function AND disability AND handicap AND physical activity AND activity limitations ...AND participation AND participation restriction AND quality of life.

Search terms	PsychINFO	PubMed	Recal
"Theory of planned behavior/behaviour" AND "health behavior/behaviour"	101 behavior, 4 behaviour	62 behavior, 2 behaviour	"Theory of planned behavior/behaviour" total = 3.
"Theory of planned behavior/behaviour" AND "rehabilitation"	9 behavior, 1 behaviour	6 behavior, 12 behaviour	
"Theory of planned behavior/behaviour" AND "disability"	2 behavior, 2 behaviour	0 behavior, 0 behaviour	
"Theory of planned behavior/behaviour" AND "handicap"	0 behavior, 0 behaviour	0 behavior, 0 behaviour	
"Theory of planned behavior/behaviour" AND "function"	15 behavior, 3 behaviour	6 behavior, 11 behaviour	
"Theory of planned behavior/behaviour" AND "physical activity"	20 behavior, 6 behaviour	16 behavior, 27 behaviour	
"Theory of planned behavior/behaviour"	2 behavior, 0 behaviour	0 behavior, 0 behaviour	

AND "physical limitation(s)"			
"Theory of planned behavior/behaviour" AND "activity limitations(s)"	0 behavior, 0 behaviour	0 behavior, 0 behaviour	
"Theory of planned behavior/behaviour" AND "participation"	22 behavior, 3 behaviour	10 behavior, 15 behaviour	
"Theory of planned behavior/behaviour" AND "participation restriction(s)"	0 behavior, 0 behaviour	0 behavior, 0 behaviour	
"Theory of planned behavior/behaviour" AND "quality of life"	1 behavior, 1 behaviour	0 behavior, 4 behaviour	

	PsychINFO	PubMed	Recal
"Attitudes" AND "health behavior/behaviour"	2091 behavior, 77 behaviour	2240 behavior, 151 behaviour	0 behavior, 2 behaviour
"Attitudes" AND "rehabilitation"	3132	1930	38
"Attitudes" AND "disability"	2462	637	37
"Attitudes" AND "handicap"	431	104	3
"Attitudes" AND "function"	5369	1097	1
"Attitudes" AND "physical activity"	456	455	9
"Attitudes" AND "physical limitation(s)"	37	12	0
"Attitudes" AND "activity limitations(s)"	10	11	1(0)
"Attitudes" AND "participation"	5548	2493	2
"Attitudes" AND "participation restriction(s)"	0	1	0
"Attitudes" AND "quality of life"	1304	1032	3

	PsychINFO	PubMed	Recal
"Beliefs" AND "health behavior/behaviour"	806 behavior, 48 behaviour	748 behavior, 55 behaviour	0 behavior, 1 behaviour
"Beliefs" AND "rehabilitation"	517	480	19
"Beliefs" AND "disability"	361	277	31
"Beliefs" AND "handicap"	43	18	0
"Beliefs" AND "function"	1207	432	8
"Beliefs" AND "physical activity"	105	125	10
"Beliefs" AND "physical limitation(s)"	4	8	0
"Beliefs" AND "activity limitations(s)"	3	4	0
"Beliefs" AND "participation"	928	586	3
"Beliefs" AND	0	0	0

"participation restriction(s)"			
"Beliefs" AND "quality of life"	248	332	2

	PsychINFO	PubMed	Recal
"Perceived control" AND "health behavior/behaviour"	68 behavior, 5 behaviour	23 behavior, 1 behaviour	"Perceived control" total = 4
"Perceived control" AND "rehabilitation"	21	27	
"Perceived control" AND "disability"	35	25	
"Perceived control" AND "handicap"	4	3	
"Perceived control" AND "function"	83	35	
"Perceived control" AND "physical activity"	14	14	
"Perceived control" AND "physical limitation(s)"	0	0	
"Perceived control" AND "activity limitations(s)"	0	0	
"Perceived control" AND "participation"	56	34	
"Perceived control" AND "participation restriction(s)"	x	0	
"Perceived control" AND "quality of life"	36	43	

	PsychINFO	PubMed	Recal
"Self regulatory" AND "health behavior/behaviour"	29 behavior, 0 behaviour	7 behavior, 0 behaviour	"Self regulatory" total = 4
"Self regulatory" AND "rehabilitation"	65	13	
"Self regulatory" AND "disability"	8	4	
"Self regulatory" AND "handicap"	1	0	
"Self regulatory" AND "function"	87	49	
"Self regulatory" AND "physical activity"	1	5	
"Self regulatory" AND "physical limitation(s)"	0	0	
"Self regulatory" AND "activity limitations(s)"	0	0	
"Self regulatory" AND "participation"	22	10	
"Self regulatory" AND "participation restriction(s)"	0	0	
"Self regulatory" AND "quality of life"	6	3	

	PsychINFO	PubMed	Recal

"Self regulation" AND "health behavior/behaviour"	64 behavior, 7 behaviour	34 behavior, 1 behaviour	"Self regulation" total = 7
"Self regulation" AND "rehabilitation"	65	73	x
"Self regulation" AND "disability"	24	8	x
"Self regulation" AND "handicap"	5	0	x
"Self regulation" AND "function"	251	120	x
"Self regulation" AND "physical activity"	4	10	x
"Self regulation" AND "physical limitation(s)"	0	0	x
"Self regulation" AND "activity limitations(s)"	0	0	x
"Self regulation" AND "participation"	41	26	x
"Self regulation" AND "participation restriction(s)"	x	0	x
"Self regulation" AND "quality of life"	32	27	x

	PsychINFO	PubMed	Recal
"Common sense model" AND "health behavior/behaviour"	10 behavior, 0 behaviour	0 behavior, 0 behaviour	0 behavior, 0 behaviour
"Common sense model" AND "rehabilitation"	1	0	0
"Common sense model" AND "disability"	0	0	0
"Common sense model" AND "handicap"	0	0	0
"Common sense model" AND "function"	4	0	0
"Common sense model" AND "physical activity"	0	0	0
"Common sense model" AND "activity limitations(s)"	0	0	0
"Common sense model" AND "participation"	1	0	0
"Common sense model" AND "participation restriction(s)"	0	0	0
"Common sense model" AND "quality of life"	1	0	0

Parallel processing model relates to a common neuropsychological term, therefore, searches were confounded.

	PsychINFO	PubMed	Recal
"Illness perceptions" AND "health behavior/behaviour"	4 behavior, 1 behaviour	4 behavior, 0 behaviour	"Illness perceptions" total = 1
"Illness perceptions" AND	7	7	*

"rehabilitation"			
"Illness perceptions" AND "disability"	12	12	*
"Illness perceptions" AND "handicap"	0	0	*
"Illness perceptions" AND "function"	1	1	*
"Illness perceptions" AND "physical activity"	0	0	*
"Illness perceptions" AND "physical limitation(s)"	0	0	*
"Illness perceptions" AND "activity limitations(s)"	0	0	*
"Illness perceptions" AND "participation"	3	1	*
"Illness perceptions" AND "participation restriction(s)"	0	0	*
"Illness perceptions" AND "quality of life"	5	4	*

	PsychINFO	PubMed	Recal
"Illness representations" AND "health behavior/behaviour"	9 behavior, 3 behaviour	6 behavior, 1 behaviour	0
"Illness representations" AND "rehabilitation"	1	2	0
"Illness representations" AND "disability"	5	0	0
"Illness representations" AND "handicap"	0	0	0
"Illness representations" AND "function"	3	4	0
"Illness representations" AND "physical activity"	0	0	0
"Illness representations" AND "physical limitation(s)"	0	0	0
"Illness representations" AND "activity limitations(s)"	0	0	0
"Illness representations" AND "participation"	1	2	0
"Illness representations" AND "participation restriction(s)"	0	0	0
"Illness representations" AND "quality of life"	2	3	0

	PsychINFO	PubMed	Recal
"Illness cognitions" AND "health behavior/behaviour"	0 behavior, 1 behaviour	1 behavior, 0 behaviour	0
"Illness cognitions" AND "rehabilitation"	0	2	0
"Illness cognitions" AND "disability"	3	2	0
"Illness cognitions" AND "handicap"	0	0	0

“Illness cognitions” AND “function”	2	3	0
“Illness cognitions” AND “physical activity”	0	0	0
“Illness cognitions” AND “physical limitation(s)”	0	0	0
“Illness cognitions” AND “activity limitations(s)”	0	0	0
“Illness cognitions” AND “participation”	0	0	0
“Illness cognitions” AND “participation restriction(s)”	0	0	0
“Illness cognitions” AND “quality of life”	2	2	0

	PsychINFO	PubMed	Recal
“Locus of control” AND “health behavior/behaviour”	332 behavior, 23 behaviour	142 behavior, 18 behaviour	“Locus of control” total = 12
“Locus of control” AND “rehabilitation”	356	124	*
“Locus of control” AND “disability”	158	71	*
“Locus of control” AND “handicap”	14	6	*
“Locus of control” AND “function”	628	140	*
“Locus of control” AND “physical activity”	45	22	*
“Locus of control” AND “physical limitation(s)”	0(4)	2	*
“Locus of control” AND “activity limitations(s)”	1(3)	0	*
“Locus of control” AND “participation”	445	81	*
“Locus of control” AND “participation restriction(s)”	0(1)	0	*
“Locus of control” AND “quality of life”	121	115	*

	PsychINFO	PubMed	Recal
“Self efficacy” AND “health behavior/behaviour”	465 behavior, 15 behaviour	495 behavior, 14 behaviour	0 behavior, 2 behaviour
“Self efficacy” AND “rehabilitation”	347	476	22
“Self efficacy” AND “disability”	157	191	41
“Self efficacy” AND “handicap”	9	7	2
“Self efficacy” AND “function”	353	244	18
“Self efficacy” AND “physical activity”	214	251	19
“Self efficacy” AND	1(6)	2(5)	0

"physical limitation(s)"			
"Self efficacy" AND "activity limitations(s)"	0(2)	3(1)	0
"Self efficacy" AND "participation"	475	281	7
"Self efficacy" AND "participation restriction(s)"	0	0	0
"Self efficacy" AND "quality of life"	144	337	14

	PsychINFO	PubMed	Recal
"Social cognitive theory" AND "health behavior/behaviour"	54 behavior, 2 behaviour	77 behavior, 2 behaviour	0
"Social cognitive theory" AND "rehabilitation"	7	59	0
"Social cognitive theory" AND "disability"	1	21	0
"Social cognitive theory" AND "handicap"	0	4	0
"Social cognitive theory" AND "function"	30	72	0
"Social cognitive theory" AND "physical activity"	30	36	0
"Social cognitive theory" AND "physical limitation(s)"	1(0)	0	0
"Social cognitive theory" AND "activity limitations(s)"	0	0	0
"Social cognitive theory" AND "participation"	31	34	0
"Social cognitive theory" AND "participation restriction(s)"	0	0	0
"Social cognitive theory" AND "quality of life"	5	22	0

	PsychINFO	PubMed	Recal
"Amputation" AND" psychology"	21	744	329
"Amputation" AND "psychological"	100	350	128
"Amputation" AND "psychosocial"	41	75 (41 selected)	24
"Amputation" AND "cognitive"	33	45 (20 selected)	13
"Amputation" AND "cognition"	5	18 (9 selected)	1
"Amputation" AND "affect"	23	232	41
"Amputation" AND "emotion"	11	2 (1 selected)	3
"Amputation" AND "mood"	3	9 (4 selected)	2
"Amputation" AND	4	41(22 selected)	12

"motivation"			
"Amputation" AND "anxiety"	22	58 (31 selected)	12
"Amputation" AND "depression"	64	112 (24 selected)	24
"Amputation" AND "distress"	13	38 (13 selected)	9
"Amputation" AND "stress"	21	280	100
"Amputation" AND "self regulation/self regulatory"	0	0	2(0)
"Amputation" AND "quality of life" *	12	351	46
"Amputation" AND "mental" *	46	145	25

Appendix B

You may be feeling slightly disorientated as a result of your recent operation. If so, it is a normal reaction and nothing to worry about. However, for the purposes of this research we are required to assess your level of disorientation and would, therefore, be most grateful if you could complete the following short questionnaire.

What is your name?	
How old are you?	
What is your date of birth?	
Where are we now?	
What is the address of this place?	
What is the name of this town/city?	
Who is the Prime Minister of the UK?	
Who is the President of the USA?	
What are the colours of the national flag?	
What day is it?	
What month is it?	
What year is it?	

Score 1 point for each correct answer.
Score

12

Your feelings about your condition

This section is designed to help us know how you are feeling. Please read each item and indicate the reply that comes closest to how you have been feeling **in the past week** by circling the appropriate box. DO NOT take too long over the replies; your immediate reaction to each item will probably be more accurate than a long thought out response.

I feel tense or 'wound up'	**Most of the time**	**A lot of the time**	**From time to time, occasionally**	**Not at all**
I still enjoy the things I used to enjoy	**Definitely as much**	**Not quite so much**	**Only a little**	**Hardly at all**
I get a sort of frightened feeling as if something awful is about to happen	**Very definitely and quite badly**	**Yes, but not too badly**	**A little, but it doesn't worry me**	**Not at all**
I can laugh and see the funny side of things	**As much as I always could**	**Not quite so much now**	**Definitely not so much now**	**Not at all**
Worrying thoughts go through my mind	**A great deal of the time**	**A lot of the time**	**From time to time but not too often**	**Only occasionally**
I feel cheerful	**Not at all**	**Not often**	**Sometimes**	**Most of the time**
I can sit at ease and feel relaxed	**Definitely**	**Usually**	**Not often**	**Not at all**
I feel as if I am slowed down	**Nearly all the time**	**Very often**	**Sometimes**	**Not at all**
I get a sort of frightened feeling like 'butterflies' in the stomach	**Not at all**	**Occasionally**	**Quite often**	**Very often**
I have lost interest in my appearance	**Definitely**	**I don't take as much care as I should**	**I may not take quite as much care**	**I take just as much care as ever**
I feel restless as if I have to be on the move	**Very much indeed**	**Quite a lot**	**Not very much**	**Not at all**

I look forward with enjoyment to things	As much as I ever did	Rather less than I used to	Definitely less than I used to	Hardly at all
I get sudden feelings of panic	Very often indeed	Quite often	Not very often	Not at all
I can enjoy a good book or radio or TV program	Often	Sometimes	Not often	Very seldom

How you adapt and progress with your condition

We want you to think about how you have adapted and how you progress with your rehabilitation. Please read each statement and indicate the response closest to your own opinion by circling the appropriate box.

How I manage in the future depends on me not what other people can do for me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It's what I do to help myself that's really going to make all the difference	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It's up to me to make sure I make the best recovery possible under the circumstances	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Getting better now is a matter of my own determination rather than anything else	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It doesn't matter how much help you get - in the end it's your own efforts that count	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It's often best to just wait and see what happens	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
My own efforts are not very important, my recovery really depends on others	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
My own contribution to my recovery doesn't amount to much	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

I have little or no control over my progress from now on	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

Your views about your condition

In this part of the questionnaire we want to know your views about your *condition*. This relates to your *health condition* **since the time of your operation.** Your ***health condition*** means the illness that lead to your operation and the effects of your operation. Listed below are a number of symptoms that you may or may not have experienced **since the time of your operation**. Please indicate by circling **Yes** or **No**, whether you have experienced any of these symptoms **since the time of your operation**, and whether you believe that these symptoms are related to your *condition*.

Symptoms	**I have experienced this symptom *since the time of my operation***		**This symptom is *related to my condition***	
Pain	Yes	No	Yes	No
Nausea	Yes	No	Yes	No
Breathlessness	Yes	No	Yes	No
Weight change	Yes	No	Yes	No
Fatigue	Yes	No	Yes	No
Stiff/sore joints	Yes	No	Yes	No
Feelings in lost limb	Yes	No	Yes	No
Pain in lost limb	Yes	No	Yes	No
Headache	Yes	No	Yes	No
Upset stomach	Yes	No	Yes	No
Difficulty in sleeping	Yes	No	Yes	No
Pain in stump	Yes	No	Yes	No
Dizziness	Yes	No	Yes	No
Loss of strength	Yes	No	Yes	No
Confusion	Yes	No	Yes	No

We are interested in your own personal views on how you now see your current *condition*.
Please indicate how much you agree or disagree with the following statements about your *condition* by circling the appropriate box.

IP1*	My condition will last a short time	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

IP2	My condition is likely to be permanent rather than temporary	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP3	My condition will last for a long time	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP4*	This condition will pass quickly	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP5	I expect to have this condition for the rest of my life	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP6	My condition is a serious condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP7	My condition has major consequences for my life	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP8*	My condition does not have much effect on my life	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP9	My condition strongly affects the way others see me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP10	My condition has serious financial consequences	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP11	My condition causes difficulties for those who are close to me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP12	There is a lot that I can do to control my symptoms	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP13	What I do can determine whether my condition gets better or worse	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP14	The course of my condition depends on me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

IP15*	Nothing I do will affect my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP16	I have the power to influence my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP17*	My actions will have no effect on the outcome of my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP18*	My condition will improve in time	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP19*	There is very little that can be done to improve my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP20	My treatment will be effective in curing my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP21	The negative effects of my condition can be prevented (avoided) by my treatment	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP22	My treatment can control my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP23*	There is nothing that can help my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP24*	The symptoms of my condition are puzzling to me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP25*	My condition is a mystery to me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP26*	I don't understand my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP27*	My condition doesn't make any sense to me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

IP28	I have a clear picture or understanding of my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP29	The symptoms of my condition change a great deal from day to day	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP30	My symptoms come and go in cycles	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP31	My condition is very unpredictable	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP32	I go through cycles in which my condition gets better and worse	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP33	I get depressed when I think about my condition	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP34	When I think about my condition I get upset	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP35	My condition makes me feel angry	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP36*	My condition does not worry me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP37	Having this condition makes me feel anxious	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
IP38	My condition makes me feel afraid	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

Causes of your condition

We are interested in what you consider may have been the causes of your *condition*. As people are very different, there is no correct answer for this question. We are most interested in your own views about the factors that caused your *condition* rather than what others, including doctors or family, may have suggested to you. Below is a list of possible causes for your *condition*. Please indicate how much you agree or disagree that they were causes for you by circling the appropriate box.

C1	Stress or worry	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C2	Hereditary - it runs in my family	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C3	A germ or virus	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C4	Diet or eating habits	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C5	Chance or bad luck	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C6	Poor medical care in my past	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C7	Pollution in the environment	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C8	My own behaviour	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C9	My mental attitude e.g. thinking about life negatively	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C10	Family problems or worries caused my illness	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C11	Overwork	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C12	My emotional state e.g. feeling down, lonely, anxious, empty	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C13	Ageing	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
C14	Alcohol	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

C15	**Smoking**	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
C16	**Accident or injury**	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
C17	**My personality**	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**

In the table below, please list in rank-order that three most important factors that you now believe caused your condition. You may use any of the items from the boxes above, or you may have additional ideas of your own.

The most important causes of my condition for me:-

1. ______________________________

2. ______________________________

3. ______________________________

Your mobility and independence

We are interested to know your levels of mobility and independence at the **Christmas** OR **Easter** before your amputation (*whichever was more recent*). Do you think you were able to do the following activities at that time? ***(Note for interviewer: tick what the patient reports, NOT what you have observed)***

Get up from a chair?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Pick up an object from the floor when you were standing up?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Get up from the floor? *(e.g. if you had fallen)*	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**

Walk in the house?	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Walk outside on EVEN ground?	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Walk outside on UNEVEN ground *(e.g. grass, gravel, slope)*	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Walk outside in bad weather? *(e.g. rain or snow)*	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Go upstairs holding a banister?	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Go downstairs holding a banister?	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Step up onto the pavement?	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Step down from the pavement?	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Go up a few steps without a handrail?	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Walk down a few steps without a handrail?	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone
Walk while carrying an object? *(e.g. cup of tea or newspaper)*	No	Yes, if someone helped me	Yes, if someone was near me	Yes, alone

Your attitudes towards using your artificial leg

Will you be using an artificial leg when you go home?	Yes	No	Don't Know

If you have answered **Yes** then please continue with the rest of the questionnaire.
If you have answered **Don't Know** then please continue with the questionnaire (and assume that you will be using an artificial leg when you leave hospital).
If you have answered **No** and are definitely not going to be using an artificial leg when you leave hospital, then you do not need to proceed any further with the questionnaire.

We want you to think about your attitudes towards using your artificial leg to move about during your first week at home. Please read each statement and indicate the strength of your own attitude by circling a number between 1 and 7.

I *intend* to use my artificial leg to move about during my first week at home.

Definitely do not	1	2	3	4	5	6	7	**Definitely do**

I *would like* to use my artificial leg to move about during my first week at home.

Definitely do not	1	2	3	4	5	6	7	**Definitely do**

I *expect* to use my artificial leg to move about during my first week at home.

Definitely do not	1	2	3	4	5	6	7	**Definitely do**

Using my artificial leg to move about during my first week at home would be:

Unpleasant	1	2	3	4	5	6	7	**Pleasant**
Good	1	2	3	4	5	6	7	**Bad**
Repelling	1	2	3	4	5	6	7	**Attracting**

Healthy	1	2	3	4	5	6	7	Sick
Unfortunate	1	2	3	4	5	6	7	Fortunate

Using my artificial leg to move about during my first week at home would enable me to *get about.*

Unlikely	1	2	3	4	5	6	7	Likely

Using my artificial leg to move about during my first week at home would enable me to *be independent*

Unlikely	1	2	3	4	5	6	7	Likely

Using my artificial leg to move about during my first week at home would enable me to *participate i[n] activities.*

Unlikely	1	2	3	4	5	6	7	Likely

Being able to *get about* would be:

Bad	1	2	3	4	5	6	7	Good

Being *independent* would be:

Bad	1	2	3	4	5	6	7	Good

Being able to *participate in activities* would be:

Bad	1	2	3	4	5	6	7	Good

My family think that I:

Should	1	2	3	4	5	6	7	Should Not

...use my artificial leg to move about during my first week at home.

The *NHS staff (e.g., doctors, nurses, physiotherapists, etc.)* think that I:

Should	1	2	3	4	5	6	7	Should Not

...use my artificial leg to move about during my first week at home.

My friends think that I:

Should	1	2	3	4	5	6	7	Should Not

...use my artificial leg to move about during my first week at home.

The *other patients* think that I:

Should	1	2	3	4	5	6	7	Should Not

...use my artificial leg to move about during my first week at home.

How much do you want to do what *your family* think you should?

Not at all	1	2	3	4	5	6	7	Very Much

How much do you want to do what the *NHS staff (e.g., doctors, nurses, physiotherapists, etc.)* think you should?

Not at all	1	2	3	4	5	6	7	Very Much

How much do you want to do what *your friends* think you should?

Not at all	1	2	3	4	5	6	7	Very Much

How much do you want to do what the *other patients* think you should?

Not at all	1	2	3	4	5	6	7	Very Much

People who are important to me think I:

Should	1	2	3	4	5	6	7	Should not

...use my artificial leg to move about during my first week at home.

People who are important to me would:

Approve	1	2	3	4	5	6	7	Disapprove

of me using my artificial leg to move about during my first week at home.

People who are important to me want me to use my artificial leg to move about during my first week at home.

Likely	1	2	3	4	5	6	7	Unlikely

I feel under social pressure to use my artificial leg to move about during my first week at home.

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

Whether I do or do not use my artificial leg to move about during my first week at home is entirely up to me.

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

How much control do you feel you have over using your artificial leg to move about during your first week at home?

No Control	1	2	3	4	5	6	7	Complete Control

I would like to use my artificial leg to move about during my first week at home, but I really don't know if I can.

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

I am confident that I could use my artificial leg to move about during my first week at home if I wanted to.

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

For me to use my artificial leg to move about during my first week at home will be:

Difficult	1	2	3	4	5	6	7	Easy

When using my artificial leg to move about during my first week at home, there will be *a lot of stairs:*

Likely	1	2	3	4	5	6	7	Unlikely

When using my artificial leg to move about during my first week at home, there will be *slippery and rough surfaces:*

Likely	1	2	3	4	5	6	7	Unlikely

When using my artificial leg to move about during my first week at home, there will be *disabled facilities (e.g., access, toilets):*

Likely	1	2	3	4	5	6	7	Unlikely

When using my artificial leg to move about during my first week at home, there will be *people helping me:*

Likely	1	2	3	4	5	6	7	Unlikely

***A lot of stairs* will make moving about for me:**

Less likely	1	2	3	4	5	6	7	More likely

Slippery and rough surfaces **will make moving about for me:**

Less likely	1	2	3	4	5	6	7	More likely

Disabled facilities (e.g., access, toilets) **will make moving about for me:**

Less likely	1	2	3	4	5	6	7	More likely

People helping me **will make moving about for me:**

Less likely	1	2	3	4	5	6	7	More likely

Your confidence about using your prosthesis

Please complete this statement by circling the corresponding box that is closest to your own opinion.

I am confident that I can use my artificial leg to move about during my first week at home...

...even if there are a lot of stairs.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
...even on slippery or rough surfaces.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
...even if there are NO disabled facilities (e.g., access, toilets).	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
...even if there are NO people helping me.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

Your feelings about your condition

This section is designed to help us know how you are feeling. Please read each item and indicate the reply that comes closest to how you have been feeling **in the past week** by circling the appropriate box. DO NOT take too long over the replies; your immediate reaction to each item will probably be more accurate than a long thought out response.

I feel tense or 'wound up'	**Most of the time**	**A lot of the time**	**From time to time, occasionally**	**Not at all**
I still enjoy the things I used to enjoy	**Definitely as much**	**Not quite so much**	**Only a little**	**Hardly at all**
I get a sort of frightened feeling as if something awful is about to happen	**Very definitely and quite badly**	**Yes, but not too badly**	**A little, but it doesn't worry me**	**Not at all**
I can laugh and see the funny side of things	**As much as I always could**	**Not quite so much now**	**Definitely not so much now**	**Not at all**
Worrying thoughts go through my mind	**A great deal of the time**	**A lot of the time**	**From time to time but not too often**	**Only occasionally**
I feel cheerful	**Not at all**	**Not often**	**Sometimes**	**Most of the time**
I can sit at ease and feel relaxed	**Definitely**	**Usually**	**Not often**	**Not at all**
I feel as if I am slowed down	**Nearly all the time**	**Very often**	**Sometimes**	**Not at all**
I get a sort of frightened feeling like 'butterflies' in the stomach	**Not at all**	**Occasionally**	**Quite often**	**Very often**
I have lost interest in my appearance	**Definitely**	**I don't take as much care as I should**	**I may not take quite as much care**	**I take just as much care as ever**

I feel restless as if I have to be on the move	Very much indeed	Quite a lot	Not very much	Not at all
I look forward with enjoyment to things	As much as I ever did	Rather less than I used to	Definitely less than I used to	Hardly at all
I get sudden feelings of panic	Very often indeed	Quite often	Not very often	Not at all
I can enjoy a good book or radio or TV program	Often	Sometimes	Not often	Very seldom

How you adapt and progress with your condition

We want you to think about how you have adapted and how you progress with your rehabilitation. Please read each statement and indicate the response closest to your own opinion by circling the appropriate box.

How I manage in the future depends on me not what other people can do for me	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It's what I do to help myself that's really going to make all the difference	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It's up to me to make sure I make the best recovery possible under the circumstances	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Getting better now is a matter of my own determination rather than anything else	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It doesn't matter how much help you get - in the end it's your own efforts that count	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
It's often best to just wait and see what happens	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
My own efforts are not very important, my recovery really depends on others	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

My own contribution to my recovery doesn't amount to much	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I have little or no control over my progress from now on	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

Moving about

When you have to move about INSIDE YOUR HOUSE, approximately how many of your moves are done:-

In a wheelchair	0%	25%	50%	75%	100%
Walking WITH your artificial leg ***(technical aids can be used)?***	0%	25%	50%	75%	100%
Walking WITHOUT your artificial leg ***(technical aids can be used)?***	0%	25%	50%	75%	100%

When you have to move about OUTSIDE YOUR HOUSE, approximately how many of your moves are done:-

In a wheelchair	0%	25%	50%	75%	100%
Walking WITH your artificial leg ***(technical aids can be used)?***	0%	25%	50%	75%	100%
Walking WITHOUT your artificial leg ***(technical aids can be used)?***	0%	25%	50%	75%	100%

Using your artificial leg

Have you been prescribed an artificial leg?	Yes	No

If you have answered **Yes** then please continue with the rest of the questionnaire.

If you have answered **No** then please complete the PGI (Patient Generated Index) on the last page only.

How many hours per day do you wear your artificial leg *at present*?	☐
How many days per week do you wear your artificial leg *at present*?	☐
***During the first week at home with your artificial leg*, how many hours per day did you use it to move about?**	☐
***During the first week at home with your artificial leg*, how many days per week did you use it to move about?**	☐

Your mobility and independence

We are interested to know your levels of mobility and independence at present. Do you think you are ABLE to do the following activities at this time WITH YOU ARTIFICIAL LEG ON? ***(Note for interviewer: tick what the patient reports, NOT what you have observed)***

Get up from a chair?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Pick up an object from the floor when you were standing up?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Get up from the floor? *(e.g. if you had fallen)*	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Walk in the house?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Walk outside on EVEN ground?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**

Walk outside on UNEVEN ground *(e.g. grass, gravel, slope)*	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Walk outside in bad weather? *(e.g. rain or snow)*	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Go upstairs holding a banister?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Go downstairs holding a banister?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Step up onto the pavement?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Step down from the pavement?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Go up a few steps without a handrail?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Walk down a few steps without a handrail?	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**
Walk while carrying an object? *(e.g. cup of tea or newspaper)*	**No**	**Yes, if someone helped me**	**Yes, if someone was near me**	**Yes, alone**

In your own words, WHY do you use your artificial leg?

In your own words, WHEN do you use your artificial leg?

If you DO NOT use your artificial leg at all could you please circle how long ago you stopped using it:-

1 month ago	2 months ago	3 months ago	4 months ago	5 months ago	6 months ago

If you DO NOT use your artificial leg at all could you please say why?

Please complete the PGI on the last page now [6-monts follow-up only]

THANK YOU

A PATIENT GENERATED INDEX © OF QUALITY OF LIFE

Your answers to the following steps will tell us how your life is affected by your AMPUTATION AND ITS TREATMENT. It will also tell us how you would like to see your life improved.

STEP 1: Identifying Areas

Think of the most important areas of your life that are affected by your AMPUTATION AND ITS TREATMENT. Please write up to FIVE areas in the FIVE boxes below.

ALL OTHER ASPECTS OF YOUR LIFE NOT MENTIONED ABOVE

STEP 2: Scoring each area

In this part, you score the areas that you have mentioned in Step 1. This score should show how badly affected you were over the past MONTH in that area. Please score each area out of 10 using this scale:

10 = Exactly as you would like to be
9 = Close to how you would like to be
8 = Very good but not how you would like to be
7 = Good, but not how you would like
6 = Between good and fair
5 = Fair
4 = Between poor and fair
3 = Poor but not the worst you could imagine
2 = Very poor but not the worst you could imagine
1 = Close to the worst you could imagine
0 = The worst you could imagine

Please use this last box to score all areas affected by other health problems and/or all other non-health problems.

STEP 3: Spending points

Now think of the most important areas to you.
You have *12* imaginary points to spend to show which areas you feel are the most important to you.
Spend more points on those areas that you feel are more important to you and less on the areas that you feel are less important to you.
You do not have to spend points in every area if you don't want. That is, you can leave boxes blank if they are not important to you at all.
Also, you can not spend more than 12 points in total.

Remember total must add up to 12

Appendix C

Visiting Volunteer Training Day

Welcome Back

Research Methods in Health (revisited)

The New Study

1. Introduction
2. Aims and purposes
3. Research questions
4. Methods
5. Procedures
6. How results could benefit lower limb amputees in Scotland
7. Discussion of the study with Visiting Volunteers and Questions

The Measures To Be Used

1. Introduction to the measures
2. Guidelines for use (instruction booklets will again be provided)
3. LCI
4. RLOC
5. HADS
6. FMA (questions 3, 4, 6 and 11)
7. PGI (revisited)

LUNCH

Interview Technique (revisited)

1. Understanding ethical conduct
2. Understanding confidentiality
3. Understanding objectivity
4. Understanding impartiality
5. Interview demonstration by Research Fellow
6. Visiting Volunteers practice interviewing techniques

Administrative Procedure

1. Understanding materials in the interview package (e.g., return stamped addressed envelope, questionnaire, guidelines for use, contacting Research Fellow, etc.)
2. Understanding the interview procedure (e.g., returning questionnaires, etc)
3. How visits are arranged by Research Fellow and allocated to a volunteer visitor
4. Being in contacting with Research Fellow at all times!

Signing the 'Declaration of Confidentiality'

'Questions and Answers' Session

Thank You

Hospital Visitor Programme

The Hospital Visitors scheme was first established in January 1998 to provide a service to new amputees and their families. All of the Murray Foundation Hospital Visitors are themselves amputees who have undergone 4 days counselling skills training and also 2 days additional training in the rehabilitation process. The Hospitals Visitors are monitored individually on a monthly basis and also meet every three months for counselling supervision and every 6 months for review. In addition, they are closely governed by their own Code of Ethics and Practice with the Foundation making a firm commitment to on-going training and supervision.

The Hospital Visitors are not "experts" ready to solve problems, they are people with an amputation who have themselves and their experience to share and do so in a confidential, one-to-one manner.

The Foundation now has a register of over 30 Hospital Visitors who, although they are based mainly in central Scotland, are happy to travel to any location to help and support new amputees. By the year 2000 we hope to have some visitors further north, nearer to Inverness and Aberdeen, who will obviously be more familiar with local contacts and support agencies in that area.

Every ward sister, physiotherapist or occupational therapist who deals with amputees should have a register of all Hospital Visitors and can arrange a visit. The local limb centres also hold copies of the register as there may be more established amputees who still feel they would benefit from some time with one of our visitors.

A number of our visitors have now completed their Certificate in Counselling which has provided invaluable in increasing their self awareness, communication with others and provided a capacity to empower. Some have taken their training even further and have enrolled for the Diploma in Counselling which will allow them to begin working toward accreditation with employment opportunities in many different areas.

If you are interested in becoming a Murray Foundation Hospital Visitor please contact us on info@murray-foundation.org.uk or call us on 0141 580 8564.

Appendix D

<u>SCOTTISH PHYSIOTHERAPY AMPUTEE RESEARCH GROUP</u>
(Letter Headed Paper)

05/04/2001 (Version 1)

«GPs/Consultant's_Name»
«GPs/Consultant's_Address»

Predictors of prosthetic fitting, use and recovery following lower limb amputation: illness related cognitions, attitudes towards prosthetic use, psychological distress and functional limitations.

Re: «Patients_Name»,

Dear *«GPs_Name/Consultant»,*

A predictive longitudinal study of factors relating to recovery in lower limb amputees who have recently had an amputation is currently taking place. This project, conducted by the Scottish Physiotherapy Amputee Group (SPARG), has full ethical approval and is designed to identify psychological and functional variables that predict prosthetic fitting, use and recovery following lower limb amputation.

Your patient, detailed above, has been identified as a suitable candidate for inclusion in this study and will receive a letter of information and a form seeking his/her consent to participate. Thereafter, the patient will receive a questionnaire at between 3-4 weeks into rehabilitation therapy, and then a similar questionnaire at 1-month and 6-month post discharge from the rehabilitation centre.

This questionnaire will ask patients about their attitudes and thoughts concerning their amputation and to what extent they feel they have been compromised psychologically and functionally by it. It is simple to use and all patients will be assisted in filling it out by a senior physiotherapist involved in their rehabilitation. The patient will, furthermore, be free to choose not to participate in the study or to withdraw at any time without explanation.

May I reassure you that any current treatment or prosthetic provision will be completely unaffected by this study.

I sincerely hope that you will have no objection to your patient being included in this survey, however, should you have any concerns or further queries then please do not hesitate to contact me directly.

Yours sincerely,
Brian Callaghan
Research Fellow

CONSENTING PATIENT INFORMATION CARD

SPARG ID Number

Patients Name

Address (with postcode)

Telephone Number

Age

Gender

Patient's GP Name

GP Address (with postcode)

Patient's Consultant Name

Level of Amputation

Unilateral or Bilateral

Date of Amputation

Date of Discharge

Hospital Letter head

INFORMATION SHEET

Title of the study

Predictors of prosthetic fitting, use and recovery following lower limb amputation.

Invitation to participate in a study

You are being invited to take part in a research study sponsored by The Scottish Executive Health Department. Before you decide to participate it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. You can ask your senior physiotherapist [*senior physiotherapist*] if there is anything that is not clear or if you would like more information.

The aim of the study

The aim of the study is to find out what influences patients being prescribed an artificial leg and then continuing to use it. We also want to find out which thoughts and feelings influence patients making a better recovery from their amputation.

Why you have been selected for the study

You have been chosen as a suitable person to take part in the study because you have just had an amputation of the lower limb. About 400 other people who have recently had an amputation in Scotland will also be asked if they would like to participate in the study.

Your involvement in the study

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. You will also be given a copy of the consent form to keep. Your GP and consultant will also be informed with your permission. If you decide to take part in the study you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of treatment or care you receive.

What you will be asked to do in the study

If you choose to participate in the study, you will be given a questionnaire and receive help to fill it in. This should take about 20-30 minutes. Later, when you have finished your rehabilitation therapy, an amputee volunteer will contact you and arrange to visit you at your home after 1-month and then after 6-months to help you fill in a similar questionnaire at those times. The questionnaires will ask you about your thoughts and feelings towards your amputation and towards using an artificial leg. They will also ask you about how you feel you are coping with your amputation. There are no right or wrong answers to the questions. You can also decline to answer any question in the questionnaires without giving a reason.

Confidentiality

All the information collected on the questionnaires will be treated with absolute confidentiality and your identity will not be disclosed. The information collected will only be used for research purposes. The results of the study will be published in appropriate scientific journals, however at no time will your identity be disclosed in any published reports.

If you have any further questions

If you have any questions or require further information please contact your senior physiotherapist [*senior physiotherapist*] or [*senior physiotherapist_2*] by telephoning [*telephone number*]. In addition, if you would like to obtain a copy of any articles published as a result of the study, then please do not hesitate to phone Mr Brian Callaghan B.Sc., who is a Research Fellow with SPARG (The Scottish Physiotherapy Amputee Research Group) and the lead researcher for the study on telephone number 0141 548 3116 between 2pm and 5pm.

What to do now

Please return the completed consent form to [*senior physiotherapist*], the Senior Amputee Physiotherapist at [*Hospital]* Hospital. A stamped, addressed envelope is enclosed for this purpose or you could simply hand it back to them at the hospital if you prefer.

Thank you

Your taking part in this study will give us information that would be useful for improving the treatment, care and services provided by hospital staff to amputees throughout Scotland. We would like to thank you for taking the time to read this information sheet and also thank you in advance for, hopefully, consenting to take part in the study.

DECLARATION OF CONSENT

Predictors of prosthetic fitting, use and recovery from lower limb amputation.

√	Please tick the appropriate box

Have you been given a copy of the Information Sheet?	YES ☐ NO ☐
Have you read and understood the information?	YES ☐ NO ☐
Have you had ample time to consider the information and to ask questions?	YES ☐ NO ☐
Have you been given a name and telephone number to call for further information?	YES ☐ NO ☐
Have you received satisfactory answers to your questions from either the information sheet or the named person?	YES ☐ NO ☐
Do you understand that you are free to withdraw from the study at any time without giving a reason and without affecting your current or future medical care?	YES ☐ NO ☐
Do you consent to your GP and consultant being contacted to give them the opportunity to express any concerns they may have about you being involved in the study?	YES ☐ NO ☐

I agree to take part in the questionnaire study,			
Name of Volunteer	____________________		
Signature of Volunteer	____________________	Date	________
Name of Researcher	Brian Callaghan		
Signature of Researcher	____________________	Date	________

Appendix E

Consenters vs. non-consenters at recruitment

Age (age_© vs. nage)
SPSS: Enter all ages onto one column (ages_all)
Code consenters (1) and non-consenters (0) in next column

Group Statistics

	con_non	N	Mean	Std. Deviation	Std. Error Mean
age_all	1	165	66.73	1.326	.804
	0	67	73.31	8.453	1.033

Independent samples t-test
There was a significant difference in ages between consenting and non-consenting patients (t = -5.028, df = 148.3, $p < .001$). This t value reflects that equal variance was not assumed, as Levene's test for equality of variance was significant (F = 7.527, $p < .05$).

However, the distribution of the age_© variable scores was not normal (Kolmogorov's Smirnov = .072, df = 165, $p < .05$) {SPSS: descriptives, explore, plots, plots, normality plots with tests} [see below], therefore non-parametric statistics (*Mann-Whitney U*) were used.

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
age_©	.072	165	.036	.968	165	.001

a Lilliefors Significance Correction

Mann-Whitney U (SPSS: non-parametric tests, two independent samples, Mann-Whitney U)

Test Statistics(a)

	age_all
Mann-Whitney U	3515.000
Wilcoxon W	1721.000
Z	-4.347
Asymp. Sig. (2-tailed)	.000

a Grouping Variable: con_non

There was still a significant difference between consenters and non-consenters in age (Mann-Whitney U = 3515.000, N_1 = 165, N_2 = 67, $p < .001$, two-tailed)

Gender (sex_© vs. ngender)
SPSS: Enter all ages onto one column (gend_all)
Code consenters (1) and non-consenters (0) in next column

gend_all * con_non Crosstabulation

Count

		con_non		Total
		0	1	
gend_all	F	25	51	76
	M	43	115	158
Total		68	166	234

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.803(b)	1	.370		
Continuity Correction(a)	.551	1	.458		
Likelihood Ratio	.793	1	.373		
Fisher's Exact Test				.442	.228
N of Valid Cases	234				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.09.

There was no relationship between consenting and gender (X^2 = .803, df = 1, p = .370)

Level of amputation (ampleve vs. namplevl)
SPSS: Enter all ages onto one column (ampleve_all)
Code consenters (1) and non-consenters (0) in next column

Amputation Level © * con_non Crosstabulation

Count

		con_non		Total
		0	1	
Amputation Level ©	Hemipelvectomy	0	1	1
	Trans-femoral	33	43	76
	Trans-tibial	35	122	157
Total		68	166	234

Chi-square-test
There was a relationship between consenting and level of amputation (X^2 = 11.500, df = 2, $p < .05$). The Chi-square test was invalid, however, because 2 cells had expected frequency counts of less than 5; therefore the one hemipelvectomy amputation case was collapsed into the transfemoral category (i.e., above knee amputation). The recalculated Chi-square is shown below.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.598(b)	1	.001		
Continuity Correction(a)	9.624	1	.002		
Likelihood Ratio	1.284	1	.001		
Fisher's Exact Test				.002	.001
N of Valid Cases	234				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.38.

This solved the expected frequency count problem, however there was a relationship between consenting and level of amputation (X^2 = 1.598, df = 1, p = .001).

Unilateral/bilateral (uni_bi vs. nunibi)
SPSS: Enter all ages onto one column (uni_bi_all)
Code consenters (1) and non-consenters (0) in next column

Uni/Bilateral © * con_non Crosstabulation

Count

		con_non		Total
		0	1	
Uni/Bilateral ©	Bilateral	6	19	25
	Unilateral	62	147	209
Total		68	166	234

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.348(b)	1	.555		
Continuity Correction(a)	.127	1	.721		
Likelihood Ratio	.359	1	.549		
Fisher's Exact Test				.647	.370
N of Valid Cases	234				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.26.

There was no relationship between consenting and unilateral or bilateral amputation (X^2 = .348, df = 1, p = .555)

Deprivation category (deprivat vs. ndepcat)
SPSS: Enter all deprivation categories onto one column (deprivcat_all)
Code consenters (1) and non-consenters (0) in next column

Group Statistics

	con_non	N	Mean	Std. Deviation	Std. Error Mean
Deprivation Cat (c)	1	164	24.4854	17.89508	1.39737
	0	68	29.3132	19.34985	2.34651

Independent samples t-test
There was a non-significant difference in deprivation categories between consenting and non-consenting patients ($t = -1.768$, df = 116.9, $p = .08$). This t value denotes equal variance being assumed as Levene's test for equality of variance was non-significant ($F = .012$, $p = .913$).

However, the distributions of the variable deprivat and ndepcat scores were not normal (Kolmogorov's Smirnov = .151, df = 164, $p < .001$) and (Kolmogorov's Smirnov = .137, df = 68, $p < .05$) respectively [see below], therefore non-parametric statistics (*Mann-Whitney U*) were used.

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Deprivation Cat (c)	.151	164	.000	.891	164	.000

a Lilliefors Significance Correction

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ndepcat	.137	68	.003	.915	68	.000

a Lilliefors Significance Correction

Mann-Whitney U (SPSS: non-parametric tests, two independent samples, Mann-Whitney U)

Test Statistics(a)

	deprivat_all
Mann-Whitney U	4659.000
Wilcoxon W	18189.000
Z	-1.971
Asymp. Sig. (2-tailed)	.049

a Grouping Variable: con_non

There was a marginally significant relationship between consenting and deprivation category scores (Mann-Whitney U = 4659.000, $N_1 = 164$, $N_2 = 68$, $p = .049$, two-tailed).

Consenters vs. non-consenters at 1-month follow-up

Age
SPSS: Enter all ages onto one column (ageall1)
Code consenters (1) and non-consenters (0) in next column

Group Statistics

	connon1	N	Mean	Std. Deviation	Std. Error Mean
ageall1	1	143	66.68	1.541	.881
	0	11	65.64	1.652	3.212

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
age1mon	.076	143	.043	.965	143	.001

a Lilliefors Significance Correction

The distribution of the age1mon variable scores (ages of consenting patients) was not normal (Kolmogorov's Smirnov = .076, df = 143, $p < .05$), therefore non-parametric statistics (*Mann-Whitney U*) were used.

Test Statistics(a)

	ageall1

Mann-Whitney U	75.500
Wilcoxon W	816.500
Z	-.253
Asymp. Sig. (2-tailed)	.800

a Grouping Variable: connon1

There was a non-significant difference between consenters and non-consenters in age (Mann-Whitney U = 75.500, $N_1 = 143$, $N_2 = 11$, p = .800, two-tailed)

Gender
SPSS: Enter all ages onto one column (gendall1)
Code consenters (1) and non-consenters (0) in next column

gendall1 * connon1 Crosstabulation

Count

		connon1		Total
		0	1	
gendall1	F	5	44	49
	M	6	99	105
Total		11	143	154

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.015(b)	1	.314		
Continuity Correction(a)	.451	1	.502		
Likelihood Ratio	.962	1	.327		
Fisher's Exact Test				.328	.245
N of Valid Cases	154				

a Computed only for a 2x2 table
b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.5.

One cell had an expected count less than 5. For 2*2 table chi-square analyses it is appropriate under such circumstances to report the Fisher's Exact test (Siegel and Castellan, 1988). There was no relationship between consenting and gender (p =.328, two-tailed).

Level of amputation
SPSS: Enter all ages onto one column (amplevall1)
Code consenters (1) and non-consenters (0) in next column

amplevall1 * connon1 Crosstabulation

Count

		connon1		Total
		0	1	
amplevall1	Trans-femoral	5	35	40
	Trans-tibial	6	108	114
Total		11	143	154

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.338(b)	1	.126		
Continuity Correction(a)	1.374	1	.241		
Likelihood Ratio	2.101	1	.147		
Fisher's Exact Test				.155	.123
N of Valid Cases	154				

a Computed only for a 2x2 table
b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.86.

One cell had an expected count less than 5. Using the Fisher's Exact test, there was no relationship between consenting and level of amputation (p =.155, two-tailed).

Unilateral/bilateral

SPSS: Enter all ages onto one column (unibiall1)
Code consenters (1) and non-consenters (0) in next column

unibiall1 * connon1 Crosstabulation

Count

		connon1		Total
		0	1	
unibiall1	Bilateral	2	17	19
	Unilateral	9	126	135
Total		11	143	154

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.374(b)	1	.541		
Continuity Correction(a)	.018	1	.892		
Likelihood Ratio	.336	1	.562		
Fisher's Exact Test				.627	.405
N of Valid Cases	154				

a Computed only for a 2x2 table
b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.36.

One cell had an expected count less than 5. Using the Fisher's Exact test, there was no relationship between consenting and unilateral/bilateral status ($p = .627$, two-tailed).

Deprivation category

SPSS: Enter all deprivation categories onto one column (deprivall1)
Code consenters (1) and non-consenters (0) in next column

Group Statistics

	connon1	N	Mean	Std. Deviation	Std. Error Mean
deprivall1	1	142	23.2294	17.18682	1.44229
	0	11	4.8134	23.81938	7.18181

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
dep1mon	.167	142	.000	.881	142	.000

a Lilliefors Significance Correction

The distribution of the variable dep1mon scores were not normal (Kolmogorov's Smirnov = .167, df = 142, $p < .001$), therefore non-parametric statistics (*Mann-Whitney U*) were used.

Test Statistics(a)

	deprivall1
Mann-Whitney U	434.000
Wilcoxon W	10587.000
Z	-2.451
Asymp. Sig. (2-tailed)	.014

a Grouping Variable: connon1

There was a significant relationship between consenting and deprivation category scores (Mann-Whitney U = 434.000, $N_1 = 142$, $N_2 = 11$, $p < .05$, two-tailed).

Consenters vs. non-consenters at 6-months follow-up

Age

SPSS: Enter all ages onto one column (ageall6)
Code consenters (1) and non-consenters (0) in next column

Group Statistics

	connon6	N	Mean	Std. Deviation	Std. Error Mean
ageall6	1	120	66.47	10.441	.953
	0	10	71.40	11.187	3.538

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
age6mon	.084	120	.035	.962	120	.002

a Lilliefors Significance Correction

The distribution of the age6mon variable scores (ages of consenting patients) was not normal (Kolmogorov's Smimov = .084, df = 120, p < .05), therefore non-parametric statistics (*Mann-Whitney U*) were used.

Test Statistics(a)

	ageall6
Mann-Whitney U	445.500
Wilcoxon W	7705.500
Z	-1.351
Asymp. Sig. (2-tailed)	.177

a Grouping Variable: connon6

There was a non-significant difference between consenters and non-consenters in age (Mann-Whitney U = 445.500, N_1 = 120, N_2 = 10, p = .177, two-tailed)

Gender
SPSS: Enter all ages onto one column (gendall6)
Code consenters (1) and non-consenters (0) in next column

gendall6 * connon6 Crosstabulation

Count

		connon6		Total
		0	1	
gendall6	F	1	39	40
	M	9	81	90
Total		10	120	130

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.194(b)	1	.139		
Continuity Correction(a)	1.265	1	.261		
Likelihood Ratio	2.642	1	.104		
Fisher's Exact Test				.174	.128
N of Valid Cases	130				

a Computed only for a 2x2 table
b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.08.

One cell had an expected count less than 5. Using the Fisher's Exact test, there was no relationship between consenting and gender (p =.174, two-tailed).

Level of amputation
SPSS: Enter all ages onto one column (amplevall6)
Code consenters (1) and non-consenters (0) in next column

amplevall6 * connon6 Crosstabulation

Count

		connon6		Total
		0	1	
amplevall6	Trans-femoral	2	32	34
	Trans-tibial	8	88	96
Total		10	120	130

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.212(b)	1	.645		
Continuity Correction(a)	.007	1	.931		
Likelihood Ratio	.224	1	.636		
Fisher's Exact Test				1.000	.487
N of Valid Cases	130				

a Computed only for a 2x2 table
b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.62.

One cell had an expected count less than 5. Using the Fisher's Exact test, there was no relationship between consenting and level of amputation ($p = 1.000$, two-tailed).

Unilateral/bilateral
SPSS: Enter all ages onto one column (unibiall6)
Code consenters (1) and non-consenters (0) in next column

unibiall6 * connon6 Crosstabulation

Count

		connon6		Total
		0	1	
unibiall6	Bilateral	1	15	16
	Unilateral	9	105	114
Total		10	120	130

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.053(b)	1	.817		
Continuity Correction(a)	.000	1	1.000		
Likelihood Ratio	.056	1	.812		
Fisher's Exact Test				1.000	.645
N of Valid Cases	130				

a Computed only for a 2x2 table
b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.23.

One cell had an expected count less than 5. Using the Fisher's Exact test, there was no relationship between consenting and unilateral/bilateral status ($p = 1.000$, two-tailed).

Deprivation category
SPSS: Enter all deprivation categories onto one column (deprivall6)
Code consenters (1) and non-consenters (0) in next column

Group Statistics

	connon6	N	Mean	Std. Deviation	Std. Error Mean
deprivall6	1	118	23.6075	18.08178	1.66456
	0	10	20.7748	11.31758	3.57893

Tests of Normality

	Kolmogorov-Smirnov(a)	Shapiro-Wilk

	Statistic	df	Sig.	Statistic	df	Sig.
dep6mon	.182	119	.000	.867	119	.000

a Lilliefors Significance Correction

The distribution of the variable dep1mon scores were not normal (Kolmogorov's Smimov = .182, df = 119, $p < .001$), therefore non-parametric statistics (*Mann-Whitney U*) were used.

Test Statistics(a)

	deprivall6
Mann-Whitney U	574.500
Wilcoxon W	7595.500
Z	-.138
Asymp. Sig. (2-tailed)	.891

a Grouping Variable: connon6

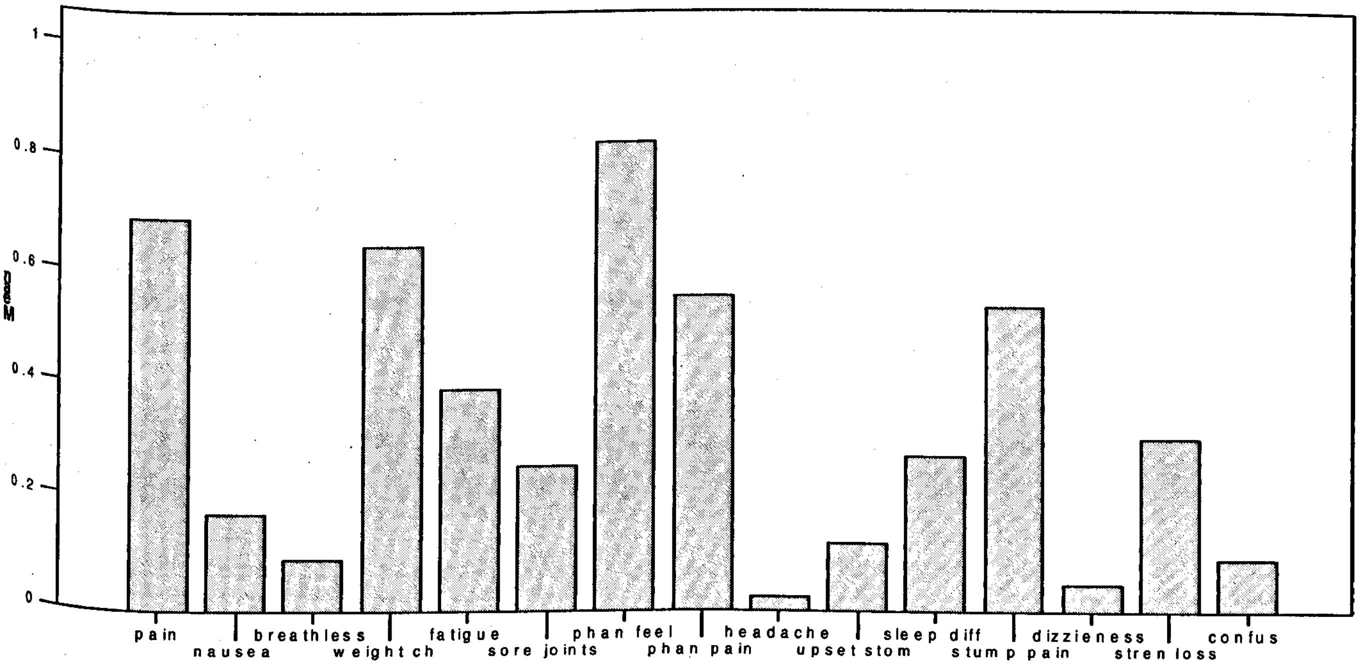
There was a non-significant relationship between consenting and deprivation category scores (Mann-Whitney U = 574.500, $N_1 = 118$, $N_2 = 10$, p = .745, two-tailed).

Measures

Measures at recruitment
<u>HADS (N=166)</u>
Recode t1 HADS (items 1, 3, 5, 6, 8, 10, 11, 13)
Compute *Anxiety* scores
Mean = 4.43, SD = 3.87, Range = 0-17 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Anxiety* scale = 0.80
Compute *Depression* scores
Mean = 4.58, SD = 3.53, Range = 0-15 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Depression* scale = 0.72
Compute overall *Distress* scores
Mean = 9.02, SD = 6.45, Range = 0-32 [Possible range = 0-42]
Internal Consistency (Cronbach's alphas) *Distress* scale = 0.83

<u>RLOC (N=166)</u>
Recode t1 RLOC (items 6, 7, 8, 9)
Compute *RLOC* scores (internal LOC = higher scores)
Mean = 39.47, SD = 4.13, Range = 24-45 [Possible range = 9-45]
Internal Consistency (Cronbach's alphas) *RLOC* scale = 0.72

<u>IPQ-R (N=166)</u>
Compute *Identity* (number of symptoms mentioned)
Create frequency bar chart for *Identity*



Identity and frequency of symptoms reported by patients (N=166)

Recode IPQ-R (items 1, 4, 8, 15, 17, 18, 19, 23, 24, 25, 26, 27, 36)
Compute *Time Line (acute/chronic)* scores
Mean = 19.51, SD = 2.61, Range = 11-26 [Possible range = 6-30]
Internal Consistency (Cronbach's alphas) *Time Line* scale = 0.89
Table 6.1. Identity and frequency of reported symptoms at recruitment (N = 166)

Compute *Time Line (cyclical)* scores
Mean = 9.72, SD = 3.32, Range = 4-20 [Possible range = 4-20]
Internal Consistency (Cronbach's alphas) *Time Cycle* scale = 0.82
Compute *Consequences items* scores
Mean = 18.13, SD = 3.27, Range = 9-25 [Possible range = 6-30]
Internal Consistency (Cronbach's alphas) *Consequences* scale = 0.71
Compute *Personal Control items* scores
Mean = 20.17, SD = 2.11, Range = 13-27 [Possible range = 6-30]
Internal Consistency (Cronbach's alphas) *Personal Control* scale = 0.79
Compute *Treatment Control items* scores
Mean = 15.17, SD = 1.86, Range = 10-21 [Possible range = 5-25]
Internal Consistency (Cronbach's alphas) *Treatment Control* scale = 0.77
Compute *Illness Coherence items* scores
Mean = 11.81, SD = 2.67, Range = 5-25 [Possible range = 5-25]
Internal Consistency (Cronbach's alphas) *Illness Coherence* scale = 0.85
Compute *Emotional Representation* scores
Mean = 14.69, SD = 4.18, Range = 6-30 [Possible range = 6-30]
Internal Consistency (Cronbach's alphas) *Emotional Representation* scale = 0.80

Retain individual *Causes* items in final dataset for later regression analysis (test individually).

Factor analysis (Principle Components) revealed five components for the 17 *Causes* items. Using a cut-off statistic of > 0.4, one component only had two items, therefore, a four components model was forced.

Rotated Component Matrix(a)

	Component			
	1	2	3	4
c1	.094	**.581**	.353	-.209
c2	.025	.016	.059	**.619**
c3	-.199	-.053	**.647**	.255
c4	.210	.071	.341	**.597**
c5	.008	.292	.384	**-.467**
c6	.027	.037	**.635**	-.010
c7	.074	.167	**.657**	.058
c8	**.735**	.024	.191	.195
c9	.351	.337	**.416**	.416

c10	.151	**.749**	.051	.104
c11	.294	.311	.159	**.553**
c12	.328	**.524**	.495	-.043
c13	.320	.100	.265	**-.426**
c14	**.718**	.230	-.076	-.038
c15	**.699**	-.110	-.111	.056
c16	-.213	**.684**	-.085	.044
c17	.430	**.506**	.226	.208

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 10 iterations.

Factor 1 [Risk Behaviour] Alpha = 0.63
C8. My own behaviour
C14. Alcohol
C15. Smoking

Factor 2 [Emotional/Psychological] Alpha = 0.68
C1. Stress or worry
C10. Family problems or worries caused my illness
C12. My emotional state e.g., feeling down, lonely, anxious, empty
C16. Accident or injury
C17. My personality

Factor 3 [Past Events] Alpha = 0.58
C3. A germ or virus
C6. Poor medical care in my past
C7. Pollution in the environment
C9. My mental attitude e.g., thinking about life negatively (fits factor 4 too?)

Factor 4 [External Influences] Alpha = 0.31
C2. Hereditary - it runs in my family
C4. Diet or eating habits
C5. Chance or bad luck
C11. Overwork
C13. Aging

Moved items into the factor in which they seemed more relevant (i.e., valid), then re-calculated alphas.

Factor 1 [Risk Behaviour] Alpha = 0.64 (can't be increased by removing another item)
C4. Diet or eating habits
C8. My own behaviour
C11. Overwork
C14. Alcohol
C15. Smoking

Factor 2 [Emotional/Psychological] Alpha = 0.77 (can't be increased by removing another item)
C1. Stress or worry
C9. My mental attitude e.g., thinking about life negatively (fits factor 4 too?)
C10. Family problems or worries caused my illness
C12. My emotional state e.g., feeling down, lonely, anxious, empty
C17. My personality

Factor analysed the remaining 7 causal items (forced two factors). They loaded as follows:

Rotated Component Matrix(a)

	Component	
	1	2
c2	.394	**-.510**
c3	**.719**	-.037
c5	.178	**.797**
c6	**.671**	.105
c7	**.643**	.258
c13	.022	**.535**
c16	.161	**.322**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 3 iterations.

Factor 3 [Past Events] Alpha = 0.51
C3. A germ or virus
C6. Poor medical care in my past
C7. Pollution in the environment

Correlations

		identity	timeline	timecycl	conseque	perscont	treatcont	illcoher	emotrepr	c_risk	c_emopsy
identity	Pearson Correlati	1	.010	.244**	.179*	.053	.003	-.077	.256**	.033	.087
	Sig. (2-tailed)	.	.901	.002	.021	.501	.967	.327	.001	.677	.262
	N	166	166	166	166	166	166	166	166	166	166
timeline	Pearson Correlati	.010	1	.077	.386**	-.047	-.302**	.050	.071	-.093	-.037
	Sig. (2-tailed)	.901	.	.325	.000	.552	.000	.523	.366	.233	.636
	N	166	166	166	166	166	166	166	166	166	166
timecycl	Pearson Correlati	.244**	.077	1	.040	.029	-.002	-.344**	.232**	.073	.235**
	Sig. (2-tailed)	.002	.325	.	.606	.709	.984	.000	.003	.351	.002
	N	166	166	166	166	166	166	166	166	166	166
conseque	Pearson Correlati	.179*	.386**	.040	1	-.155*	-.189*	-.151	.426**	-.016	.057
	Sig. (2-tailed)	.021	.000	.606	.	.046	.015	.051	.000	.834	.465
	N	166	166	166	166	166	166	166	166	166	166
perscont	Pearson Correlati	.053	-.047	.029	-.155*	1	.541**	.379**	-.246**	-.056	-.059
	Sig. (2-tailed)	.501	.552	.709	.046	.	.000	.000	.001	.472	.449
	N	166	166	166	166	166	166	166	166	166	166
treatcont	Pearson Correlati	.003	-.302**	-.002	-.189*	.541**	1	.262**	-.120	-.105	-.077
	Sig. (2-tailed)	.967	.000	.984	.015	.000	.	.001	.124	.179	.325
	N	166	166	166	166	166	166	166	166	166	166
illcoher	Pearson Correlati	-.077	.050	-.344**	-.151	.379**	.262**	1	-.431**	-.234**	-.368**
	Sig. (2-tailed)	.327	.523	.000	.051	.000	.001	.	.000	.002	.000
	N	166	166	166	166	166	166	166	166	166	166
emotrepr	Pearson Correlati	.256**	.071	.232**	.426**	-.246**	-.120	-.431**	1	.072	.271**
	Sig. (2-tailed)	.001	.366	.003	.000	.001	.124	.000	.	.356	.000
	N	166	166	166	166	166	166	166	166	166	166
c_risk	Pearson Correlati	.033	-.093	.073	-.016	-.056	-.105	-.234**	.072	1	.460**
	Sig. (2-tailed)	.677	.233	.351	.834	.472	.179	.002	.356	.	.000
	N	166	166	166	166	166	166	166	166	166	166
c_emopsy	Pearson Correlati	.087	-.037	.235**	.057	-.059	-.077	-.368**	.271**	.460**	1
	Sig. (2-tailed)	.262	.636	.002	.465	.449	.325	.000	.000	.000	.
	N	166	166	166	166	166	166	166	166	166	166

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Factor 4 [External Influences] Alpha = 0.15
C2. Hereditary - it runs in my family
C5. Chance or bad luck
C13. Aging
C16. Accident or injury

Tried to enter all Factor 3 and Factor 4 items into a scale, then remove items one at a time to attempt achieving an alpha greater than 0.7, however, the highest achievable alpha was 0.51 for items C3, C6 and C7 (not in syntax).

Use two causal scales (N = 166)
Compute Factor 1 "c_risk" [Risk Behaviour] (Alpha = 0.64) scores (C4. Diet or eating habits; C8. My own behaviour; C11. Overwork, C14. Alcohol, C15. Smoking)
Mean = 10.55, SD = 3.93, Range = 5-23 [Possible range = 5-25]

Compute Factor 2 "c_emopsy" [Emotional/Psychological] (Alpha = 0.77) scores (C1. Stress or worry, C9. My mental attitude e.g., thinking about life negatively, C10. Family problems or worries caused my illness, C12. My emotional state e.g., feeling down, lonely, anxious, empty, C17. My personality)
Mean = 8.30, SD = 3.22, Range = 5-21 [Possible range = 5-25]

Correlation matrix of the IPQ-R dimensions
LCI (N=164)
Compute *Basic Locomotor Capabilities* scores
Mean = 18.57, SD = 5.05, Range = 0-21 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Basic Locomotor Capabilities* scale = 0.93
Compute *Advanced Locomotor Capabilities* scores
Mean = 16.04, SD = 6.91, Range = 0-21 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Advanced Locomotor Capabilities* scale = 0.93
Compute *Overall Locomotor Capabilities* scores
Mean = 34.60, SD = 11.33, Range = 1-42 [Possible range = 0-42]
Internal Consistency (Cronbach's alphas) *Overall Locomotor Capabilities* scale = 0.95

TPB (N=153)
Compute *Behavioural Intention* scores
Mean = 6.64, SD = 0.86, Range = 1-7 [Possible range = 1-7]

Internal Consistency (Cronbach's alphas) *BI* scale = 0.90

Recode *Attitude* (items *good, healthy*)
Compute *Attitude* scores
Mean = 5.38, SD = 1.04, Range = 2.60-7 [Possible range = 1-7]
Internal Consistency (Cronbach's alphas) *Attitude* scale = 0.75

Recode *Subjective Norm* (items *pshould, papprov, pwant*)
Internal Consistency (Cronbach's alphas) *SN* scale = 0.42
Remove item *sopress*
Internal Consistency (Cronbach's alphas) *SN* scale = 0.87
Compute *SN* scores
Mean = 6.32, SD = 1.02, Range = 1.67-7 [Possible range = 1-7]

Recode *Perceived Behavioural Control* (item, *ifcan*)
Internal Consistency (Cronbach's alphas) *PBC* scale = 0.50
Remove item *ifcan*
Internal Consistency (Cronbach's alphas) *PBC* scale = 0.55
Remove item *easy*
Internal Consistency (Cronbach's alphas) *PBC* scale = 0.61

Compute *PBC* scores
Mean = 6.23, SD = 0.91, Range = 2.67-7 [Possible range = 1-7]

Factor analyses on the 5 *PBC* item revealed two distinct subscales (not being used)

Rotated Component Matrix(a)

	Component	
	1	2
up2me	.826	.033
control	.822	.072
ifcan	.014	-.658
confide	.476	.641
easy	.033	.695

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 3 iterations.

Compute *Controllability* scores
(Not using)
Internal Consistency (Cronbach's alphas) *Controllability* scale = 0.60

Compute *Self-efficacy* scores
(Not using)
Internal Consistency (Cronbach's alphas) *Self-efficacy* = 0.40

Recode beliefs items (Outcome evaluations, Normative beliefs, Control power)
Compute indirect belief measurement scores for *Attitude, SN and PBC* constructs
Behavioural beliefs * Outcome evaluations
Mean = 46.65, SD = 15.56, Range = 4-63 [Possible range = -63-63]
[Internal consistency analysis is inappropriate as items pertain to individual beliefs]

Normative beliefs * Motivation to comply
Mean = -44.18, SD = 30.13, Range = -84-84 [Possible range = -84-84]
[Internal consistency analysis is inappropriate as items pertain to individual beliefs]

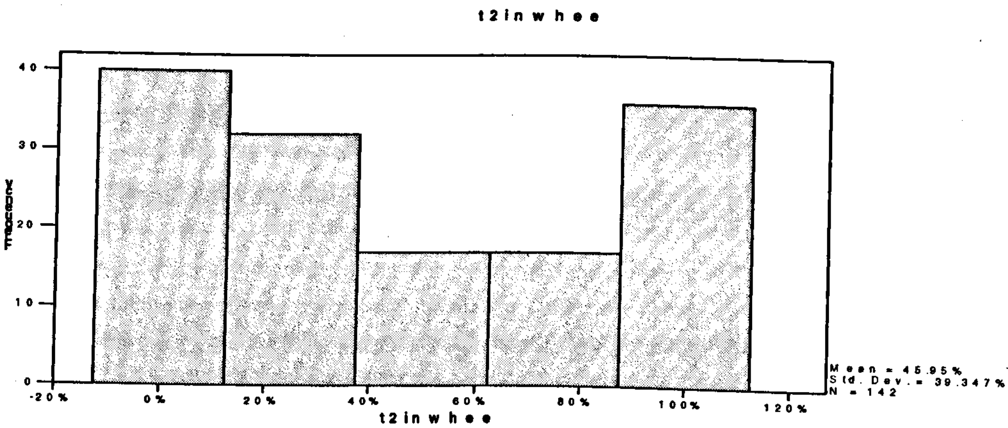
Control beliefs * Control power
Mean = -6.27, SD = 17.28, Range = -66-33 [Possible range = -84-84]
[Internal consistency analysis is inappropriate as items pertain to individual beliefs]

Compute *Self-efficacy2 scale* scores (N = 153)
Mean = 13.72, SD = 3.60, Range = 4-20 [Possible range = 4-20]
Internal Consistency (Cronbach's alphas) *Self-efficacy* = 0.84

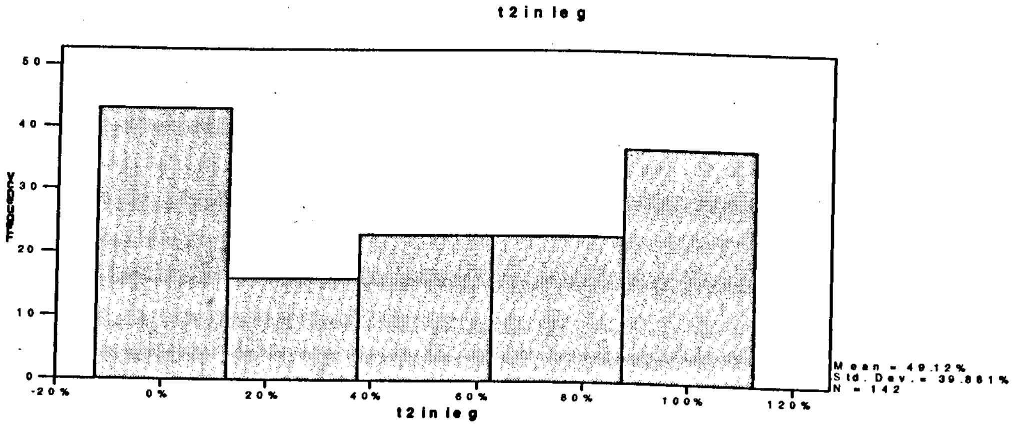
Measures at 1-month follow-up
<u>HADS (N=142)</u>
Recode t2 HADS (items 1, 3, 5, 6, 8, 10, 11, 13)
Compute *Anxiety* scores
Mean = 4.85, SD = 4.09, Range = 0-19 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Anxiety* scale = 0.83
Compute *Depression* scores
Mean = 5.11, SD = 3.70, Range = 0-18 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Depression* scale = 0.73
Compute overall *Distress* scores
Mean = 9.96, SD = 6.97, Range = 0-32 [Possible range = 0-42]
Internal Consistency (Cronbach's alphas) *Distress* scale = 0.86

<u>RLOC (N=142)</u>
Recode t2 RLOC (items 6, 7, 8, 9)
Compute *RLOC* scores (internal LOC = higher scores)
Mean = 39.89, SD = 4.78, Range = 19-45 [Possible range = 9-45]
Internal Consistency (Cronbach's alphas) *RLOC* scale = 0.82

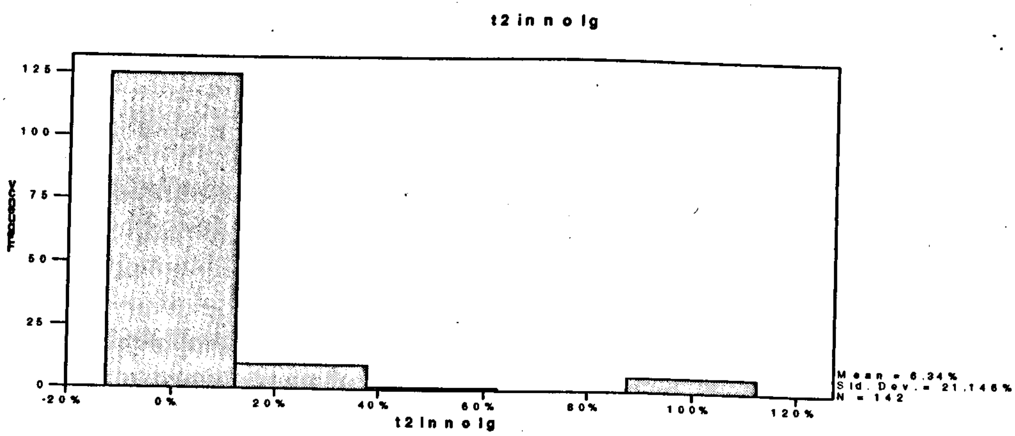
Moving about (N = 142)
Inside the house
Moving about inside the house in a wheelchair after 1-month (N = 142)



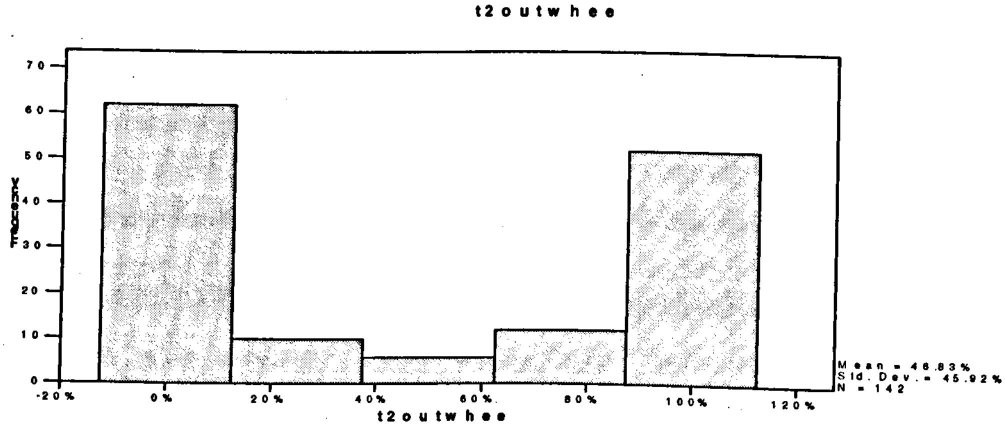
Walking with an artificial leg inside the house after 1-month (N = 142)



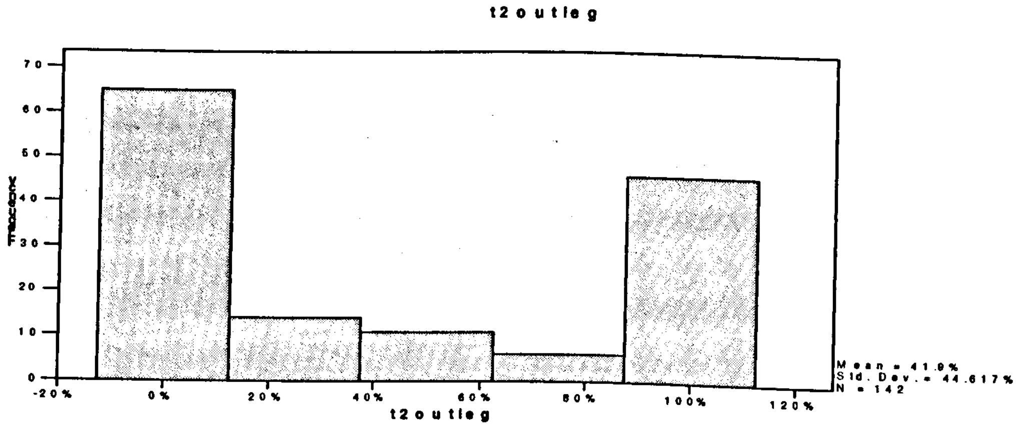
Walking without an artificial leg inside the house after 1-month (N = 142)



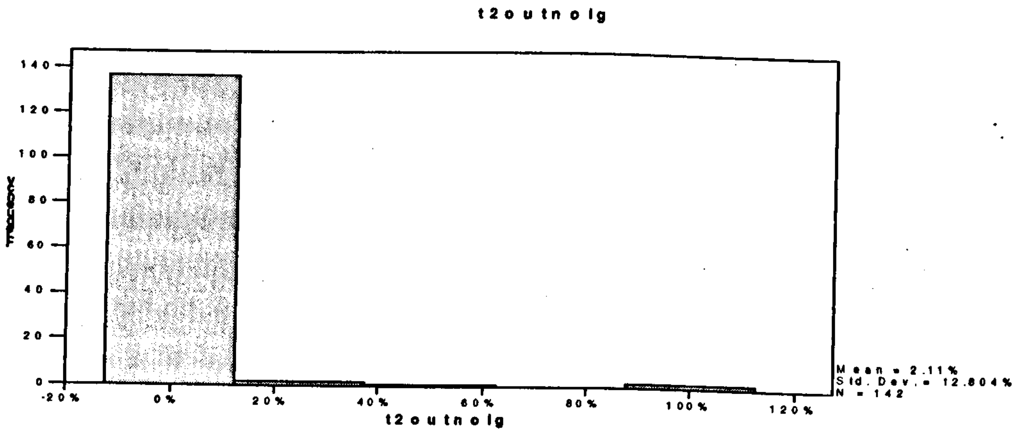
Outside the house
Moving about outside the house in a wheelchair after 1-month (N = 142)



Walking with an artificial leg outside the house after 1-month (N = 142)



Walking without an artificial leg outside the house after 1-month (N = 142)



Have you been prescribed a prosthesis (T1 sample; i.e. percentage out of N = 166)
Yes: Frequency = 116, Percent = 69.9%
No: Frequency = 26, Percent = 15.7%
No data at follow-up: 24, Percent = 14.5%

OR (T2 sample; i.e. percentage out of N = 142)
Yes: Frequency = 116, Percent = 81.7%
No: Frequency = 26, Percent = 18.3%

Prosthetic use (N = 116)
Hours per day now
Mean = 8.82, SD = 4.98, Range = 0-19 [Possible range = 0-24]
Days per week now
Mean = 6.20, SD = 2.01, Range = 0-7 [Possible range = 0-7]

Hours per day during first week home
Mean = 5.00, SD = 4.87, Range = 0-18 [Possible range = 0-24]
Days per week during first week home
Mean = 5.33, SD = 2.83, Range = 0-7 [Possible range = 0-7]

<u>LCI (N=116)</u>
Compute *Basic Locomotor Capabilities* scores
Mean = 15.74, SD = 6.77, Range = 0-21 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Basic Locomotor Capabilities* scale = 0.92
Compute *Advanced Locomotor Capabilities* scores
Mean = 11.49, SD = 7.61, Range = 0-21 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Advanced Locomotor Capabilities* scale = 0.91
Compute *Overall Locomotor Capabilities* scores
Mean = 27.23, SD = 13.65, Range = 0-42 [Possible range = 0-42]
Internal Consistency (Cronbach's alphas) *Overall Locomotor Capabilities* scale = 0.95

Measures at 6-months follow-up
<u>HADS (N=120)</u>
Recode t3 HADS (items 1, 3, 5, 6, 8, 10, 11, 13)
Compute *Anxiety* scores
Mean = 4.63, SD = 4.00, Range = 0-19 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Anxiety* scale = 0.83
Compute *Depression* scores
Mean = 4.57, SD = 3.47, Range = 0-14 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Depression* scale = 0.77
Compute overall *Distress* scores
Mean = 9.20, SD = 6.64, Range = 0-27 [Possible range = 0-42]
Internal Consistency (Cronbach's alphas) *Distress* scale = 0.86

<u>RLOC (N=120)</u>
Recode t3 RLOC (items 6, 7, 8, 9)
Compute *RLOC* scores (internal LOC = higher scores)
Mean = 39.17, SD = 4.76, Range = 25-45 [Possible range = 9-45]
Internal Consistency (Cronbach's alphas) *RLOC* scale = 0.80

<u>Moving about (N = 120)</u>
Inside the house
Table 6.8. Moving about inside the house in a wheelchair after 6-months (N = 120)

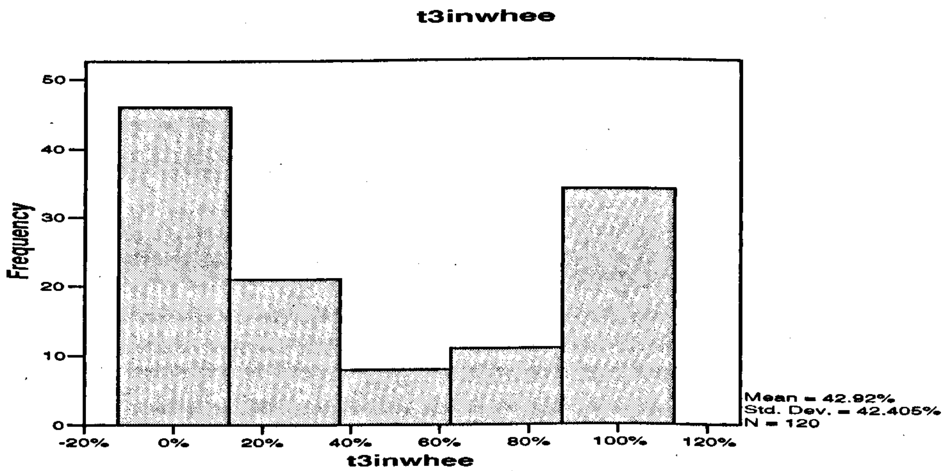


Table 6.9. Walking with an artificial leg inside the house after 6-months (N = 120)

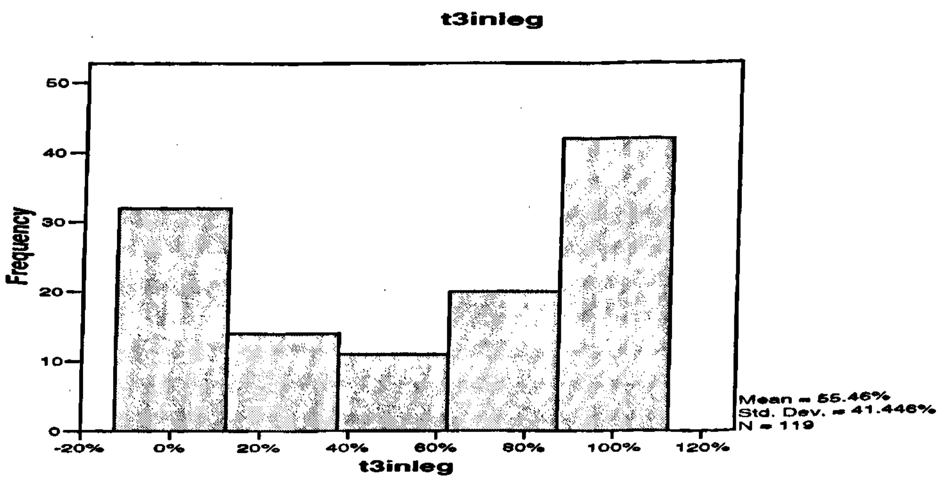
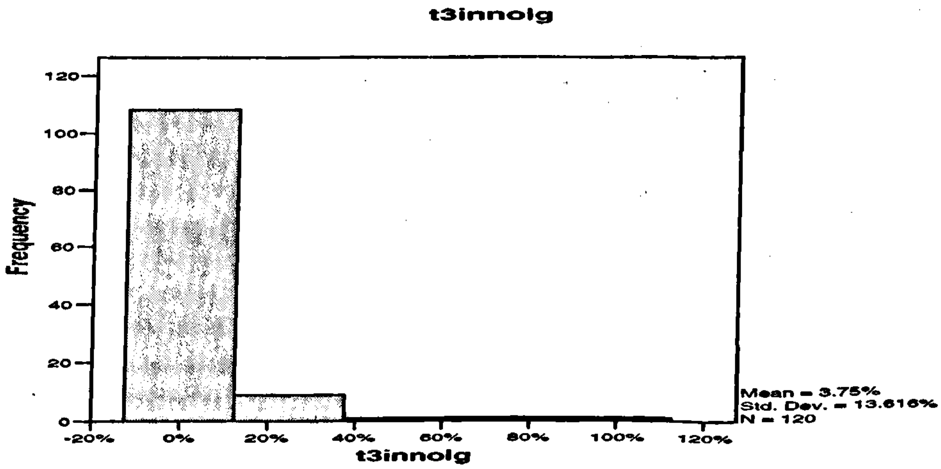


Table 6.10. Walking without an artificial leg inside the house after 6-months (N = 120)



Outside the house

Table 6.11. Moving about outside the house in a wheelchair after 6-months (N = 120)

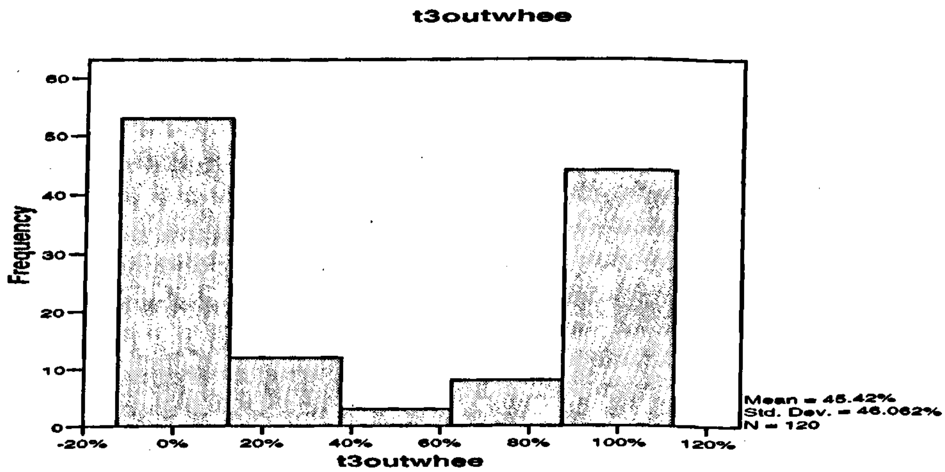


Table 6.12. Walking with an artificial leg outside the house after 6-months (N = 120)

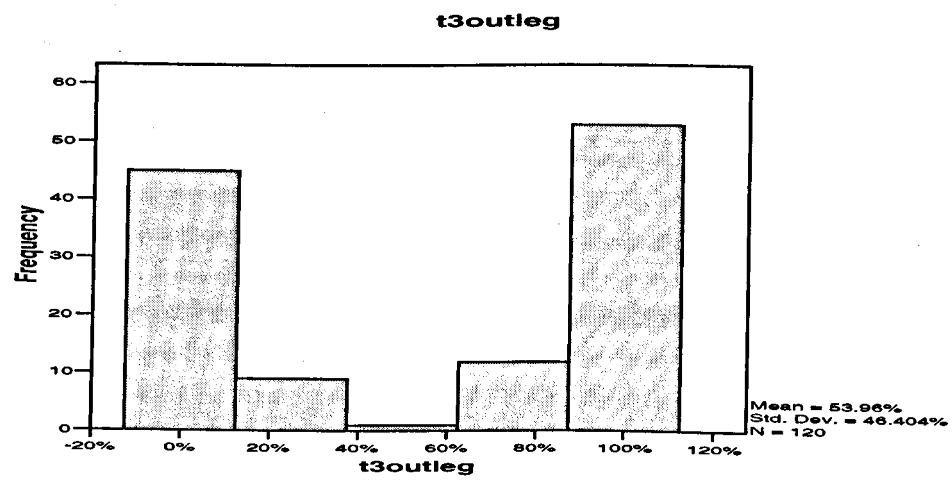
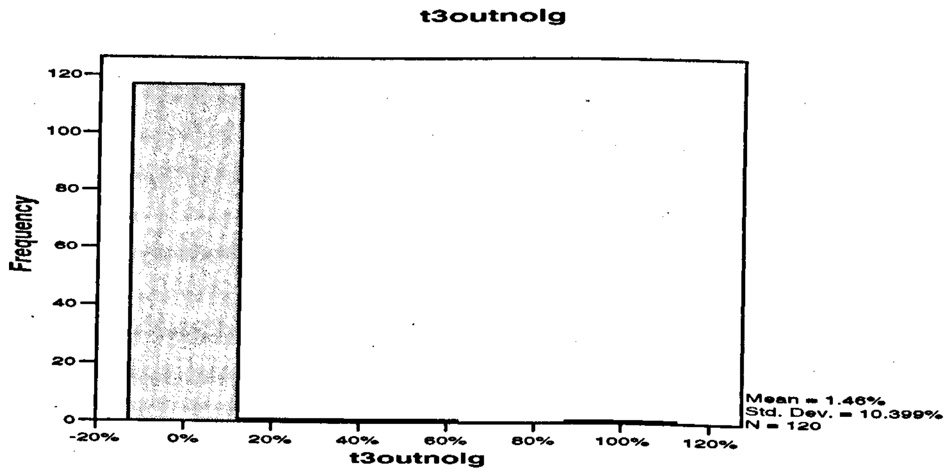


Table 6.13. Walking without an artificial leg outside the house after 6-months (N = 120)



Have you been prescribed a prosthesis (T1 sample; i.e. percentage out of N = 166)
Yes: Frequency = 103, Percent = 62.0%
No: Frequency = 17, Percent = 10.2%
No data at follow-up: 46, Percent = 27.7%

OR (T3 sample; i.e. percentage out of N = 120)
Yes: Frequency = 103, Percent = 85.8%
No: Frequency = 17, Percent = 14.2%

<u>Prosthetic use (N = 103)</u>
Hours per day now
Mean = 10.01, SD = 4.86, Range = 0-22 [Possible range = 0-24]
Days per week now
Mean = 6.37, SD = 1.91, Range = 0-7 [Possible range = 0-7]
Hours per day during first week home
Mean = 5.00, SD = 4.51, Range = 0-16 [Possible range = 0-24]
Days per week during first week home
Mean = 5.79, SD = 2.36, Range = 0-7 [Possible range = 0-7]

<u>LCI (N=103)</u>
Compute *Basic Locomotor Capabilities* scores
Mean = 16.47, SD = 6.73, Range = 0-21 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Basic Locomotor Capabilities* scale = 0.94
Compute *Advanced Locomotor Capabilities* scores
Mean = 12.13, SD = 7.70, Range = 0-21 [Possible range = 0-21]
Internal Consistency (Cronbach's alphas) *Advanced Locomotor Capabilities* scale = 0.92
Compute *Overall Locomotor Capabilities* scores
Mean = 28.59, SD = 13.68, Range = 0-42 [Possible range = 0-42]
Internal Consistency (Cronbach's alphas) *Overall Locomotor Capabilities* scale = 0.95

<u>PGI (Quality of life index) (N = 119)</u>
Mean = 4.37, SD = 2.97, Range = 0-10 [Possible range = 0-10]

Changes in measures over time

<u>MANOVA to test for changes in</u>

HADS (t1dist, t2dist, t3dist)

RLOC (t1inloc, t2inloc, t3inloc)

LCI (t1lctot, t2lctot, t3lctot)

MANOVA (*SPSS: GLM, Multivariate, DVs [3 measures], fixed factors [time & subject], Model [custom], Post Hoc [Tukey_HSD]*)

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	dist_all	43347.383(a)	167	259.565	14.996	.000
	inloc_all	610165.494(b)	167	3653.686	330.553	.000
	lctot_all	408556.189(c)	167	2446.444	27.106	.000
time	dist_all	94.216	2	47.108	2.722	.068
	inloc_all	24.828	2	12.414	1.123	.327
	lctot_all	3670.356	2	1835.178	20.334	.000
subject	dist_all	12367.087	164	75.409	4.357	.000
	inloc_all	4259.381	164	25.972	2.350	.000
	lctot_all	41948.016	164	255.781	2.834	.000
Error	dist_all	3738.617	216	17.308		
	inloc_all	2387.506	216	11.053		
	lctot_all	19494.811	216	90.254		
Total	dist_all	47086.000	383			
	inloc_all	612553.000	383			
	lctot_all	428051.000	383			

a R Squared = .921 (Adjusted R Squared = .859)
b R Squared = .996 (Adjusted R Squared = .993)
c R Squared = .954 (Adjusted R Squared = .919)

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) time	(J) time	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
dist_all	1	2	-.35	.505	.770	-1.54	.84
		3	.06	.523	.993	-1.18	1.29
	2	1	.35	.505	.770	-.84	1.54
		3	.41	.563	.752	-.92	1.73
	3	1	-.06	.523	.993	-1.29	1.18
		2	-.41	.563	.752	-1.73	.92
inloc_all	1	2	-.81	.403	.110	-1.77	.14
		3	-.21	.418	.870	-1.20	.78
	2	1	.81	.403	.110	-.14	1.77
		3	.60	.450	.373	-.46	1.67
	3	1	.21	.418	.870	-.78	1.20
		2	-.60	.450	.373	-1.67	.46
lctot_all	1	2	7.37(*)	1.153	.000	4.65	10.09
		3	6.01(*)	1.194	.000	3.19	8.83
	2	1	-7.37(*)	1.153	.000	-10.09	-4.65
		3	-1.36	1.286	.542	-4.39	1.68
	3	1	-6.01(*)	1.194	.000	-8.83	-3.19
		2	1.36	1.286	.542	-1.68	4.39

Based on observed means.
* The mean difference is significant at the .05 level.

There was no significant change over the 3 assessment times in the HADS measure (dist_all) or the RLOC measure (inloc_all).

HADS: $F_{2,216}$=2.722, df = 2, p = .068
RLOC: $F_{2,216}$=1.123, df = 2, p = .3727

However, there was a significant change over the 3 assessment times in the LCI measure (lctot_all).

LCI: $F_{2,216}$=20.334, df = 2, p < .001

Post hoc analyses (Tukey HSD) revealed that the significant univariate comparisons were between the LCI assessments taken at time one (6-months pre-operatively) and time two (1-month post-discharge from rehabilitation) (mean difference = 7.37, p < .001) and also between the LCI assessments taken at time one (6-months pre-operatively) and time three (6 months post-discharge from rehabilitation) (mean difference = 6.01, p < .001).

There was no significant difference found between the LCI assessments taken at time two (1-month post-discharge from rehabilitation) and time three (6 months post-discharge from rehabilitation) (mean difference = 1.36, p = .542).

Predicting prosthetic prescription

Predictor variables in research question
Pre-operative functional limitations
Basic locomotor capabilities t1lcbas
Advanced locomotor capabilities t1lcadv
Total locomotor capabilities t1lctot (t1lcbas + t1lcadv)

Post-operative illness cognitions
Identity (No. of symptoms) identity
Timeline (acute/chronic) timeline
Timeline (cyclical) timecycl
Consequences conseque
Personal control perscont
Treatment control treatcont
Illness coherence illcoher
Emotional representations emotrepr

Causal attributions
Stress or worry C1
Hereditary - it runs in my family C2
A germ or virus C3
Diet or eating habits C4
Chance or bad luck C5
Poor medical care in my past C6
Pollution in the environment C7
My own behaviour C8
My mental attitude e.g. thinking about life negatively C9
Family problems or worries caused my illness C10
Overwork C11
My emotional state e.g. feeling down, lonely, anxious, empty C12
Ageing C13
Alcohol C14
Smoking C15
Accident or injury C16
My personality C17
The above individual causal attributions were subjected to principle components analyses, which resulted in two factors emerging. These were used in the regression analyses:
Risk factors c_risk *causal attributions* (C4 + C8 + C11 + C14 + C15)
Emotional/Psychological c_emopsy *causal attributions* (C1 + C9 + C10 + C12 + C17)

Post-operative distress
Anxiety t1anx
Depression t1dep
Distress i.e., Anxiety + Depression t1dist (t1anx + t1dep)

Outcome (Criterion) variables
Being prescribed a prosthesis
Yes/No fitted

Key
B = A change in the odds of being prescribed a prosthesis is associated with one-unit change in the variable of concern.
Exp(B) = Odds ratio: The odds of being prescribed a prosthesis increase by this factor for 1-unit change in that variable.

Pre-operative functional limitations (N = 164)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
t1lcbas	164	.00	21.00	18.5671	5.05325
t1lcIadv	164	.00	21.00	16.0366	6.90949
t1lctot	164	1.00	42.00	34.6037	11.32868
Valid N (listwise)	164				

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.198	2	.333
	Block	2.198	2	.333
	Model	2.198	2	.333

The results indicate that using the enter method, the overall model is not statistically significant (X^2= 2.198, df = 2, p = .333)

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	98.141(a)	.013	.029

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Cox and Snell $R^2 = 0.013$.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	t1lcbas	.032	.073	.196	1	.658	1.033
	t1lcladv	.031	.060	.272	1	.602	1.032
	Constant	1.256	.800	2.464	1	.116	3.512

a Variable(s) entered on step 1: t1lcbas, t1lcladv.

No significant predictor variables emerged.

Post-operative illness cognitions (including causal attributions) (N = 166)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8.856	10	.546
	Block	8.856	10	.546
	Model	8.856	10	.546

The results indicate that using the enter method, the overall model is not statistically significant (X^2= 8.856, df = 10, p = .546).

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	96.410(a)	.052	.111

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Cox and Snell $R^2 = 0.052$.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1(a)	identity	-.113	.122	.865	1	.352	.893	.703	1.134
	timeline	-.036	.054	.444	1	.505	.965	.868	1.072
	timecycl	-.121	.089	1.822	1	.177	.886	.744	1.056
	conseque	-.050	.074	.460	1	.498	.951	.822	1.100
	perscont	.159	.102	2.407	1	.121	1.172	.959	1.432
	treatcont	-.076	.113	.458	1	.499	.927	.743	1.155
	illcoher	-.150	.112	1.783	1	.182	.861	.691	1.073
	emotrepr	.071	.076	.885	1	.347	1.074	.926	1.245
	c_risk	.049	.084	.342	1	.559	1.050	.891	1.238
	c_emopsy	-.025	.110	.051	1	.821	.976	.787	1.210
	Constant	5.361	3.640	2.170	1	.141	212.983		

a Variable(s) entered on step 1: identity, timeline, timecycl, conseque, perscont, treatcont, illcoher, emotrepr, c_risk, c_emopsy.

No significant predictor variables emerged.

Post-operative distress (N = 166)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step	Step	1.145	2	.564

1	Block	1.145	2	.564
	Model	1.145	2	.564

The results indicate that using the enter method, the overall model is not statistically significant (X^2= 1.145, df = 2, p = .564).

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	104.122(a)	.007	.015

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Cox and Snell R^2 = 0.007.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1(a)	t1anx	.051	.080	.411	1	.521	1.052	.900	1.230
	t1dep	-.087	.079	1.195	1	.274	.917	.785	1.071
	Constant	2.439	.469	27.063	1	.000	11.459		

a Variable(s) entered on step 1: t1anx, t1dep.

No significant predictor variables emerged.

The above models would not compute **Total locomotor capabilities** t1lctot (t1lcbas + t1lcadv) and **Total psychological distress t1dist (t1anx +** t1dep), describing them as redundant variables, because they are products of other variables within the model (i.e., basic + advanced locomotor capabilities = total locomotor capabilities; anxiety + depression = total psychological distress).

<u>Additional results (not specific to research questions)</u>

<u>Additional predictor variables (not in research question)</u>
Post-operative attitudes and beliefs towards prosthetic use
Behavioural intention bintention
Attitude evaluation attitude
Subjective norm subnorm
Perceived control pbc
Behavioural beliefs bbelief
Normative beliefs nbelief
Control beliefs cbelief

Recovery locus of control
Internal control t1inloc

Self-efficacy
Prosthetic use efficacy selfec2

Demographic variables
Age age_©
Gender sex_©
Deprivation category deprivat

Clinical variables
Amputation level ampleve
Diabetes diabetes
Unilateral/Bilateral uni_bi
Time in hospital lenstay

- *Pre-operative functional limitations*
- **Basic locomotor capabilities** t1lcbas
- **Advanced locomotor capabilities** t1lcadv
- **Total locomotor capabilities** t1lctot (t1lcbas + t1lcadv)

<u>Outcome (Criterion) variables</u>
Being prescribed a prosthesis
Yes/No fitted

Key
B = A change in the odds of being prescribed a prosthesis is associated with one-unit change in the variable of concern.
Exp(B) = Odds <u>ratio</u>: The odds of being prescribed a prosthesis increase by this factor for 1-unit change in that variable.

<u>Post-operative attitudes and beliefs towards prosthetic use (N = 153)</u>

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step	Step	7.195	7	.409

1	Block	7.195	7	.409
	Model	7.195	7	.409

The results indicate that using the enter method, the overall model is not statistically significant (X^2= 7.195, df = 7, p = .409).

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	43.430(a)	.046	.163

a Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Variables in the Equation

a Variable(s) entered on step 1: bintention, attitude, subnorm, pbc, bbelief, nbelief, cbelief.

Cox and Snell R^2 = 0.046.

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1(a)	bintention	-42.763	5925.934	.000	1	.994	.000	.000	.
	attitude	-.616	.638	.931	1	.335	.540	.155	1.887
	subnorm	.198	.764	.067	1	.796	1.219	.273	5.445
	pbc	-.416	.998	.174	1	.677	.659	.093	4.666
	bbelief	.038	.036	1.108	1	.293	1.039	.968	1.114
	nbelief	.017	.022	.564	1	.453	1.017	.973	1.063
	cbelief	-.020	.027	.541	1	.462	.980	.930	1.034
	Constant	306.205	41481.541	.000	1	.994	9.618486040047570 +132		

No significant predictor variables emerged.

Recovery locus of control (N = 166)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.026	1	.873
	Block	.026	1	.873
	Model	.026	1	.873

The results indicate that using the enter method, the overall model is not statistically significant (X^2= 0.026, df = 1, p = .873).

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	105.241(a)	.000	.000

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Cox and Snell R^2 = 0.000.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1(a)	t1inloc	.010	.063	.026	1	.872	1.010	.893	1.143
	Constant	1.839	2.489	.546	1	.460	6.290		

a Variable(s) entered on step 1: t1inloc.

No significant predictor variables emerged.

Self-efficacy (N = 153)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	.454	1	.500
	Block	.454	1	.500
	Model	.454	1	.500

The results indicate that using the enter method, the overall model is not statistically significant (X^2= 0.454, df = 2, p = .500).

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	50.171(a)	.003	.011

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Cox and Snell R^2 = 0.003.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1(a)	selfec2	-.082	.124	.434	1	.510	.922	.723	1.175
	Constant	4.357	1.862	5.478	1	.019	78.027		

a Variable(s) entered on step 1: selfec2.

No significant predictor variables emerged.

Demographic variables (N = 164)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8.728	3	.033
	Block	8.728	3	.033
	Model	8.728	3	.033

The results indicate that using the enter method, the overall model is statistically significant (X^2= 8.728, df = 3, p < .05).

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	91.610(a)	.052	.113

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Cox and Snell R^2 = 0.052.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1(a)	age_©	-.052	.030	3.068	1	.080	.949	.895	1.006
	sex_©(1)	-.528	.588	.806	1	.369	.590	.186	1.868
	deprivat	-.031	.014	4.884	1	.027	.969	.943	.997
	Constant	6.946	2.229	9.711	1	.002	1039.384		

a Variable(s) entered on step 1: age_©, sex_©, deprivat.

Deprivation category deprivat emerged as a significant predictor variable of prosthetic fitting within this model (p < .05).

Clinical variables (N = 160)

Omnibus Tests of Model Coefficients

		Chi-	df	Sig.

		square		
Step 1	Step	24.753	6	.000
	Block	24.753	6	.000
	Model	24.753	6	.000

The results indicate that using the enter method, the overall model is statistically significant (X^2= 24.753, df = 6, $p < .001$).

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	70.196(a)	.143	.320

a Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Cox and Snell $R^2 = 0.143$.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1(a)	ampleve(1)	-1.866	.719	6.735	1	.009	.155	.038	.633
	diabetes	1.866	.818	5.202	1	.023	6.463	1.300	32.127
	uni_bi(1)	2.610	.856	9.305	1	.002	13.600	2.542	72.759
	lenstay	.010	.009	1.324	1	.250	1.010	.993	1.028
	t1lcbas	-.030	.085	.127	1	.722	.970	.821	1.146
	t1lcladv	.105	.069	2.311	1	.128	1.111	.970	1.272
	Constant	-1.269	1.536	.683	1	.409	.281		

a Variable(s) entered on step 1: ampleve, diabetes, uni_bi, lenstay, t1lcbas, t1lcladv.

Amputation level ampleve ($p < .01$), **Diabetes** (diabetes) ($p < .05$) and **Unilateral/Bilateral status** uni_bi ($p < .01$) emerged as significant predictor variables of prosthetic fitting within this model.

TPB analyses

TPB variables predicting prosthetic use at 1-week follow-up
(Analyses of BI and PBC as predictors of B)

Behaviour (*B*) variables

1. Behaviour 1: Prosthetic use (hours per day) at *1 week* post discharge "t2hrswk1"
2. Behaviour 2: Prosthetic use (days per week) at *1 week* post discharge "t2dyswk1"

Behaviour 1: Prosthetic use (hours per day) at 1-week post discharge "t2hrswk1"

Table 8.2. Summary of regression analysis for variables predicting Behaviour 1 (*B*)(N = 113) using the enter method

Variable	B	Std Error	β (Beta)
Behavioural intention	0.535	0.517	0.103
Perceived behavioural control	0.046	0.506	0.009

All NS

Model Summary
R = 0.106
R^2 = 0.11
Adjusted R^2 = -0.007,
ANOVA summary for variables predicting Behaviour 1 (N = 113)
A non-significant model emerged ($F_{2, 110}$ = 0.620, p = .540)

Behaviour 2: Prosthetic use (days per week) at 1-week post discharge "t2dyswk1"

Table 8.3. Summary of regression analysis for variables predicting Behaviour 2 (*B*)(N = 113) using the enter method

Variable	B	Std Error	β (Beta)
Behavioural intention	0.682	0.274	0.233*
Perceived behavioural control	0.537	0.268	0.188*

*p < .05

Model Summary
R = 0.340
R^2 = 0.115
Adjusted R^2 = 0.099,
ANOVA summary for variables predicting Behaviour 2 (N = 113)
Model: A significant model emerged ($F_{2, 110}$ = 7.180, p < .001)

Predictors of behavioural intention to use a prosthesis
(Analyses of A_B, SN and PBC as predictors of BI)

Hierarchical regression was used because it allowed entering the predictor variables in blocks, which facilitated testing the TRA and TPB theoretical models independently.

Key
B are the regression coefficients. They indicate how much one-unit change in that variable would affect the *BI* units.
Std Error is the standard error of the regression coefficients. This is the standard deviation divided by the square root of the number of data values. The extent to which the sample mean is expected to differ (+/-) from the population mean. The more data, the smaller this range becomes.
β (Beta) are what the regression coefficients would be if the model were fitted to standardised data. They indicate significance of variables within the model.

Table 8.1. Summary of analysis for variables predicting behavioural intention ***BI*** (N = 153)

	Variable	B	Std Error	β (Beta)
Step 1				
	Attitude	0.085	0.069	0.102
	Subjective norm	0.284	0.071	0.336***
				F = 13.638***
				Ad R^2 = 0.143
Step 2				
	Attitude	-0.004	0.078	-0.005
	Subjective norm	0.281	0.070	0.333***
	Perceived behavioural control	0.193	0.083	0.204*
				F = 11.158***
				Ad R^2 = 0.167

p < .05* p < .01** p < .001*** Multiple linear regression results using the hierarchical method.

Model summaries
Step 1 (TRA)
R = 0.392 (correlation of the model with the criterion (outcome) variable)
R^2 = 0.154 for (indicates the strength of the TRA model, i.e., 15.4% of the variance in ***BI*** scores is explained by the variance in Attitude and Subjective norm scores.)
Adjusted R^2 = 0.143 (takes into account the no. of vars in model and no. of observations (Ss)

Step 2 (TPB)
R = 0.428

R^2 = 0.183 (18.3% of the variance in ***BI*** scores is explained by the variance in Attitude and Subjective norm and Perceived behavioural control scores.)
Adjusted R^2 = 0.167

+R^2 = 0.030 (p < .05) (adding *PBC*; i.e., TPB marginally increased the strength of the model, accounting for another 3.0% of the variance.)

Summary of ANOVA for variables predicting Behavioural Intention (N = 153) (indicates the significance of the model)

TRA (Step 1): A significant model emerged ($F_{2, 150}$ = 13.638, p < .001)
TPB (Step 2): A significant model emerged ($F_{3, 149}$ = 11.158, p < .001)

Analyses of indirect belief measures as predictors of A_B, SN and PBC (N = 153)
Indirect belief measures (i.e., do behavioural beliefs predict attitude evaluation? do normative beliefs predict subjective norm? and do control beliefs predict perceived control?)

Behavioural belies x outcome evaluations

- **Predicting attitudes towards prosthetic use** *(N = 153)*

Descriptive Statistics

	Mean	Std. Deviation	N
attitude	5.3778	1.03861	153
bbel1	42.8693	8.64862	153
bbel2	41.9869	9.35202	153
bbel3	33.4575	14.33802	153

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.520	3	16.840	22.118	.000(a)
	Residual	113.444	149	.761		
	Total	163.964	152			

a Predictors: (Constant), bbel3, bbel1, bbel2
b Dependent Variable: attitude

Using the enter method, a significant model emerged ($F_{3, 149}$ = 22.118, p < .001).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.555(a)	.308	.294	.87257

a Predictors: (Constant), bbel3, bbel1, bbel2

Adjusted R square = 0.294.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.780	.390		7.132	.000	2.010	3.550
	bbel1	.035	.010	.294	3.529	.001	.016	.055
	bbel2	.008	.010	.073	.845	.399	-.011	.027
	bbel3	.022	.006	.306	3.809	.000	.011	.034

a Dependent Variable: attitude

Getting about bbel1 (p < .01) and **Participating in activities** bbel3 (p < .001) emerged as significant predictor variables of attitudes towards prosthetic use.

Normative belies x motivation to conply

- **Predicting subjective norm** *(N = 153)*

Descriptive Statistics

	Mean	Std. Deviation	N
subnorm	6.3224	1.01697	153
nbel1	33.6209	14.92658	153
nbel2	41.3007	11.64219	153
nbel3	28.2288	15.52947	153
nbel4	24.8235	15.13149	153

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.409	4	12.852	17.979	.000(a)
	Residual	105.795	148	.715		
	Total	157.204	152			

a Predictors: (Constant), nbel4, nbel2, nbel1, nbel3
b Dependent Variable: subnorm

Using the enter method, a significant model emerged ($F_{4, 148}$ = 17.979, p < .001).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.572(a)	.327	.309	.84548

a Predictors: (Constant), nbel4, nbel2, nbel1, nbel3

Adjusted R square = 0.309.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.297	.259		16.569	.000	3.785	4.810
	nbel1	.020	.005	.295	3.727	.000	.009	.031
	nbel2	.030	.007	.346	4.373	.000	.017	.044
	nbel3	-.001	.006	-.014	-.138	.890	-.014	.012
	nbel4	.005	.006	.076	.820	.414	-.007	.017

a Dependent Variable: subnorm

One's family nbel1 (p < .001) and The NHS staff nbel2 (p < .001) emerged as significant predictor variables of subjective norm.

Control belies x perceived power

- **Predicting perceived behavioural control** *(N = 153)*

Descriptive Statistics

	Mean	Std. Deviation	N
pbc	6.2266	.90858	153
cbel1	11.3072	11.33827	153
cbel2	9.0458	9.55341	153
cbel3	30.6340	15.80046	153
cbel4	32.4902	15.58893	153

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.507	4	1.377	1.698	.153(a)
	Residual	119.972	148	.811		
	Total	125.479	152			

a Predictors: (Constant), cbel4, cbel1, cbel2, cbel3
b Dependent Variable: pbc

Using the enter method, a non- significant model emerged ($F_{4,148}$ = 1.698, p = .153).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.209(a)	.044	.018	.90034

a Predictors: (Constant), cbel4, cbel1, cbel2, cbel3

Adjusted R square = 0.018.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.741	.232		24.712	.000	5.282	6.200
	cbel1	.000	.007	-.004	-.048	.962	-.013	.013
	cbel2	.011	.008	.121	1.463	.146	-.004	.027
	cbel3	.009	.005	.160	1.910	.058	.000	.019
	cbel4	.003	.005	.055	.651	.516	-.006	.013

a Dependent Variable: pbc

No variables emerged as significant predictors of perceived behavioural control.

Predicting prosthetic use 1-month and 6-months post-discharge

These results presented in more detail

Predictor variables in the research question
Post-operative illness cognitions
Identity (No. of symptoms) identity
Timeline (acute/chronic) timeline
Timeline (cyclical) timecycl
Consequences conseque
Personal control perscont
Treatment control treatcont
Illness coherence illcoher
Emotional representations emotrepr

Causal attributions
Stress or worry C1
Hereditary - it runs in my family C2
A germ or virus C3
Diet or eating habits C4
Chance or bad luck C5
Poor medical care in my past C6
Pollution in the environment C7
My own behaviour C8
My mental attitude e.g. thinking about life negatively C9
Family problems or worries caused my illness C10
Overwork C11
My emotional state e.g. feeling down, lonely, anxious, empty C12
Ageing C13
Alcohol C14
Smoking C15
Accident or injury C16
My personality C17
The above individual causal attributions were subjected to principle components analyses, which resulted in two factors emerging. These were used in the regression analyses:
Risk factors c_risk *causal attributions* (C4 + C8 + C11 + C14 + C15)
Emotional/Psychological c_emopsy *causal attributions* (C1 + C9 + C10 + C12 + C17)

Post-operative attitudes and beliefs towards prosthetic use
Behavioural intention bintention
Attitude evaluation attitude
Subjective norm subnorm
Perceived control pbc
Behavioural beliefs bbelief
Normative beliefs nbelief
Control beliefs cbelief

Post-operative distress
Anxiety t1anx
Depression t1dep
Distress i.e., Anxiety + Depression t1dist (t1anx + t1dep)

Outcome variables
- using the prosthesis at *1-month* post-discharge from hospital

Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2inleg
Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2outleg
Hours per day of prosthetic use at 1-month t2hrsnow
Days per week of prosthetic use at 1-month t2dsnow

- using the prosthesis at *6-months* post-discharge from hospital

Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3inleg
Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3outleg
Hours per day of prosthetic use at 6-months t3hrsnow
Days per week of prosthetic use at 6-months t3dsnow

Key
The ANOVA assesses the overall significance of the model.
In the Model Summary, the Adjusted R^2 indicates the amount of variance that the model accounts for in the dependent variable (e.g., Adjusted R^2 = 0.34, then the model accounts for 34% of the variance in the DV.
B are the regression coefficients. They indicate how much one-unit change in that variable would affect the *DV* units.
Std Error is the standard error of the regression coefficients. This is the standard deviation divided by the square root of the number of data values. The extent to which the sample mean is expected to differ (+/-) from the population mean. The more data, the smaller this range becomes.
β (Beta) are what the regression coefficients would be if the model were fitted to standardised data. They indicate significance of variables within the model.

Post-operative illness cognitions (including causal attributions)

- **Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%)** t2inleg *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2inleg	49.12%	39.881%	142
identity	4.9718	2.37882	142
timeline	20.1338	6.12080	142
timecycl	9.5563	3.16121	142
conseque	19.5915	4.22951	142
perscont	23.7817	3.40862	142
treatcont	18.8310	3.40832	142
illcoher	20.8028	3.08793	142
emotrepr	14.5211	4.79468	142
c_risk	10.7113	3.99393	142
c_emopsy	8.3521	3.06246	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33344.197	10	3334.420	2.288	.017(a)
	Residual	190920.767	131	1457.410		
	Total	224264.965	141			

a Predictors: (Constant), c_emopsy, timeline, identity, perscont, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: t2inleg

Using the enter method, a significant model emerged ($F_{10, 131} = 2.288$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.386(a)	.149	.084	38.176%

a Predictors: (Constant), c_emopsy, timeline, identity, perscont, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = 0.084.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	79.675	43.033		1.851	.066	-5.455	164.805
	identity	-.490	1.435	-.029	-.342	.733	-3.328	2.348
	timeline	-.392	.631	-.060	-.621	.536	-1.640	.856
	timecycl	-2.250	1.110	-.178	-2.027	.045	-4.445	-.054
	conseque	-.291	.915	-.031	-.318	.751	-2.100	1.519
	perscont	-1.060	1.329	-.091	-.798	.426	-3.689	1.568
	treatcont	2.469	1.271	.211	1.942	.054	-.046	4.984
	illcoher	-1.302	1.339	-.101	-.972	.333	-3.951	1.347
	emotrepr	-1.116	.820	-.134	-1.361	.176	-2.739	.507
	c_risk	1.836	.931	.184	1.972	.051	-.005	3.677
	c_emopsy	1.116	1.214	.086	.919	.360	-1.286	3.518

a Dependent Variable: t2inleg

Timeline (cyclical) timecycl ($p < .05$) emerged as a significant predictor variable of indoor prosthetic use at 1-month post-discharge within this model **Treatment control** treatcont ($p = .054$) and **Risk factors** c_risk ($p = .51$) approached significance.

- **Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%)** t2outleg *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2outleg	41.90%	44.617%	142

identity	4.9718	2.37882	142
timeline	20.1338	6.12080	142
timecycl	9.5563	3.16121	142
conseque	19.5915	4.22951	142
perscont	23.7817	3.40862	142
treatcont	18.8310	3.40832	142
illcoher	20.8028	3.08793	142
emotrepr	14.5211	4.79468	142
c_risk	10.7113	3.99393	142
c_emopsy	8.3521	3.06246	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31200.041	10	3120.004	1.638	.103(a)
	Residual	249486.579	131	1904.478		
	Total	280686.620	141			

a Predictors: (Constant), c_emopsy, timeline, identity, perscont, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: t2outleg

Using the enter method, a non-significant model emerged ($F_{10, 131} = 1.638$, $p = .103$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.333(a)	.111	.043	43.640%

a Predictors: (Constant), c_emopsy, timeline, identity, perscont, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = 0.043.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	75.455	49.193		1.534	.127	-21.860	172.771
	identity	-.916	1.640	-.049	-.559	.577	-4.160	2.328
	timeline	.209	.721	.029	.290	.772	-1.217	1.636
	timecycl	-2.191	1.269	-.155	-1.727	.086	-4.701	.319
	conseque	-.511	1.046	-.048	-.489	.626	-2.580	1.558
	perscont	-1.469	1.519	-.112	-.967	.335	-4.474	1.536
	treatcont	3.000	1.453	.229	2.064	.041	.125	5.875
	illcoher	-1.666	1.531	-.115	-1.088	.278	-4.695	1.362
	emotrepr	-1.141	.938	-.123	-1.217	.226	-2.996	.713
	c_risk	.920	1.064	.082	.865	.389	-1.184	3.025
	c_emopsy	2.101	1.388	.144	1.514	.132	-.644	4.847

a Dependent Variable: t2outleg

Treatment control treatcont ($p < .05$) emerged as a significant predictor variable of outdoor prosthetic use at 1-month post-discharge within this model.

- **Hours per day of prosthetic use at 1-month** t2hrsnow *(N = 116)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2hrsnow	8.82	4.981	116
identity	4.8879	2.32481	116
timeline	19.7759	6.12207	116

timecycl	9.4397	3.06534	116
conseque	19.5603	4.16045	116
perscont	23.6121	3.28838	116
treatcont	18.8017	3.24699	116
illcoher	20.5000	3.14712	116
emotrepr	14.5776	4.69070	116
c_risk	11.1638	3.72055	116
c_emopsy	8.6293	3.12780	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	331.316	10	33.132	1.379	.200(a)
	Residual	2521.883	105	24.018		
	Total	2853.198	115			

a Predictors: (Constant), c_emopsy, perscont, timeline, identity, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: t2hrsnow

Using the enter method, a non-significant model emerged ($F_{10, 105}$ = 1.379, p = .200).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.341(a)	.116	.032	4.901

a Predictors: (Constant), c_emopsy, perscont, timeline, identity, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = 0.032.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8.805	6.010		1.465	.146	-3.112	20.721
	identity	.033	.210	.015	.156	.876	-.384	.449
	timeline	-.088	.091	-.108	-.958	.340	-.269	.094
	timecycl	-.324	.165	-.200	-1.965	.052	-.652	.003
	conseque	.200	.141	.167	1.417	.159	-.080	.479
	perscont	.019	.191	.013	.102	.919	-.360	.399
	treatcont	.285	.190	.186	1.503	.136	-.091	.661
	illcoher	-.180	.195	-.114	-.925	.357	-.567	.206
	emotrepr	-.142	.127	-.133	-1.116	.267	-.394	.110
	c_risk	.149	.139	.111	1.072	.286	-.126	.424
	c_emopsy	-.112	.170	-.070	-.661	.510	-.449	.225

a Dependent Variable: t2hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 1-month post-discharge within this model. **Timeline (cyclical)** timecycl (p = .052) approached significance.

- **Days per week of prosthetic use at 1-month** t2dsnow*(N = 116)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dsnow	6.20	2.005	116
identity	4.8879	2.32481	116
timeline	19.7759	6.12207	116
timecycl	9.4397	3.06534	116
conseque	19.5603	4.16045	116
perscont	23.6121	3.28838	116

treatcont	18.8017	3.24699	116
illcoher	20.5000	3.14712	116
emotrepr	14.5776	4.69070	116
c_risk	11.1638	3.72055	116
c_emopsy	8.6293	3.12780	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.102	10	3.210	.783	.645(a)
	Residual	430.338	105	4.098		
	Total	462.440	115			

a Predictors: (Constant), c_emopsy, perscont, timeline, identity, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: t2dsnow

Using the enter method, a non-significant model emerged ($F_{10, 105}$ = 0.783, p = .645).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.263(a)	.069	-.019	2.024

a Predictors: (Constant), c_emopsy, perscont, timeline, identity, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = -0.019.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8.793	2.483		3.542	.001	3.870	13.715
	identity	.039	.087	.045	.452	.652	-.133	.211
	timeline	-.062	.038	-.188	-1.635	.105	-.137	.013
	timecycl	-.082	.068	-.126	-1.204	.231	-.217	.053
	conseque	.013	.058	.027	.223	.824	-.102	.128
	perscont	-.030	.079	-.050	-.385	.701	-.187	.126
	treatcont	.000	.078	.000	.000	1.000	-.155	.155
	illcoher	.005	.081	.007	.056	.955	-.155	.164
	emotrepr	-.044	.052	-.102	-.829	.409	-.148	.061
	c_risk	.029	.057	.054	.512	.609	-.084	.143
	c_emopsy	-.013	.070	-.020	-.184	.854	-.152	.126

a Dependent Variable: t2dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 1-month post-discharge within this model.

- **Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3inleg** *(N = 120)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3inleg	55.83%	41.472%	120
identity	5.0833	2.41697	120
timeline	19.9417	6.04089	120
timecycl	9.5667	3.18276	120
conseque	19.6667	4.23537	120
perscont	23.6917	3.46361	120
treatcont	18.8083	3.49380	120
illcoher	20.7083	3.13933	120
emotrepr	14.4500	4.69373	120
c_risk	10.6583	4.06563	120
c_emopsy	8.3333	3.17642	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43569.500	10	4356.950	2.948	.003(a)
	Residual	161097.167	109	1477.956		
	Total	204666.667	119			

a Predictors: (Constant), c_emopsy, conseque, timecycl, treatcont, identity, illcoher, c_risk, timeline, emotrepr, perscont
b Dependent Variable: t3inleg

Using the enter method, a significant model emerged ($F_{10, 109} = 2.948$, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.461(a)	.213	.141	38.444%

a Predictors: (Constant), c_emopsy, conseque, timecycl, treatcont, identity, illcoher, c_risk, timeline, emotrepr, perscont

Adjusted R square = 0.141.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	157.156	48.104		3.267	.001	61.816	252.496
	identity	.907	1.561	.053	.581	.563	-2.187	4.001
	timeline	-1.031	.711	-.150	-1.450	.150	-2.441	.378
	timecycl	-4.747	1.230	-.364	-3.861	.000	-7.184	-2.310
	conseque	.045	1.051	.005	.043	.966	-2.038	2.129
	perscont	-1.257	1.399	-.105	-.898	.371	-4.031	1.517
	treatcont	2.926	1.353	.247	2.163	.033	.245	5.608
	illcoher	-2.542	1.464	-.192	-1.736	.085	-5.443	.360
	emotrepr	-1.395	.944	-.158	-1.477	.142	-3.267	.477
	c_risk	-.816	1.012	-.080	-.807	.422	-2.822	1.189
	c_emopsy	1.847	1.283	.141	1.439	.153	-.697	4.391

a Dependent Variable: t3inleg

Timeline (cyclical) timecycl ($p < .001$) and **Treatment control** treatcont ($p < .05$) emerged as a significant predictor variable of indoor prosthetic use at 6-months post-discharge within this model.

- **Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%)** t3outleg *(N = 120)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3outleg	53.96%	46.404%	120
identity	5.0833	2.41697	120
timeline	19.9417	6.04089	120
timecycl	9.5667	3.18276	120
conseque	19.6667	4.23537	120
perscont	23.6917	3.46361	120
treatcont	18.8083	3.49380	120
illcoher	20.7083	3.13933	120
emotrepr	14.4500	4.69373	120
c_risk	10.6583	4.06563	120
c_emopsy	8.3333	3.17642	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50919.237	10	5091.924	2.703	.005(a)
	Residual	205325.555	109	1883.721		
	Total	256244.792	119			

a Predictors: (Constant), c_emopsy, conseque, timecycl, treatcont, identity, illcoher, c_risk, timeline, emotrepr, perscont b Dependent Variable: t3outleg

Using the enter method, a significant model emerged ($F_{10, 109} = 2.703$, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.446(a)	.199	.125	43.402%

a Predictors: (Constant), c_emopsy, conseque, timecycl, treatcont, identity, illcoher, c_risk, timeline, emotrepr, perscont

Adjusted R square = 0.125.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	84.946	54.307		1.564	.121	-22.690	192.581
	identity	-1.552	1.762	-.081	-.881	.380	-5.045	1.941
	timeline	-.708	.803	-.092	-.882	.380	-2.300	.883
	timecycl	-4.481	1.388	-.307	-3.228	.002	-7.232	-1.729
	conseque	-.204	1.187	-.019	-.171	.864	-2.555	2.148
	perscont	-1.304	1.580	-.097	-.826	.411	-4.436	1.827
	treatcont	3.359	1.527	.253	2.199	.030	.332	6.386
	illcoher	-.636	1.653	-.043	-.385	.701	-3.912	2.639
	emotrepr	-.270	1.066	-.027	-.253	.801	-2.383	1.843
	c_risk	-.424	1.143	-.037	-.371	.712	-2.688	1.841
	c_emopsy	3.266	1.449	.224	2.254	.026	.394	6.137

a Dependent Variable: t3outleg

Timeline (cyclical) timecycl ($p < .01$), **Treatment control** treatcont ($p < .05$) and **Emotional/psychological** c_emopsy *causal attributions* ($p < .05$) emerged as significant predictor variables of outdoor prosthetic use at 6-months post-discharge within this model.

- **Hours per day of prosthetic use at 6-months** t3hrsnow *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3hrsnow	10.01	4.862	103
identity	4.8641	2.43765	103
timeline	19.7476	6.04836	103
timecycl	9.4175	3.14526	103
conseque	19.7087	4.19297	103
perscont	23.6214	3.39006	103
treatcont	18.8544	3.33551	103
illcoher	20.5825	3.15770	103
emotrepr	14.3883	4.61293	103
c_risk	11.0000	4.01224	103
c_emopsy	8.4854	3.24752	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	497.772	10	49.777	2.394	.014(a)
	Residual	1913.218	92	20.796		
	Total	2410.990	102			

a Predictors: (Constant), c_emopsy, perscont, identity, timeline, timecycl, emotrepr, c_risk, treatcont, conseque, illcoher
b Dependent Variable: t3hrsnow

Using the enter method, a significant model emerged ($F_{10, 92} = 2.394$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.454(a)	.206	.120	4.560

a Predictors: (Constant), c_emopsy, perscont, identity, timeline, timecycl, emotrepr, c_risk, treatcont, conseque, illcoher

Adjusted R square = 0.120.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	23.456	6.187		3.791	.000	11.169	35.744
	identity	.109	.198	.055	.551	.583	-.284	.503
	timeline	-.082	.094	-.102	-.880	.381	-.268	.104
	timecycl	-.627	.164	-.405	-3.817	.000	-.953	-.301
	conseque	.058	.145	.050	.396	.693	-.231	.346
	perscont	-.046	.179	-.032	-.257	.798	-.401	.309
	treatcont	-.010	.181	-.007	-.054	.957	-.369	.349
	illcoher	-.171	.194	-.111	-.884	.379	-.557	.214
	emotrepr	-.130	.129	-.123	-1.007	.316	-.386	.126
	c_risk	-.345	.133	-.285	-2.598	.011	-.609	-.081
	c_emopsy	.339	.163	.226	2.078	.040	.015	.663

a Dependent Variable: t3hrsnow

Timeline (cyclical) timecycl ($p < .001$) and Risk factor c_risk *causal attributions* ($p < .05$) and Emotional/psychological c_emopsy *causal attributions* ($p < .05$) emerged as significant predictor variables of hours per day of prosthetic use at 6-months within this model..

- **Days per week of prosthetic use at 6-months t3dsnow($N = 103$)**

Descriptive Statistics

	Mean	Std. Deviation	N
t3dsnow	6.37	1.910	103
identity	4.8641	2.43765	103
timeline	19.7476	6.04836	103
timecycl	9.4175	3.14526	103
conseque	19.7087	4.19297	103
perscont	23.6214	3.39006	103
treatcont	18.8544	3.33551	103
illcoher	20.5825	3.15770	103
emotrepr	14.3883	4.61293	103
c_risk	11.0000	4.01224	103
c_emopsy	8.4854	3.24752	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.663	10	5.866	1.723	.087(a)
	Residual	313.318	92	3.406		
	Total	371.981	102			

a Predictors: (Constant), c_emopsy, perscont, identity, timeline, timecycl, emotrepr, c_risk, treatcont, conseque, illcoher
b Dependent Variable: t3dsnow

Using the enter method, a non-significant model emerged ($F_{10, 92} = 1.723$, $p = .087$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.397(a)	.158	.066	1.845

a Predictors: (Constant), c_emopsy, perscont, identity, timeline, timecycl, emotrepr, c_risk, treatcont, conseque, illcoher

Adjusted R square = 0.066.

Coefficients(a)

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	95% Confidence Interval for B Lower Bound	Upper Bound
1	(Constant)	7.523	2.504		3.005	.003	2.551	12.496
	identity	.117	.080	.149	1.453	.150	-.043	.276
	timeline	-.063	.038	-.198	-1.652	.102	-.138	.013
	timecycl	-.142	.066	-.234	-2.138	.035	-.274	-.010
	conseque	.067	.059	.147	1.139	.258	-.050	.184
	perscont	.088	.072	.156	1.211	.229	-.056	.231
	treatcont	-.019	.073	-.034	-.265	.791	-.165	.126
	illcoher	-.033	.078	-.054	-.416	.678	-.189	.123
	emotrepr	-.045	.052	-.108	-.860	.392	-.148	.059
	c_risk	-.105	.054	-.222	-1.962	.053	-.212	.001
	c_emopsy	.036	.066	.062	.549	.585	-.095	.167

a Dependent Variable: t3dsnow

Timeline (cyclical) timecycl ($p < .05$) emerged as a significant predictor variable of days per week of prosthetic use at 6-months within this model. Risk factor c_risk *causal attributions* ($p = .053$) approached significance.

Post-operative attitudes and beliefs towards prosthetic use

- **Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2inleg *(N = 132)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2inleg	52.84%	38.908%	132
bintention	6.6061	.91061	132
attitude	5.3788	1.02971	132
subnorm	6.3258	1.05044	132
pbc	6.2424	.90806	132
bbelief	46.8182	15.58274	132
nbelief	-44.8333	28.87302	132
cbelief	-5.6515	17.76521	132

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12306.593	7	1758.085	1.172	.324(a)
	Residual	186003.066	124	1500.025		
	Total	198309.659	131			

a Predictors: (Constant), cbelief, bbelief, bintention, pbc, nbelief, attitude, subnorm
b Dependent Variable: t2inleg

Using the enter method, a non-significant model emerged ($F_{7, 124} = 1.172$, $p = .324$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.249(a)	.062	.009	38.730%

a Predictors: (Constant), cbelief, bbelief, bintention, pbc, nbelief, attitude, subnorm

Adjusted R square = 0.009.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.103	35.890		.114	.909	-66.933	75.139
	bintention	1.047	4.185	.025	.250	.803	-7.235	9.330
	attitude	2.568	4.292	.068	.598	.551	-5.927	11.062
	subnorm	2.264	4.582	.061	.494	.622	-6.805	11.332
	pbc	-.684	4.666	-.016	-.147	.884	-9.919	8.551
	bbelief	.491	.281	.197	1.748	.083	-.065	1.046
	nbelief	.098	.156	.073	.627	.532	-.211	.407
	cbelief	.112	.193	.051	.580	.563	-.270	.493

a Dependent Variable: t2inleg

No variables emerged as significant predictors of indoors prosthetic use at 1-month post-discharge within this model.

- **Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%)** t2outleg *(N = 132)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2outleg	45.08%	44.704%	132
bintention	6.6061	.91061	132
attitude	5.3788	1.02971	132
subnorm	6.3258	1.05044	132
pbc	6.2424	.90806	132
bbelief	46.8182	15.58274	132
nbelief	- 44.8333	28.87302	132
cbelief	-5.6515	17.76521	132

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25304.619	7	3614.946	1.895	.076(a)
	Residual	236494.624	124	1907.215		
	Total	261799.242	131			

a Predictors: (Constant), cbelief, bbelief, bintention, pbc, nbelief, attitude, subnorm
b Dependent Variable: t2outleg

Using the enter method, a non-significant model emerged ($F_{7, 124}$ = 1.895, p = .076).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.311(a)	.097	.046	43.672%

a Predictors: (Constant), cbelief, bbelief, bintention, pbc, nbelief, attitude, subnorm

Adjusted R square = 0.046.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-11.999	40.469		-.296	.767	-92.098	68.101
	bintention	2.334	4.718	.048	.495	.622	-7.005	11.673
	attitude	2.814	4.839	.065	.581	.562	-6.765	12.392
	subnorm	.935	5.166	.022	.181	.857	-9.291	11.161
	pbc	-1.813	5.261	-.037	-.345	.731	-12.227	8.601
	bbelief	.798	.317	.278	2.522	.013	.172	1.425

nbelief	.099	.176	.064	.560	.576	-.250	.447
cbelief	.182	.217	.072	.836	.405	-.248	.612

a Dependent Variable: t2outleg

Behavioural beliefs bbelief ($p < .05$) emerged as a significant predictor of outdoors prosthetic use at 1-month post-discharge within this model.

- **Hours per day of prosthetic use at 1-month** t2hrsnow *(N = 113)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2hrsnow	8.97	4.949	113
bintention	6.5841	.93386	113
attitude	5.4000	1.03130	113
subnorm	6.3215	1.05308	113
pbc	6.2183	.95407	113
bbelief	47.2301	15.97879	113
nbelief	- 43.8142	29.69294	113
cbelief	-5.4071	18.13424	113

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	300.449	7	42.921	1.845	.086(a)
	Residual	2442.472	105	23.262		
	Total	2742.920	112			

a Predictors: (Constant), cbelief, nbelief, bintention, attitude, pbc, bbelief, subnorm
b Dependent Variable: t2hrsnow

Using the enter method, a non-significant model emerged ($F_{7, 105} = 1.845$, $p = .086$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.331(a)	.110	.050	4.823

a Predictors: (Constant), cbelief, nbelief, bintention, attitude, pbc, bbelief, subnorm

Adjusted R square = 0.050.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	6.234	4.653		1.340	.183	-2.992	15.460
	bintention	.735	.539	.139	1.364	.175	-.333	1.803
	attitude	1.273	.571	.265	2.230	.028	.141	2.405
	subnorm	-.451	.594	-.096	-.759	.450	-1.629	.727
	pbc	-1.455	.618	-.281	- 2.353	.020	-2.681	-.229
	bbelief	.067	.037	.217	1.795	.076	-.007	.141
	nbelief	.006	.020	.033	.278	.781	-.034	.045
	cbelief	.000	.025	.000	.000	1.000	-.051	.051

a Dependent Variable: t2hrsnow

Attitude evaluation attitude and **Perceived control** pbc (both $p < .05$) emerged as significant predictors of hours per day of prosthetic use at 1-month post-discharge within this model.

- **Days per week of prosthetic use at 1-month** t2dsnow *(N = 113)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dsnow	6.22	2.017	113

bintention	6.5841	.93386	113
attitude	5.4000	1.03130	113
subnorm	6.3215	1.05308	113
pbc	6.2183	.95407	113
bbelief	47.2301	15.97879	113
nbelief	-43.8142	29.69294	113
cbelief	-5.4071	18.13424	113

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.681	7	4.097	1.008	.430(a)
	Residual	426.788	105	4.065		
	Total	455.469	112			

a Predictors: (Constant), cbelief, nbelief, bintention, attitude, pbc, bbelief, subnorm
b Dependent Variable: t2dsnow

Using the enter method, a non-significant model emerged ($F_{7, 105} = 1.008$, $p = .430$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.251(a)	.063	.001	2.016

a Predictors: (Constant), cbelief, nbelief, bintention, attitude, pbc, bbelief, subnorm

Adjusted R square = 0.001.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.657	1.945		1.366	.175	-1.200	6.513
	bintention	.484	.225	.224	2.151	.034	.038	.931
	attitude	.298	.239	.153	1.251	.214	-.175	.772
	subnorm	-.118	.248	-.062	-.476	.635	-.611	.374
	pbc	-.042	.259	-.020	-.161	.873	-.554	.471
	bbelief	-.004	.016	-.031	-.249	.804	-.035	.027
	nbelief	.002	.008	.025	.206	.837	-.015	.018
	cbelief	-.005	.011	-.046	-.476	.635	-.026	.016

a Dependent Variable: t2dsnow

Behavioural intention bintention ($p < .05$) emerged as a significant predictor of days per week of prosthetic use at 1-month post-discharge within this model.

- **Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%)** t3inleg *(N = 111)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3inleg	60.36%	39.810%	111
bintention	6.6096	.81758	111
attitude	5.3802	1.04026	111
subnorm	6.2763	1.10543	111
pbc	6.2012	.95482	111
bbelief	46.3514	15.72181	111
nbelief	-43.7568	29.75513	111
cbelief	-5.0180	18.23183	111

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22991.191	7	3284.456	2.235	.037(a)

Model		Sum of Squares	df	Mean Square	F	Sig.
	Residual	151344.394	103	1469.363		
	Total	174335.586	110			

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm
b Dependent Variable: t3inleg

Using the enter method, a significant model emerged ($F_{7, 103} = 2.235$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.363(a)	.132	.073	38.332%

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm

Adjusted R square = 0.073.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-72.138	40.815		-1.767	.080	-153.084	8.809
	bintention	9.799	5.466	.201	1.793	.076	-1.042	20.640
	attitude	-.257	4.681	-.007	-.055	.956	-9.541	9.027
	subnorm	5.103	4.772	.142	1.069	.287	-4.361	14.567
	pbc	5.427	4.878	.130	1.113	.269	-4.247	15.100
	bbelief	.251	.309	.099	.812	.419	-.362	.864
	nbelief	.180	.167	.134	1.075	.285	-.152	.511
	cbelief	.068	.205	.031	.333	.740	-.339	.476

a Dependent Variable: t3inleg

No variables emerged as significant predictors of indoors prosthetic use at 6-months post-discharge within this model.

- **Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%)** t3outleg *(N = 111)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3outleg	58.33%	45.519%	111
bintention	6.6096	.81758	111
attitude	5.3802	1.04026	111
subnorm	6.2763	1.10543	111
pbc	6.2012	.95482	111
bbelief	46.3514	15.72181	111
nbelief	-43.7568	29.75513	111
cbelief	-5.0180	18.23183	111

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21835.097	7	3119.300	1.559	.156(a)
	Residual	206081.569	103	2000.792		
	Total	227916.667	110			

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm
b Dependent Variable: t3outleg

Using the enter method, a non-significant model emerged ($F_{7, 103} = 1.559$, $p = .156$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.310(a)	.096	.034	44.730%

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm

Adjusted R square = 0.034.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-58.102	47.627		-1.220	.225	-152.559	36.354
	bintention	11.729	6.379	.211	1.839	.069	-.922	24.379
	attitude	1.597	5.462	.036	.292	.771	-9.237	12.430
	subnorm	4.328	5.569	.105	.777	.439	-6.716	15.372
	pbc	-.930	5.692	-.020	-.163	.871	-12.219	10.358
	bbelief	.408	.361	.141	1.130	.261	-.308	1.124
	nbelief	.226	.195	.148	1.158	.250	-.161	.613
	cbelief	.019	.240	.008	.080	.937	-.456	.494

a Dependent Variable: t3outleg

No variables emerged as significant predictors of outdoors prosthetic use at 6-months post-discharge within this model. **Behavioural intention bintention (p = .073) approached significance.**

- **Hours per day of prosthetic use at 6-months t3hrsnow *(N = 100)***

Descriptive Statistics

	Mean	Std. Deviation	N
t3hrsnow	10.28	4.665	100
bintention	6.6733	.68654	100
attitude	5.3940	1.04193	100
subnorm	6.3033	1.08979	100
pbc	6.2267	.95685	100
bbelief	47.1600	15.79587	100
nbelief	44.4500	29.97183	100
cbelief	-4.4600	18.61270	100

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	204.616	7	29.231	1.379	.223(a)
	Residual	1949.544	92	21.191		
	Total	2154.160	99			

a Predictors: (Constant), cbelief, nbelief, pbc, bintention, attitude, bbelief, subnorm
b Dependent Variable: t3hrsnow

Using the enter method, a non-significant model emerged ($F_{7,92}$ = 1.379, p = .223).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.308(a)	.095	.026	4.603

a Predictors: (Constant), cbelief, nbelief, pbc, bintention, attitude, bbelief, subnorm

Adjusted R square = 0.026.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.857	5.570		.513	.609	-8.206	13.920
	bintention	1.326	.810	.195	1.637	.105	-.283	2.934
	attitude	.163	.595	.036	.274	.785	-1.018	1.344
	subnorm	-.332	.597	-.078	-.556	.580	-1.519	.854
	pbc	-.436	.624	-.089	-.698	.487	-1.676	.804
	bbelief	.059	.039	.200	1.509	.135	-.019	.137

	nbelief	.004	.020	.023	.176	.861	-.037	.044
	cbelief	.026	.025	.105	1.031	.305	-.024	.077

a Dependent Variable: t3hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 6-months post-discharge within this model.

- **Days per week of prosthetic use at 6-months** t3dsnow ***(N = 100)***

Descriptive Statistics

	Mean	Std. Deviation	N
t3dsnow	6.54	1.648	100
bintention	6.6733	.68654	100
attitude	5.3940	1.04193	100
subnorm	6.3033	1.08979	100
pbc	6.2267	.95685	100
bbelief	47.1600	15.79587	100
nbelief	-44.4500	29.97183	100
cbelief	-4.4600	18.61270	100

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.754	7	1.251	.442	.873(a)
	Residual	260.086	92	2.827		
	Total	268.840	99			

a Predictors: (Constant), cbelief, nbelief, pbc, bintention, attitude, bbelief, subnorm
b Dependent Variable: t3dsnow

Using the enter method, a non-significant model emerged ($F_{7,92}$ = 0.442, p = .873).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.180(a)	.033	-.041	1.681

a Predictors: (Constant), cbelief, nbelief, pbc, bintention, attitude, bbelief, subnorm

Adjusted R square = - 0.041.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	5.580	2.034		2.743	.007	1.539	9.621
	bintention	-.023	.296	-.010	-.079	.937	-.611	.564
	attitude	-.121	.217	-.077	-.559	.578	-.553	.310
	subnorm	-.024	.218	-.016	-.112	.911	-.458	.409
	pbc	.270	.228	.157	1.185	.239	-.183	.723
	bbelief	.004	.014	.035	.255	.800	-.025	.032
	nbelief	-.002	.007	-.043	-.315	.754	-.017	.012
	cbelief	.008	.009	.085	.808	.421	-.011	.026

a Dependent Variable: t3dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 6-months post-discharge within this model.

Post-operative distress

- **Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%)** t2inleg ***(N = 142)***

Descriptive Statistics

	Mean	Std. Deviation	N

t2inleg	49.12%	39.881%	142
t1anx	4.2394	3.62601	142
t1dep	4.2746	3.26630	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11949.142	2	5974.571	3.911	.022(a)
	Residual	212315.823	139	1527.452		
	Total	224264.965	141			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t2inleg

Using the enter method, a significant model emerged ($F_{2, 139} = 3.911$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.231(a)	.053	.040	39.083%

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.040.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	61.987	5.764		10.753	.000	50.590	73.384
	t1anx	-.543	1.044	-.049	-.520	.604	-2.607	1.521
	t1dep	-2.471	1.159	-.202	-2.133	.035	-4.763	-.180

a Dependent Variable: t2inleg

Depression t1dep ($p < .05$) emerged as a significant predictor of indoors prosthetic use at 1-month post-discharge within this model.

- **Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2outleg** ***(N = 142***

Descriptive Statistics

	Mean	Std. Deviation	N
t2outleg	41.90%	44.617%	142
t1anx	4.2394	3.62601	142
t1dep	4.2746	3.26630	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8368.553	2	4184.277	2.136	.122(a)
	Residual	272318.066	139	1959.123		
	Total	280686.620	141			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t2outleg

Using the enter method, a non-significant model emerged ($F_{2, 139} = 2.136$, $p = .122$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.173(a)	.030	.016	44.262%

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.016.

Coefficients(a)

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	95% Confidence Interval for B

		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	52.976	6.528		8.115	.000	40.068	65.884
	t1anx	-.881	1.182	-.072	-.746	.457	-3.219	1.456
	t1dep	-1.717	1.312	-.126	-1.308	.193	-4.311	.878

a Dependent Variable: t2outleg

No variables emerged as significant predictors of days per week of outdoors prosthetic use at 1-month post-discharge within this model.

- **Hours per day of prosthetic use at 1-month** t2hrsnow *(N =116)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2hrsnow	8.82	4.981	116
t1anx	4.0948	3.63552	116
t1dep	3.9828	3.17595	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	109.808	2	54.904	2.261	.109(a)
	Residual	2743.390	113	24.278		
	Total	2853.198	115			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t2hrsnow

Using the enter method, a non-significant model emerged ($F_{2,113}$ = 2.261, p = .109).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.196(a)	.038	.021	4.927

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.021.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	10.109	.781		12.951	.000	8.563	11.656
	t1anx	-.204	.147	-.149	-1.388	.168	-.495	.087
	t1dep	-.114	.168	-.073	-.681	.497	-.447	.218

a Dependent Variable: t2hrsnow

No variables emerged as significant predictors of days per week of hours per day of prosthetic use at 1-month post-discharge within this model.

- **Days per week of prosthetic use at 1-month** t2dsnow *(N = 116)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dsnow	6.20	2.005	116
t1anx	4.0948	3.63552	116
t1dep	3.9828	3.17595	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.789	2	5.395	1.350	.263(a)
	Residual	451.650	113	3.997		

Total		462.440	115			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t2dsnow

Using the enter method, a non-significant model emerged ($F_{2, 113}$ = 1.350, p = .263).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.153(a)	.023	.006	1.999

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.006.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.619	.317		20.900	.000	5.992	7.247
	t1anx	-.045	.060	-.081	-.748	.456	-.163	.073
	t1dep	-.060	.068	-.095	-.879	.381	-.195	.075

a Dependent Variable: t2dsnow

No variables emerged as significant predictors of days per week of days per week of prosthetic use at 1-month post-discharge within this model.

- **Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%)** t3inleg *(N = 120)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3inleg	55.83%	41.472%	120
t1anx	4.3333	3.72214	120
t1dep	4.2917	3.26014	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14024.017	2	7012.008	4.303	.016(a)
	Residual	190642.650	117	1629.424		
	Total	204666.667	119			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t3inleg

Using the enter method, a significant model emerged ($F_{2, 117}$ = 4.303, p < .05).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.262(a)	.069	.053	40.366%

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.053.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	70.505	6.538		10.785	.000	57.557	83.452
	t1anx	-.195	1.119	-.017	-.174	.862	-2.411	2.022
	t1dep	-3.222	1.278	-.253	-2.521	.013	-5.753	-.691

a Dependent Variable: t3inleg

Depression t1dep (p < .05) emerged as a significant predictor of indoors prosthetic use at 6-months post-discharge within this model.

- **Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%)** t3outleg *(N = 120)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3outleg	53.96%	46.404%	120
t1anx	4.3333	3.72214	120
t1dep	4.2917	3.26014	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6204.418	2	3102.209	1.452	.238(a)
	Residual	250040.373	117	2137.097		
	Total	256244.792	119			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t3outleg

Using the enter method, a non-significant model emerged ($F_{2, 117}$ = 1.452, p = .238).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.156(a)	.024	.008	46.229%

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.008

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	63.854	7.487		8.529	.000	49.026	78.682
	t1anx	-.208	1.282	-.017	-.162	.871	-2.747	2.330
	t1dep	-2.096	1.463	-.147	-1.432	.155	-4.994	.803

a Dependent Variable: t3outleg

No variables emerged as significant predictors of days per week of outdoors prosthetic use at 6-months post-discharge within this model.

- **Hours per day of prosthetic use at 6-months** t3hrsnow *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3hrsnow	10.01	4.862	103
t1anx	4.1942	3.68904	103
t1dep	3.9417	3.09593	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.087	2	25.544	1.082	.343(a)
	Residual	2359.903	100	23.599		
	Total	2410.990	102			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t3hrsnow

Using the enter method, a non-significant model emerged ($F_{2, 100}$ = 1.082, p = .343).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.146(a)	.021	.002	4.858

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.002.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10.986	.829		13.252	.000	9.342	12.631
	t1anx	-.053	.149	-.040	-.353	.725	-.347	.242
	t1dep	-.192	.177	-.122	-1.083	.281	-.543	.160

a Dependent Variable: t3hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 6-months post-discharge within this model.

- **Days per week of prosthetic use at 6-months** t3dsnow *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3dsnow	6.37	1.910	103
t1anx	4.1942	3.68904	103
t1dep	3.9417	3.09593	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.615	2	6.307	1.755	.178(a)
	Residual	359.366	100	3.594		
	Total	371.981	102			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t3dsnow

Using the enter method, a non-significant model emerged ($F_{2, 100}$ = 1.755, p = .178).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.184(a)	.034	.015	1.896

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.015

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.861	.324		21.209	.000	6.219	7.503
	t1anx	-.036	.058	-.070	-.620	.536	-.151	.079
	t1dep	-.087	.069	-.140	-1.253	.213	-.224	.051

a Dependent Variable: t3dsnow

No variables emerged as significant predictors of days per week of days per week of prosthetic use at 6-months post-discharge within this model.

<u>Additional results (not specific to research questions)</u>
<u>Additional predictor variables (not in research question)</u>
Recovery locus of control
Internal control t1inloc

Self-efficacy
Prosthetic use efficacy selfec2

Demographic variables
Age age_©
Gender sex_©
Deprivation category deprivat

Clinical variables
Amputation level ampleve
Diabetes diabetes

Unilateral/Bilateral uni_bi
Time in hospital lenstay

- *Pre-operative functional limitations*
- **Basic locomotor capabilities** t1lcbas
- **Advanced locomotor capabilities** t1lcadv
- **Total locomotor capabilities** t1lctot (t1lcbas + t1lcadv)

Outcome variables

- using the prosthesis at *1-month* post-discharge from hospital

Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2inleg
Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2outleg
Hours per day of prosthetic use at 1-month t2hrsnow
Days per week of prosthetic use at 1-month t2dsnow

- using the prosthesis at *6-months* post-discharge from hospital

Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3inleg
Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3outleg
Hours per day of prosthetic use at 6-months t3hrsnow
Days per week of prosthetic use at 6-months t3dsnow

Key
The ANOVA assesses the overall significance of the model.
In the Model Summary, the Adjusted R^2 indicates the amount of variance that the model accounts for in the dependent variable (e.g., Adjusted R^2 = 0.34, then the model accounts for 34% of the variance in the DV.
B are the regression coefficients. They indicate how much one-unit change in that variable would affect the ***DV*** units.
Std Error is the standard error of the regression coefficients. This is the standard deviation divided by the square root of the number of data values. The extent to which the sample mean is expected to differ (+/-) from the population mean. The more data, the smaller this range becomes.
β (Beta) are what the regression coefficients would be if the model were fitted to standardised data. They indicate significance of variables within the model.

Recovery locus of control

- **Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%)** t2inleg *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2inleg	49.12%	39.881%	142
t1inloc	39.6127	4.15113	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6345.674	1	6345.674	4.077	.045(a)
	Residual	217919.291	140	1556.566		
	Total	224264.965	141			

a Predictors: (Constant), t1inloc
b Dependent Variable: t2inleg

Using the enter method, a significant model emerged ($F_{1, 140}$ = 4.007, p < .05).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.168(a)	.028	.021	39.453%

a Predictors: (Constant), t1inloc

Adjusted R square = 0.021.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-14.898	31.878		-.467	.641	-77.923	48.128
	t1inloc	1.616	.800	.168	2.019	.045	.034	3.199

a Dependent Variable: t2inleg

Internal control t1inloc (p < .05) emerged as a significant predictor of indoors prosthetic use at 1-month post-discharge within this model.

- **Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%)** t2outleg *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2outleg	41.90%	44.617%	142
t1inloc	39.6127	4.15113	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12584.378	1	12584.378	6.571	.011(a)
	Residual	268102.242	140	1915.016		
	Total	280686.620	141			

a Predictors: (Constant), t1inloc
b Dependent Variable: t2outleg

Using the enter method, a significant model emerged ($F_{1, 140} = 6.571$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.212(a)	.045	.038	43.761%

a Predictors: (Constant), t1inloc

Adjusted R square = 0.038.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-48.250	35.359		-1.365	.175	-118.157	21.656
	t1inloc	2.276	.888	.212	2.563	.011	.521	4.031

a Dependent Variable: t2outleg

Internal control t1inloc ($p < .05$) emerged as a significant predictor of outdoors prosthetic use at 1-month post-discharge within this model.

- <u>Hours per day of prosthetic use at 1-month t2hrsnow *(N = 116)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2hrsnow	8.82	4.981	116
t1inloc	39.7759	4.05631	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	78.048	1	78.048	3.206	.076(a)
	Residual	2775.150	114	24.343		
	Total	2853.198	115			

a Predictors: (Constant), t1inloc
b Dependent Variable: t2hrsnow

Using the enter method, a non-significant model emerged ($F_{1, 114} = 3.206$, $p = .076$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.165(a)	.027	.019	4.934

a Predictors: (Constant), t1inloc

Adjusted R square = 0.019.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.741	4.535		.163	.871	-8.243	9.724
	t1inloc	.203	.113	.165	1.791	.076	-.022	.428

a Dependent Variable: t2hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 1-month post-discharge within this model. **Internal control** t1inloc (p = .076) approached significance.

- **Days per week of prosthetic use at 1-month** t2dsnow *(N = 116)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dsnow	6.20	2.005	116
t1inloc	39.7759	4.05631	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.816	1	8.816	2.216	.139(a)
	Residual	453.624	114	3.979		
	Total	462.440	115			

a Predictors: (Constant), t1inloc
b Dependent Variable: t2dsnow

Using the enter method, a non-significant model emerged ($F_{1,114}$ = 2.216, p = .139).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.138(a)	.019	.010	1.995

a Predictors: (Constant), t1inloc

Adjusted R square = 0.010.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.483	1.833		1.900	.060	-.149	7.115
	t1inloc	.068	.046	.138	1.488	.139	-.023	.159

a Dependent Variable: t2dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 1-month post-discharge within this model.

- **Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%)** t3inleg *(N = 120)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3inleg	55.83%	41.472%	120
t1inloc	39.3250	4.11426	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6879.231	1	6879.231	4.104	.045(a)
	Residual	197787.436	118	1676.165		
	Total	204666.667	119			

a Predictors: (Constant), t1inloc
b Dependent Variable: t3inleg

Using the enter method, a significant model emerged ($F_{1,118}$ = 4.104, p < .05).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.183(a)	.034	.025	40.941%

a Predictors: (Constant), t1inloc

Adjusted R square = 0.025.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-16.840	36.067		-.467	.641	-88.262	54.582
	t1inloc	1.848	.912	.183	2.026	.045	.042	3.654

a Dependent Variable: t3inleg

Internal control t1inloc ($p < .05$) emerged as a significant predictor of indoors prosthetic use at 6-months post-discharge within this model.

- Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3outleg *(N = 120)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3outleg	53.96%	46.404%	120
t1inloc	39.3250	4.11426	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16104.722	1	16104.722	7.914	.006(a)
	Residual	240140.070	118	2035.085		
	Total	256244.792	119			

a Predictors: (Constant), t1inloc
b Dependent Variable: t3outleg

Using the enter method, a significant model emerged ($F_{1, 118} = 7.914$, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.251(a)	.063	.055	45.112%

a Predictors: (Constant), t1inloc

Adjusted R square = 0.055.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-57.235	39.741		-1.440	.152	-135.934	21.463
	t1inloc	2.828	1.005	.251	2.813	.006	.837	4.818

a Dependent Variable: t3outleg

Internal control t1inloc ($p < .01$) emerged as a significant predictor of outdoors prosthetic use at 6-months post-discharge within this model.

- Hours per day of prosthetic use at 6-months t3hrsnow *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3hrsnow	10.01	4.862	103
t1inloc	39.7573	3.79490	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.422	1	5.422	.228	.634(a)
	Residual	2405.568	101	23.818		
	Total	2410.990	102			

a Predictors: (Constant), t1inloc
b Dependent Variable: t3hrsnow

Using the enter method, a non-significant model emerged ($F_{1, 101}$ = 0.228, p = .634).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.047(a)	.002	-.008	4.880

a Predictors: (Constant), t1inloc

Adjusted R square = -0.008.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7.594	5.085		1.493	.138	-2.494	17.682
	t1inloc	.061	.127	.047	.477	.634	-.192	.313

a Dependent Variable: t3hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 6-months post-discharge within this model.

- <u>Days per week of prosthetic use at 6-months t3dsnow *(N = 103)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3dsnow	6.37	1.910	103
t1inloc	39.7573	3.79490	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.455	1	1.455	.396	.530(a)
	Residual	370.526	101	3.669		
	Total	371.981	102			

a Predictors: (Constant), t1inloc
b Dependent Variable: t3dsnow

Using the enter method, a non-significant model emerged ($F_{1, 101}$ = 0.396, p = .530).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.063(a)	.004	-.006	1.915

a Predictors: (Constant), t1inloc

Adjusted R square = -0.006.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.118	1.996		2.564	.012	1.159	9.077
	t1inloc	.031	.050	.063	.630	.530	-.068	.131

a Dependent Variable: t3dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 6-months post-discharge within this model.

Self-efficacy

- **Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2inleg *(N = 132)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2inleg	52.84%	38.908%	132
selfec2	13.8561	3.63850	132

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3543.477	1	3543.477	2.365	.127(a)
	Residual	194766.182	130	1498.201		
	Total	198309.659	131			

a Predictors: (Constant), selfec2
b Dependent Variable: t2inleg

Using the enter method, a non-significant model emerged ($F_{1, 130}$ = 2.365, p = .127).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.134(a)	.018	.010	38.707%

a Predictors: (Constant), selfec2

Adjusted R square = 0.010.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	33.035	13.312		2.482	.014	6.699	59.371
	selfec2	1.429	.929	.134	1.538	.127	-.409	3.268

a Dependent Variable: t2inleg

No variables emerged as significant predictors of indoors prosthetic use at 1-month post-discharge within this model.

- **Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2outleg *(N = 132)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2outleg	45.08%	44.704%	132
selfec2	13.8561	3.63850	132

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9371.406	1	9371.406	4.826	.030(a)
	Residual	252427.836	130	1941.753		
	Total	261799.242	131			

a Predictors: (Constant), selfec2
b Dependent Variable: t2outleg

Using the enter method, a significant model emerged ($F_{1, 130}$ = 4.826, p < .05).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.189(a)	.036	.028	44.065%

a Predictors: (Constant), selfec2

Adjusted R square = 0.028.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	12.866	15.155		.849	.397	-17.116	42.848
	selfec2	2.325	1.058	.189	2.197	.030	.231	4.418

a Dependent Variable: t2outleg

Prosthetic use efficacy selfec2 ($p < .05$) emerged as a significant predictor of outdoors prosthetic use at 1-month post-discharge within this model.

- <u>Hours per day of prosthetic use at 1-month t2hrsnow *(N = 113)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2hrsnow	8.97	4.949	113
selfec2	14.1150	3.58008	113

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.418	1	21.418	.874	.352(a)
	Residual	2721.502	111	24.518		
	Total	2742.920	112			

a Predictors: (Constant), selfec2
b Dependent Variable: t2hrsnow

Using the enter method, a non-significant model emerged ($F_{1, 111} = 0.874$, $p = .352$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.088(a)	.008	-.001	4.952

a Predictors: (Constant), selfec2

Adjusted R square = -0.001.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7.249	1.903		3.810	.000	3.479	11.019
	selfec2	.122	.131	.088	.935	.352	-.137	.381

a Dependent Variable: t2hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 1-month post-discharge within this model.

- <u>Days per week of prosthetic use at 1-month t2dsnow *(N = 113)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2dsnow	6.22	2.017	113
selfec2	14.1150	3.58008	113

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.675	1	.675	.165	.686(a)
	Residual	454.794	111	4.097		
	Total	455.469	112			

a Predictors: (Constant), selfec2

b Dependent Variable: t2dsnow

Using the enter method, a non-significant model emerged ($F_{1, 111} = 0.165$, p = .686).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.038(a)	.001	-.008	2.024

a Predictors: (Constant), selfec2

Adjusted R square = -0.008.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.915	.778		7.605	.000	4.374	7.456
	selfec2	.022	.053	.038	.406	.686	-.084	.128

a Dependent Variable: t2dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 1-month post-discharge within this model.

- <u>Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3inleg *(N = 111)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3inleg	60.36%	39.810%	111
selfec2	13.7117	3.58123	111

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8715.610	1	8715.610	5.736	.018(a)
	Residual	165619.975	109	1519.449		
	Total	174335.586	110			

a Predictors: (Constant), selfec2
b Dependent Variable: t3inleg

Using the enter method, a significant model emerged ($F_{1, 109} = 5.736$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.224(a)	.050	.041	38.980%

a Predictors: (Constant), selfec2

Adjusted R square = 0.041.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	26.279	14.703		1.787	.077	-2.862	55.421
	selfec2	2.486	1.038	.224	2.395	.018	.429	4.542

a Dependent Variable: t3inleg

Prosthetic use efficacy selfec2 ($p < .05$) emerged as a significant predictor of indoors prosthetic use at 6-months post-discharge within this model.

- <u>Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3outleg *(N = 111)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3outleg	58.33%	45.519%	111

selfec2	13.7117	3.58123	111

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15936.919	1	15936.919	8.195	.005(a)
	Residual	211979.748	109	1944.768		
	Total	227916.667	110			

a Predictors: (Constant), selfec2
b Dependent Variable: t3outleg

Using the enter method, a significant model emerged ($F_{1,109} = 8.195$, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.264(a)	.070	.061	44.100%

a Predictors: (Constant), selfec2

Adjusted R square = 0.061.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	12.248	16.634		.736	.463	-20.721	45.216
	selfec2	3.361	1.174	.264	2.863	.005	1.034	5.688

a Dependent Variable: t3outleg

Prosthetic use efficacy selfec2 ($p < .01$) emerged as a significant predictor of outdoors prosthetic use at 6-months post-discharge within this model.

- <u>Hours per day of prosthetic use at 6-months t3hrsnow *(N = 100)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3hrsnow	10.28	4.665	100
selfec2	13.8900	3.54166	100

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	57.874	1	57.874	2.706	.103(a)
	Residual	2096.286	98	21.391		
	Total	2154.160	99			

a Predictors: (Constant), selfec2
b Dependent Variable: t3hrsnow

Using the enter method, a non-significant model emerged ($F_{1,98} = 2.706$, $p = .103$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.164(a)	.027	.017	4.625

a Predictors: (Constant), selfec2

Adjusted R square = 0.017.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7.281	1.881		3.872	.000	3.549	11.014

selfec2	.216	.131	.164	1.645	.103	-.045	.476

a Dependent Variable: t3hrsnow

Prosthetic use efficacy selfec2 (p = .085) did not emerged as a significant predictor of hours per day of prosthetic use at 6-months post-discharge within this model.

- **Days per week of prosthetic use at 6-months** t3dsnow *(N = 100)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3dsnow	6.54	1.648	100
selfec2	13.8900	3.54166	100

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.798	1	2.798	1.030	.313(a)
	Residual	266.042	98	2.715		
	Total	268.840	99			

a Predictors: (Constant), selfec2
b Dependent Variable: t3dsnow

Using the enter method, a non-significant model emerged ($F_{1, 98}$ = 1.030, p = .313).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.102(a)	.010	.000	1.648

a Predictors: (Constant), selfec2

Adjusted R square = 0.000.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.881	.670		8.777	.000	4.551	7.210
	selfec2	.047	.047	.102	1.015	.313	-.045	.140

a Dependent Variable: t3dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 6-months post-discharge within this model.

Demographic variables

- **Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%)** t2inleg *(N = 141)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2inleg	49.47%	39.806%	141
age_©	66.43	10.484	141
Gender	.70	.459	141
Deprivation Cat (c)	23.4679	17.23111	141

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	552.113	3	184.038	.114	.952(a)
	Residual	221282.994	137	1615.204		
	Total	221835.106	140			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t2inleg

Using the enter method, a non-significant model emerged ($F_{3, 137}$ = 0.114, p = .952).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.050(a)	.002	-.019	40.190%

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.019.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	49.454	25.097		1.970	.051	-.174	99.081
	age_©	-.010	.333	-.003	-.031	.975	-.669	.648
	Gender	3.312	7.529	.038	.440	.661	-11.577	18.201
	Deprivation Cat (c)	-.069	.200	-.030	-.346	.730	-.465	.326

a Dependent Variable: t2inleg

No variables emerged as significant predictors of indoors prosthetic use at 1-month post-discharge within this model.

- **Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2outleg** ***(N = 141)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2outleg	42.20%	44.635%	141
age_©	66.43	10.484	141
Gender	.70	.459	141
Deprivation Cat (c)	23.4679	17.23111	141

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8493.181	3	2831.060	1.434	.236(a)
	Residual	270425.259	137	1973.907		
	Total	278918.440	140			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t2outleg

Using the enter method, a non-significant model emerged ($F_{3, 137}$ = 1.434, p = .236).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.175(a)	.030	.009	44.429%

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = 0.009.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	62.048	27.744		2.236	.027	7.185	116.910
	age_©	-.404	.368	-.095	-1.096	.275	-1.132	.324
	Gender	12.626	8.324	.130	1.517	.132	-3.833	29.085
	Deprivation Cat (c)	-.081	.221	-.031	-.367	.714	-.518	.356

a Dependent Variable: t2outleg

No variables emerged as significant predictors of outdoors prosthetic use at 1-month post-discharge within this model.

- **Hours per day of prosthetic use at 1-month t2hrsnow *(N = 116)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2hrsnow	8.82	4.981	116
age_©	66.06	10.081	116
Gender	.72	.453	116
Deprivation Cat (c)	22.2856	16.47114	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.000	3	4.333	.171	.916(a)
	Residual	2840.198	112	25.359		
	Total	2853.198	115			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t2hrsnow

Using the enter method, a non-significant model emerged ($F_{3, 112}$ = 0.171, p = .916).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.068(a)	.005	-.022	5.036

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.022.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10.793	3.434		3.143	.002	3.989	17.598
	age_©	-.027	.047	-.055	-.580	.563	-.121	.066
	Gender	.138	1.043	.013	.133	.895	-1.928	2.204
	Deprivation Cat (c)	-.012	.029	-.040	-.424	.673	-.069	.045

a Dependent Variable: t2hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 1-month post-discharge within this model.

- **Days per week of prosthetic use at 1-month t2dsnow *(N = 116)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2dsnow	6.20	2.005	116
age_©	66.06	10.081	116
Gender	.72	,453	116
Deprivation Cat (c)	22.2856	16.47114	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.141	3	.047	.011	.998(a)
	Residual	462.299	112	4.128		
	Total	462.440	115			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t2dsnow

Using the enter method, a non-significant model emerged ($F_{3, 112}$ = 0.011, p = .998).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.017(a)	.000	-.026	2.032

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.026.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.148	1.386		4.437	.000	3.403	8.894
	age_©	.002	.019	.008	.086	.932	-.036	.039
	Gender	-.059	.421	-.013	-.139	.890	-.892	.775
	Deprivation Cat (c)	-.001	.012	-.006	-.062	.951	-.024	.022

a Dependent Variable: t2dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 1-month post-discharge within this model.

- <u>Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3inleg *(N = 119)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3inleg	56.30%	41.326%	119
age_©	66.27	10.261	119
Gender	.70	.461	119
Deprivation Cat (c)	23.2290	17.71012	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3412.022	3	1137.341	.660	.578(a)
	Residual	198111.087	115	1722.705		
	Total	201523.109	118			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t3inleg

Using the enter method, a non-significant model emerged ($F_{3, 115}$ = 0.660, p = .578).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.130(a)	.017	-.009	41.505%

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.009.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	71.641	28.922		2.477	.015	14.353	128.930
	age_©	-.101	.385	-.025	-.263	.793	-.863	.661
	Gender	-2.140	8.484	-.024	-.252	.801	-18.946	14.665
	Deprivation Cat (c)	-.307	.219	-.132	-1.403	.163	-.742	.127

a Dependent Variable: t3inleg

No variables emerged as significant predictors of indoors prosthetic use at 6-months post-discharge within this model.

- <u>Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3outleg *(N = 119)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3outleg	54.41%	46.332%	119
age_©	66.27	10.261	119
Gender	.70	.461	119
Deprivation Cat (c)	23.2290	17.71012	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5725.889	3	1908.630	.887	.450(a)
	Residual	247582.934	115	2152.895		
	Total	253308.824	118			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t3outleg

Using the enter method, a non-significant model emerged ($F_{3, 115} = 0.887$, $p = .450$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.150(a)	.023	-.003	46.399%

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.003.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	72.370	32.332		2.238	.027	8.327	136.413
	age_©	-.322	.430	-.071	-.748	.456	-1.174	.530
	Gender	10.478	9.484	.104	1.105	.272	-8.309	29.265
	Deprivation Cat (c)	-.170	.245	-.065	-.695	.489	-.656	.315

a Dependent Variable: t3outleg

No variables emerged as significant predictors of outdoors prosthetic use at 6-months post-discharge within this model.

- <u>Hours per day of prosthetic use at 6-months t3hrsnow *(N = 103)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3hrsnow	10.01	4.862	103
age_©	65.59	10.106	103
Gender	.70	.461	103
Deprivation Cat (c)	22.6512	17.46196	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.808	3	16.603	.696	.557(a)
	Residual	2361.183	99	23.850		
	Total	2410.990	102			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t3hrsnow

Using the enter method, a non-significant model emerged ($F_{3, 99} = 0.696$, $p = .557$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.144(a)	.021	-.009	4.884

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.009.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	11.511	3.664		3.142	.002	4.241	18.782
	age_©	-.004	.049	-.007	-.073	.942	-.102	.095
	Gender	-.587	1.065	-.056	-.551	.583	-2.699	1.526
	Deprivation Cat (c)	-.038	.028	-.136	-1.336	.185	-.094	.018

a Dependent Variable: t3hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 6-months post-discharge within this model.

- <u>Days per week of prosthetic use at 6-months t3dsnow *(N = 103)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3dsnow	6.37	1.910	103
age_©	65.59	10.106	103
Gender	.70	.461	103
Deprivation Cat (c)	22.6512	17.46196	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.956	3	7.652	2.170	.096(a)
	Residual	349.024	99	3.525		
	Total	371.981	102			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t3dsnow

Using the enter method, a non-significant model emerged ($F_{3,99}$ = 2.170, p = .096).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.248(a)	.062	.033	1.878

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = 0.033.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7.228	1.409		5.131	.000	4.433	10.023
	age_©	-.004	.019	-.021	-.205	.838	-.042	.034
	Gender	.028	.409	.007	.068	.946	-.784	.840
	Deprivation Cat (c)	-.027	.011	-.251	-2.528	.013	-.049	-.006

a Dependent Variable: t3dsnow

Deprivation category deprivat (p < .05) emerged as a significant predictor of days per week of prosthetic use at 6-months post-discharge within this model.

<u>Clinical variables</u>

- **<u>Indoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2inleg *(N = 141)*</u>**

Descriptive Statistics

	Mean	Std. Deviation	N
t2inleg	49.47%	39.806%	141
Amputation Level ©	.75	.434	141
diabetes	.51	.502	141
Uni/Bilateral ©	.88	.327	141
lenstay	73.2979	43.23519	141
t1lcbas	18.4752	5.19145	141
t1lcladv	15.7518	7.10046	141

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24991.807	6	4165.301	2.836	.012(a)
	Residual	196843.300	134	1468.980		
	Total	221835.106	140			

a Predictors: (Constant), t1lcladv, lenstay, Amputation Level ©, Uni/Bilateral ©, diabetes, t1lcbas
b Dependent Variable: t2inleg

Using the enter method, a significant model emerged ($F_{6,134} = 2.836$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.336(a)	.113	.073	38.327%

a Predictors: (Constant), t1lcladv, lenstay, Amputation Level ©, Uni/Bilateral ©, diabetes, t1lcbas

Adjusted R square = 0.073.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.545	16.594		.214	.831	-29.275	36.365
	Amputation Level ©	12.254	7.725	.133	1.586	.115	-3.025	27.533
	diabetes	17.884	6.641	.225	2.693	.008	4.749	31.019
	Uni/Bilateral ©	9.721	10.161	.080	.957	.340	-10.377	29.818
	lenstay	.022	.077	.024	.286	.775	-.129	.173
	t1lcbas	.076	1.020	.010	.075	.941	-1.942	2.094
	t1lcladv	1.017	.744	.181	1.367	.174	-.454	2.488

a Dependent Variable: t2inleg

Diabetes diabetes ($p < .01$) emerged as a significant predictor of indoors prosthetic use at 1-month post-discharge within this model.

- <u>Outdoors prosthetic use at 1-month (0%, 25%, 50%, 75%, 100%) t2outleg *(N = 141)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2outleg	42.20%	44.635%	141
Amputation Level ©	.75	.434	141
diabetes	.51	.502	141
Uni/Bilateral ©	.88	.327	141
lenstay	73.2979	43.23519	141
t1lcbas	18.4752	5.19145	141
t1lcladv	15.7518	7.10046	141

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25047.933	6	4174.655	2.204	.046(a)
	Residual	253870.507	134	1894.556		

Total	278918.440	140			

a Predictors: (Constant), t1lcladv, lenstay, Amputation Level ©, Uni/Bilateral ©, diabetes, t1lcbas
b Dependent Variable: t2outleg

Using the enter method, a significant model emerged ($F_{6, 134} = 2.204$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.300(a)	.090	.049	43.526%

a Predictors: (Constant), t1lcladv, lenstay, Amputation Level ©, Uni/Bilateral ©, diabetes, t1lcbas

Adjusted R square = 0.049.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.060	18.845		.268	.789	-32.212	42.332
	Amputation Level ©	13.576	8.773	.132	1.547	.124	-3.776	30.928
	diabetes	8.726	7.542	.098	1.157	.249	-6.191	23.643
	Uni/Bilateral ©	-2.185	11.540	-.016	-.189	.850	-25.008	20.639
	lenstay	.049	.087	.048	.566	.573	-.123	.221
	t1lcbas	-.474	1.159	-.055	-.409	.683	-2.766	1.818
	t1lcladv	1.876	.845	.298	2.221	.028	.206	3.547

a Dependent Variable: t2outleg

Advanced locomotor capabilities t1lcadv ($p < .05$) emerged as significant predictors of outdoors prosthetic use at 1-month post-discharge within this model.

- <u>Hours per day of prosthetic use at 1-month t2hrsnow *(N = 115)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2hrsnow	8.85	4.990	115
Amputation Level ©	.78	.414	115
diabetes	.54	.501	115
Uni/Bilateral ©	.90	.307	115
lenstay	76.8087	44.82204	115
t1lcbas	18.7826	4.99435	115
t1lcladv	16.1826	6.91119	115

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	157.781	6	26.297	1.059	.392(a)
	Residual	2680.706	108	24.821		
	Total	2838.487	114			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: t2hrsnow

Using the enter method, a non-significant model emerged ($F_{6, 108} = 1.059$, $p = .392$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.236(a)	.056	.003	4.982

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = 0.003.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7.964	2.499		3.188	.002	3.012	12.917
	Amputation Level ©	.003	1.174	.000	.003	.998	-2.323	2.330
	diabetes	1.448	.971	.145	1.491	.139	-.476	3.372
	Uni/Bilateral ©	-2.370	1.612	-.146	-1.471	.144	-5.564	.824
	lenstay	-.007	.011	-.062	-.646	.520	-.028	.014
	t1lcbas	.099	.158	.099	.624	.534	-.214	.411
	t1lcladv	.056	.112	.077	.497	.620	-.167	.278

a Dependent Variable: t2hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 1-month post-discharge within this model.

- <u>Days per week of prosthetic use at 1-month</u> t2dsnow *(N = 115)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dsnow	6.22	2.003	115
Amputation Level ©	.78	.414	115
diabetes	.54	.501	115
Uni/Bilateral ©	.90	.307	115
lenstay	76.8087	44.82204	115
t1lcbas	18.7826	4.99435	115
t1lcladv	16.1826	6.91119	115

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.113	6	4.019	1.001	.428(a)
	Residual	433.453	108	4.013		
	Total	457.565	114			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: t2dsnow

Using the enter method, a non-significant model emerged ($F_{6, 108}$ = 1.001, p = .428).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.230(a)	.053	.000	2.003

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = 0.000.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.519	1.005		6.489	.000	4.528	8.511
	Amputation Level ©	.080	.472	.016	.169	.866	-.856	1.015
	diabetes	.768	.390	.192	1.967	.052	-.006	1.541
	Uni/Bilateral ©	-.661	.648	-.101	-1.020	.310	-1.946	.623
	lenstay	-.001	.004	-.022	-.228	.820	-.009	.007
	t1lcbas	-.048	.063	-.119	-.755	.452	-.174	.078
	t1lcladv	.049	.045	.168	1.079	.283	-.041	.138

a Dependent Variable: t2dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 1-month post-discharge within this model. Diabetes diabetes (p = .052) approached significance.

- **Indoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3inleg *(N = 119)***

Descriptive Statistics

	Mean	Std. Deviation	N
t3inleg	56.30%	41.326%	119
Amputation Level ©	.74	.441	119
diabetes	.50	.502	119
Uni/Bilateral ©	.88	.324	119
lenstay	73.8151	41.94992	119
t1lcbas	18.3025	5.38761	119
t1lcladv	15.6050	7.26871	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35454.741	6	5909.123	3.985	.001(a)
	Residual	166068.368	112	1482.753		
	Total	201523.109	118			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: t3inleg

Using the enter method, a significant model emerged ($F_{6, 112} = 3.985$, $p = .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.419(a)	.176	.132	38.507%

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = 0.132.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	16.414	17.941		.915	.362	-19.133	51.961
	Amputation Level ©	22.723	8.272	.242	2.747	.007	6.333	39.114
	diabetes	-4.629	7.199	-.056	-.643	.522	-18.894	9.635
	Uni/Bilateral ©	14.730	11.283	.115	1.306	.194	-7.625	37.086
	lenstay	-.196	.086	-.199	-2.266	.025	-.367	-.025
	t1lcbas	.609	1.098	.079	.555	.580	-1.567	2.786
	t1lcladv	1.008	.802	.177	1.257	.211	-.581	2.597

a Dependent Variable: t3inleg

Amputation level ampleve ($p < .01$) and **Time in hospital** lenstay ($p < .05$) emerged as significant predictors of indoors prosthetic use at 6-months post-discharge within this model.

- **Outdoors prosthetic use at 6-months (0%, 25%, 50%, 75%, 100%) t3outleg *(N = 119)***

Descriptive Statistics

	Mean	Std. Deviation	N
t3outleg	54.41%	46.332%	119
Amputation Level ©	.74	.441	119
diabetes	.50	.502	119
Uni/Bilateral ©	.88	.324	119
lenstay	73.8151	41.94992	119
t1lcbas	18.3025	5.38761	119
t1lcladv	15.6050	7.26871	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	66338.308	6	11056.385	6.623	.000(a)
	Residual	186970.516	112	1669.380		
	Total	253308.824	118			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: t3outleg

Using the enter method, a significant model emerged ($F_{6, 112} = 6.623$, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.512(a)	.262	.222	40.858%

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = 0.222.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-11.696	19.036		-.614	.540	-49.414	26.022
	Amputation Level ©	33.400	8.777	.318	3.805	.000	16.009	50.791
	diabetes	-8.648	7.639	-.094	-1.132	.260	-23.783	6.488
	Uni/Bilateral ©	10.745	11.972	.075	.898	.371	-12.976	34.466
	lenstay	-.154	.092	-.140	-1.682	.095	-.336	.028
	t1lcbas	1.365	1.166	.159	1.171	.244	-.944	3.675
	t1lcladv	1.454	.851	.228	1.709	.090	-.232	3.140

a Dependent Variable: t3outleg

Amputation level ampleve ($p < .001$) **emerged as a significant predictor of outdoors prosthetic use at 6-months post-discharge within this model.**

- <u>Hours per day of prosthetic use at 6-months t3hrsnow *(N = 102)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3hrsnow	10.11	4.782	102
Amputation Level ©	.77	.420	102
diabetes	.52	.502	102
Uni/Bilateral ©	.89	.312	102
lenstay	74.4216	43.71293	102
t1lcbas	18.7451	4.97058	102
t1lcladv	16.0098	6.98583	102

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	144.348	6	24.058	1.055	.395(a)
	Residual	2165.466	95	22.794		
	Total	2309.814	101			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Amputation Level ©, Uni/Bilateral ©, t1lcbas
b Dependent Variable: t3hrsnow

Using the enter method, a non-significant model emerged ($F_{6, 95} = 1.055$, $p = .395$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.250(a)	.062	.003	4.774

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Amputation Level ©, Uni/Bilateral ©, t1lcbas

Adjusted R square = 0.003.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10.012	2.548		3.930	.000	4.954	15.070
	Amputation Level ©	2.122	1.176	.186	1.805	.074	-.212	4.456
	diabetes	-.988	.981	-.104	-1.007	.317	-2.936	.960
	Uni/Bilateral ©	-.211	1.647	-.014	-.128	.898	-3.480	3.058
	lenstay	-.016	.011	-.148	-1.462	.147	-.038	.006
	t1lcbas	-.055	.154	-.057	-.356	.723	-.360	.251
	t1lcladv	.087	.106	.127	.815	.417	-.124	.298

a Dependent Variable: t3hrsnow

No variables emerged as significant predictors of hours per day of prosthetic use at 6-months post-discharge within this model.

- **Days per week of prosthetic use at 6-months t3dsnow *(N = 102)***

Descriptive Statistics

	Mean	Std. Deviation	N
t3dsnow	6.43	1.810	102
Amputation Level ©	.77	.420	102
diabetes	.52	.502	102
Uni/Bilateral ©	.89	.312	102
lenstay	74.4216	43.71293	102
t1lcbas	18.7451	4.97058	102
t1lcladv	16.0098	6.98583	102

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.701	6	1.784	.529	.785(a)
	Residual	320.318	95	3.372		
	Total	331.020	101			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Amputation Level ©, Uni/Bilateral ©, t1lcbas
b Dependent Variable: t3dsnow

Using the enter method, a non-significant model emerged ($F_{6,95}$ = 0.529, p = .785).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.180(a)	.032	-.029	1.836

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Amputation Level ©, Uni/Bilateral ©, t1lcbas

Adjusted R square = -0.029.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.522	.980		6.656	.000	4.576	8.467
	Amputation Level ©	.360	.452	.083	.796	.428	-.538	1.257
	diabetes	-.120	.377	-.033	-.319	.751	-.869	.629
	Uni/Bilateral ©	-.296	.633	-.051	-.468	.641	-1.554	.961
	lenstay	-.006	.004	-.139	-1.344	.182	-.014	.003
	t1lcbas	.001	.059	.003	.017	.987	-.116	.118
	t1lcladv	.023	.041	.088	.559	.577	-.058	.104

a Dependent Variable: t3dsnow

No variables emerged as significant predictors of days per week of prosthetic use at 6-months post-discharge within this model.

Predicting activity limitations 1-month and 6-months post-discharge

Predictor variables in the research question

Post-operative illness cognitions
Identity (No. of symptoms) identity
Timeline (acute/chronic) timeline
Timeline (cyclical) timecycl
Consequences conseque
Personal control perscont
Treatment control treatcont
Illness coherence illcoher
Emotional representations emotrepr

Causal attributions
Stress or worry C1
Hereditary - it runs in my family C2
A germ or virus C3
Diet or eating habits C4
Chance or bad luck C5
Poor medical care in my past C6
Pollution in the environment C7
My own behaviour C8
My mental attitude e.g. thinking about life negatively C9
Family problems or worries caused my illness C10
Overwork C11
My emotional state e.g. feeling down, lonely, anxious, empty C12
Ageing C13
Alcohol C14
Smoking C15
Accident or injury C16
My personality C17
The above individual causal attributions were subjected to principle components analyses, which resulted in two factors emerging. These were used in the regression analyses:
Risk factors c_risk *causal attributions* (C4 + C8 + C11 + C14 + C15)
Emotional/Psychological c_emopsy *causal attributions* (C1 + C9 + C10 + C12 + C17)

Post-operative attitudes and beliefs towards prosthetic use
Behavioural intention bintention
Attitude evaluation attitude
Subjective norm subnorm
Perceived control pbc
Behavioural beliefs bbelief
Normative beliefs nbelief
Control beliefs cbelief

Outcome variables
- functional activity at *1-month* post-discharge from hospital
- **Basic locomotor capabilities at 1-month** t2lcbas
- **Advanced locomotor capabilities at 1-month** t2lcadv

- functional activity at *6-months* post-discharge from hospital
- **Basic locomotor capabilities at 6-months** t3lcbas
- **Advanced locomotor capabilities at 6-months** t3lcadv

Key
The ANOVA assesses the overall significance of the model.
In the Model Summary, the Adjusted R^2 indicates the amount of variance that the model accounts for in the dependent variable (e.g., Adjusted R^2 = 0.34, then the model accounts for 34% of the variance in the DV.
B are the regression coefficients. They indicate how much one-unit change in that variable would affect the *DV* units.
Std Error is the standard error of the regression coefficients. This is the standard deviation divided by the square root of the number of data values. The extent to which the sample mean is expected to differ (+/-) from the population mean. The more data, the smaller this range becomes.
β (Beta) are what the regression coefficients would be if the model were fitted to standardised data. They indicate significance of variables within the model.

Post-operative illness cognitions (including causal attributions)

- **Basic locomotor capabilities at 1-month t2lcbas** *(N = 116)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcbas	15.7414	6.77350	116
identity	4.8879	2.32481	116
timeline	19.7759	6.12207	116

timecycl	9.4397	3.06534	116
conseque	19.5603	4.16045	116
perscont	23.6121	3.28838	116
treatcont	18.8017	3.24699	116
illcoher	20.5000	3.14712	116
emotrepr	14.5776	4.69070	116
c_risk	11.1638	3.72055	116
c_emopsy	8.6293	3.12780	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1204.819	10	120.482	3.107	.002(a)
	Residual	4071.423	105	38.775		
	Total	5276.241	115			

a Predictors: (Constant), c_emopsy, perscont, timeline, identity, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: t2lcbas

Using the enter method, a significant model emerged ($F_{10, 105} = 3.107$, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.478(a)	.228	.155	6.22699

a Predictors: (Constant), c_emopsy, perscont, timeline, identity, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = 0.155.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	17.114	7.636		2.241	.027	1.973	32.255
	identity	-.032	.267	-.011	-.119	.905	-.561	.497
	timeline	.008	.116	.007	.070	.944	-.222	.238
	timecycl	-.430	.210	-.194	-2.049	.043	-.846	-.014
	conseque	.137	.179	.084	.764	.446	-.218	.492
	perscont	-.188	.243	-.091	-.773	.442	-.670	.294
	treatcont	.650	.241	.311	2.697	.008	.172	1.127
	illcoher	-.221	.248	-.103	-.893	.374	-.712	.270
	emotrepr	-.551	.161	-.382	-3.415	.001	-.871	-.231
	c_risk	.087	.176	.048	.495	.622	-.262	.437
	c_emopsy	.442	.216	.204	2.049	.043	.014	.870

a Dependent Variable: t2lcbas

Timeline (cyclical) timecycl ($p < .05$), **Treatment control** treatcont ($p < .01$), **Emotional representations** emotrepr ($p = .001$) and **Emotional/Psychological** c_emopsy *causal attributions* ($p < .05$) emerged as significant predictor variables of basic locomotor capabilities at 1-month post-discharge within this model.

- <u>Advanced locomotor capabilities at 1-month t2lcadv *(N = 116)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcladv	11.4914	7.61177	116
identity	4.8879	2.32481	116
timeline	19.7759	6.12207	116
timecycl	9.4397	3.06534	116
conseque	19.5603	4.16045	116

perscont	23.6121	3.28838	116
treatcont	18.8017	3.24699	116
illcoher	20.5000	3.14712	116
emotrepr	14.5776	4.69070	116
c_risk	11.1638	3.72055	116
c_emopsy	8.6293	3.12780	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1735.956	10	173.596	3.699	.000(a)
	Residual	4927.035	105	46.924		
	Total	6662.991	115			

a Predictors: (Constant), c_emopsy, perscont, timeline, identity, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: t2lcladv

Using the enter method, a significant model emerged ($F_{10, 105} = 3.699$, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.510(a)	.261	.190	6.85012

a Predictors: (Constant), c_emopsy, perscont, timeline, identity, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = 0.190.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	9.153	8.400		1.090	.278	-7.503	25.810
	identity	-.069	.294	-.021	-.237	.813	-.652	.513
	timeline	.120	.128	.096	.938	.351	-.134	.373
	timecycl	-.600	.231	-.242	-2.600	.011	-1.058	-.143
	conseque	.222	.197	.121	1.126	.263	-.169	.612
	perscont	-.485	.267	-.210	-1.816	.072	-1.015	.045
	treatcont	.834	.265	.356	3.147	.002	.309	1.359
	illcoher	.000	.272	.000	.001	.999	-.540	.541
	emotrepr	-.563	.178	-.347	-3.169	.002	-.915	-.211
	c_risk	.052	.194	.025	.268	.789	-.332	.436
	c_emopsy	.583	.237	.240	2.457	.016	.113	1.054

a Dependent Variable: t2lcladv

Timeline (cyclical) timecycl ($p < .05$), **Treatment control** treatcont ($p < .01$), **Emotional representations** emotrepr ($p < .01$) and **Emotional/Psychological** c_emopsy *causal attributions* ($p < .05$) **emerged as significant predictor variables of advanced locomotor capabilities at 1-month post-discharge within this model.**

- <u>**Basic locomotor capabilities at 6-months** t3lcbas *(N = 103)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcbas	16.4660	6.73128	103
identity	4.8641	2.43765	103
timeline	19.7476	6.04836	103
timecycl	9.4175	3.14526	103
conseque	19.7087	4.19297	103
perscont	23.6214	3.39006	103
treatcont	18.8544	3.33551	103

illcoher	20.5825	3.15770	103
emotrepr	14.3883	4.61293	103
c_risk	11.0000	4.01224	103
c_emopsy	8.4854	3.24752	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	647.635	10	64.764	1.499	.152(a)
	Residual	3973.996	92	43.196		
	Total	4621.631	102			

a Predictors: (Constant), c_emopsy, perscont, identity, timeline, timecycl, emotrepr, c_risk, treatcont, conseque, illcoher
b Dependent Variable: t3lcbas

Using the enter method, a non-significant model emerged ($F_{10, 92}$ = 1.499, p = .152).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.374(a)	.140	.047	6.57234

a Predictors: (Constant), c_emopsy, perscont, identity, timeline, timecycl, emotrepr, c_risk, treatcont, conseque, illcoher

Adjusted R square = 0.047.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	18.972	8.917		2.128	.036	1.262	36.681
	identity	.145	.286	.052	.506	.614	-.423	.712
	timeline	-.067	.135	-.060	-.499	.619	-.335	.201
	timecycl	-.621	.237	-.290	-2.626	.010	-1.091	-.151
	conseque	.142	.209	.089	.679	.499	-.274	.558
	perscont	-.138	.258	-.070	-.537	.593	-.650	.373
	treatcont	.497	.260	.246	1.910	.059	-.020	1.015
	illcoher	-.176	.280	-.083	-.630	.531	-.731	.379
	emotrepr	-.107	.186	-.073	-.576	.566	-.476	.262
	c_risk	-.185	.191	-.110	-.965	.337	-.565	.195
	c_emopsy	.265	.235	.128	1.129	.262	-.201	.732

a Dependent Variable: t3lcbas

Timeline (cyclical) timecycl (p = .01) and emerged as significant predictor variables of basic locomotor capabilities at 6-months post-discharge within this model. **Treatment control** treatcont approached significance (p = .059)

- <u>Advanced locomotor capabilities at 6-months t3lcadv *(N = 103)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcladv	12.1262	7.69986	103
identity	4.8641	2.43765	103
timeline	19.7476	6.04836	103
timecycl	9.4175	3.14526	103
conseque	19.7087	4.19297	103
perscont	23.6214	3.39006	103
treatcont	18.8544	3.33551	103
illcoher	20.5825	3.15770	103
emotrepr	14.3883	4.61293	103
c_risk	11.0000	4.01224	103
c_emopsy	8.4854	3.24752	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1091.827	10	109.183	2.027	.039(a)
	Residual	4955.532	92	53.864		
	Total	6047.359	102			

a Predictors: (Constant), c_emopsy, perscont, identity, timeline, timecycl, emotrepr, c_risk, treatcont, conseque, illcoher
b Dependent Variable: t3lcladv

Using the enter method, a significant model emerged ($F_{10, 92} = 2.027$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.425(a)	.181	.091	7.33924

a Predictors: (Constant), c_emopsy, perscont, identity, timeline, timecycl, emotrepr, c_risk, treatcont, conseque, illcoher

Adjusted R square = 0.091.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	17.613	9.957		1.769	.080	-2.163	37.388
	identity	.174	.319	.055	.544	.588	-.460	.807
	timeline	.078	.151	.061	.517	.606	-.221	.377
	timecycl	-.831	.264	-.339	-3.144	.002	-1.356	-.306
	conseque	.011	.234	.006	.049	.961	-.453	.476
	perscont	-.346	.288	-.152	-1.203	.232	-.917	.225
	treatcont	.698	.291	.302	2.400	.018	.120	1.276
	illcoher	-.171	.312	-.070	-.549	.584	-.791	.449
	emotrepr	-.264	.207	-.158	-1.272	.207	-.676	.148
	c_risk	-.163	.214	-.085	-.763	.447	-.587	.261
	c_emopsy	.455	.262	.192	1.735	.086	-.066	.976

a Dependent Variable: t3lcladv

Timeline (cyclical) timecycl ($p < .01$) and **Treatment control** treatcont ($p < .05$) emerged as significant predictor variables of advanced locomotor capabilities at 6-months post-discharge within this model.

Post-operative attitudes and beliefs towards prosthetic use

- Basic locomotor capabilities at 1-month t2lcbas *(N = 113)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcbas	16.1504	6.36988	113
bintention	6.5841	.93386	113
attitude	5.4000	1.03130	113
subnorm	6.3215	1.05308	113
pbc	6.2183	.95407	113
bbelief	47.2301	15.97879	113
nbelief	43.8142	29.69294	113
cbelief	-5.4071	18.13424	113

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	494.227	7	70.604	1.830	.089(a)
	Residual	4050.215	105	38.573		
	Total	4544.442	112			

a Predictors: (Constant), cbelief, nbelief, bintention, attitude, pbc, bbelief, subnorm
b Dependent Variable: t2lcbas

Using the enter method, a non-significant model emerged ($F_{7, 105} = 1.830$, $p = .089$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.330(a)	.109	.049	6.21076

a Predictors: (Constant), cbelief, nbelief, bintention, attitude, pbc, bbelief, subnorm

Adjusted R square = 0.049.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.808	5.992		.135	.893	-11.072	12.688
	bintention	.851	.694	.125	1.227	.222	-.524	2.227
	attitude	.835	.735	.135	1.136	.258	-.622	2.292
	subnorm	.644	.765	.106	.842	.402	-.873	2.161
	pbc	.005	.796	.001	.006	.995	-1.575	1.584
	bbelief	.058	.048	.145	1.199	.233	-.038	.153
	nbelief	.032	.026	.150	1.256	.212	-.019	.083
	cbelief	.035	.033	.100	1.067	.288	-.030	.100

a Dependent Variable: t2lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 1-month post-discharge within this model.

- <u>**Advanced locomotor capabilities at 1-month t2lcadv *(N = 113)***</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcladv	11.7611	7.52410	113
bintention	6.5841	.93386	113
attitude	5.4000	1.03130	113
subnorm	6.3215	1.05308	113
pbc	6.2183	.95407	113
bbelief	47.2301	15.97879	113
nbelief	-43.8142	29.69294	113
cbelief	-5.4071	18.13424	113

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1060.589	7	151.513	3.013	.006(a)
	Residual	5279.959	105	50.285		
	Total	6340.549	112			

a Predictors: (Constant), cbelief, nbelief, bintention, attitude, pbc, bbelief, subnorm
b Dependent Variable: t2lcladv

Using the enter method, a significant model emerged ($F_{7, 105}$ = 3.013, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.409(a)	.167	.112	7.09121

a Predictors: (Constant), cbelief, nbelief, bintention, attitude, pbc, bbelief, subnorm

Adjusted R square = 0.112.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-8.341	6.841		-1.219	.225	-21.905	5.224
	bintention	.833	.792	.103	1.052	.295	-.737	2.404
	attitude	.514	.839	.070	.613	.541	-1.150	2.178
	subnorm	.626	.873	.088	.716	.475	-1.106	2.357
	pbc	.647	.909	.082	.711	.478	-1.156	2.450
	bbelief	.125	.055	.265	2.273	.025	.016	.234
	nbelief	.041	.029	.160	1.393	.167	-.017	.098
	cbelief	.048	.037	.116	1.279	.204	-.026	.122

a Dependent Variable: t2lcladv

Behavioural beliefs bbelief ($p < .05$) emerged as a significant predictor variable of advanced locomotor capabilities at 1-month post-discharge within this model.

- <u>Basic locomotor capabilities at 6-months</u> t3lcbas *(N = 100)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcbas	16.9600	6.18228	100
bintention	6.6733	.68654	100
attitude	5.3940	1.04193	100
subnorm	6.3033	1.08979	100
pbc	6.2267	.95685	100
bbelief	47.1600	15.79587	100
nbelief	-44.4500	29.97183	100
cbelief	-4.4600	18.61270	100

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	287.420	7	41.060	1.080	.382(a)
	Residual	3496.420	92	38.005		
	Total	3783.840	99			

a Predictors: (Constant), cbelief, nbelief, pbc, bintention, attitude, bbelief, subnorm
b Dependent Variable: t3lcbas

Using the enter method, a non-significant model emerged ($F_{7,92}$ = 1.080, p = .382).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.276(a)	.076	.006	6.16478

a Predictors: (Constant), cbelief, nbelief, pbc, bintention, attitude, bbelief, subnorm

Adjusted R square = 0.006.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.058	7.460		-.008	.994	-14.873	14.757
	bintention	1.516	1.084	.168	1.398	.165	-.637	3.670
	attitude	.131	.796	.022	.164	.870	-1.451	1.712
	subnorm	.140	.800	.025	.174	.862	-1.450	1.729
	pbc	1.077	.836	.167	1.288	.201	-.584	2.738
	bbelief	-.003	.052	-.008	-.062	.951	-.107	.101

	nbelief	.026	.027	.125	.941	.349	-.029	.080
	cbelief	.021	.034	.064	.626	.533	-.046	.089

a Dependent Variable: t3lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 6-months post-discharge within this model.

- <u>Advanced locomotor capabilities at 6-months t3lcadv *(N = 100)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcladv	12.4900	7.51631	100
bintention	6.6733	.68654	100
attitude	5.3940	1.04193	100
subnorm	6.3033	1.08979	100
pbc	6.2267	.95685	100
bbelief	47.1600	15.79587	100
nbelief	-44.4500	29.97183	100
cbelief	-4.4600	18.61270	100

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	813.714	7	116.245	2.238	.038(a)
	Residual	4779.276	92	51.949		
	Total	5592.990	99			

a Predictors: (Constant), cbelief, nbelief, pbc, bintention, attitude, bbelief, subnorm
b Dependent Variable: t3lcladv

Using the enter method, a significant model emerged ($F_{7,92} = 2.238$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.381(a)	.145	.080	7.20754

a Predictors: (Constant), cbelief, nbelief, pbc, bintention, attitude, bbelief, subnorm

Adjusted R square = 0.080.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-12.384	8.721		-1.420	.159	-29.705	4.938
	bintention	1.709	1.268	.156	1.348	.181	-.809	4.228
	attitude	.221	.931	.031	.237	.813	-1.628	2.071
	subnorm	.812	.935	.118	.868	.388	-1.046	2.670
	pbc	1.015	.978	.129	1.038	.302	-.927	2.957
	bbelief	.082	.061	.172	1.337	.185	-.040	.203
	nbelief	.066	.032	.262	2.056	.043	.002	.129
	cbelief	.023	.040	.057	.577	.565	-.056	.102

a Dependent Variable: t3lcladv

Normative beliefs nbelief ($p < .05$) emerged as a significant predictor of advanced locomotor capabilities at 6-months post-discharge within this model.

<u>Additional results (not specific to research questions)</u>
<u>Additional predictor variables (not in research question)</u>

Post-operative distress
Anxiety t1anx
Depression t1dep
Distress i.e., Anxiety + Depression t1dist (t1anx + t1dep)

Recovery locus of control
Internal control t1inloc

Self-efficacy
Prosthetic use efficacy selfec2

Demographic variables
Age age_©
Gender sex_©
Deprivation category deprivat

Clinical variables
Amputation level ampleve
Diabetes diabetes
Unilateral/Bilateral uni_bi
Time in hospital lenstay

- *Pre-operative functional limitations*
- **Basic locomotor capabilities** t1lcbas
- **Advanced locomotor capabilities** t1lcadv
- **Total locomotor capabilities** t1lctot (t1lcbas + t1lcadv)

Outcome variables

- functional activity at *1-month* post-discharge from hospital
- **Basic locomotor capabilities at 1-month** t2lcbas
- **Advanced locomotor capabilities at 1-month** t2lcadv

- functional activity at *6-months* post-discharge from hospital
- **Basic locomotor capabilities at 6-months** t3lcbas
- **Advanced locomotor capabilities at 6-months** t3lcadv

Key
The ANOVA assesses the overall significance of the model.
In the Model Summary, the Adjusted R^2 indicates the amount of variance that the model accounts for in the dependent variable (e.g., Adjusted R^2 = 0.34, then the model accounts for 34% of the variance in the DV.
B are the regression coefficients. They indicate how much one-unit change in that variable would affect the ***DV*** units.
Std Error is the standard error of the regression coefficients. This is the standard deviation divided by the square root of the number of data values. The extent to which the sample mean is expected to differ (+/-) from the population mean. The more data, the smaller this range becomes.
β (Beta) are what the regression coefficients would be if the model were fitted to standardised data. They indicate significance of variables within the model.

Post-operative distress

- **Basic locomotor capabilities at 1-month** t2lcbas *(N = 116)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcbas	15.7414	6.77350	116
t1anx	4.0948	3.63552	116
t1dep	3.9828	3.17595	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	300.219	2	150.110	3.409	.037(a)
	Residual	4976.022	113	44.036		
	Total	5276.241	115			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t2lcbas

Using the enter method, a significant model emerged ($F_{2, 113} = 3.409$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.239(a)	.057	.040	6.63593

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.040.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	17.963	1.051		17.088	.000	15.881	20.046
	t1anx	-.233	.198	-.125	-1.179	.241	-.625	.159
	t1dep	-.318	.226	-.149	-1.406	.162	-.767	.130

a Dependent Variable: t2lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 1-month post-discharge within this model.

- Advanced locomotor capabilities at 1-month t2lcadv *(N = 116)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcladv	11.4914	7.61177	116
t1anx	4.0948	3.63552	116
t1dep	3.9828	3.17595	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	511.763	2	255.882	4.701	.011(a)
	Residual	6151.228	113	54.436		
	Total	6662.991	115			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t2lcladv

Using the enter method, a significant model emerged ($F_{2,113} = 4.701$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.277(a)	.077	.060	7.37805

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.060.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	14.390	1.169		12.311	.000	12.074	16.705
	t1anx	-.240	.220	-.115	-1.091	.277	-.675	.196
	t1dep	-.481	.252	-.201	-1.912	.058	-.980	.017

a Dependent Variable: t2lcladv

No variables emerged as significant predictors of advanced locomotor capabilities at 1-month post-discharge within this model. **Depression** t1dep (p = .058) approached significance.

- **Basic locomotor capabilities at 6-months** t3lcbas *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcbas	16.4660	6.73128	103
t1anx	4.1942	3.68904	103
t1dep	3.9417	3.09593	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.

1	Regression	72.655	2	36.328	.799	.453(a)
	Residual	4548.976	100	45.490		
	Total	4621.631	102			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t3lcbas

Using the enter method, a non-significant model emerged ($F_{2, 100}$ = 0.799, p = .453).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.125(a)	.016	-.004	6.74461

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = -0.004.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	17.335	1.151		15.061	.000	15.052	19.619
	t1anx	-.242	.206	-.133	-1.173	.244	-.651	.167
	t1dep	.037	.246	.017	.150	.881	-.451	.525

a Dependent Variable: t3lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 6-months post-discharge within this model.

- <u>**Advanced locomotor capabilities at 6-months t3lcadv *(N = 103)***</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcladv	12.1262	7.69986	103
t1anx	4.1942	3.68904	103
t1dep	3.9417	3.09593	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	128.009	2	64.005	1.081	.343(a)
	Residual	5919.350	100	59.193		
	Total	6047.359	102			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t3lcladv

Using the enter method, a non-significant model emerged ($F_{2, 100}$ = 1.081, p = .343).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.145(a)	.021	.002	7.69373

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.002.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	13.689	1.313		10.426	.000	11.084	16.294
	t1anx	-.188	.235	-.090	-.797	.427	-.655	.279
	t1dep	-.197	.280	-.079	-.701	.485	-.753	.360

a Dependent Variable: t3lcladv

No variables emerged as significant predictors of advanced locomotor capabilities at 6-months post-discharge within this model.

Recovery locus of control

- **Basic locomotor capabilities at 1-month t2lcbas *(N = 116)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcbas	15.7414	6.77350	116
t1inloc	39.7759	4.05631	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	288.837	1	288.837	6.602	.011(a)
	Residual	4987.405	114	43.749		
	Total	5276.241	115			

a Predictors: (Constant), t1inloc
b Dependent Variable: t2lcbas

Using the enter method, a significant model emerged ($F_{1, 114} = 6.602$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.234(a)	.055	.046	6.61432

a Predictors: (Constant), t1inloc

Adjusted R square = 0.046.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	.201	6.079		.033	.974	-11.842	12.244
	t1inloc	.391	.152	.234	2.569	.011	.089	.692

a Dependent Variable: t2lcbas

Internal control t1inloc ($p < .05$) emerged as a significant predictor variable of basic locomotor capabilities at 1-month post-discharge within this model.

- **Advanced locomotor capabilities at 1-month t2lcadv *(N = 116)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcladv	11.4914	7.61177	116
t1inloc	39.7759	4.05631	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	317.243	1	317.243	5.699	.019(a)
	Residual	6345.749	114	55.664		
	Total	6662.991	115			

a Predictors: (Constant), t1inloc
b Dependent Variable: t2lcladv

Using the enter method, a significant model emerged ($F_{1, 114} = 5.699$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.218(a)	.048	.039	7.46086

a Predictors: (Constant), t1inloc

Adjusted R square = 0.039.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-4.795	6.857		-.699	.486	-18.380	8.789
	t1inloc	.409	.172	.218	2.387	.019	.070	.749

a Dependent Variable: t2lcladv

Internal control t1inloc ($p < .05$) emerged as a significant predictor variable of advanced locomotor capabilities at 1-month post-discharge within this model.

- Basic locomotor capabilities at 6-months t3lcbas *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcbas	16.4660	6.73128	103
t1inloc	39.7573	3.79490	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	99.158	1	99.158	2.214	.140(a)
	Residual	4522.473	101	44.777		
	Total	4621.631	102			

a Predictors: (Constant), t1inloc
b Dependent Variable: t3lcbas

Using the enter method, a non-significant model emerged ($F_{1, 101} = 2.214$, $p = .140$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.146(a)	.021	.012	6.69156

a Predictors: (Constant), t1inloc

Adjusted R square = 0.012.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.136	6.973		.880	.381	-7.695	19.968
	t1inloc	.260	.175	.146	1.488	.140	-.087	.606

a Dependent Variable: t3lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 6-months post-discharge within this model.

- Advanced locomotor capabilities at 6-months t3lcadv *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcladv	12.1262	7.69986	103
t1inloc	39.7573	3.79490	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	109.553	1	109.553	1.863	.175(a)
	Residual	5937.806	101	58.790		

Total		6047.359	102			

a Predictors: (Constant), t1inloc
b Dependent Variable: t3lcladv

Using the enter method, a non-significant model emerged ($F_{1, 101} = 1.863$, $p = .175$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.135(a)	.018	.008	7.66747

a Predictors: (Constant), t1inloc

Adjusted R square = 0.008.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.269	7.989		.159	.874	-14.580	17.118
	t1inloc	.273	.200	.135	1.365	.175	-.124	.670

a Dependent Variable: t3lcladv

No variables emerged as significant predictors of advanced locomotor capabilities at 6-months post-discharge within this model.

Self-efficacy

- Basic locomotor capabilities at 1-month t2lcbas *(N = 113)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcbas	16.1504	6.36988	113
selfec2	14.1150	3.58008	113

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	211.528	1	211.528	5.419	.022(a)
	Residual	4332.914	111	39.035		
	Total	4544.442	112			

a Predictors: (Constant), selfec2
b Dependent Variable: t2lcbas

Using the enter method, a significant model emerged ($F_{1, 111} = 5.419$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.216(a)	.047	.038	6.24782

a Predictors: (Constant), selfec2

Adjusted R square = 0.038.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10.732	2.401		4.470	.000	5.975	15.489
	selfec2	.384	.165	.216	2.328	.022	.057	.711

a Dependent Variable: t2lcbas

Prosthetic use efficacy selfec2 ($p < .05$) emerged as a significant predictor variable of basic locomotor capabilities at 1-month post-discharge within this model.

- Advanced locomotor capabilities at 1-month t2lcadv *(N = 113)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcladv	11.7611	7.52410	113
selfec2	14.1150	3.58008	113

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	570.682	1	570.682	10.979	.001(a)
	Residual	5769.866	111	51.981		
	Total	6340.549	112			

a Predictors: (Constant), selfec2
b Dependent Variable: t2lcladv

Using the enter method, a significant model emerged ($F_{1, 111}$ = 10.979, p = .001).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.300(a)	.090	.082	7.20977

a Predictors: (Constant), selfec2

Adjusted R square = 0.082.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.861	2.770		1.033	.304	-2.628	8.351
	selfec2	.631	.190	.300	3.313	.001	.253	1.008

a Dependent Variable: t2lcladv

Prosthetic use efficacy selfec2 (p = .001) emerged as a significant predictor variable of advanced locomotor capabilities at 1-month post-discharge within this model.

- <u>Basic locomotor capabilities at 6-months t3lcbas *(N = 100)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcbas	16.9600	6.18228	100
selfec2	13.8900	3.54166	100

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.752	1	49.752	1.306	.256(a)
	Residual	3734.088	98	38.103		
	Total	3783.840	99			

a Predictors: (Constant), selfec2
b Dependent Variable: t3lcbas

Using the enter method, a non-significant model emerged ($F_{1, 98}$ = 1.306, p = .256).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.115(a)	.013	.003	6.17276

a Predictors: (Constant), selfec2

Adjusted R square = 0.003.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	14.180	2.510		5.649	.000	9.198	19.161
	selfec2	.200	.175	.115	1.143	.256	-.147	.548

a Dependent Variable: t3lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 6-months post-discharge within this model.

- <u>Advanced locomotor capabilities at 6-months t3lcadv *(N = 100)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcladv	12.4900	7.51631	100
selfec2	13.8900	3.54166	100

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	499.266	1	499.266	9.606	.003(a)
	Residual	5093.724	98	51.977		
	Total	5592.990	99			

a Predictors: (Constant), selfec2
b Dependent Variable: t3lcladv

Using the enter method, a significant model emerged ($F_{1, 98} = 9.606$, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.299(a)	.089	.080	7.20949

a Predictors: (Constant), selfec2

Adjusted R square = 0.080.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.683	2.932		1.256	.212	-2.135	9.501
	selfec2	.634	.205	.299	3.099	.003	.228	1.040

a Dependent Variable: t3lcladv

Prosthetic use efficacy selfec2 ($p < .01$) emerged as a significant predictor variable of advanced locomotor capabilities at 6-months post-discharge within this model.

<u>Demographic variables</u>

- <u>Basic locomotor capabilities at 1-month t2lcbas *(N = 116)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcbas	15.7414	6.77350	116
age_©	66.06	10.081	116
Gender	.72	.453	116
Deprivation Cat (c)	22.2856	16.47114	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	223.408	3	74.469	1.651	.182(a)
	Residual	5052.833	112	45.115		

Total		5276.241	115			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t2lcbas

Using the enter method, a non-significant model emerged ($F_{3, 112}$ = 1.651, p = .182).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.206(a)	.042	.017	6.71674

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = 0.017.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	19.892	4.581		4.343	.000	10.816	28.968
	age_©	-.063	.063	-.094	-1.002	.319	-.187	.062
	Gender	1.771	1.391	.118	1.273	.206	-.985	4.526
	Deprivation Cat (c)	-.057	.038	-.138	-1.481	.141	-.132	.019

a Dependent Variable: t2lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 1-month post-discharge within this model.

- <u>**Advanced locomotor capabilities at 1-month t2lcadv *(N = 116)***</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcladv	11.4914	7.61177	116
age_©	66.06	10.081	116
Gender	.72	.453	116
Deprivation Cat (c)	22.2856	16.47114	116

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	447.020	3	149.007	2.685	.050(a)
	Residual	6215.971	112	55.500		
	Total	6662.991	115			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t2lcladv

Using the enter method, a significant model emerged ($F_{3, 112}$ = 2.685, p = .05).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.259(a)	.067	.042	7.44981

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = 0.042.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	17.887	5.081		3.521	.001	7.821	27.954
	age_©	-.126	.070	-.166	-1.804	.074	-.264	.012
	Gender	3.051	1.543	.182	1.978	.050	-.005	6.107

Deprivation Cat (c)	-.013	.042		-.027	-.296	.768	-.097	.071

a Dependent Variable: t2lcladv

Gender sex_© (p = .05) emerged as a significant predictor of advanced locomotor capabilities at 1-month post-discharge within this model.

- Basic locomotor capabilities at 6-months t3lcbas *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcbas	16.4660	6.73128	103
age_©	65.59	10.106	103
Gender	.70	.461	103
Deprivation Cat (c)	22.6512	17.46196	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	84.936	3	28.312	.618	.605(a)
	Residual	4536.695	99	45.825		
	Total	4621.631	102			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t3lcbas

Using the enter method, a non-significant model emerged ($F_{3,99}$ = 0.618, p = .605).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.136(a)	.018	-.011	6.76943

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.011.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	19.783	5.079		3.895	.000	9.705	29.860
	age_©	-.061	.069	-.091	-.889	.376	-.197	.075
	Gender	1.273	1.476	.087	.863	.390	-1.655	4.202
	Deprivation Cat (c)	-.009	.039	-.024	-.236	.814	-.087	.069

a Dependent Variable: t3lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 6-months post-discharge within this model.

- Advanced locomotor capabilities at 6-months t3lcadv *(N = 103)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcladv	12.1262	7.69986	103
age_©	65.59	10.106	103
Gender	.70	.461	103
Deprivation Cat (c)	22.6512	17.46196	103

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	93.050	3	31.017	.516	.672(a)
	Residual	5954.309	99	60.145		
	Total	6047.359	102			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t3lcladv

Using the enter method, a non-significant model emerged ($F_{3, 99}$ = 0.516, p = .672).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.124(a)	.015	-.014	7.75529

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.014.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	15.300	5.819		2.629	.010	3.754	26.845
	age_©	-.061	.079	-.081	-.781	.437	-.217	.095
	Gender	1.389	1.691	.083	.822	.413	-1.966	4.744
	Deprivation Cat (c)	-.005	.045	-.012	-.117	.907	-.094	.084

a Dependent Variable: t3lcladv

No variables emerged as significant predictors of advanced locomotor capabilities at 6-months post-discharge within this model.

Clinical variables

- Basic locomotor capabilities at 1-month t2lcbas *(N = 115)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcbas	15.8783	6.64005	115
Amputation Level ©	.78	.414	115
diabetes	.54	.501	115
Uni/Bilateral ©	.90	.307	115
lenstay	76.8087	44.82204	115
t1lcbas	18.7826	4.99435	115
t1lcladv	16.1826	6.91119	115

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	627.732	6	104.622	2.569	.023(a)
	Residual	4398.564	108	40.727		
	Total	5026.296	114			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: t2lcbas

Using the enter method, a significant model emerged ($F_{6, 108}$ = 2.569, p < .05).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.353(a)	.125	.076	6.38181

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = 0.076.

Coefficients(a)

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	95% Confidence Interval for B

		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	9.416	3.200		2.942	.004	3.073	15.760
	Amputation Level ©	1.759	1.504	.110	1.170	.245	-1.221	4.739
	diabetes	2.581	1.243	.195	2.075	.040	.116	5.045
	Uni/Bilateral ©	-.652	2.064	-.030	-.316	.753	-4.744	3.440
	lenstay	-.011	.014	-.074	-.803	.423	-.038	.016
	t1lcbas	.059	.202	.044	.291	.772	-.342	.459
	t1lcladv	.248	.144	.258	1.723	.088	-.037	.533

a Dependent Variable: t2lcbas

Diabetes diabetes ($p < .05$) emerged as a significant predictor of basic locomotor capabilities at 1-month post-discharge within this model.

- **Advanced locomotor capabilities at 1-month t2lcadv *(N = 115)***

Descriptive Statistics

	Mean	Std. Deviation	N
t2lcladv	11.5913	7.56828	115
Amputation Level ©	.78	.414	115
diabetes	.54	.501	115
Uni/Bilateral ©	.90	.307	115
lenstay	76.8087	44.82204	115
t1lcbas	18.7826	4.99435	115
t1lcladv	16.1826	6.91119	115

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1085.022	6	180.837	3.587	.003(a)
	Residual	5444.769	108	50.415		
	Total	6529.791	114			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: t2lcladv

Using the enter method, a significant model emerged ($F_{6,108} = 3.587$, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.408(a)	.166	.120	7.10032

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = 0.120.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.851	3.561		1.362	.176	-2.207	11.909
	Amputation Level ©	3.359	1.673	.184	2.008	.047	.043	6.675
	diabetes	2.009	1.383	.133	1.452	.149	-.734	4.751
	Uni/Bilateral ©	-2.294	2.297	-.093	-.999	.320	-6.847	2.258
	lenstay	-.012	.015	-.070	-.782	.436	-.042	.018
	t1lcbas	-.057	.225	-.038	-.253	.800	-.503	.389
	t1lcladv	.436	.160	.398	2.727	.007	.119	.754

a Dependent Variable: t2lcladv

Amputation level ampleve ($p < .05$) and **Advanced locomotor capabilities** t1lcadv ($p < .01$) emerged as significant predictors of advanced locomotor capabilities at 1-month post-discharge within this model.

- **Basic locomotor capabilities at 6-months t3lcbas *(N = 102)***

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcbas	16.6275	6.56109	102
Amputation Level ©	.77	.420	102
diabetes	.52	.502	102
Uni/Bilateral ©	.89	.312	102
lenstay	74.4216	43.71293	102
t1lcbas	18.7451	4.97058	102
t1lcladv	16.0098	6.98583	102

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	601.989	6	100.332	2.545	.025(a)
	Residual	3745.854	95	39.430		
	Total	4347.843	101			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Amputation Level ©, Uni/Bilateral ©, t1lcbas
b Dependent Variable: t3lcbas

Using the enter method, a significant model emerged ($F_{6,95} = 2.545$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.372(a)	.138	.084	6.27933

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Amputation Level ©, Uni/Bilateral ©, t1lcbas

Adjusted R square = 0.084.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	11.747	3.351		3.506	.001	5.095	18.399
	Amputation Level ©	1.611	1.546	.103	1.042	.300	-1.459	4.680
	diabetes	-.721	1.290	-.055	-.559	.578	-3.283	1.841
	Uni/Bilateral ©	2.053	2.166	.098	.948	.346	-2.246	6.352
	lenstay	-.027	.015	-.180	-1.847	.068	-.056	.002
	t1lcbas	.012	.202	.009	.058	.954	-.390	.413
	t1lcladv	.248	.140	.264	1.771	.080	-.030	.525

a Dependent Variable: t3lcbas

No variables emerged as significant predictors of basic locomotor capabilities at 6-months post-discharge within this model.

- **Advanced locomotor capabilities at 6-months t3lcadv *(N = 102)***

Descriptive Statistics

	Mean	Std. Deviation	N
t3lcladv	12.2451	7.64230	102
Amputation Level ©	.77	.420	102
diabetes	.52	.502	102
Uni/Bilateral ©	.89	.312	102
lenstay	74.4216	43.71293	102
t1lcbas	18.7451	4.97058	102
t1lcladv	16.0098	6.98583	102

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1262.470	6	210.412	4.311	.001(a)
	Residual	4636.402	95	48.804		
	Total	5898.873	101			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Amputation Level ©, Uni/Bilateral ©, t1lcbas
b Dependent Variable: t3lcladv

Using the enter method, a significant model emerged ($F_{6,95}$ = 4.311, p = .001).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.463(a)	.214	.164	6.98600

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Amputation Level ©, Uni/Bilateral ©, t1lcbas

Adjusted R square = 0.164.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.898	3.728		.509	.612	-5.502	9.299
	Amputation Level ©	3.986	1.720	.219	2.317	.023	.571	7.401
	diabetes	.343	1.436	.023	.239	.812	-2.507	3.193
	Uni/Bilateral ©	.094	2.409	.004	.039	.969	-4.689	4.877
	lenstay	-.020	.016	-.115	-1.242	.217	-.052	.012
	t1lcbas	.127	.225	.082	.563	.575	-.320	.573
	t1lcladv	.383	.156	.350	2.459	.016	.074	.692

a Dependent Variable: t3lcladv

Amputation level ampleve (p < .05) and **Advanced locomotor capabilities** t1lcadv *6-months preoperatively* (p < .05) emerged as significant predictors of advanced locomotor capabilities at 6-months post-discharge within this model.

Predicting psychological distress 1-month and 6-months post-discharge and quality of life 6-months

Predictor variables in the research question

Post-operative illness cognitions
Identity (No. of symptoms) identity
Timeline (acute/chronic) timeline
Timeline (cyclical) timecycl
Consequences conseque
Personal control perscont
Treatment control treatcont
Illness coherence illcoher
Emotional representations emotrepr

Causal attributions
Stress or worry C1
Hereditary - it runs in my family C2
A germ or virus C3
Diet or eating habits C4
Chance or bad luck C5
Poor medical care in my past C6
Pollution in the environment C7
My own behaviour C8
My mental attitude e.g. thinking about life negatively C9
Family problems or worries caused my illness C10
Overwork C11
My emotional state e.g. feeling down, lonely, anxious, empty C12
Ageing C13
Alcohol C14
Smoking C15
Accident or injury C16
My personality C17
The above individual causal attributions were subjected to principle components analyses, which resulted in two factors emerging. These were used in the regression analyses:
Risk factors c_risk *causal attributions* **(C4 + C8 + C11 + C14 + C15)**
Emotional/Psychological c_emopsy *causal attributions* **(C1 + C9 + C10 + C12 + C17)**

Post-operative attitudes and beliefs towards prosthetic use
Behavioural intention bintention
Attitude evaluation attitude
Subjective norm subnorm
Perceived control pbc
Behavioural beliefs bbelief
Normative beliefs nbelief
Control beliefs cbelief

Outcome variables

- psychological distress at *1-month* post-discharge from hospital
- **Anxiety at 1-month** t2anx
- **Depression at 1-month** t2dep

- psychological distress at *6-months* post-discharge from hospital
- **Anxiety at 6-months** t3anx
- **Depression at 6-months** t3dep

- quality of life at *6-months* post-discharge from hospital
- **Quality of life at 6-months** pgi

Key
The ANOVA assesses the overall significance of the model.
In the Model Summary, the Adjusted R^2 indicates the amount of variance that the model accounts for in the dependent variable (e.g., Adjusted R^2 = 0.34, then the model accounts for 34% of the variance in the DV.
B are the regression coefficients. They indicate how much one-unit change in that variable would affect the *DV* units.
Std Error is the standard error of the regression coefficients. This is the standard deviation divided by the square root of the number of data values. The extent to which the sample mean is expected to differ (+/-) from the population mean. The more data, the smaller this range becomes.
β (Beta) are what the regression coefficients would be if the model were fitted to standardised data. They indicate significance of variables within the model.

Post-operative illness cognitions (including causal attributions)

- Anxiety at 1-month t2anx *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2anx	4.8521	4.09107	142
identity	4.9718	2.37882	142
timeline	20.1338	6.12080	142

timecycl	9.5563	3.16121	142
conseque	19.5915	4.22951	142
perscont	23.7817	3.40862	142
treatcont	18.8310	3.40832	142
illcoher	20.8028	3.08793	142
emotrepr	14.5211	4.79468	142
c_risk	10.7113	3.99393	142
c_emopsy	8.3521	3.06246	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	569.169	10	56.917	4.164	.000(a)
	Residual	1790.725	131	13.670		
	Total	2359.894	141			

a Predictors: (Constant), c_emopsy, timeline, identity, perscont, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: t2anx

Using the enter method, a significant model emerged ($F_{10, 131} = 4.164$, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.491(a)	.241	.183	3.69725

a Predictors: (Constant), c_emopsy, timeline, identity, perscont, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = 0.183.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-1.146	4.168		-.275	.784	-9.390	7.099
	identity	-.012	.139	-.007	-.088	.930	-.287	.263
	timeline	-.110	.061	-.165	-1.801	.074	-.231	.011
	timecycl	.122	.107	.094	1.133	.259	-.091	.334
	conseque	.049	.089	.050	.549	.584	-.127	.224
	perscont	.145	.129	.120	1.123	.264	-.110	.399
	treatcont	-.299	.123	-.249	-2.425	.017	-.542	-.055
	illcoher	.151	.130	.114	1.165	.246	-.105	.408
	emotrepr	.360	.079	.422	4.534	.000	.203	.517
	c_risk	-.128	.090	-.125	-1.420	.158	-.306	.050
	c_emopsy	.160	.118	.120	1.365	.175	-.072	.393

a Dependent Variable: t2anx

Treatment control treatcont ($p < .05$) and **Emotional representations** emotrepr ($p < .001$) emerged as significant predictor variables of anxiety at 1-month post-discharge within this model.

- <u>Depression at 1-month t2dep *(N = 142)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2dep	5.1127	3.70374	142
identity	4.9718	2.37882	142
timeline	20.1338	6.12080	142
timecycl	9.5563	3.16121	142
conseque	19.5915	4.22951	142
perscont	23.7817	3.40862	142
treatcont	18.8310	3.40832	142
illcoher	20.8028	3.08793	142

emotrepr	14.5211	4.79468	142
c_risk	10.7113	3.99393	142
c_emopsy	8.3521	3.06246	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	557.718	10	55.772	5.308	.000(a)
	Residual	1376.479	131	10.507		
	Total	1934.197	141			

a Predictors: (Constant), c_emopsy, timeline, identity, perscont, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: t2dep

Using the enter method, a significant model emerged ($F_{10, 131} = 5.308$, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.537(a)	.288	.234	3.24152

a Predictors: (Constant), c_emopsy, timeline, identity, perscont, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = 0.234.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-2.581	3.654		-.706	.481	-9.809	4.648
	identity	-.056	.122	-.036	-.456	.649	-.297	.185
	timeline	-.074	.054	-.123	-1.388	.167	-.180	.032
	timecycl	.035	.094	.030	.375	.708	-.151	.222
	conseque	.012	.078	.014	.156	.876	-.142	.166
	perscont	-.086	.113	-.079	-.759	.449	-.309	.138
	treatcont	-.129	.108	-.118	-1.191	.236	-.342	.085
	illcoher	.304	.114	.253	2.674	.008	.079	.529
	emotrepr	.411	.070	.532	5.899	.000	.273	.549
	c_risk	.060	.079	.065	.764	.447	-.096	.217
	c_emopsy	.049	.103	.041	.480	.632	-.154	.253

a Dependent Variable: t2dep

Illness coherence illcoher ($p < .01$) and **Emotional representations** emotrepr ($p < .001$) emerged as significant predictor variables of depression at 1-month post-discharge within this model.

- **<u>Anxiety at 6-months t3anx *(N = 120)*</u>**

Descriptive Statistics

	Mean	Std. Deviation	N
t3anx	4.6083	4.02366	120
identity	5.0833	2.41697	120
timeline	19.9417	6.04089	120
timecycl	9.5667	3.18276	120
conseque	19.6667	4.23537	120
perscont	23.6917	3.46361	120
treatcont	18.8083	3.49380	120
illcoher	20.7083	3.13933	120
emotrepr	14.4500	4.69373	120
c_risk	10.6583	4.06563	120
c_emopsy	8.3333	3.17642	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	471.080	10	47.108	3.528	.000(a)
	Residual	1455.512	109	13.353		
	Total	1926.592	119			

a Predictors: (Constant), c_emopsy, conseque, timecycl, treatcont, identity, illcoher, c_risk, timeline, emotrepr, perscont
b Dependent Variable: t3anx

Using the enter method, a significant model emerged ($F_{10, 109} = 3.528$, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.494(a)	.245	.175	3.65422

a Predictors: (Constant), c_emopsy, conseque, timecycl, treatcont, identity, illcoher, c_risk, timeline, emotrepr, perscont

Adjusted R square = 0.175.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-4.534	4.572		-.992	.324	-13.597	4.528
	identity	.019	.148	.011	.126	.900	-.275	.313
	timeline	-.146	.068	-.219	-2.159	.033	-.280	-.012
	timecycl	.149	.117	.118	1.278	.204	-.082	.381
	conseque	.198	.100	.208	1.977	.051	-.001	.396
	perscont	.294	.133	.253	2.209	.029	.030	.558
	treatcont	-.237	.129	-.206	-1.844	.068	-.492	.018
	illcoher	-.031	.139	-.025	-.226	.822	-.307	.244
	emotrepr	.263	.090	.306	2.924	.004	.085	.440
	c_risk	-.034	.096	-.034	-.349	.727	-.224	.157
	c_emopsy	.163	.122	.129	1.337	.184	-.079	.405

a Dependent Variable: t3anx

Timeline (acute/chronic) timeline ($p < .05$), **Personal control perscont** ($p < .05$) and **Emotional representations** emotrepr ($p < .01$) emerged as significant predictor variables of anxiety at 6-months post-discharge within this model. **Consequences** conseque ($p = .051$) approached significance.

- <u>Depression at 6-months t3dep *(N = 120)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3dep	4.5667	3.46830	120
identity	5.0833	2.41697	120
timeline	19.9417	6.04089	120
timecycl	9.5667	3.18276	120
conseque	19.6667	4.23537	120
perscont	23.6917	3.46361	120
treatcont	18.8083	3.49380	120
illcoher	20.7083	3.13933	120
emotrepr	14.4500	4.69373	120
c_risk	10.6583	4.06563	120
c_emopsy	8.3333	3.17642	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	234.764	10	23.476	2.138	.027(a)
	Residual	1196.702	109	10.979		
	Total	1431.467	119			

a Predictors: (Constant), c_emopsy, conseque, timecycl, treatcont, identity, illcoher, c_risk, timeline, emotrepr, perscont
b Dependent Variable: t3dep

Using the enter method, a significant model emerged ($F_{10, 109} = 2.138$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.405(a)	.164	.087	3.31345

a Predictors: (Constant), c_emopsy, conseque, timecycl, treatcont, identity, illcoher, c_risk, timeline, emotrepr, perscont

Adjusted R square = 0.087.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-2.374	4.146		-.573	.568	-10.591	5.843
	identity	.046	.135	.032	.345	.731	-.220	.313
	timeline	-.097	.061	-.170	-1.587	.115	-.219	.024
	timecycl	.143	.106	.131	1.347	.181	-.067	.353
	conseque	.030	.091	.037	.331	.741	-.150	.210
	perscont	.009	.121	.009	.075	.941	-.230	.248
	treatcont	-.042	.117	-.042	-.361	.719	-.273	.189
	illcoher	.164	.126	.148	1.299	.197	-.086	.414
	emotrepr	.274	.081	.370	3.363	.001	.112	.435
	c_risk	.033	.087	.039	.382	.703	-.140	.206
	c_emopsy	-.052	.111	-.048	-.473	.637	-.272	.167

a Dependent Variable: t3dep

Emotional representations emotrepr (p = .001) emerged as a significant predictor variable of depression at 6-months post-discharge within this model.

- <u>Quality of life at 6-months pgi *(N = 119)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
pgi	4.3733	2.97204	119
identity	5.0756	2.42571	119
timeline	20.0000	6.03240	119
timecycl	9.5462	3.18829	119
conseque	19.7227	4.20839	119
perscont	23.6891	3.47813	119
treatcont	18.7647	3.47560	119
illcoher	20.7059	3.15249	119
emotrepr	14.4622	4.71167	119
c_risk	10.6807	4.07542	119
c_emopsy	8.3193	3.18613	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	106.123	10	10.612	1.224	.284(a)
	Residual	936.177	108	8.668		
	Total	1042.299	118			

a Predictors: (Constant), c_emopsy, identity, perscont, timeline, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont
b Dependent Variable: pgi

Using the enter method, a non-significant model emerged ($F_{10, 108} = 1.224$, $p = .284$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.319(a)	.102	.019	2.94420

a Predictors: (Constant), c_emopsy, identity, perscont, timeline, timecycl, emotrepr, c_risk, conseque, illcoher, treatcont

Adjusted R square = 0.019.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	9.137	3.686		2.479	.015	1.831	16.443
	identity	.021	.120	.017	.178	.859	-.216	.259
	timeline	-.051	.054	-.103	-.933	.353	-.159	.057
	timecycl	-.118	.094	-.127	-1.254	.213	-.305	.069
	conseque	.124	.081	.175	1.527	.130	-.037	.284
	perscont	-.019	.108	-.022	-.173	.863	-.232	.195
	treatcont	-.032	.105	-.038	-.309	.758	-.240	.175
	illcoher	-.079	.112	-.084	-.702	.484	-.301	.143
	emotrepr	-.182	.072	-.288	-2.513	.013	-.325	-.038
	c_risk	-.137	.078	-.188	-1.763	.081	-.291	.017
	c_emopsy	.192	.099	.206	1.951	.054	-.003	.388

a Dependent Variable: pgi

Emotional representations emotrepr ($p < .05$) emerged as a significant predictor of quality of life at 6-months post-discharge within this model. Emotional/Psychological c_emopsy *causal attributions* ($p = .054$) approached significance.

Post-operative attitudes and beliefs towards prosthetic use

- Anxiety at 1-month t2anx *(N = 132)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2anx	4.6061	3.90490	132
bintention	6.6061	.91061	132
attitude	5.3788	1.02971	132
subnorm	6.3258	1.05044	132
pbc	6.2424	.90806	132
bbelief	46.8182	15.58274	132
nbelief	-44.8333	28.87302	132
cbelief	-5.6515	17.76521	132

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.111	7	17.159	1.133	.347(a)
	Residual	1877.404	124	15.140		
	Total	1997.515	131			

a Predictors: (Constant), cbelief, bbelief, bintention, pbc, nbelief, attitude, subnorm
b Dependent Variable: t2anx

Using the enter method, a non-significant model emerged ($F_{7, 124} = 1.133$, $p = .347$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.245(a)	.060	.007	3.89106

a Predictors: (Constant), cbelief, bbelief, bintention, pbc, nbelief, attitude, subnorm

Adjusted R square = 0.007.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8.121	3.606		2.252	.026	.984	15.258
	bintention	-.066	.420	-.015	-.158	.875	-.898	.766
	attitude	-.075	.431	-.020	-.174	.862	-.929	.778
	subnorm	-.076	.460	-.020	-.165	.869	-.987	.835
	pbc	.011	.469	.002	.022	.982	-.917	.938
	bbelief	-.063	.028	-.252	-2.239	.027	-.119	-.007
	nbelief	-.015	.016	-.108	-.929	.355	-.046	.016
	cbelief	-.008	.019	-.038	-.428	.669	-.047	.030

a Dependent Variable: t2anx

Behavioural beliefs bbelief ($p < .05$) emerged as a significant predictor variable of anxiety at 1-month post-discharge within this model.

- <u>Depression at 1-month t2dep (*N = 132*)</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t2dep	4.9924	3.51333	132
bintention	6.6061	.91061	132
attitude	5.3788	1.02971	132
subnorm	6.3258	1.05044	132
pbc	6.2424	.90806	132
bbelief	46.8182	15.58274	132
nbelief	-44.8333	28.87302	132
cbelief	-5.6515	17.76521	132

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	270.631	7	38.662	3.561	.002(a)
	Residual	1346.362	124	10.858		
	Total	1616.992	131			

a Predictors: (Constant), cbelief, bbelief, bintention, pbc, nbelief, attitude, subnorm
b Dependent Variable: t2dep

Using the enter method, a significant model emerged ($F_{7, 124} = 3.561$, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.409(a)	.167	.120	3.29511

a Predictors: (Constant), cbelief, bbelief, bintention, pbc, nbelief, attitude, subnorm

Adjusted R square = 0.120.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7.025	3.053		2.301	.023	.981	13.068
	bintention	.198	.356	.051	.557	.578	-.506	.903
	attitude	-.200	.365	-.059	-.547	.585	-.923	.523
	subnorm	.331	.390	.099	.849	.397	-.440	1.103
	pbc	-.069	.397	-.018	-.173	.863	-.854	.717
	bbelief	-.090	.024	-.400	-3.778	.000	-.138	-.043
	nbelief	-.003	.013	-.024	-.220	.826	-.029	.023

cbelief	-.028	.016	-.143	-1.730	.086	-.061	.004

a Dependent Variable: t2dep

Behavioural beliefs bbelief (p < .001) emerged as a significant predictor variable of depression at 1-month post-discharge within this model.

- Anxiety at 6-months t3anx *(N = 111)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3anx	4.5495	3.81561	111
bintention	6.6096	.81758	111
attitude	5.3802	1.04026	111
subnorm	6.2763	1.10543	111
pbc	6.2012	.95482	111
bbelief	46.3514	15.72181	111
nbelief	-43.7568	29.75513	111
cbelief	-5.0180	18.23183	111

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	162.067	7	23.152	1.657	.128(a)
	Residual	1439.411	103	13.975		
	Total	1601.477	110			

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm
b Dependent Variable: t3anx

Using the enter method, a non-significant model emerged ($F_{7, 103}$ = 1.657, p = .128).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.318(a)	.101	.040	3.73830

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm

Adjusted R square = 0.040.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	12.554	3.980		3.154	.002	4.660	20.448
	bintention	-1.123	.533	-.241	-2.106	.038	-2.180	-.065
	attitude	.042	.457	.011	.091	.927	-.864	.947
	subnorm	-.131	.465	-.038	-.281	.779	-1.054	.792
	pbc	.275	.476	.069	.579	.564	-.668	1.219
	bbelief	-.042	.030	-.175	-1.406	.163	-.102	.017
	nbelief	-.006	.016	-.048	-.377	.707	-.038	.026
	cbelief	.000	.020	-.002	-.016	.987	-.040	.039

a Dependent Variable: t3anx

Behavioural intention bintention (p < .05) emerged as a significant predictor of anxiety at 6-months post-discharge within this model.

- Depression at 6-months t3dep *(N = 111)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3dep	4.6126	3.44613	111
bintention	6.6096	.81758	111
attitude	5.3802	1.04026	111

subnorm	6.2763	1.10543	111
pbc	6.2012	.95482	111
bbelief	46.3514	15.72181	111
nbelief	-43.7568	29.75513	111
cbelief	-5.0180	18.23183	111

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	112.723	7	16.103	1.390	.218(a)
	Residual	1193.620	103	11.589		
	Total	1306.342	110			

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm
b Dependent Variable: t3dep

Using the enter method, a non-significant model emerged ($F_{7, 103}$ = 1.390, p = .218).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.294(a)	.086	.024	3.40419

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm

Adjusted R square = 0.024.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8.061	3.625		2.224	.028	.872	15.250
	bintention	-.145	.485	-.034	-.298	.766	-1.107	.818
	attitude	-.363	.416	-.110	-.873	.385	-1.187	.462
	subnorm	.190	.424	.061	.448	.655	-.651	1.030
	pbc	.082	.433	.023	.190	.850	-.777	.941
	bbelief	-.055	.027	-.250	-1.992	.049	-.109	.000
	nbelief	-.005	.015	-.044	-.342	.733	-.035	.024
	cbelief	-.014	.018	-.074	-.767	.445	-.050	.022

a Dependent Variable: t3dep

Behavioural beliefs bbelief (p < .05) emerged as a significant predictor of depression at 6-months post-discharge within this model.

- <u>Quality of life at 6-months pgi *(N = 110)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
pgi	4.4402	2.92097	110
bintention	6.6061	.82046	110
attitude	5.3818	1.04488	110
subnorm	6.2758	1.11047	110
pbc	6.1939	.95610	110
bbelief	46.3909	15.78822	110
nbelief	-43.6364	29.86413	110
cbelief	-5.1182	18.28457	110

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	71.543	7	10.220	1.214	.302(a)
	Residual	858.454	102	8.416		

Total		929.997	109			

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm
b Dependent Variable: pgi

Using the enter method, a non-significant model emerged ($F_{7, 102}$ = 1.214, p = .302).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.277(a)	.077	.014	2.90107

a Predictors: (Constant), cbelief, attitude, bintention, nbelief, pbc, bbelief, subnorm

Adjusted R square = 0.014.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-3.632	3.091		-1.175	.243	-9.763	2.499
	bintention	.789	.414	.222	1.907	.059	-.031	1.610
	attitude	-.062	.355	-.022	-.174	.862	-.765	.642
	subnorm	.356	.361	.135	.985	.327	-.360	1.072
	pbc	.313	.371	.103	.844	.401	-.423	1.049
	bbelief	.001	.023	.006	.045	.965	-.045	.048
	nbelief	.024	.013	.248	1.920	.058	-.001	.049
	cbelief	-.006	.016	-.036	-.371	.711	-.037	.025

a Dependent Variable: pgi

No variables emerged as significant predictors of quality of life at 6-months post-discharge within this model. **Behavioural intention** bintention (p = .059) and **Normative beliefs** nbelief (p = .058) approached significance.

Additional predictor variables (not in research question)

Post-operative distress
Anxiety t1anx
Depression t1dep
Distress i.e., Anxiety + Depression t1dist (t1anx + t1dep)

Recovery locus of control
Internal control t1inloc

Self-efficacy
Prosthetic use efficacy selfec2

Demographic variables
Age age_©
Gender sex_©
Deprivation category deprivat

Clinical variables
Amputation level ampleve
Diabetes diabetes
Unilateral/Bilateral uni_bi
Time in hospital lenstay

- *Pre-operative functional limitations*
- **Basic locomotor capabilities** t1lcbas
- **Advanced locomotor capabilities** t1lcadv
- **Total locomotor capabilities** t1lctot (t1lcbas + t1lcadv)

Outcome variables

- psychological distress at *1-month* post-discharge from hospital
- **Anxiety at 1-month** t2anx
- **Depression at 1-month** t2dep

- psychological distress at *6-months* post-discharge from hospital
- **Anxiety at 6-months** t3anx
- **Depression at 6-months** t3dep

- quality of life at *6-months* post-discharge from hospital
- **Quality of life at 6-months** pgi

Key
The ANOVA assesses the overall significance of the model.

In the Model Summary, the Adjusted R^2 indicates the amount of variance that the model accounts for in the dependent variable (e.g., Adjusted R^2 = 0.34, then the model accounts for 34% of the variance in the DV.
B are the regression coefficients. They indicate how much one-unit change in that variable would affect the *DV* units.
Std Error is the standard error of the regression coefficients. This is the standard deviation divided by the square root of the number of data values. The extent to which the sample mean is expected to differ (+/-) from the population mean. The more data, the smaller this range becomes.
β (Beta) are what the regression coefficients would be if the model were fitted to standardised data. They indicate significance of variables within the model.

Post-operative distress

- **Anxiety at 1-month** t2anx *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2anx	4.8521	4.09107	142
t1anx	4.2394	3.62601	142
t1dep	4.2746	3.26630	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	579.947	2	289.974	22.645	.000(a)
	Residual	1779.947	139	12.805		
	Total	2359.894	141			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t2anx

Using the enter method, a significant model emerged ($F_{2, 139}$ = 22.645, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.496(a)	.246	.235	3.57846

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.235.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.587	.528		4.902	.000	1.544	3.631
	t1anx	.577	.096	.512	6.040	.000	.388	.766
	t1dep	-.043	.106	-.034	-.403	.687	-.253	.167

a Dependent Variable: t2anx

Anxiety t1anx ($p < .001$) emerged as a significant predictor variable of anxiety at 1-month post-discharge within this model.

- **Depression at 1-month** t2dep *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dep	5.1127	3.70374	142
t1anx	4.2394	3.62601	142
t1dep	4.2746	3.26630	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	489.957	2	244.979	23.578	.000(a)
	Residual	1444.240	139	10.390		
	Total	1934.197	141			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t2dep

Using the enter method, a significant model emerged ($F_{2, 139} = 23.578$, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.503(a)	.253	.243	3.22339

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.243.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.429	.475		5.109	.000	1.489	3.369
	t1anx	.232	.086	.227	2.695	.008	.062	.402
	t1dep	.398	.096	.351	4.161	.000	.209	.587

a Dependent Variable: t2dep

Anxiety t1anx ($p < .01$) and **Depression** t1dep ($p < .001$) emerged as significant predictor variables of depression at 1-month post-discharge within this model.

- <u>Anxiety at 6-months t3anx *(N = 120)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3anx	4.6083	4.02366	120
t1anx	4.3333	3.72214	120
t1dep	4.2917	3.26014	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	593.815	2	296.907	26.064	.000(a)
	Residual	1332.777	117	11.391		
	Total	1926.592	119			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t3anx

Using the enter method, a significant model emerged ($F_{2, 117} = 26.064$, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.555(a)	.308	.296	3.37509

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.296.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.487	.547		4.550	.000	1.404	3.569
	t1anx	.653	.094	.604	6.973	.000	.467	.838
	t1dep	-.165	.107	-.133	-1.540	.126	-.376	.047

a Dependent Variable: t3anx

Anxiety t1anx ($p < .001$) emerged as a significant predictor variable of anxiety at 6-months post-discharge within this model.

- <u>Depression at 6-months t3dep *(N = 120)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3dep	4.5667	3.46830	120
t1anx	4.3333	3.72214	120
t1dep	4.2917	3.26014	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	281.509	2	140.754	14.321	.000(a)
	Residual	1149.958	117	9.829		
	Total	1431.467	119			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: t3dep

Using the enter method, a significant model emerged ($F_{2, 117} = 14.321$, $p < .001$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.443(a)	.197	.183	3.13508

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = 0.183.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	2.323	.508		4.574	.000	1.317	3.328
	t1anx	.209	.087	.224	2.403	.018	.037	.381
	t1dep	.312	.099	.293	3.144	.002	.115	.509

a Dependent Variable: t3dep

Anxiety t1anx ($p < .05$) and **Depression** t1dep ($p < .01$) emerged as significant predictor variables of depression at 6-months post-discharge within this model.

- <u>Quality of life at 6-months pgi *(N = 119)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
pgi	4.3733	2.97204	119
t1anx	4.3613	3.72516	119
t1dep	4.3025	3.27175	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.447	2	8.224	.930	.398(a)
	Residual	1025.852	116	8.844		
	Total	1042.299	118			

a Predictors: (Constant), t1dep, t1anx
b Dependent Variable: pgi

Using the enter method, a non-significant model emerged ($F_{2, 116} = 0.930$, $p = .398$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.126(a)	.016	-.001	2.97381

a Predictors: (Constant), t1dep, t1anx

Adjusted R square = -0.001.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.730	.484		9.767	.000	3.771	5.689
	t1anx	-.109	.083	-.137	-1.318	.190	-.273	.055
	t1dep	.028	.094	.030	.292	.770	-.159	.214

a Dependent Variable: pgi

No variables emerged as significant predictors of quality of life at 6-months post-discharge within this model.

Recovery locus of control

- Anxiety at 1-month t2anx *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2anx	4.8521	4.09107	142
t1inloc	39.6127	4.15113	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	138.040	1	138.040	8.698	.004(a)
	Residual	2221.854	140	15.870		
	Total	2359.894	141			

a Predictors: (Constant), t1inloc
b Dependent Variable: t2anx

Using the enter method, a significant model emerged ($F_{1, 140}$ = 8.698, p < .01).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.242(a)	.058	.052	3.98377

a Predictors: (Constant), t1inloc

Adjusted R square = 0.052.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	14.294	3.219		4.441	.000	7.930	20.658
	t1inloc	-.238	.081	-.242	-2.949	.004	-.398	-.079

a Dependent Variable: t2anx

Internal control t1inloc (p < .01) emerged as a significant predictor variable of anxiety at 1-month post-discharge within this model.

- Depression at 1-month t2dep *(N = 142)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dep	5.1127	3.70374	142
t1inloc	39.6127	4.15113	142

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.401	1	102.401	7.826	.006(a)

	Residual	1831.796	140	13.084		
	Total	1934.197	141			

a Predictors: (Constant), t1inloc
b Dependent Variable: t2dep

Using the enter method, a significant model emerged ($F_{1, 140}$ = 7.826, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.230(a)	.053	.046	3.61722

a Predictors: (Constant), t1inloc

Adjusted R square = 0.046.

Coefficients(a)

		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	13.245	2.923		4.532	.000	7.467	19.023
	t1inloc	-.205	.073	-.230	-2.798	.006	-.350	-.060

a Dependent Variable: t2dep

Internal control t1inloc ($p < .01$) emerged as a significant predictor variable of depression at 1-month post-discharge within this model.

- <u>Anxiety at 6-months</u> t3anx *(N = 120)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3anx	4.6083	4.02366	120
t1inloc	39.3250	4.11426	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	82.529	1	82.529	5.281	.023(a)
	Residual	1844.063	118	15.628		
	Total	1926.592	119			

a Predictors: (Constant), t1inloc
b Dependent Variable: t3anx

Using the enter method, a significant model emerged ($F_{1, 118}$ = 5.281, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.207(a)	.043	.035	3.95318

a Predictors: (Constant), t1inloc

Adjusted R square = 0.035.

Coefficients(a)

		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	12.568	3.483		3.609	.000	5.672	19.465
	t1inloc	-.202	.088	-.207	-2.298	.023	-.377	-.028

a Dependent Variable: t3anx

Internal control t1inloc ($p < .05$) emerged as a significant predictor variable of anxiety at 6-months post-discharge within this model.

- <u>Depression at 6-months</u> t3dep *(N = 120)*

Descriptive Statistics

	Mean	Std. Deviation	N

t3dep	4.5667	3.46830	120
t1inloc	39.3250	4.11426	120

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69.107	1	69.107	5.986	.016(a)
	Residual	1362.360	118	11.545		
	Total	1431.467	119			

a Predictors: (Constant), t1inloc
b Dependent Variable: t3dep

Using the enter method, a significant model emerged ($F_{1, 118}$ = 5.986, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.220(a)	.048	.040	3.39786

a Predictors: (Constant), t1inloc

Adjusted R square = 0.040.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	11.851	2.993		3.959	.000	5.923	17.778
	t1inloc	-.185	.076	-.220	-2.447	.016	-.335	-.035

a Dependent Variable: t3dep

Internal control t1inloc ($p < .05$) emerged as a significant predictor of depression at 6-months post-discharge within this model.

- **<u>Quality of life at 6-months pgi *(N = 119)*</u>**

Descriptive Statistics

	Mean	Std. Deviation	N
pgi	4.3733	2.97204	119
t1inloc	39.3109	4.12875	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.117	1	12.117	1.376	.243(a)
	Residual	1030.182	117	8.805		
	Total	1042.299	118			

a Predictors: (Constant), t1inloc
b Dependent Variable: pgi

Using the enter method, a non-significant model emerged ($F_{1, 117}$ = 1.376, $p = .243$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.108(a)	.012	.003	2.96732

a Predictors: (Constant), t1inloc

Adjusted R square = 0.003.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.322	2.615		.506	.614	-3.857	6.501

t1inloc	.078	.066	.108	1.173	.243	-.053	.209

a Dependent Variable: pgi

No variables emerged as significant predictors of quality of life at 6-months post-discharge within this model.

Self-efficacy

- Anxiety at 1-month t2anx *(N = 132)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2anx	4.6061	3.90490	132
selfec2	13.8561	3.63850	132

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.225	1	9.225	.603	.439(a)
	Residual	1988.290	130	15.295		
	Total	1997.515	131			

a Predictors: (Constant), selfec2
b Dependent Variable: t2anx

Using the enter method, a non-significant model emerged ($F_{1, 130}$= 0.603, p = .439).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.068(a)	.005	-.003	3.91082

a Predictors: (Constant), selfec2

Adjusted R square = -0.003.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.617	1.345		4.176	.000	2.956	8.278
	selfec2	-.073	.094	-.068	-.777	.439	-.259	.113

a Dependent Variable: t2anx

No variables emerged as significant predictors of anxiety at 1-month post-discharge within this model.

- Depression at 1-month t2dep *(N = 132)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dep	4.9924	3.51333	132
selfec2	13.8561	3.63850	132

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	81.148	1	81.148	6.869	.010(a)
	Residual	1535.844	130	11.814		
	Total	1616.992	131			

a Predictors: (Constant), selfec2
b Dependent Variable: t2dep

Using the enter method, a significant model emerged ($F_{1, 130}$= 6.869, p = .01).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.224(a)	.050	.043	3.43718

a Predictors: (Constant), selfec2

Adjusted R square = 0.043.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7.990	1.182		6.759	.000	5.651	10.328
	selfec2	-.216	.083	-.224	-2.621	.010	-.380	-.053

a Dependent Variable: t2dep

Prosthetic use efficacy selfec2 ($p < .05$) emerged as a significant predictor variable of depression at 1-month post-discharge within this model.

- <u>**Anxiety at 6-months** t3anx *(N = 111)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3anx	4.5495	3.81561	111
selfec2	13.7117	3.58123	111

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	.000	.987(a)
	Residual	1601.473	109	14.692		
	Total	1601.477	110			

a Predictors: (Constant), selfec2
b Dependent Variable: t3anx

Using the enter method, a non-significant model emerged ($F_{1, 109} = 0.000$, $p = .987$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.002(a)	.000	-.009	3.83307

a Predictors: (Constant), selfec2

Adjusted R square = -0.009.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.573	1.446		3.163	.002	1.707	7.439
	selfec2	-.002	.102	-.002	-.017	.987	-.204	.201

a Dependent Variable: t3anx

No variables emerged as significant predictors of anxiety at 6-months post-discharge within this model.

- <u>**Depression at 6-months** t3dep *(N = 111)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3dep	4.6126	3.44613	111
selfec2	13.7117	3.58123	111

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.577	1	13.577	1.145	.287(a)
	Residual	1292.766	109	11.860		
	Total	1306.342	110			

a Predictors: (Constant), selfec2
b Dependent Variable: t3dep

Using the enter method, a non-significant model emerged ($F_{1, 109}$ = 1.145, p = .287).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.102(a)	.010	.001	3.44387

a Predictors: (Constant), selfec2

Adjusted R square = 0.001.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.958	1.299		4.586	.000	3.383	8.532
	selfec2	-.098	.092	-.102	-1.070	.287	-.280	.084

a Dependent Variable: t3dep

No variables emerged as significant predictors of depression at 6-months post-discharge within this model.

- **<u>Quality of life at 6-months pgi *(N = 110)*</u>**

Descriptive Statistics

	Mean	Std. Deviation	N
pgi	4.4402	2.92097	110
selfec2	13.7091	3.59752	110

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.092	1	.092	.011	.918(a)
	Residual	929.905	108	8.610		
	Total	929.997	109			

a Predictors: (Constant), selfec2
b Dependent Variable: pgi

Using the enter method, a non-significant model emerged ($F_{1, 108}$ = 0.011, p = .918).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.010(a)	.000	-.009	2.93432

a Predictors: (Constant), selfec2

Adjusted R square = -0.009.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.551	1.107		4.111	.000	2.357	6.745
	selfec2	-.008	.078	-.010	-.104	.918	-.163	.147

a Dependent Variable: pgi

No variables emerged as significant predictors of quality of life at 6-months post-discharge within this model.

<u>Demographic variables</u>

- **<u>Anxiety at 1-month t2anx *(N = 141)*</u>**

Descriptive Statistics

	Mean	Std. Deviation	N

t2anx	4.7801	4.01442	141
age_©	66.43	10.484	141
Gender	.70	.459	141
Deprivation Cat (c)	23.4679	17.23111	141

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	151.702	3	50.567	3.292	.023(a)
	Residual	2104.482	137	15.361		
	Total	2256.184	140			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t2anx

Using the enter method, a significant model emerged ($F_{3, 137} = 3.292$, $p < .05$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.259(a)	.067	.047	3.91933

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = 0.047.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10.432	2.447		4.262	.000	5.592	15.272
	age_©	-.081	.032	-.211	-2.485	.014	-.145	-.016
	Gender	-1.125	.734	-.129	-1.532	.128	-2.577	.327
	Deprivation Cat (c)	.021	.020	.091	1.092	.277	-.017	.060

a Dependent Variable: t2anx

Age age_© ($p < .05$) emerged as a significant predictor of anxiety at 1-month post-discharge within this model.

- **Depression at 1-month** t2dep *(N = 141)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dep	5.0780	3.69376	141
age_©	66.43	10.484	141
Gender	.70	.459	141
Deprivation Cat (c)	23.4679	17.23111	141

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.098	3	9.366	.682	.565(a)
	Residual	1882.043	137	13.738		
	Total	1910.142	140			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t2dep

Using the enter method, a non-significant model emerged ($F_{3, 137} = 0.682$, $p = .565$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.121(a)	.015	-.007	3.70642

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.007.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.524	2.315		2.387	.018	.947	10.101
	age_©	-.010	.031	-.028	-.320	.749	-.071	.051
	Gender	-.429	.694	-.053	-.617	.538	-1.802	.945
	Deprivation Cat (c)	.022	.018	.101	1.174	.242	-.015	.058

a Dependent Variable: t2dep

No variables emerged as significant predictors of depression at 1-month post-discharge within this model.

- <u>Anxiety at 6-months t3anx *(N = 119)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3anx	4.5462	3.98248	119
age_©	66.27	10.261	119
Gender	.70	.461	119
Deprivation Cat (c)	23.2290	17.71012	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	183.851	3	61.284	4.176	.008(a)
	Residual	1687.645	115	14.675		
	Total	1871.496	118			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t3anx

Using the enter method, a significant model emerged ($F_{3,115}$ = 4.176, $p < .01$).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.313(a)	.098	.075	3.83082

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = 0.075.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10.896	2.669		4.082	.000	5.608	16.183
	age_©	-.093	.036	-.240	-2.625	.010	-.164	-.023
	Gender	-1.291	.783	-.150	-1.649	.102	-2.842	.260
	Deprivation Cat (c)	.031	.020	.139	1.550	.124	-.009	.071

a Dependent Variable: t3anx

Age age_© (p = .01) emerged as a significant predictor of anxiety at 6-months post-discharge within this model.

- <u>Depression at 6-months t3dep *(N = 119)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3dep	4.5210	3.44656	119
age_©	66.27	10.261	119
Gender	.70	.461	119
Deprivation Cat (c)	23.2290	17.71012	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.396	3	9.132	.764	.516(a)
	Residual	1374.302	115	11.950		
	Total	1401.697	118			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: t3dep

Using the enter method, a non-significant model emerged ($F_{3, 115}$ = 0.764, p = .516).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.140(a)	.020	-.006	3.45694

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.006.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.052	2.409		2.097	.038	.281	9.824
	age_©	-.018	.032	-.055	-.577	.565	-.082	.045
	Gender	.247	.707	.033	.349	.728	-1.153	1.646
	Deprivation Cat (c)	.022	.018	.116	1.232	.221	-.014	.059

a Dependent Variable: t3dep

No variables emerged as significant predictors of depression at 6-months post-discharge within this model.

- <u>Quality of life at 6-months pgi *(N = 118)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
pgi	4.4089	2.95906	118
age_©	66.13	10.187	118
Gender	.70	.459	118
Deprivation Cat (c)	23.1253	17.74932	118

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.364	3	3.455	.388	.762(a)
	Residual	1014.089	114	8.896		
	Total	1024.454	117			

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©
b Dependent Variable: pgi

Using the enter method, a non-significant model emerged ($F_{3, 114}$ = 0.388, p = .762).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.101(a)	.010	-.016	2.98254

a Predictors: (Constant), Deprivation Cat (c), Gender, age_©

Adjusted R square = -0.016.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.707	2.089		1.775	.079	-.431	7.846
	age_©	.006	.028	.020	.203	.839	-.050	.061
	Gender	.617	.613	.096	1.006	.317	-.598	1.831
	Deprivation Cat (c)	-.005	.016	-.028	-.293	.770	-.036	.027

a Dependent Variable: pgi

No variables emerged as significant predictors of quality of life at 6-months post-discharge within this model.

Clinical variables

- **Anxiety at 1-month** t2anx *(N = 141)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2anx	4.8227	4.09055	141
Amputation Level ©	.75	.434	141
diabetes	.51	.502	141
Uni/Bilateral ©	.88	.327	141
lenstay	73.2979	43.23519	141
t1lcbas	18.4752	5.19145	141
t1lcladv	15.7518	7.10046	141

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.113	6	7.352	.429	.859(a)
	Residual	2298.454	134	17.153		
	Total	2342.567	140			

a Predictors: (Constant), t1lcladv, lenstay, Amputation Level ©, Uni/Bilateral ©, diabetes, t1lcbas
b Dependent Variable: t2anx

Using the enter method, a non-significant model emerged ($F_{6, 134}$ = 0.429, p = .859).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.137(a)	.019	-.025	4.14158

a Predictors: (Constant), t1lcladv, lenstay, Amputation Level ©, Uni/Bilateral ©, diabetes, t1lcbas

Adjusted R square = -0.025.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.864	1.793		3.828	.000	3.317	10.410
	Amputation Level ©	-.340	.835	-.036	-.408	.684	-1.991	1.311
	diabetes	.163	.718	.020	.227	.821	-1.257	1.582
	Uni/Bilateral ©	-.764	1.098	-.061	-.696	.488	-2.936	1.408
	lenstay	.000	.008	-.004	-.042	.967	-.017	.016
	t1lcbas	-.022	.110	-.028	-.203	.839	-.240	.196

t1lcladv	-.048	.080	-.083	-.598	.551	-.207	.111

a Dependent Variable: t2anx

No variables emerged as significant predictors of anxiety at 1-month post-discharge within this model.

- Depression at 1-month t2dep *(N = 141)*

Descriptive Statistics

	Mean	Std. Deviation	N
t2dep	5.1135	3.71693	141
Amputation Level ©	.75	.434	141
diabetes	.51	.502	141
Uni/Bilateral ©	.88	.327	141
lenstay	73.2979	43.23519	141
t1lcbas	18.4752	5.19145	141
t1lcladv	15.7518	7.10046	141

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.692	6	1.282	.089	.997(a)
	Residual	1926.492	134	14.377		
	Total	1934.184	140			

a Predictors: (Constant), t1lcladv, lenstay, Amputation Level ©, Uni/Bilateral ©, diabetes, t1lcbas
b Dependent Variable: t2dep

Using the enter method, a non-significant model emerged ($F_{6, 134} = 0.089$, p = .997).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.063(a)	.004	-.041	3.79168

a Predictors: (Constant), t1lcladv, lenstay, Amputation Level ©, Uni/Bilateral ©, diabetes, t1lcbas

Adjusted R square = -0.041.

Coefficients(a)

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95% Confidence Interval for B Lower Bound	95% Confidence Interval for B Upper Bound
1	(Constant)	4.415	1.642		2.689	.008	1.168	7.662
	Amputation Level ©	.348	.764	.041	.455	.650	-1.164	1.859
	diabetes	.144	.657	.019	.219	.827	-1.156	1.443
	Uni/Bilateral ©	-.130	1.005	-.011	-.129	.897	-2.118	1.858
	lenstay	.002	.008	.028	.315	.753	-.013	.017
	t1lcbas	.020	.101	.028	.201	.841	-.179	.220
	t1lcladv	-.004	.074	-.009	-.061	.951	-.150	.141

a Dependent Variable: t2dep

No variables emerged as significant predictors of depression at 1-month post-discharge within this model.

- Anxiety at 6-months t3anx *(N = 119)*

Descriptive Statistics

	Mean	Std. Deviation	N
t3anx	4.6303	4.03347	119
Amputation Level ©	.74	.441	119
diabetes	.50	.502	119
Uni/Bilateral ©	.88	.324	119

lenstay	73.8151	41.94992	119
t1lcbas	18.3025	5.38761	119
t1lcladv	15.6050	7.26871	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69.294	6	11.549	.699	.651(a)
	Residual	1850.437	112	16.522		
	Total	1919.731	118			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: t3anx

.Using the enter method, a non-significant model emerged ($F_{6,112}$ = 0.699, p = .651).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.190(a)	.036	-.016	4.06470

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = -0.016.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.823	1.894		2.547	.012	1.071	8.575
	Amputation Level ©	.124	.873	.014	.142	.887	-1.606	1.854
	diabetes	.305	.760	.038	.402	.689	-1.200	1.811
	Uni/Bilateral ©	1.713	1.191	.137	1.438	.153	-.647	4.073
	lenstay	-.005	.009	-.049	-.514	.608	-.023	.013
	t1lcbas	-.041	.116	-.055	-.353	.725	-.271	.189
	t1lcladv	-.055	.085	-.099	-.647	.519	-.222	.113

a Dependent Variable: t3anx

No variables emerged as significant predictors of anxiety at 6-months post-discharge within this model.

- <u>Depression at 6-months t3dep *(N = 119)*</u>

Descriptive Statistics

	Mean	Std. Deviation	N
t3dep	4.5966	3.46733	119
Amputation Level ©	.74	.441	119
diabetes	.50	.502	119
Uni/Bilateral ©	.88	.324	119
lenstay	73.8151	41.94992	119
t1lcbas	18.3025	5.38761	119
t1lcladv	15.6050	7.26871	119

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	162.540	6	27.090	2.415	.031(a)
	Residual	1256.098	112	11.215		
	Total	1418.639	118			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: t3dep

Using the enter method, a significant model emerged ($F_{6,112}$ = 2.415, p < .05).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.338(a)	.115	.067	3.34890

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = 0.067.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.328	1.560		3.414	.001	2.236	8.419
	Amputation Level ©	.496	.719	.063	.690	.492	-.929	1.922
	diabetes	-1.101	.626	-.159	-1.758	.081	-2.341	.140
	Uni/Bilateral ©	2.190	.981	.204	2.232	.028	.246	4.135
	lenstay	.007	.008	.089	.982	.328	-.008	.022
	t1lcbas	-.194	.096	-.301	-2.031	.045	-.383	-.005
	t1lcladv	.034	.070	.071	.487	.627	-.104	.172

a Dependent Variable: t3dep

Diabetes diabetes, **Unilateral/Bilateral** uni_bi and **Basic locomotor capabilities** t1lcbas (all p < .05) emerged as significant predictors of depression at 6-months post-discharge within this model.

- **Quality of life at 6-months** pgi *(N = 118)*

Descriptive Statistics

	Mean	Std. Deviation	N
pgi	4.3913	2.97820	118
Amputation Level ©	.74	.442	118
diabetes	.51	.502	118
Uni/Bilateral ©	.88	.325	118
lenstay	73.7966	42.12833	118
t1lcbas	18.2797	5.40479	118
t1lcladv	15.5593	7.28251	118

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.907	6	4.485	.492	.813(a)
	Residual	1010.846	111	9.107		
	Total	1037.753	117			

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas
b Dependent Variable: pgi

Using the enter method, a non-significant model emerged ($F_{6, 111}$ = 0.492, p = .813).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.161(a)	.026	-.027	3.01773

a Predictors: (Constant), t1lcladv, lenstay, diabetes, Uni/Bilateral ©, Amputation Level ©, t1lcbas

Adjusted R square = -0.027.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.767	1.406		1.968	.052	-.019	5.554
	Amputation Level ©	.451	.650	.067	.693	.490	-.838	1.740
	diabetes	-.190	.567	-.032	-.335	.738	-1.314	.934
	Uni/Bilateral ©	-.061	.885	-.007	-.069	.945	-1.814	1.692
	lenstay	.000	.007	-.006	-.061	.951	-.014	.013
	t1lcbas	.081	.086	.147	.941	.349	-.090	.252
	t1lcladv	-.001	.063	-.001	-.008	.993	-.125	.124

a Dependent Variable: pgi

No variables emerged as significant predictors of quality of life at 6-months post-discharge within this model.

Appendix F

	Prosthetic fitting (Exp B)	Prosthetic use at 1-month (β) Indoor	Outdoor	Hours	Days	Prosthetic use at 6-months (β) Indoor	Outdoor	Hours	Days	Function at 1-month (β) Basic	Advanced	Function at 6-months (β) Basic	Advanced	Distress at 1-month (β) Anxiety	Depression	Distress at 6-months (β) Anxiety	Depression	Quality of life (β)
Illness cognitions																		
Identity (No. symptoms)	.893	-.029	-.049	.015	.045	.053	-.081	.055	.149	-.011	-.021	.052	.055	-.007	-.036	.011	.032	.017
Timeline (acute/chronic)	.965	-.060	.029	-.108	-.188	-.150	-.092	-.102	-.198	.007	.096	-.060	.061	-.165	-.123	-.219*	-.170	-.103
Timeline (cyclical)	.886	-.178*	-.155	-.200	-.126	-.364***	-.307**	-.405***	-.234*	-.194*	-.242*	-.290**	-.339**	.094	.030	.118	.131	-.127
Consequences	.951	-.031	-.048	.167	.027	.005	-.019	.050	.147	.084	.121	.089	.006	.050	.014	.208	.037	.175
Personal control	1.172	-.091	-.112	.013	-.050	-.105	-.097	-.032	.156	-.091	-.210	-.070	-.152	.120	-.079	.253*	.009	-.022
Treatment control	.927	.211	.229*	.186	.000	.247*	.253*	-.007	-.034	.311**	.356**	.246	.302*	-.249*	-.118	-.206	-.042	-.038
Illness coherence	.861	-.101	-.115	-.114	.007	-.192	-.043	-.111	-.054	-.103	.000	-.083	-.070	.114	.253**	-.025	.148	-.084
Emotional reps	1.074	-.134	-.123	-.133	-.102	-.158	-.027	-.123	-.108	-.382***	-.347**	-.073	-.158	.422***	.532***	.306**	.370***	-.288*
Causal attributions																		
Risk factors	1.050	.184	.082	.111	.054	-.080	-.037	-.285*	-.222	.048	.025	-.110	-.085	-.125	.065	-.034	.039	-.188
Emotional/Psychological	.976	.086	.144	-.070	-.020	.141	.224*	.226*	.062	.204*	.240*	.128	.192	.120	.041	.129	-.048	.206
	X^2 = 8.856	F = 2.288*	F = 1.638	F = 1.379	F = .783	F = 2.948**	F = 2.703**	F = 2.394*	F = 1.723	F = 3.107**	F = 3.699***	F = 1.499	F = 2.027*	F = 4.164***	F = 5.308***	F = 3.528***	F = 2.138*	F = 1.224
	CS R^2 = .052	Ad R^2 = .084	Ad R^2 = .043	Ad R^2 = .032	Ad R^2 = -.019	Ad R^2 = .141	Ad R^2 = .125	Ad R^2 = .120	Ad R^2 = .066	Ad R^2 = .155	Ad R^2 = .190	Ad R^2 = .047	Ad R^2 = .091	Ad R^2 = .183	Ad R^2 = .234	Ad R^2 = .175	Ad R^2 = .087	Ad R^2 = .019
Attitudes prosthetic use																		
Behavioural intention	.000	.025	.048	.139	.224*	.201	.211	.195	-.010	.125	.103	.168	.156	-.015	.051	-.241*	-.034	.222
Attitude evaluation	.540	.068	.065	.265*	.153	-.007	.036	.036	-.077	.135	.070	.022	.031	-.020	-.059	.011	-.110	-.022
Subjective norm	1.219	.061	.022	-.096	-.062	.142	.105	-.078	-.016	.106	.088	.025	.118	-.020	.099	-.038	.061	.135
Perceived control	.659	-.016	-.037	-.281*	-.020	.130	-.020	-.089	.157	.001	.082	.167	.129	.002	-.018	.069	.023	.103
Behavioural beliefs	1.039	.197	.278*	.217	-.031	.099	.141	.200	.035	.145	.265*	-.008	.172	-.252*	-.400***	-.175	-.250*	.006
Normative beliefs	1.017	.073	.064	.033	.025	.134	.148	.023	-.043	.150	.160	.125	.262*	-.108	-.024	-.048	-.044	.248
Control beliefs	.980	.051	.072	.000	-.046	.031	.008	.105	.085	.100	.116	.064	.057	-.038	-.143	-.002	-.074	-.036
	X^2 = 7.195	F = 1.172	F = 1.895	F = 1.845	F = 1.008	F = 2.235*	F = 1.559	F = 1.379	F = .442	F = 1.830	F = 3.013**	F = 1.080	F = 2.238*	F = 1.133	F = 3.561**	F = 1.657	F = 1.390	F = 1.214
	CS R^2 = .046	Ad R^2 = .009	Ad R^2 = .046	Ad R^2 = .050	Ad R^2 = .001	Ad R^2 = .073	Ad R^2 = .034	Ad R^2 = .026	Ad R^2 = -.041	Ad R^2 = .049	Ad R^2 = .112	Ad R^2 = .006	Ad R^2 = .080	Ad R^2 = .007	Ad R^2 = .120	Ad R^2 = .040	Ad R^2 = .024	Ad R^2 = .014
Psychological distress																		
Anxiety	1.052	-.049	-.072	-.149	-.081	-.017	-.017	-.040	-.070	-.125	-.115	-.133	-.090	.512***	.227**	.604***	.224*	-.137
Depression	.917	-.202*	-.126	-.073	-.095	-.253*	-.147	-.122	-.140	-.149	-.201	.017	-.079	-.034	.351***	-.133	.293**	.030
	X^2 = 1.145	F = 3.911*	F = 2.136	F = 2.261	F = 1.350	F = 4.303*	F = 1.452	F = 1.082	F = 1.755	F = 3.409*	F = 4.701*	F = .799	F = 1.081	F = 22.645***	F = 23.578***	F = 26.064***	F = 14.321***	F = .930
	CS R^2 = .007	Ad R^2 = .040	Ad R^2 = .016	Ad R^2 = .021	Ad R^2 = .006	Ad R^2 = .053	Ad R^2 = .008	Ad R^2 = .002	Ad R^2 = .015	Ad R^2 = .040	Ad R^2 = .060	Ad R^2 = -.004	Ad R^2 = .002	Ad R^2 = .235	Ad R^2 = .243	Ad R^2 = .296	Ad R^2 = .183	Ad R^2 = -.001
Recovery locus of control																		
Internal control	1.010	.168*	.212*	.165	.138	.183*	.251**	.047	.063	.234*	.218*	.146	.135	-.242**	-.230**	-.207*	-.220*	.108
	X^2 = .026	F = 4.077*	F = 6.571*	F = 3.206	F = 2.216	F = 4.104*	F = 7.914**	F = .228	F = .396	F = 6.602*	F = 5.699*	F = 2.214	F = 1.863	F = 8.698**	F = 7.826**	F = 5.281*	F = 5.986*	F = 1.376
	CS R^2 = .000	Ad R^2 = .021	Ad R^2 = .038	Ad R^2 = .019	Ad R^2 = .010	Ad R^2 = .025	Ad R^2 = .055	Ad R^2 = -.008	Ad R^2 = -.006	Ad R^2 = .046	Ad R^2 = .039	Ad R^2 = .012	Ad R^2 = .008	Ad R^2 = .052	Ad R^2 = .046	Ad R^2 = .035	Ad R^2 = .040	Ad R^2 = .003
Self-efficacy																		
Prosthetic use self-efficacy	.922	.134	.189*	.088	.038	.224*	.264**	.164	.102	.216*	.300***	.115	.299**	-.068	-.224**	-.002	-.102	-.010
	X^2 = .454	F = 2.365	F = 4.826*	F = .874	F = .165	F = 5.736*	F = 8.195**	F = 2.706	F = 1.030	F = 5.419*	F = 10.97***	F = 1.306	F = 9.606**	F = .603	F = 6.869**	F = .000	F = 1.145	F = .011
	CS R^2 = .003	Ad R^2 = .010	Ad R^2 = .028	Ad R^2 = -.001	Ad R^2 = -.008	Ad R^2 = .041	Ad R^2 = .061	Ad R^2 = .017	Ad R^2 = .000	Ad R^2 = .038	Ad R^2 = .082	Ad R^2 = .003	Ad R^2 = .080	Ad R^2 = -.003	Ad R^2 = .043	Ad R^2 = -.009	Ad R^2 = -.001	Ad R^2 = -.009
Demographic variables																		
Age	.949	-.003	-.095	-.055	.008	-.025	-.071	-.007	-.021	-.094	-.166	-.091	-.081	-.211*	-.028	-.240**	-.055	.020
Gender	.590	.038	.130	.013	-.013	-.024	.104	-.056	.007	.118	.182*	.087	.083	-.129	-.053	-.150	.033	.096
Deprivation index	.969*	-.030	-.031	-.040	-.006	-.132	-.065	-.136	-.251*	-.138	-.027	-.024	-.012	.091	.101	.139	.116	-.028
	X^2 = 8.728*	F = .114	F = 1.434	F = .171	F = .011	F = .660	F = .887	F = .696	F = 2.170	F = 1.651	F = 2.685*	F = .618	F = .516	F = 3.292*	F = .682	F = 4.176**	F = .764	F = .388
	CS R^2 = .052	Ad R^2 = -.019	Ad R^2 = .009	Ad R^2 = -.022	Ad R^2 = -.026	Ad R^2 = -.009	Ad R^2 = -.003	Ad R^2 = -.009	Ad R^2 = .033	Ad R^2 = .017	Ad R^2 = .042	Ad R^2 = -.011	Ad R^2 = -.014	Ad R^2 = .047	Ad R^2 = -.007	Ad R^2 = .075	Ad R^2 = -.006	Ad R^2 = -.016
Clinical variables																		
Amputation level	.155**	.133	.132	.000	.016	.242**	.318***	.186	.083	.110	.184*	.103	.219*	-.036	.041	.014	.063	.067
Diabetes	6.463*	.225**	.098	.145	.192	-.056	-.094	-.104	-.033	.195*	.133	-.055	.023	.020	.019	.038	-.159*	-.032
Unilateral/Bilateral	13.600**	.080	-.016	-.146	-.101	.115	.075	-.014	-.051	-.030	-.093	.098	.004	-.061	-.011	.137	.204*	-.007
Time in hospital	1.010	.024	.048	-.062	-.022	-.199*	-.140	-.148	-.139	-.074	-.070	-.180	-.115	-.004	.028	-.049	.089	-.006
Pre-operative function																		
Basic	1.033 / .970	.010	-.055	.099	-.119	.079	.159	-.057	.003	.044	-.038	.009	.082	-.028	.028	-.055	-.301*	.147
Advanced	1.032 / 1.111	.181	.298*	.077	.168	.177	.228	.127	.088	.258	.398**	.264	.350*	-.083	-.009	-.099	.071	-.001
	X^2 = 2.198 / X^2 = 24.753***	F = 2.836*	F = 2.204*	F = 1.059	F = 1.001	F = 3.985***	F = 6.623***	F = 1.055	F = .529	F = 2.569*	F = 3.587**	F = 2.545*	F = 4.311***	F = .429	F = .089	F = .699	F = 2.415*	F = .492
	CS R^2 = .013 / CS R^2 = .143	Ad R^2 = .073	Ad R^2 = .049	Ad R^2 = .003	Ad R^2 = .000	Ad R^2 = .132	Ad R^2 = .222	Ad R^2 = .003	Ad R^2 = -.029	Ad R^2 = .076	Ad R^2 = .120	Ad R^2 = .084	Ad R^2 = .164	Ad R^2 = -.025	Ad R^2 = -.041	Ad R^2 = -.016	Ad R^2 = .067	Ad R^2 = -.027

$p < .05$* $p < .01$** $p < .01$*** Multiple logistic/linear regression results using the enter method.

Research question 1 — To what extent is being prescribed a prosthesis post-operatively predicted by pre-operative functional limitations and post-operative illness cognitions and distress?

Research question 2 — Do illness cognitions, attitudes to wearing a prosthesis and distress predict whether the patient uses the prosthesis at 1 and 6 months post-operatively?

Research question 3 — Do illness cognitions and attitudes towards wearing a prosthesis predict recovery in terms of a) functional activity b) psychological distress and c) quality of life, at 1 and 6 months post-operatively?

Appendix H

Correlations

	identity	timeline	timecycl	conseque	perscont	treatcont	illcoher	emotrepr	c risk	c emopsy	bintention	attitude	subnorm	pbc	bbelief	nbelief	cbelief	t1anx	t1dep	t1infoc	selfec2	age C	Gender	Dep Cat	Amp Level	diabetes	UniBilat	lenstay	t1lcbws
Pearson Correlation	1	0.010	.244(**)	.179(*)	0.053	0.003	-0.077	.256(**)	0.033	0.087	-0.117	-0.137	-0.111	-0.120	-.186(*)	0.108	-0.010	.231(**)	.165(*)	-.172(*)	-0.102	-0.075	0.029	.173(*)	-0.128	0.063	0.100	-0.035	-.206(**)
Sig. (2-tailed)		0.901	0.002	0.021	0.501	0.967	0.327	0.001	0.677	0.262	0.149	0.090	0.174	0.138	0.021	0.185	0.901	0.003	0.033	0.027	0.211	0.336	0.707	0.027	0.098	0.422	0.199	0.657	0.008
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	0.010	1	0.077	.386(**)	-0.047	-.302(**)	0.050	0.071	-0.093	-0.037	0.115	-.175(*)	-0.102	-0.041	0.002	0.017	-0.054	0.039	0.120	0.024	-.208(**)	-0.107	-0.047	-0.020	-0.122	-0.065	-0.144	0.052	-0.067
Sig. (2-tailed)	0.901		0.325	0.000	0.552	0.000	0.523	0.366	0.233	0.636	0.157	0.031	0.210	0.614	0.983	0.833	0.504	0.617	0.123	0.759	0.010	0.171	0.544	0.797	0.117	0.408	0.065	0.513	0.391
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	.244(**)	0.077	1	0.040	0.029	-0.002	-.344(**)	.232(**)	0.073	.235(**)	-0.124	-0.131	-0.137	-0.017	0.000	0.020	-0.115	.289(**)	0.092	-0.066	-0.121	-.179(*)	-0.025	.259(**)	-0.113	0.005	0.061	-0.140	-.206(**)
Sig. (2-tailed)	0.002	0.325		0.606	0.709	0.984	0.000	0.003	0.351	0.002	0.128	0.107	0.091	0.836	0.997	0.806	0.157	0.000	0.237	0.400	0.137	0.021	0.746	0.001	0.147	0.944	0.438	0.076	0.008
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	.179(*)	.386(**)	0.040	1	-.155(*)	-.189(*)	-0.151	.426(**)	-0.016	0.057	-0.017	-.194(*)	-0.105	-0.120	-0.071	0.100	0.036	.315(**)	.279(**)	-0.088	-0.144	-.198(*)	0.126	0.010	-0.141	-0.054	-0.118	0.018	-0.023
Sig. (2-tailed)	0.021	0.000	0.606		0.046	0.015	0.051	0.000	0.834	0.465	0.836	0.016	0.198	0.139	0.385	0.219	0.657	0.000	0.000	0.257	0.076	0.011	0.105	0.903	0.070	0.490	0.130	0.823	0.767
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	0.053	-0.047	0.029	-.155(*)	1	.541(**)	.379(**)	-.246(**)	-0.056	-0.059	0.103	0.150	0.110	.192(*)	0.080	-0.104	-0.005	-0.128	-.217(**)	.347(**)	.200(*)	-0.065	0.060	0.137	-0.049	0.053	0.079	-0.154	0.058
Sig. (2-tailed)	0.501	0.552	0.709	0.046		0.000	0.000	0.001	0.472	0.449	0.204	0.065	0.178	0.018	0.324	0.201	0.950	0.100	0.005	0.000	0.013	0.406	0.444	0.081	0.532	0.497	0.311	0.050	0.462
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	0.003	-.302(**)	-0.002	-.189(*)	.541(**)	1	.262(**)	-0.120	-0.105	-0.077	0.069	.199(*)	0.131	.247(**)	.168(*)	-.194(*)	0.002	-.153(*)	-.171(*)	.241(**)	.342(**)	0.102	0.072	0.021	0.032	-0.058	0.146	-0.139	0.098
Sig. (2-tailed)	0.967	0.000	0.984	0.015	0.000		0.001	0.124	0.179	0.325	0.399	0.014	0.106	0.002	0.038	0.017	0.978	0.049	0.027	0.002	0.000	0.190	0.356	0.794	0.684	0.458	0.061	0.078	0.213
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	-0.077	0.050	-.344(**)	-0.151	.379(**)	.262(**)	1	-.431(**)	-.234(**)	-.368(**)	.265(**)	0.132	0.149	.232(**)	0.071	-0.134	0.106	-.356(**)	-.228(**)	.313(**)	0.120	0.078	0.022	-0.053	0.058	0.031	-0.020	-0.030	0.028
Sig. (2-tailed)	0.327	0.523	0.000	0.051	0.000	0.001		0.000	0.002	0.000	0.001	0.103	0.067	0.004	0.381	0.098	0.193	0.000	0.003	0.000	0.138	0.320	0.781	0.501	0.461	0.691	0.796	0.709	0.720
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	.256(**)	0.071	.232(**)	.426(**)	-.246(**)	-0.120	-.431(**)	1	0.072	.271(**)	-.272(**)	-.282(**)	-.204(*)	-.255(**)	-.203(*)	.167(*)	-0.050	.588(**)	.536(**)	-.351(**)	-.206(*)	-0.111	-0.079	0.125	-0.020	-0.042	0.063	0.010	-0.113
Sig. (2-tailed)	0.001	0.366	0.003	0.000	0.001	0.124	0.000		0.356	0.000	0.001	0.000	0.011	0.001	0.012	0.040	0.543	0.000	0.000	0.000	0.011	0.154	0.314	0.111	0.797	0.595	0.423	0.895	0.148
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	0.033	-0.093	0.073	-0.016	-0.056	-0.105	-.234(**)	0.072	1	.460(**)	-0.076	0.047	0.086	-0.114	0.102	0.074	-0.013	0.052	-0.044	0.000	0.043	-.240(**)	.267(**)	0.035	0.015	.261(**)	0.036	-0.079	0.093
Sig. (2-tailed)	0.677	0.233	0.351	0.834	0.472	0.179	0.002	0.356		0.000	0.352	0.562	0.290	0.162	0.209	0.361	0.872	0.504	0.577	0.999	0.602	0.002	0.000	0.657	0.845	0.001	0.642	0.320	0.237
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	0.087	-0.037	.235(**)	0.057	-0.059	-0.077	-.368(**)	.271(**)	.460(**)	1	-0.078	0.071	0.046	0.003	0.106	0.097	-0.056	.360(**)	0.089	-.207(**)	0.002	-0.036	0.037	-0.005	0.136	.186(*)	0.068	-0.031	0.022
Sig. (2-tailed)	0.262	0.636	0.002	0.465	0.449	0.325	0.000	0.000	0.000		0.339	0.385	0.575	0.967	0.191	0.233	0.494	0.000	0.256	0.007	0.979	0.647	0.638	0.952	0.081	0.017	0.381	0.694	0.776
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	-0.117	0.115	-0.124	-0.017	0.103	0.069	.265(**)	-.272(**)	-0.076	-0.078	1	.251(**)	.381(**)	.284(**)	.308(**)	-.288(**)	0.086	-.218(**)	-.254(**)	.355(**)	.297(**)	-0.092	0.070	0.072	-0.023	-0.081	-0.001	-0.003	.193(*)
Sig. (2-tailed)	0.149	0.157	0.128	0.836	0.204	0.399	0.001	0.001	0.352	0.339		0.002	0.000	0.000	0.000	0.000	0.293	0.007	0.002	0.000	0.000	0.260	0.387	0.376	0.779	0.321	0.992	0.968	0.017
N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153
Pearson Correlation	-0.137	-.175(*)	-0.131	-.194(*)	0.150	.199(*)	0.132	-.282(**)	0.047	0.071	.251(**)	1	.443(**)	.535(**)	.507(**)	-.328(**)	-0.018	-.214(**)	-.296(**)	.192(*)	.288(**)	0.009	0.042	-0.065	0.051	0.095	0.015	-0.096	0.012
Sig. (2-tailed)	0.090	0.031	0.107	0.016	0.065	0.014	0.103	0.000	0.562	0.385	0.002		0.000	0.000	0.000	0.000	0.829	0.008	0.000	0.017	0.000	0.909	0.605	0.427	0.534	0.242	0.853	0.244	0.883
N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153
Pearson Correlation	-0.111	-0.102	-0.137	-0.105	0.110	0.131	0.149	-.204(*)	0.086	0.046	.381(**)	.443(**)	1	.251(**)	.455(**)	-.563(**)	-0.040	-.163(*)	-.200(*)	.183(*)	.301(**)	0.010	.212(**)	0.013	0.035	-0.066	-0.026	-0.129	0.057
Sig. (2-tailed)	0.174	0.210	0.091	0.198	0.178	0.106	0.067	0.011	0.290	0.575	0.000	0.000		0.002	0.000	0.000	0.620	0.044	0.013	0.024	0.000	0.904	0.009	0.870	0.671	0.415	0.752	0.117	0.485
N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153
Pearson Correlation	-0.120	-0.041	-0.017	-0.120	.192(*)	.247(**)	.232(**)	-.255(**)	-0.114	0.003	.284(**)	.535(**)	.251(**)	1	.461(**)	-.352(**)	0.044	-0.151	-.395(**)	.363(**)	.308(**)	-0.042	0.047	-0.006	0.110	0.053	-0.029	-0.033	0.060
Sig. (2-tailed)	0.138	0.614	0.836	0.139	0.018	0.002	0.004	0.001	0.162	0.967	0.000	0.000	0.002		0.000	0.000	0.591	0.062	0.000	0.000	0.000	0.609	0.561	0.946	0.174	0.517	0.721	0.689	0.463
N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153
Pearson Correlation	-.186(*)	0.002	0.000	-0.071	0.080	.168(*)	0.071	-.203(*)	0.102	0.106	.308(**)	.507(**)	.455(**)	.461(**)	1	-.401(**)	0.025	-0.121	-.329(**)	.243(**)	.329(**)	-0.089	0.040	-0.084	.168(*)	0.075	0.053	-0.020	0.051
Sig. (2-tailed)	0.021	0.983	0.997	0.385	0.324	0.038	0.381	0.012	0.209	0.191	0.000	0.000	0.000	0.000		0.000	0.759	0.137	0.000	0.002	0.000	0.275	0.625	0.305	0.037	0.357	0.517	0.813	0.532
N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153
Pearson Correlation	0.108	0.017	0.020	0.100	-0.104	-.194(*)	-0.134	.167(*)	0.074	0.097	-.288(**)	-.328(**)	-.563(**)	-.352(**)	-.401(**)	1	0.007	0.106	.272(**)	-0.100	-.298(**)	-0.045	-0.103	-0.046	-0.008	0.073	0.094	0.097	-0.024
Sig. (2-tailed)	0.185	0.833	0.806	0.219	0.201	0.017	0.098	0.040	0.361	0.233	0.000	0.000	0.000	0.000	0.000		0.932	0.194	0.001	0.218	0.000	0.586	0.205	0.577	0.922	0.371	0.248	0.238	0.772
N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153
Pearson Correlation	-0.010	-0.054	-0.115	0.036	-0.005	0.002	0.106	-0.050	-0.013	-0.056	0.086	-0.018	-0.040	0.044	0.025	0.007	1	0.047	-0.070	0.140	.263(**)	-0.100	0.013	-0.016	-0.070	0.009	0.062	0.024	0.156
Sig. (2-tailed)	0.901	0.504	0.157	0.657	0.950	0.978	0.193	0.543	0.872	0.494	0.293	0.829	0.620	0.591	0.759	0.932		0.584	0.387	0.085	0.001	0.219	0.878	0.846	0.392	0.915	0.446	0.768	0.054
N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153
Pearson Correlation	.231(**)	0.039	.289(**)	.315(**)	-0.128	-.153(*)	-.356(**)	.588(**)	0.052	.360(**)	-.218(**)	-.214(**)	-.163(*)	-0.151	-0.121	0.106	0.047	1	.520(**)	-.297(**)	-0.092	-.164(*)	-0.087	.159(*)	0.050	0.041	0.045	0.065	-0.091
Sig. (2-tailed)	0.003	0.617	0.000	0.000	0.100	0.049	0.000	0.000	0.504	0.000	0.007	0.008	0.044	0.062	0.137	0.194	0.584		0.000	0.000	0.256	0.036	0.389	0.043	0.523	0.603	0.562	0.409	0.247
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	.165(*)	0.120	0.092	.279(**)	-.217(**)	-.171(*)	-.228(**)	.536(**)	-0.044	0.089	-.254(**)	-.296(**)	-.200(*)	-.395(**)	-.329(**)	.272(**)	-0.070	.520(**)	1	-.345(**)	-.284(**)	0.042	-0.030	0.026	-0.036	-0.108	-0.026	0.128	-.196(*)
Sig. (2-tailed)	0.033	0.123	0.237	0.000	0.005	0.027	0.003	0.000	0.577	0.256	0.002	0.000	0.013	0.000	0.000	0.001	0.387	0.000		0.000	0.000	0.594	0.697	0.744	0.645	0.166	0.738	0.105	0.012
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	-.172(*)	0.024	-0.066	-0.088	.347(**)	.241(**)	.313(**)	-.351(**)	0.000	-.207(**)	.355(**)	.192(*)	.183(*)	.363(**)	.243(**)	-0.100	0.140	-.297(**)	-.345(**)	1	.193(*)	-.263(**)	0.070	0.032	-0.021	0.006	-0.019	-0.138	0.116
Sig. (2-tailed)	0.027	0.759	0.400	0.257	0.000	0.002	0.000	0.000	0.999	0.007	0.000	0.017	0.024	0.000	0.002	0.218	0.085	0.000	0.000		0.017	0.001	0.372	0.681	0.788	0.940	0.811	0.078	0.140
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	-0.102	-.208(**)	-0.121	-0.144	.200(*)	.342(**)	0.120	-.206(*)	0.043	0.002	.297(**)	.288(**)	.301(**)	.308(**)	.329(**)	-.298(**)	.263(**)	-0.092	-.284(**)	.193(*)	1	-0.085	.248(**)	-0.071	0.034	-0.015	0.013	-0.059	.300(**)
Sig. (2-tailed)	0.211	0.010	0.137	0.076	0.013	0.000	0.138	0.011	0.602	0.978	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.256	0.000	0.017		0.295	0.002	0.387	0.678	0.859	0.873	0.476	0.000
N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153
Pearson Correlation	-0.075	-0.107	-.179(*)	-.198(*)	-0.065	0.102	0.078	-0.111	-.240(**)	-0.036	-0.092	0.009	0.010	-0.042	-0.089	-0.045	-0.100	-.164(*)	0.042	-.263(**)	-0.085	1	-.190(*)	-.179(*)	0.095	-0.106	.173(*)	0.072	0.020
Sig. (2-tailed)	0.336	0.171	0.021	0.011	0.408	0.190	0.320	0.154	0.002	0.647	0.260	0.909	0.904	0.609	0.275	0.586	0.219	0.036	0.594	0.001	0.295		0.015	0.022	0.225	0.178	0.026	0.363	0.800
N	165	166	165	166	165	165	165	165	165	165	152	152	152	152	152	152	152	165	165	165	152	165	165	164	165	165	165	162	163
Pearson Correlation	0.029	-0.047	-0.025	0.128	0.060	0.072	0.022	-0.079	.267(**)	0.037	0.070	0.042	.212(**)	0.047	0.040	-0.103	0.013	-0.067	-0.030	0.070	.248(**)	-.190(*)	1	-0.020	0.014	0.039	-0.075	0.015	0.105
Sig. (2-tailed)	0.707	0.544	0.746	0.105	0.444	0.356	0.781	0.314	0.000	0.636	0.387	0.605	0.009	0.561	0.625	0.205	0.876	0.388	0.697	0.372	0.002	0.015		0.801	0.855	0.616	0.335	0.849	0.180
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	.173(*)	-0.020	.259(**)	0.010	0.137	0.021	-0.053	0.125	0.035	-0.005	0.072	-0.065	0.013	-0.006	-0.064	-0.046	-0.016	.159(*)	0.026	0.032	-0.071	-.179(*)	-0.020	1	-0.044	-0.086	0.032	-0.128	-.205(**)
Sig. (2-tailed)	0.027	0.797	0.001	0.903	0.081	0.794	0.501	0.111	0.657	0.952	0.376	0.427	0.870	0.946	0.305	0.577	0.846	0.043	0.744	0.681	0.387	0.022	0.801		0.580	0.276	0.681	0.106	0.008
N	164	164	164	164	164	164	164	164	164	164	152	152	152	152	152	152	152	164	164	164	152	164	164	164	164	164	164	161	162
Pearson Correlation	-0.128	-0.122	-0.113	-0.141	-0.049	0.032	0.058	-0.020	0.015	0.136	-0.023	0.051	0.035	0.110	.168(*)	-0.008	-0.070	0.050	-0.036	-0.021	0.034	0.095	0.014	-0.044	1	.246(**)	-0.087	0.142	0.038
Sig. (2-tailed)	0.098	0.117	0.147	0.070	0.532	0.684	0.461	0.797	0.845	0.081	0.779	0.534	0.871	0.174	0.037	0.922	0.392	0.523	0.645	0.788	0.678	0.225	0.855	0.580		0.001	0.263	0.071	0.628
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	0.063	-0.065	0.005	-0.054	0.053	-0.058	0.031	-0.042	.261(**)	.186(*)	-0.081	0.095	-0.066	0.053	0.075	0.073	0.009	0.041	-0.108	0.006	-0.015	-0.105	0.039	-0.086	.246(**)	1	-0.057	0.048	-0.068
Sig. (2-tailed)	0.422	0.408	0.944	0.490	0.497	0.458	0.691	0.595	0.001	0.017	0.321	0.242	0.415	0.517	0.357	0.371	0.915	0.603	0.166	0.940	0.855	0.178	0.616	0.276	0.001		0.466	0.545	0.387
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	0.100	-0.144	0.061	-0.118	0.079	0.146	-0.020	0.063	0.036	0.068	-0.001	0.015	-0.026	-0.028	0.053	0.094	0.062	0.045	-0.026	-0.019	0.013	.173(*)	-0.075	0.032	-0.087	-0.057	1	-0.034	.173(*)
Sig. (2-tailed)	0.199	0.065	0.438	0.130	0.311	0.061	0.796	0.423	0.642	0.381	0.992	0.853	0.752	0.721	0.517	0.248	0.446	0.562	0.736	0.811	0.873	0.026	0.335	0.681	0.263	0.466		0.663	0.027
N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164
Pearson Correlation	-0.035	0.052	-0.140	0.018	-0.154	-0.139	-0.030	0.010	-0.079	-0.031	-0.003	-0.096	-0.129	-0.033	-0.020	0.097	0.024	0.065	0.128	-0.139	-0.059	0.072	0.015	-0.128	0.142	0.048	-0.034	1	-0.022
Sig. (2-tailed)	0.657	0.513	0.078	0.823	0.050	0.078	0.709	0.895	0.320	0.694	0.968	0.244	0.117	0.689	0.813	0.238	0.768	0.409	0.105	0.079	0.476	0.363	0.849	0.106	0.071	0.545	0.663		0.778
N	162	162	162	162	162	162	162	162	162	162	149	149	149	149	149	149	149	162	162	162	149	162	162	161	162	162	162	162	160
Pearson Correlation	-.206(**)	-0.067	-.206(**)	-0.023	0.058	0.098	0.028	-0.113	0.093	0.022	.193(*)	0.012	0.057	0.060	0.051	-0.024	0.156	-0.091	-.196(*)	0.116	.300(**)	0.020	0.105	-.205(**)	0.038	-0.068	.173(*)	-0.022	1
Sig. (2-tailed)	0.008	0.391	0.008	0.767	0.462	0.213	0.726	0.148	0.237	0.778	0.017	0.883	0.485	0.463	0.532	0.772	0.054	0.247	0.012	0.140	0.000	0.800	0.180	0.009	0.628	0.387	0.027	0.778	
N	164	164	164	164	164	164	164	164	164	164	153	153	153	153	153	153	153	164	164	164	153	163	164	162	164	164	164	160	164
Pearson Correlation	-0.118	-0.053	-.199(*)	-0.009	0.057	0.106	0.066	-0.064	0.013	-0.104	.243(**)	0.021	0.062	0.158	0.114	-0.041	.179(*)	-0.115	-0.151	0.150	.360(**)	0.032	.185(*)	-.164(*)	-0.050	-0.094	0.143	0.037	.789(**)
Sig. (2-tailed)	0.131	0.502	0.011	0.910	0.472	0.177	0.404	0.413	0.872	0.186	0.002	0.797	0.448	0.051	0.159	0.616	0.026	0.142	0.054	0.055	0.000	0.682	0.018	0.037	0.528	0.232	0.088	0.643	0.000
N	164	164	164	164	164	164	164	164	164	164	153	153	153	153	153	153	153	164	164	164	153	163	164	162	164	164	164	160	164

at the 0.01 level (2-tailed).

at the 0.05 level (2-tailed).

		fit_1_0	t2inleg	t2outleg	t2hrsnow	t2dsnow	t3inleg	t3outleg	t3hrsnow	t3dsnow	t2icbas	t2icladv	t3icbas	t3icladv	t2anx	t2dep	t3anx	t3dep	pgi
fit_1_0	Pearson Correlation	1	.392(**)	.299(**)	.126	.056	.412(**)	.355(**)	.204(*)	.138	.218(*)	.104	.125	.113	-.197(*)	-.202(*)	-.017	-.062	.112
	Sig. (2-tailed)		.000	.000	.170	.551	.000	.000	.039	.163	.019	.264	.207	.258	.019	.016	.857	.375	.224
	N	166	142	142	116	116	120	120	103	103	116	116	103	103	142	142	120	120	119
t2inleg	Pearson Correlation	.392(**)	1	.716(**)	.594(**)	.532(**)	.612(**)	.493(**)	.361(**)	.260(**)	.654(**)	.522(**)	.396(**)	.341(**)	-.303(**)	-.193(*)	-.181(*)	-.195(*)	.174
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.008	.000	.000	.000	.000	.000	.022	.047	.033	.058
	N	142	142	142	116	116	120	120	103	103	116	116	103	103	142	142	120	120	119
t2outleg	Pearson Correlation	.299(**)	.716(**)	1	.501(**)	.380(**)	.485(**)	.595(**)	.313(**)	.103	.679(**)	.695(**)	.397(**)	.495(**)	-.249(**)	-.211(*)	-.157	-.180(*)	.308(**)
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.001	.300	.000	.000	.000	.000	.003	.012	.087	.049	.001
	N	142	142	142	116	116	120	120	103	103	116	116	103	103	142	142	120	120	119
t2hrsnow	Pearson Correlation	.126	.594(**)	.501(**)	1	.607(**)	.386(**)	.308(**)	.531(**)	.384(**)	.512(**)	.428(**)	.374(**)	.285(**)	-.189(*)	-.169	-.283(**)	-.271(**)	.183
	Sig. (2-tailed)	.170	.000	.000		.000	.000	.002	.000	.000	.000	.000	.000	.005	.042	.069	.004	.007	.070
	N	116	116	116	116	116	99	99	97	97	116	116	97	97	116	116	99	99	99
t2dsnow	Pearson Correlation	.056	.532(**)	.380(**)	.607(**)	1	.334(**)	.297(**)	.297(**)	.331(**)	.458(**)	.289(**)	.365(**)	.257(*)	-.200(*)	-.115	-.210(*)	-.176	.152
	Sig. (2-tailed)	.551	.000	.000	.000		.001	.003	.003	.001	.000	.002	.000	.011	.031	.220	.037	.082	.133
	N	116	116	116	116	116	99	99	97	97	116	116	97	97	116	116	99	99	99
t3inleg	Pearson Correlation	.412(**)	.612(**)	.485(**)	.386(**)	.334(**)	1	.717(**)	.664(**)	.539(**)	.491(**)	.477(**)	.684(**)	.629(**)	-.274(**)	-.251(**)	-.214(*)	-.255(**)	.248(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.001		.000	.000	.000	.000	.000	.000	.000	.002	.006	.019	.005	.007
	N	120	120	120	99	99	120	120	103	103	99	99	103	103	120	120	120	120	119
t3outleg	Pearson Correlation	.355(**)	.493(**)	.595(**)	.308(**)	.297(**)	.717(**)	1	.444(**)	.365(**)	.498(**)	.602(**)	.758(**)	.782(**)	-.193(*)	-.167	-.171	-.257(**)	.371(**)
	Sig. (2-tailed)	.000	.000	.000	.002	.003	.000		.000	.000	.000	.000	.000	.000	.035	.068	.063	.005	.000
	N	120	120	120	99	99	120	120	103	103	99	99	103	103	120	120	120	120	119
t3hrsnow	Pearson Correlation	.204(*)	.361(**)	.313(**)	.531(**)	.297(**)	.664(**)	.444(**)	1	.636(**)	.333(**)	.334(**)	.505(**)	.411(**)	-.191	-.298(**)	-.283(**)	-.274(**)	.233(*)
	Sig. (2-tailed)	.039	.000	.001	.000	.003	.000	.000		.000	.001	.001	.000	.000	.053	.002	.004	.005	.018
	N	103	103	103	97	97	103	103	103	103	97	97	103	103	103	103	103	103	103
t3dsnow	Pearson Correlation	.138	.260(**)	.103	.384(**)	.331(**)	.539(**)	.365(**)	.636(**)	1	.341(**)	.269(**)	.565(**)	.366(**)	-.173	-.189	-.152	-.080	.059
	Sig. (2-tailed)	.163	.008	.300	.000	.001	.000	.000	.000		.001	.008	.000	.000	.081	.055	.125	.422	.557
	N	103	103	103	97	97	103	103	103	103	97	97	103	103	103	103	103	103	103
t2icbas	Pearson Correlation	.218(*)	.654(**)	.679(**)	.512(**)	.458(**)	.491(**)	.498(**)	.333(**)	.341(**)	1	.801(**)	.586(**)	.591(**)	-.321(**)	-.173	-.237(*)	-.191	.363(**)
	Sig. (2-tailed)	.019	.000	.000	.000	.000	.000	.000	.001	.001		.000	.000	.000	.000	.064	.018	.056	.000
	N	116	116	116	116	116	99	99	97	97	116	116	97	97	116	116	99	99	99
t2icladv	Pearson Correlation	.104	.522(**)	.695(**)	.428(**)	.289(**)	.477(**)	.602(**)	.334(**)	.269(**)	.801(**)	1	.603(**)	.773(**)	-.246(**)	-.204(*)	-.226(*)	-.315(**)	.451(**)
	Sig. (2-tailed)	.264	.000	.000	.000	.002	.000	.000	.001	.008	.000		.000	.000	.008	.028	.024	.001	.000
	N	116	116	116	116	116	99	99	97	97	116	116	97	97	116	116	99	99	99
t3icbas	Pearson Correlation	.125	.396(**)	.397(**)	.374(**)	.365(**)	.684(**)	.758(**)	.505(**)	.565(**)	.586(**)	.603(**)	1	.797(**)	-.153	-.094	-.184	-.203(*)	.455(**)
	Sig. (2-tailed)	.207	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.123	.344	.063	.040	.000
	N	103	103	103	97	97	103	103	103	103	97	97	103	103	103	103	103	103	103
t3icladv	Pearson Correlation	.113	.341(**)	.495(**)	.285(**)	.257(*)	.629(**)	.782(**)	.411(**)	.366(**)	.591(**)	.773(**)	.797(**)	1	-.203(*)	-.170	-.215(*)	-.314(**)	.504(**)
	Sig. (2-tailed)	.258	.000	.000	.005	.011	.000	.000	.000	.000	.000	.000	.000		.040	.065	.029	.001	.000
	N	103	103	103	97	97	103	103	103	103	97	97	103	103	103	103	103	103	103
t2anx	Pearson Correlation	-.197(*)	-.303(**)	-.249(**)	-.189(*)	-.200(*)	-.274(**)	-.193(*)	-.191	-.173	-.321(**)	-.246(**)	-.153	-.203(*)	1	.600(**)	.721(**)	.484(**)	-.048
	Sig. (2-tailed)	.019	.000	.003	.042	.031	.002	.035	.053	.081	.000	.008	.123	.040		.000	.000	.000	.604
	N	142	142	142	116	116	120	120	103	103	116	116	103	103	142	142	120	120	119
t2dep	Pearson Correlation	-.202(*)	-.193(*)	-.211(*)	-.169	-.115	-.251(**)	-.167	-.298(**)	-.189	-.173	-.204(*)	-.094	-.170	.600(**)	1	.443(**)	.660(**)	-.152
	Sig. (2-tailed)	.016	.022	.012	.069	.220	.006	.068	.002	.055	.064	.028	.344	.065	.000		.000	.000	.098
	N	142	142	142	116	116	120	120	103	103	116	116	103	103	142	142	120	120	119
t3anx	Pearson Correlation	-.017	-.181(*)	-.157	-.283(**)	-.210(*)	-.214(*)	-.171	-.283(**)	-.152	-.237(*)	-.226(*)	-.184	-.215(*)	.721(**)	.443(**)	1	.580(**)	-.222(*)
	Sig. (2-tailed)	.857	.047	.087	.004	.037	.019	.063	.004	.125	.018	.024	.063	.029	.000	.000		.000	.015
	N	120	120	120	99	99	120	120	103	103	99	99	103	103	120	120	120	120	119
t3dep	Pearson Correlation	-.062	-.195(*)	-.180(*)	-.271(**)	-.176	-.255(**)	-.257(**)	-.274(**)	-.080	-.191	-.315(**)	-.203(*)	-.314(**)	.484(**)	.660(**)	.580(**)	1	-.286(**)
	Sig. (2-tailed)	.375	.033	.049	.007	.082	.005	.005	.005	.422	.056	.001	.040	.001	.000	.000	.000		.002
	N	120	120	120	99	99	120	120	103	103	99	99	103	103	120	120	120	120	119
pgi	Pearson Correlation	.112	.174	.308(**)	.183	.152	.248(**)	.371(**)	.233(*)	.059	.363(**)	.451(**)	.455(**)	.504(**)	-.048	-.152	-.222(*)	-.286(**)	1
	Sig. (2-tailed)	.224	.058	.001	.070	.133	.007	.000	.018	.557	.000	.000	.000	.000	.604	.098	.015	.002	
	N	119	119	119	99	99	119	119	103	103	99	99	103	103	119	119	119	119	119

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

		identity	timeline	timecycl	conseque	perscont	treatcont	illcoher	emotrepr	c_risk	c_emopsy	bintention	attitude	subnorm	pbc	bbelief	nbelief	cbelief	t1anx	t1dep	t1inloc	selfec2	age ©	Gender	Dep Cat	Amp Level	diabetes	Uni/Bilat	lenstay	t1icbas	t1icadv
identity	Pearson Correlation	1	0.010	.244(**)	.179(*)	0.053	0.003	-0.077	.258(**)	0.033	0.087	-0.117	-0.137	-0.111	-0.120	-.186(*)	0.108	-0.010	.231(**)	.165(*)	-.172(*)	-0.102	-0.075	0.029	.173(*)	-0.128	0.083	0.100	-0.035	-.206(**)	-0.118
	Sig. (2-tailed)		0.901	0.002	0.021	0.501	0.967	0.327	0.001	0.677	0.262	0.149	0.090	0.174	0.138	0.021	0.165	0.901	0.003	0.033	0.027	0.211	0.336	0.707	0.027	0.099	0.422	0.199	0.657	0.008	0.131
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
timeline	Pearson Correlation	0.010	1	0.077	.386(**)	-0.047	-.302(**)	0.050	0.071	-0.093	-0.037	0.115	-.175(*)	-0.102	-0.041	0.002	0.017	-0.054	0.039	0.120	0.024	-.208(**)	-0.107	-0.047	-0.020	-0.122	-0.065	-0.144	0.052	-0.067	-0.053
	Sig. (2-tailed)	0.901		0.325	0.000	0.552	0.000	0.523	0.366	0.233	0.636	0.157	0.031	0.210	0.614	0.983	0.833	0.504	0.617	0.123	0.759	0.010	0.171	0.544	0.797	0.117	0.408	0.065	0.513	0.391	0.502
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
timecycl	Pearson Correlation	.244(**)	0.077	1	0.040	0.029	-0.002	-.344(**)	.232(**)	0.073	.235(**)	-0.124	-0.131	-0.137	-0.017	0.000	0.020	-0.115	.289(**)	0.092	-0.066	-0.121	-.179(*)	-0.025	.259(**)	-0.113	0.005	0.061	-0.140	-.206(**)	-.196(*)
	Sig. (2-tailed)	0.002	0.325		0.605	0.709	0.984	0.000	0.003	0.351	0.002	0.128	0.107	0.091	0.836	0.997	0.806	0.157	0.000	0.237	0.400	0.137	0.021	0.746	0.001	0.147	0.944	0.438	0.076	0.008	0.011
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
conseque	Pearson Correlation	.179(*)	.386(**)	0.040	1	-.155(*)	-.189(*)	-0.151	.426(**)	-0.016	0.057	-0.017	-.194(*)	-0.105	-0.120	-0.071	0.100	0.036	.315(**)	.279(**)	-0.088	-0.144	-.196(*)	0.126	0.010	-0.141	-0.054	-0.118	0.018	-0.023	-0.009
	Sig. (2-tailed)	0.021	0.000	0.606		0.046	0.015	0.051	0.000	0.834	0.465	0.838	0.016	0.198	0.139	0.365	0.219	0.657	0.000	0.000	0.257	0.076	0.011	0.105	0.903	0.070	0.490	0.130	0.823	0.767	0.910
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
perscont	Pearson Correlation	0.053	-0.047	0.029	-.155(*)	1	.541(**)	.379(**)	-.248(**)	-0.056	-0.059	0.103	0.150	0.110	.192(*)	0.080	-0.104	-0.005	-0.128	-.217(**)	.347(**)	.200(*)	-0.065	0.060	0.137	-0.049	0.053	0.079	-0.154	0.058	0.057
	Sig. (2-tailed)	0.501	0.552	0.709	0.046		0.000	0.000	0.001	0.472	0.449	0.204	0.065	0.178	0.018	0.324	0.201	0.950	0.100	0.005	0.000	0.013	0.408	0.444	0.081	0.532	0.497	0.311	0.050	0.462	0.472
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
treatcont	Pearson Correlation	0.003	-.302(**)	-0.002	-.189(*)	.541(**)	1	.262(**)	-0.120	-0.105	-0.077	0.069	.199(*)	0.131	.247(**)	.168(*)	-.194(*)	0.002	-.153(*)	-.171(*)	.241(**)	.342(**)	0.102	0.072	0.021	0.032	-0.058	0.146	-0.138	0.098	0.106
	Sig. (2-tailed)	0.967	0.000	0.984	0.015	0.000		0.001	0.124	0.179	0.325	0.399	0.014	0.106	0.002	0.038	0.017	0.978	0.049	0.027	0.002	0.000	0.190	0.356	0.794	0.684	0.458	0.061	0.078	0.213	0.177
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
illcoher	Pearson Correlation	-0.077	0.050	-.344(**)	-0.151	.379(**)	.262(**)	1	-.431(**)	-.234(**)	-.368(**)	.265(**)	0.132	0.149	.232(**)	0.071	-0.134	0.106	-.356(**)	-.228(**)	.313(**)	0.120	0.078	0.022	-0.053	0.058	0.031	-0.020	-0.030	0.028	0.066
	Sig. (2-tailed)	0.327	0.523	0.000	0.051	0.000	0.001		0.000	0.002	0.000	0.001	0.103	0.067	0.004	0.381	0.098	0.193	0.000	0.003	0.000	0.138	0.320	0.781	0.501	0.461	0.691	0.796	0.709	0.726	0.404
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
emotrepr	Pearson Correlation	.256(**)	0.071	.232(**)	.426(**)	-.248(**)	-0.120	-.431(**)	1	0.072	.271(**)	-.272(**)	-.282(**)	-.204(*)	-.255(**)	-.203(*)	.167(*)	-0.050	.588(**)	.536(**)	-.351(**)	-.206(*)	-0.111	-0.079	0.125	-0.020	-0.042	0.063	0.010	-0.113	-0.064
	Sig. (2-tailed)	0.001	0.366	0.003	0.000	0.001	0.124	0.000		0.356	0.000	0.001	0.000	0.011	0.001	0.012	0.040	0.543	0.000	0.000	0.000	0.011	0.154	0.314	0.111	0.797	0.595	0.423	0.895	0.148	0.413
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
c_risk	Pearson Correlation	0.033	-0.093	0.073	-0.016	-0.056	-0.105	-.234(**)	0.072	1	.460(**)	-0.076	0.047	0.086	-0.114	0.102	0.074	-0.013	0.052	-0.044	0.000	0.043	-.240(**)	.267(**)	0.035	0.015	.261(**)	0.036	-0.079	0.093	0.013
	Sig. (2-tailed)	0.677	0.233	0.351	0.834	0.472	0.179	0.002	0.356		0.000	0.352	0.562	0.290	0.162	0.209	0.361	0.872	0.504	0.577	0.999	0.602	0.002	0.000	0.657	0.845	0.001	0.642	0.320	0.237	0.872
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
c_emopsy	Pearson Correlation	0.087	-0.037	.235(**)	0.057	-0.059	-0.077	-.368(**)	.271(**)	.460(**)	1	-0.078	0.071	0.048	0.003	0.106	0.097	-0.056	.360(**)	0.089	-.207(**)	0.002	-0.036	0.037	-0.005	0.136	.186(*)	0.068	-0.031	0.022	-0.104
	Sig. (2-tailed)	0.262	0.636	0.002	0.465	0.449	0.325	0.000	0.000	0.000		0.339	0.385	0.575	0.967	0.191	0.233	0.494	0.000	0.256	0.007	0.978	0.647	0.636	0.952	0.081	0.017	0.381	0.694	0.776	0.186
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
bintention	Pearson Correlation	-0.117	0.115	-0.124	-0.017	0.103	0.069	.265(**)	-.272(**)	-0.076	-0.078	1	.251(**)	.381(**)	.284(**)	.308(**)	-.288(**)	0.086	-.218(**)	-.254(**)	.355(**)	.297(**)	-0.092	0.070	0.072	-0.023	-0.081	-0.001	-0.003	.193(*)	.243(**)
	Sig. (2-tailed)	0.149	0.157	0.128	0.838	0.204	0.399	0.001	0.001	0.352	0.339		0.002	0.000	0.000	0.000	0.000	0.293	0.007	0.002	0.000	0.000	0.260	0.387	0.376	0.779	0.321	0.992	0.968	0.017	0.002
	N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153	153
attitude	Pearson Correlation	-0.137	-.175(*)	-0.131	-.194(*)	0.150	.199(*)	0.132	-.282(**)	0.047	0.071	.251(**)	1	.443(**)	.535(**)	.507(**)	-.328(**)	-0.018	-.214(**)	-.296(**)	.192(*)	.288(**)	0.009	0.042	-0.065	0.051	0.095	0.015	-0.096	0.012	0.021
	Sig. (2-tailed)	0.090	0.031	0.107	0.016	0.065	0.014	0.103	0.000	0.562	0.385	0.002		0.000	0.000	0.000	0.000	0.829	0.008	0.000	0.017	0.000	0.909	0.605	0.427	0.534	0.242	0.853	0.244	0.683	0.797
	N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153	153
subnorm	Pearson Correlation	-0.111	-0.102	-0.137	-0.105	0.110	0.131	0.149	-.204(*)	0.086	0.048	.381(**)	.443(**)	1	.251(**)	.455(**)	-.563(**)	-0.040	-.163(*)	-.200(*)	.183(*)	.301(**)	0.010	.212(**)	0.013	0.035	-0.066	-0.026	-0.129	0.057	0.062
	Sig. (2-tailed)	0.174	0.210	0.091	0.198	0.178	0.106	0.067	0.011	0.290	0.575	0.000	0.000		0.002	0.000	0.000	0.620	0.044	0.013	0.024	0.000	0.904	0.009	0.870	0.671	0.415	0.752	0.117	0.485	0.448
	N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153	153
pbc	Pearson Correlation	-0.120	-0.041	-0.017	-0.120	.192(*)	.247(**)	.232(**)	-.255(**)	-0.114	0.003	.284(**)	.535(**)	.251(**)	1	.461(**)	-.352(**)	0.044	-0.151	-.395(**)	.363(**)	.308(**)	-0.042	0.047	-0.006	0.110	0.053	-0.029	-0.033	0.060	0.158
	Sig. (2-tailed)	0.138	0.614	0.836	0.139	0.018	0.002	0.004	0.001	0.162	0.967	0.000	0.000	0.002		0.000	0.000	0.591	0.062	0.000	0.000	0.000	0.609	0.561	0.946	0.174	0.517	0.721	0.689	0.463	0.051
	N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153	153
bbelief	Pearson Correlation	-.186(*)	0.002	0.000	-0.071	0.080	.168(*)	0.071	-.203(*)	0.102	0.106	.308(**)	.507(**)	.455(**)	.461(**)	1	-.401(**)	0.025	-0.121	-.329(**)	.243(**)	.329(**)	-0.089	0.040	-0.084	.168(*)	0.075	0.053	-0.020	0.051	0.114
	Sig. (2-tailed)	0.021	0.983	0.997	0.365	0.324	0.038	0.381	0.012	0.209	0.191	0.000	0.000	0.000	0.000		0.000	0.759	0.137	0.000	0.002	0.000	0.275	0.625	0.305	0.037	0.357	0.517	0.813	0.532	0.159
	N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153	153
nbelief	Pearson Correlation	0.108	0.017	0.020	0.100	-0.104	-.194(*)	-0.134	.167(*)	0.074	0.097	-.288(**)	-.328(**)	-.563(**)	-.352(**)	-.401(**)	1	0.007	0.106	.272(**)	-0.100	-.298(**)	-0.045	-0.103	-0.046	-0.008	0.073	0.094	0.097	-0.024	-0.041
	Sig. (2-tailed)	0.185	0.833	0.806	0.219	0.201	0.017	0.098	0.040	0.361	0.233	0.000	0.000	0.000	0.000	0.000		0.932	0.194	0.001	0.218	0.000	0.586	0.205	0.577	0.922	0.371	0.248	0.238	0.772	0.616
	N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153	153
cbelief	Pearson Correlation	-0.010	-0.054	-0.115	0.036	-0.005	0.002	0.106	-0.050	-0.013	-0.056	0.086	-0.018	-0.040	0.044	0.025	0.007	1	0.047	-0.070	0.140	.263(**)	-0.100	0.013	-0.016	-0.070	0.009	0.062	0.024	0.156	.179(*)
	Sig. (2-tailed)	0.901	0.504	0.157	0.657	0.950	0.978	0.193	0.543	0.872	0.494	0.293	0.829	0.620	0.591	0.759	0.932		0.564	0.387	0.085	0.001	0.219	0.878	0.846	0.392	0.915	0.446	0.768	0.054	0.026
	N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153	153
t1anx	Pearson Correlation	.231(**)	0.039	.289(**)	.315(**)	-0.128	-.153(*)	-.356(**)	.588(**)	0.052	.360(**)	-.218(**)	-.214(**)	-.163(*)	-0.151	-0.121	0.106	0.047	1	.520(**)	-.297(**)	-0.092	-.164(*)	-0.067	.159(*)	0.050	0.041	0.045	0.065	-0.091	-0.115
	Sig. (2-tailed)	0.003	0.617	0.000	0.000	0.100	0.049	0.000	0.000	0.504	0.000	0.007	0.008	0.044	0.062	0.137	0.194	0.564		0.000	0.000	0.256	0.036	0.389	0.043	0.523	0.603	0.562	0.409	0.247	0.142
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
t1dep	Pearson Correlation	.165(*)	0.120	0.092	.279(**)	-.217(**)	-.171(*)	-.228(**)	.536(**)	-0.044	0.089	-.254(**)	-.296(**)	-.200(*)	-.395(**)	-.329(**)	.272(**)	-0.070	.520(**)	1	-.345(**)	-.284(**)	0.042	-0.030	0.026	-0.038	-0.108	-0.026	0.128	-.196(*)	-0.151
	Sig. (2-tailed)	0.033	0.123	0.237	0.000	0.005	0.027	0.003	0.000	0.577	0.256	0.002	0.000	0.013	0.000	0.000	0.001	0.387	0.000		0.000	0.000	0.594	0.697	0.744	0.645	0.166	0.736	0.105	0.012	0.054
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
t1inloc	Pearson Correlation	-.172(*)	0.024	-0.066	-0.088	.347(**)	.241(**)	.313(**)	-.351(**)	0.000	-.207(**)	.355(**)	.192(*)	.183(*)	.363(**)	.243(**)	-0.100	0.140	-.297(**)	-.345(**)	1	.193(*)	-.263(**)	0.070	0.032	-0.021	0.006	-0.019	-0.139	0.118	0.156
	Sig. (2-tailed)	0.027	0.759	0.400	0.257	0.000	0.002	0.000	0.000	0.999	0.007	0.000	0.017	0.024	0.000	0.002	0.218	0.085	0.000	0.000		0.017	0.001	0.372	0.681	0.788	0.940	0.811	0.079	0.140	0.055
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
selfec2	Pearson Correlation	-0.102	-.208(**)	-0.121	-0.144	.200(*)	.342(**)	0.120	-.206(*)	0.043	0.002	.297(**)	.288(**)	.301(**)	.308(**)	.329(**)	-.298(**)	.263(**)	-0.092	-.284(**)	.193(*)	1	-0.085	.248(**)	-0.071	0.034	-0.015	0.013	-0.059	.300(**)	.350(**)
	Sig. (2-tailed)	0.211	0.010	0.137	0.076	0.013	0.000	0.138	0.011	0.602	0.978	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.256	0.000	0.017		0.295	0.002	0.387	0.678	0.855	0.873	0.476	0.000	0.000
	N	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153	152	153	152	153	153	153	149	153	153
age_©	Pearson Correlation	-0.075	-0.107	-.179(*)	-.196(*)	-0.065	0.102	0.078	-0.111	-.240(**)	-0.036	-0.092	0.009	0.010	-0.042	-0.089	-0.045	-0.100	-.164(*)	0.042	-.263(**)	-0.085	1	-.190(*)	-.179(*)	0.095	-0.106	.173(*)	0.072	0.020	0.032
	Sig. (2-tailed)	0.336	0.171	0.021	0.011	0.408	0.193	0.320	0.154	0.002	0.647	0.260	0.909	0.904	0.609	0.275	0.586	0.219	0.036	0.594	0.001	0.295		0.015	0.022	0.225	0.176	0.026	0.363	0.803	0.682
	N	165	165	165	165	165	165	165	165	165	165	152	152	152	152	152	152	152	165	165	165	152	165	165	164	165	165	165	162	163	163
Gender	Pearson Correlation	0.029	-0.047	-0.025	0.126	0.060	0.072	0.022	-0.079	.267(**)	0.037	0.070	0.042	.212(**)	0.047	0.040	-0.103	0.013	-0.067	-0.030	0.070	.248(**)	-.190(*)	1	-0.020	0.014	0.039	-0.075	0.015	0.105	.185(*)
	Sig. (2-tailed)	0.707	0.544	0.746	0.105	0.444	0.356	0.781	0.314	0.000	0.636	0.387	0.605	0.009	0.561	0.625	0.205	0.878	0.389	0.697	0.372	0.002	0.015		0.801	0.855	0.618	0.335	0.849	0.180	0.018
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
Deprivation Cat (c)	Pearson Correlation	.173(*)	-0.020	.259(**)	0.010	0.137	0.021	-0.053	0.125	0.035	-0.005	0.072	-0.065	0.013	-0.006	-0.084	-0.046	-0.016	.159(*)	0.026	0.032	-0.071	-.179(*)	-0.020	1	-0.044	-0.086	0.032	-0.128	-.205(**)	-.184(*)
	Sig. (2-tailed)	0.027	0.797	0.001	0.903	0.081	0.794	0.501	0.111	0.657	0.952	0.378	0.427	0.870	0.946	0.305	0.577	0.846	0.043	0.744	0.681	0.387	0.022	0.801		0.560	0.276	0.681	0.108	0.009	0.037
	N	164	164	164	164	164	164	164	164	164	164	152	152	152	152	152	152	152	164	164	164	152	164	164	164	164	164	164	161	162	162
Amputation Level ©	Pearson Correlation	-0.128	-0.122	-0.113	-0.141	-0.049	0.032	0.056	-0.020	0.015	0.136	-0.023	0.051	0.035	0.110	.168(*)	-0.008	-0.070	0.050	-0.038	-0.021	0.034	0.095	0.014	-0.044	1	.246(**)	-0.087	0.142	0.038	-0.050
	Sig. (2-tailed)	0.099	0.117	0.147	0.070	0.533	0.684	0.461	0.797	0.845	0.081	0.779	0.534	0.671	0.174	0.037	0.922	0.392	0.523	0.645	0.788	0.678	0.225	0.855	0.560		0.001	0.263	0.071	0.628	0.528
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
diabetes	Pearson Correlation	0.083	-0.065	0.005	-0.054	0.053	-0.058	0.031	-0.042	.261(**)	.186(*)	-0.081	0.095	-0.066	0.053	0.075	0.073	0.009	0.041	-0.108	0.006	-0.015	-0.106	0.039	-0.086	.246(**)	1	-0.057	0.048	-0.068	-0.094
	Sig. (2-tailed)	0.422	0.408	0.944	0.490	0.497	0.458	0.691	0.595	0.001	0.017	0.321	0.242	0.415	0.517	0.357	0.371	0.915	0.603	0.166	0.940	0.855	0.176	0.616	0.276	0.001		0.468	0.545	0.387	0.232
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
Uni/Bilateral ©	Pearson Correlation	0.100	-0.144	0.061	-0.118	0.079	0.146	-0.020	0.063	0.036	0.068	-0.001	0.015	-0.026	-0.029	0.053	0.094	0.062	0.045	-0.026	-0.019	0.013	.173(*)	-0.075	0.032	-0.087	-0.057	1	-0.034	.173(*)	0.143
	Sig. (2-tailed)	0.199	0.065	0.438	0.130	0.311	0.061	0.796	0.423	0.642	0.381	0.992	0.853	0.752	0.721	0.517	0.248	0.446	0.562	0.736	0.811	0.873	0.026	0.335	0.681	0.263	0.468		0.663	0.027	0.068
	N	166	166	166	166	166	166	166	166	166	166	153	153	153	153	153	153	153	166	166	166	153	165	166	164	166	166	166	162	164	164
lenstay	Pearson Correlation	-0.035	0.052	-0.140	0.018	-0.154	-0.139	-0.030	0.010	-0.079	-0.031	-0.003	-0.096	-0.129	-0.033	-0.020	0.097	0.024	0.065	0.128	-0.139	-0.059	0.072	0.015	-0.128	0.142	0.048	-0.034	1	-0.022	0.037
	Sig. (2-tailed)	0.657	0.513	0.076	0.823	0.050	0.078	0.709	0.895	0.320	0.694	0.968	0.244	0.117	0.689	0.813	0.238	0.768	0.409	0.105	0.079	0.476	0.363	0.849	0.106	0.071	0.545	0.663		0.778	0.843
	N	162	162	162	162	162	162	162	162	162	162	149	149	149	149	149	149	149	162	162	162	149	162	162	161	162	162	162	162	160	160
t1icbas	Pearson Correlation	-.206(**)	-0.067	-.206(**)	-0.023	0.058	0.096	0.028	-0.113	0.093	0.022	.193(*)	0.012	0.057	0.060	0.051	-0.024	0.156	-0.091	-.196(*)	0.118	.300(**)	0.020	0.105	-.205(**)	0.038	-0.068	.173(*)	-0.022	1	.789(**)
	Sig. (2-tailed)	0.008	0.391	0.008	0.767	0.462	0.213	0.726	0.148	0.237	0.775	0.017	0.883	0.485	0.463	0.532	0.773	0.054	0.247	0.012	0.140	0.000	0.800	0.180	0.009	0.628	0.387	0.027	0.778		0.000
	N	164	164	164	164	164	164	164	164	164	164	153	153	153	153	153	153	153	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
t1icadv	Pearson Correlation	-0.118	-0.053	-.196(*)	-0.009	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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