Mental health literacy and intended help-seeking in adolescence

---

Examining the mediating and moderating effects of personal and perceived stigma.

Claire L. Goodfellow

Centre for Health Policy, School of Humanities and Social Sciences

University of Strathclyde

A thesis manuscript submitted to the University of Strathclyde for the

degree of Doctor of Philosophy

September 2020

Author's Declaration

This thesis is the result of the author's original research. It has been composed by the author and has not been previously submitted for examination which has led to the award of a degree.

The copyright of this thesis belongs to the author under the terms of the United Kingdom Copyrights Act as qualified by the University of Strathclyde Regulation 3.50. Due acknowledgement must always be made of the use of any material contained in, or derived from, this thesis.

Claire Goodfellow (Candidate)

30/09/2020

Date

Abstract

This study investigates the extent to which personal stigma mediates the relationship between mental health literacy (MHL) and intended help-seeking in adolescence, and whether perceived stigma from specific groups (parents and friends) moderates these relationships. Additionally, the study examines whether age, gender, and socioeconomic status (SES) moderate associations between MHL, stigma and intended help-seeking.

A theoretical framework is proposed and tested which draws on the Knowledge-Attitude-Behaviour model (KAB) and incorporates subjective norms (Theory of Planned Behaviour, Ajzen, 1991; 1988), which are known to be particularly predictive of adolescent behaviour.

The proposed framework of mental health literacy, stigma and help-seeking in adolescence was formulated to provide a possible explanation for known associations between MHL and help-seeking despite a well evidenced gap between knowledge and behaviour. The framework proposes that MHL (knowledge), informs personal stigma (attitude) which informs intended help-seeking (behaviour). It further proposes that perceived stigma from friends and parents (subjective norms) moderate associations between knowledge, attitude, and behaviour.

A cross-sectional survey was administered to 12-17 year olds ($n = 734$) and data were analysed using Structural Equation Modelling (SEM). Results indicated that MHL reduced personal stigma, but different forms of MHL were associated with both increased and decreased help-seeking intention, which represents a unique finding in the literature. Personal stigma did not mediate relationships in the model. Perceived stigmas acted as moderators, while demographic characteristics did not, indicating that the model holds well regardless of age, gender and SES.

Based on findings it is suggested that to improve help-seeking, MHL interventions focus on effective treatments rather than on information and identification of mental health problems. Findings also demonstrated that MHL was most associated with help-seeking intention when perceived stigma was high. Therefore, it is further suggested that both peers and parents be incorporated into school-based interventions aiming to increase MHL, reduce perceived stigma and promote help-seeking.

Acknowledgements

All successes are a shared effort, and I'm grateful to so many people for their time, support and effort in during my PhD and the writing of this thesis. I would first of all like to express my most sincere gratitude to my supervisors, Dr Edward Sosu and Dr Anna Macintyre for their time, patience and knowledge. Without their guidance and encouragement, this PhD would have been a much more bewildering and difficult experience. Thanks, also to thank Lee Knifton for stepping in to offer support in the final stages of the PhD. I am also grateful to Dr Rachel Harris from NHS Greater Glasgow and Clyde Specialist Children's Services for her input and would like to acknowledge the funding and support this PhD received from this department.

I am grateful for the wonderful colleagues who supported me during my secondments to the Finnish Association of Mental Health in Helsinki, and during my six-month secondment at NYU. Special thanks to Victoria Stanhope at NYU's Silver School of Social Work for her support during my stay, and for making me feel at home in New York.

I am grateful to all my PhD colleagues who have shared coffees, listened to frustrations and have made the PhD experience that much less isolating. Special thanks in particular to Kirsten MacLean, who has become a brilliant friend. Also, thanks to my friends and fellow PhD students Amy Tucker and Dimitar Karadzhov for all the solidarity, motivation and shared coffee chats.

Particular thanks need to go to my family who have always been so incredibly supportive and have shown more belief in my abilities than I have many times! To my twin sister Jenni, for being my life-long best friend and proof-reader in chief. I don't know how many G&Ts I owe you now, but I think it's fair to say they're on me for quite some time. Thank you forever for all your generosity, support, laughs, and of course, cute dog memes. To Audrey and Mark for all the support, cheer-leading and writing tips, and always believing in me, thank you so much. To my now husband Stuart, who was at the coalface with me during thesis writing (during lockdown in a pandemic), and was always on hand with coffee, snacks, and exactly the right words. Thank you for keeping me motivated, and thank you for making it through months long secondments, and the days on end I spent attached to my laptop. I am forever grateful for your love and support and I'm so happy we can share all our coming adventures together.

Finally, to my Dad who passed away in 2009. You got to see me graduate the first time in 2008 and didn't know I'd do it two more times again. Thank you for teaching me to be curious about everything. Without your curiosity for the world and how it works, I'd have never had the chance to become Dr Goodfellow. A title which I think would make you proud, and make you laugh.

Table of contents

List of figures

List of tables

List of abbreviations

Abbreviation	Explanation
CAMHS	Child and Adolescent Mental Health Services
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Cognitive Interviewing
CR	Critical Ratio
EFA	Exploratory Factor Analysis
GHSQ	General Help-Seeking Questionnaire
KAB	Knowledge, Attitude, Behaviour model
MAKS	Mental Health Knowledge Schedule
MHiAP	Mental Health in All Policies
MHL	Mental Health Literacy
PMHSS	Peer Mental Health Stigmatisation Scale
RMSEA	Root Mean Square Error of Approximation
SAMH	Scottish Association for Mental Health
SE	Standard Error
SEM	Structural Equation Modelling
SES	Socioeconomic Status
SIMD	Scottish Index of Multiple Deprivation
SRMR	Standardized Root Mean Square Residual
TLI	Tucker–Lewis index
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
WHO	World Health Organisation

Chapter 1: Introduction and overview of the thesis

1.1 Aim of chapter

The aim of this chapter is to provide a short overview of the thesis and provide a brief rationale for the aims and objectives of the study. This introductory chapter will contextualise the research and give a brief statement of the research problem and will outline the purpose of the study. Research questions will be detailed, and an overview of the structure of the thesis will also be provided.

1.2 Statement of the problem

Adolescent mental health both positive and problematic, (Friedli, 2009) represents a public health priority (Parkin et al., 2019; WHO, 2013). Adolescence represents a particularly vulnerable period for the development of mental health problems, with approximately half of all mental health problems emerging before the age of 14 (Kessler et al., 2005; Kessler et al., 2007). It is estimated that 20% of adolescents will experience a "disabling mental illness", and that 50% of all adult mental health problems begin in adolescence (Belfer, 2008). Development of a mental health problem in adolescence represents a significant impact on health and social outcomes across the life course (Kieling et al., 2011).

Additionally, international evidence indicates rates of mental health problems among adolescents are increasing (Bor et al., 2014; Collishaw, 2015; Thorisdottir, et al., 2017). While evidence from the UK indicates a substantial increase in referrals to Child and Adolescent Mental Health Services (CAMHS) (ISD Scotland, 2019; Frith 2016; Murphy, 2016). Despite increasing prevalence of mental health problems in the adolescent population, and an increase in referrals to psychological services, there remains a demonstrable treatment gap (Belfer, 2008; Polanczyk, et al., 2015) with one study finding that 63.8% of adolescents with clinical symptoms do not utilise formal services (Merikangas et al., 2011).

One possibility for this non-attendance is low mental health literacy (MHL) among adolescents which reduces help-seeking (Gulliver et al., 2010; Jorm et al., 2006, Kutcher et al., 2016; Ratnayake & Hyde, 2019). Mental health literacy has been defined as, "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (Jorm et al.,

1997). It has been noted that low MHL is one of the greatest barriers to child and adolescent help-seeking for mental health problems, with over half of young people surveyed indicating that they did not seek help for their mental health problems because they did not understand what it was they were experiencing (Mental Health Foundation Scotland, 2018). Several studies have reported a general lack of knowledge and understanding both around what mental health problems are, and what may happen if they are left untreated (Ratnayake & Hyde, 2019). While MHL has traditionally been conceptualised based on research with adult populations, there is a research imperative to inform developmentally appropriate frameworks of MHL in adolescence (Bale et al., 2018).

Furthermore, research demonstrates that as well as improved MHL, decreased stigma is a key factor in facilitating help-seeking and early identification of mental health problems (Gulliver et al, 2010; Kelly et al., 2007). Stigma relating to mental health problems is a barrier to adolescent help-seeking and is frequently cited as one of the biggest barriers to help-seeking among young people (Clement et al., 2015; Gronholm, et al., 2016; Mukolo et al., 2010; Yap et al., 2011).

Stigma is a common experience among young adolescents experiencing mental health problems, with 75% of participants in a survey stating that they believe people with mental health problems are treated negatively because of stigma (YMCA, 2016). Given the strong evidence between stigma and a lack of help-seeking, the reduction of mental health stigma among young people has been identified as a priority area for research and policy development (WHO, 2013). For example, it has been found that adolescents who do not seek help are seven times more likely to see a worsening of mental health problems than those who do seek help (Neufeld et al., 2017). Furthermore, it has been noted that while mental health literacy has shown an overall improvement among the public (Evans-Lacko et al., 2014; Thornicroft et al., 2014), stigma towards mental health problems remains slow to dissipate (Schomerus et al., 2012; Seeman et al., 2016).

Despite increased policy incentives to improve MHL in schools, a lack of help-seeking among adolescents persists. While there is some evidence that rates of MHL are improving among the general, adult population as noted above, there is less evidence demonstrating this improvement

among an adolescent population, and greater understanding of adolescent MHL and how it relates to help-seeking among this age group is needed.

The current study aims to better understand the relationships between MHL and help-seeking. As there is a known gap between knowledge and behavioural intentions, this study proposes that stigma may explain the gap between adolescent's knowledge (i.e. MHL) and intended behaviour (help-seeking), with specific forms of stigma acting to both mediate and moderate this relationship. Personal stigma is proposed as a mediator, and perceived stigma from referent groups as moderators. For clarification, personal stigma can be defined as the extent to which a person holds their own stigmatising attitudes towards devalued groups or persons, in this case, towards people experiencing mental health problems. Perceived stigma, meanwhile, can be defined as the extent to which a person believes stigma exists from others, in this case, significant others. Given that relatively little is known about how adolescents' MHL goes on to influence formal and informal help-seeking, this thesis aims to contribute to the understanding of these processes. It is argued that stigma is a factor which explains why, despite increases in interventions aiming to improve MHL, help-seeking remains low among adolescents. By better understanding the disconnect between knowledge and behaviour in this case, it may be possible to inform strategies to increase and broaden MHL, reduce stigma, and increase help-seeking intention.

1.3   Research Questions

Research questions were formed following a review of the literature pertaining to mental health literacy and mental health stigma in adolescence. An overview of this literature follows in the next chapter. The research questions presented here represent the broad research questions that were addressed in the study. More specific, and detailed questions guiding the research are provided in the methodology chapter.

The principal research questions are:

> **1.** Does personal stigma mediate the relationship between mental health literacy and intended help-seeking, both formal and informal, in a general adolescent population?

2. Does perceived stigma form parents and from friends act as a moderator of the relationship between literacy, personal stigma and help-seeking intention?

3. Do demographic characteristics (gender, age, SES) act as moderators of the relationship between mental health literacy, personal stigma and help-seeking intention?

4. What is the extent of mental health literacy, stigma and help-seeking among a general adolescent population and does this differ by age, gender, ethnicity or measures of SES?

5. Is mental health literacy associated with help-seeking intention, both formal and informal in a general adolescent population?

6. Is greater mental health literacy associated with lower personal stigma among a general adolescent population?

7. To what extent does personal stigma influence willingness to seek formal and informal help among a general adolescent population?

1.4   Purpose of the study

The purpose of this study was to explore mental health literacy and help-seeking in adolescence, and how specific forms of stigma may mediate or moderate the relationship between the two. This was informed by psychological theory and evidence that there is often a gap between knowledge (in this case, MHL) and behaviour (help-seeking) (Ajzen et al., 2011; DiClemente, 1989; Fisher & Fisher, 1992). Given that stigma is often a deterrent to help-seeking among adolescents (Gulliver et al., 2010), it was proposed that stigma may act as the mediator between MHL and help-seeking, and possibly explain the gap between knowledge and behaviour. This reasoning is informed by the contemporary social psychological theory on knowledge, attitude and behaviour, including the Knowledge, Attitude, Behaviour (KAB) model, and the Theory of Planned Behaviour (TPB: Ajzen, 1991; Ajzen, 1988).

Specifically, the current study hypothesises that personal stigma, as an attitude, acts as predictor of behaviour. Furthermore, perceived stigma, in this case from parents and from friends act as subjective norms, and may moderate effects between MHL, personal stigma, and intended help-seeking. The main theoretical model argues that an increase in literacy will be associated with

lower personal stigma, and increased intention to seek help. It is further argued, with reference to theoretical paradigms (TPB, Knowledge, attitude, behaviour model; KAB) that attitude alone may not act as a sufficient 'bridge' between knowledge and behaviour, and that subjective norms (perceived stigmas) may have a moderating effect on the literacy, stigma, intended behaviour process.

A review of the literature (summarised in chapter two) revealed that stigma is a complex construct with multiple forms. Most research in relation to stigma will look at one form of stigma (e.g. self-stigma) and one outcome (e.g. help-seeking). Research that has looked at multiple forms of stigma have found these to act differently on help-seeking. In the adult literature, personal and perceived stigma have differing levels of effect on help-seeking (Busby et al., 2016; Eisenberg, et al, 2009; Lally et al., 2013; Pedersen & Paves, 2014).

Extensive review of the literature identified six studies which investigated perceived and personal stigma in adolescents (Calear et al., 2011; Dardas et al., 2016; Moses 2010; Nearchou et al., 2018; Elkington et al., 2012; Yoshioka et al. 2014). While these studies provide insight on the rates of perceived and personal stigma, only one recent study links perceived and personal stigma to help-seeking (Nearchou et al., 2018). The current study aims to further contribute to the limited evidence base relating to the associations between personal and perceived stigma and help-seeking intention by providing further evidence of how these forms of stigma impact on help-seeking intention, both formal and informal.

The literature also suggests that perceived stigma lacks specificity in measurement, with research items generally referring to perceived stigma from "others", or "the general public" etc. To address this, it was decided that the current study would measure perceived stigma from specific groups of significant others. In this case, from parents and friends. This represents an important addition to the literature, as it is currently unknown whether stigma from specific groups has differing effects on adolescent help-seeking intention. The views of significant others matter most, particularly in adolescence where close relationships can be protective factor or coping resource against mental health problems (Van Wel et al., 2000).

Additionally, given that little research has investigated perceived and personal stigma among adolescents, the current study aimed to add to this limited literature. This is an important gap as it is currently unclear whether perceived or personal stigma is more detrimental to adolescent help-seeking intentions. Therefore, it is not possible to accurately target and reduce the specific source of stigma in attempts to improve help-seeking.

To achieve the aims of the study, a questionnaire was developed which contained measures of MHL (Mental Health Knowledge Schedule [MAKS], Evans-Lacko et al., 2010); stigma (Peer Mental Health Stigma Scale [PMHSS], McKeague et al., 2015); and intended help-seeking (General Help Seeking Questionnaire [GHSQ], Wilson et al., 2005). These were then piloted and distributed to participants aged 12-17 in ten different schools across Scotland. A general (non-clinical) population was chosen for several reasons. It was believed that sampling exclusively those who have experience of mental health problems, or who have sought help may skew results. This is reflective of findings in the literature which demonstrate that young people with experience of a mental health problem may differ in levels of MHL compared to those who have not (Lam, 2014). Additionally, young people with a history of mental health problems are likely to have higher perceived stigma (Busby et al., 2016) than the general population. Adolescents who have already sought help for their mental health problems may have lower personal stigma (Griffiths et al., 2011; Schomerus et al., 2012) and more favourable attitudes towards help-seeking (Mitchell et al., 2017). With these considerations in mind, a general population was sampled, as findings may be more applicable in terms of feeding into development of MHL interventions aiming to improve help-seeking among the general population of adolescents.

Following data collection, measures used in the study were subject to psychometric assessment via confirmatory factor analyses. A main model was proposed with personal stigma as a mediator of MHL and help-seeking. This was then tested through use of Structural Equation Modelling (SEM) to assess for direct, indirect and total effects of MHL and personal stigma on intended formal and informal help-seeking. Once this model was derived, it was then subject to multigroup SEM to assess for moderating effects of perceived stigmas, as well as demographic data such as gender, age and SES.

Findings demonstrated that specific domains of MHL were associated with both and increased and decreased intentions to seek help. MHL was consistently significantly associated with reduced personal stigma. While personal stigma did not play a statistically significant mediating role, it was noted that perceived stigmas did moderate the model, with perceived stigma from parents showing significant mediating effects on help-seeking intention.

When comparing high and low perceived stigma groups, fewer significant associations between MHL and help-seeking were found among those who perceived lower levels of stigma from parents and friends. Although low perceived stigma was hypothesised to be associated with increased help-seeking intention, it may be that there are less associations between MHL and help-seeking in the low stigma group because increased literacy has a greater impact when stigma is high. For example, it was found that where perceived stigma from parents is low, MHL was not associated with help-seeking, suggesting that adolescents' own knowledge is less influential. However, when perceived stigma from parents was high, there were significant associations between MHL and help-seeking intention. Therefore, it was concluded that in cases were perceived stigma is high, adolescents' own knowledge (MHL) is crucial for help-seeking.

Results also demonstrated a strong association between MHL and stigma. This means that MHL interventions are likely to be particularly impactful among those who are likely to have high levels of stigma (e.g. boys, younger adolescents and minority ethnic and racial groups). Additionally, as results indicated that perceived stigma showed a moderating effect on help-seeking intention, it is argued that parents should be incorporated in any interventions aiming to improve help-seeking behaviours in adolescents.

Finally, another key finding was that contrary to hypotheses based on the existing literature, specific forms of MHL were not associated with increased help-seeking intention, but rather, were associated with decreased help-seeking intention. This represents a unique finding in the literature and represents a significant finding in relation to the development and delivery of MHL based interventions designed for adolescents.

1.5   Importance of the Study

As described above, while both poor mental health, and referrals to Child and Adolescent Mental Health Services (CAMHS) in the UK are increasing among adolescents (Audit Scotland, 2018; Crenna-Jennings & Hutchison, 2018; Frith, 2016), this rise in referrals is not however, reflective of the rise in adolescents experiencing mental health problems, which is believed to be higher than demonstrated by such increases in access to formal services (Merkingas et al., 2011; Murphy, 2016). There is a known treatment gap, whereby there are more adolescents experiencing mental health problems than are seeking help or being treated (e.g. Burstow et al., 2018; Keiling et al., 2011). This indicates that help-seeking remains low, despite an increase in mental health problems among adolescents.

A key reason for lack of help-seeking identified in the literature is low mental health literacy among adolescents. Interventions aimed at improving MHL and stigma among adolescents have shown mixed results, and often any increases in knowledge and decreases in stigma are not maintained long term (Wei et al., 2013). By aiming to better understand the relationship between MHL and help-seeking, it may be possible to tailor interventions to specific groups of adolescents who may be more likely to have low MHL. Even if MHL interventions increase knowledge in the long term, there is a known gap between knowledge and behaviour, and other factors, such as attitudes may be needed for knowledge to influence behaviour (e.g. Happell et al., 2014). By identifying whether personal stigma mediates the MHL and help-seeking relationship, and the extent to which perceived stigmas may moderate it, it is possible that by reducing stigma, we can increase MHL.

This study provides findings which represent a unique and new contribution to the existing knowledge base. Firstly, it was found that different types of knowledge relating to mental health, act differently on adolescents' intentions to seek help. To the best of the author's knowledge, there is no research which demonstrates a negative association between MHL and intended help-seeking. In this case, items relating to ability to identify a mental health problem, were associated with reduced intention to seek help. However, it was found that items pertaining to knowledge of treatment efficacy were associated with increased intentions to seek help. This has implications

for the content of MHL interventions developed for adolescents going forward. Given that the current mental health policy context is placing an emphasis on improving mental health education in school in both the UK (Mental Health Foundation, 2018; Scottish Government, 2017a, 2019; Department of Health and Social Care [DHSC] & Department for Education [DfE], 2017) and internationally (Brooks et al, 2019; Coburn, 2019; Kutcher et al., 2015; McDaid, 2016) it is a potentially timely finding that certain types of knowledge or information are more effective in increasing help-seeking intention. Based on findings in the current study, it is recommended that there be an emphasis placed on treatment and recovery from mental health problems.

Additionally this study makes an important contribution to the stigma and help-seeking literature by demonstrating that not only does perceived stigma have differing effects on help-seeking depending on referent group, but that perceived stigma from parents plays a particular and unique role in both formal and informal help-seeking for adolescents. Findings demonstrated that perceived stigma is higher than personal stigma, which is in line with previous studies (Calear et al., 2011; Calear, et al. 2017 Nearchou et al., 2018). It was further found that adolescents gave higher ratings of percevied stigma from friends than from parents.

 While personal stigma did not show mediating effects in the intital model, indicating that attidude in this case does not appear to mediate the relationship between knowledge and behaviour, it was found that perceived stigma moderated relationships present in the model. When examining differences between participants reporting high and low perceived stigma from friends, several associations varied between groups, these included the realationship: between personal stigma and formal help-seeking; between the MHL component relating to participants' ability to identify a mental health problem; and the relationship between informal and formal help-seeking. What is particularly important is that when percevied stigma from both friends and parents is low, it is noted that MHL is not as influencial in prediciting help-seeking intention, and plays a role predominantely when perceived stigma is high. It was also identified that those with low and high perceived stigma from friends showed no differences in mean scores of intention to seek help. This was not the case in relation to high and low perceived stimga from parents. It was found that

among those noting low percieved stigma from parents, there was a greater intention to seek informal help, and lower intention to seek formal help.

This indicates that low perceived stigma from parents may play a particularly powerful role in adolescent help-seeking. To the best of the author's knowledge, this represents a novel addition to the current literature, which rarely disentangles the role of stigma from specific groups of significant others, and less so, links this to help-seeking behaviour. This has implications more broadly, and indicates that perceived stigma from parents needs to be reduced in order to improve help-seeking intention. This may include involving parents in MHL interventions via a whole school approach (Mental Health Foundation, 2018; SAMH, 2017), meaning that parents and adolescents should be involved in approaches and narratives aimed at increasing MHL and reducing stigma. Additionally, it may mean that, in the case where formal services do not require parental consent, that this is publicised more widely to adolescents, or that consideration should be given to making formal services more accessible to adolescents.

1.6   Structure of the thesis

The subsequent chapters of this thesis aim to provide answers to the research questions outlined earlier in this introduction. The broad context within which the study is situated is presented in **chapter two**. This chapter will provide greater context for the research by offering more detail relating to the research landscape pertaining to adolescent mental health, MHL, and stigma. This chapter discusses the links between these constructs and begins to identify gaps in the literature. The overview of mental health literacy, stigma and help-seeking in adolescence also aims to address a theoretical gap between MHL and help-seeking, whereby knowledge is not always predictive of behaviour. It aims to give an overview of the complex and interrelated nature of MHL, stigma and help-seeking, and demonstrate that the adolescent literature is largely over dependent on frameworks developed based on research in an adult population (Corrigan et al., 2005; Heary, et al., 2017; Mukolo et al., 2010). **Chapter three** then details a proposed framework that aims to be developmentally appropriate for adolescents, and answers the call for frameworks specifically relating to adolescents. This draws on primarily on the Knowledge, Attitude, Behaviour (KAB) model, and aspects of the Theory of Planned Behaviour (TPB: Ajzen, 1991;

Ajzen, 1988) and outlines the role of personal stigma as a mediator between MHL and help-seeking. **Chapter four** outlines the methodology of the study, including how it was operationalised. Here research questions are stated in full. **Chapter five** then includes an overview of quantitative methodology and gives an overview of aspects of factor analyses and SEM. **Chapter six** goes on to provide results of analyses and how these relate to previously derived research questions. This begins with assessments of validity of measures used in the research through Confirmatory Factor Analysis (CFA), and some initial bivariate analyses. **Chapter seven** outlines more substantive analyses, including SEM and multi-group SEM. Finally, **chapter eight** provides a discussion, where the results will be discussed in relation to existing literature, and in relation to any impact findings may have on policy and practice. This chapter will also outline limitations of the current study and provide suggestions for future work. This chapter will close the thesis with a short overall conclusion.

Chapter 2: Adolescent mental health literacy, stigma and help-seeking: A review of the literature

2.1   Aim of the chapter

This chapter lays the foundation for the proposed research. To provide a comprehensive overview of the relevant research a thorough review of the literature was undertaken. This focussed on adolescent mental health literacy, stigma and help-seeking with the aim of highlighting both significant issues and gaps in the existing literature.

Firstly, key concepts used in the thesis and supporting literature will be defined. Then evidence identifying adolescence as a vulnerable period for emergence of mental health problems will be discussed. This will include an overview of inequalities in adolescent mental health, as well as an overview of current mental health policy responses. The chapter will then outline research which states that despite the rise in mental health problems, help-seeking among adolescents is still low. An overview of barriers to help-seeking will be discussed with reference to MHL and stigma. The chapter will conclude with a summary of gaps in the literature relating to MHL, stigma, and their association with reduced help-seeking. The literature will be discussed from a broader context of psychological theory linking knowledge (MHL) and behaviour (help-seeking). By addressing these issues, the chapter hopes to provide a rationale for examining the role of personal stigma in mediating the relationship between adolescent MHL and intended help-seeking.

2.2   Key concepts and definitions

Definitions of mental health, mental health problems, and mental well-being have largely evolved from a deficit focused or "absence of disease" model to incorporate ideas of positive psychology and well-being, however, they are often used incorrectly (Manderscheid et al., 2010). For example, "mental health" is commonly used in lieu of "mental health problems" despite these being opposing concepts. In recognition of this, a definition will be given to provide clarity around conceptualisation and use of "mental health problems" throughout this thesis.

In the previous chapter, mental health literacy was briefly defined as, "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (Jorm et al., 1997). The definition proposed by Jorm et al., (1997) remains the prominent definition. Though

as will be discussed in later in this chapter, definitions of MHL are often based on adult populations, and more research into adolescent MHL is needed to produce definitions which are contextualised to this population. When the term stigma is used in this thesis, it refers to stigma towards mental health problems unless otherwise specified.

2.2.1   What is mental health?

The term "mental health" is often used interchangeably when referring to mental illness, mental well-being, or mental health problems, and can pose problems when attempting to research, understand and communicate these constructs. As previously noted, "mental health" is often used in reference to mental health problems. While everyone has mental health, which may fluctuate, mental health problems or illnesses are more serious and occur in about 10 to 20% of children and adolescents (Pople, 2008; WHO, 2003) and an estimated 17% of adults in Scotland (Scottish Government, 2017b). However mental health is often conflated with mental illness or mental health problems. Confusion of these terms has potential to minimise the serious nature or potentially debilitating effects mental health problems or illnesses. Language must be used clearly to minimise stigma and encourage appropriate and timely help-seeking.

In relation to mental health research, a clear lack of definition is a problem that was recognised over half a century ago, when Scott, (1958) stated, "A serious obstacle to research in the area of mental illness lies in the lack of a clear definition of the phenomenon to be studied" (p.29), and while steps have been made to agree a universal definition of "mental health" this problem still exists. Given that the current research aims to study stigma towards mental health problems, an exploration of terms pertaining to mental health and mental health problems are outlined below.

Traditionally, mental health has been conceptualised as being the absence of mental illness (Greenspoon & Saklofske, 2001). More recently however, this conceptualisation has been criticised for being deficit focussed, whereby a simple absence of mental illness is sufficient to constitute mental health (Keyes, 2002). Moves are being made to define mental health in a more holistic way, and place mental health in a social context. For example, the WHO defines mental health as, "a state of well-being in which the individual realizes his or her own abilities, can cope

with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community " (WHO, 2004).

While definitions have moved away from deficit or problem focused concepts, it has been argued however, that definitions of mental health which place emphasis on hedonic (pleasure and happiness) and eudemonic (meaning and purpose) constructs (Deci & Ryan, 2008) may exclude adolescents who may not be as emotionally developed, or able to be as actively involved in society and community roles as adults (Galderisi et al., 2015). The same applies to the WHO (2004) definition of "mental health" which places an emphasis on community, however, a developmentally appropriate definition of mental health for adolescence has yet to be put forward, and definitions relating to adult concepts of mental health are commonly adopted when researching mental health in adolescence.

The definition of mental health and what is termed a mental health problem have implications for how issues of mental health and illness may be perceived and can lead to stigmatisation of people experiencing mental health problems. For example, a "medicalised" explanation of mental health problems, whereby these problems are demonstrated to have a biological cause (e.g. depression being related to dysregulation of neurotransmitters), has been shown to decrease blame towards a person with a mental health problem. However, while this aspect of stigma is decreased, perceived dangerousness, due to an inability to control behaviour results in a greater likelihood that people will avoid someone with a mental illness (Haslam & Kvaale, 2015). It is therefore important to be aware of how terms are conceptualised by participants in research relating to mental health problems, and the population more broadly.

The current research is interested in knowledge of, and stigma towards mental health problems, rather than towards mental illness. While conceptually similar, as detailed above, these are distinct constructs. These constructs also have differing meanings in relation to levels of stigma awarded to them. For example, the literature is clear in demonstrating that different mental health diagnoses may be subject to varying degrees of stigma among adolescents (Kaushik et al., 2016). For example, schizophrenia, which falls into the 'mental illness' category has been shown to receive greater stigma due to a high perceived degree of 'dangerousness', and is more frequently

stigmatised that more 'common' mental health problems such as depression and anxiety (Dolphin & Hennessey, 2014, 2016; Reavley & Jorm, 2011; Swords, Heary & Hennessy, 2011). As the current research investigates knowledge of, and stigma towards 'mental health problems' rather than mental illness or specific diagnoses, this term will be used throughout.

Given that the research was carried out in a Scottish context, this study also took guidance from the Scottish Parliament's briefing on mental health in Scotland (Nowell, 2014) when conceptualising mental health problems. This defines mental health problems as, "any condition, temporary or otherwise, which may affect a person's mental wellbeing" (Nowell, 2014, p.6). While conceptually close to mental illness, mental health problems tend to have a less significant impact on cognitive, emotional and social abilities, and may be shorter in duration (Hattersly, 2015). The research will create a working definition of "mental health problems" that draws from adolescents' own conceptualisations of what constitutes a mental health problem, thus ensuring good construct validity

2.2.2 Defining adolescence

Adolescence is considered to be one of the most rapid phased of human development (WHO, 2014). This is a period which is marked by significant shifts in social, biological, cognitive and affective states. Adolescence is seen as a critical developmental period and is typically understood as being the period between the onset of puberty, and establishment of social independence (Steinberg, 2014). However, definitions of adolescence vary. The WHO (2005) defines adolescence in relation to chronological age, and is defined as the period of age between 10 and 19 years (WHO, 2005), during which biological and psychosocial maturation occurs, and skills are acquired to carry out adult roles and responsibilities. Adolescence is, furthermore, viewed as distinct from adulthood in that it is marked by unique social and cultural contexts, which largely revolve around peer groups with shared values, norms, and behaviours (Nelson & Nelson, 2010).

There are arguments, particularly in the neuroscientific literature that definitions of adolescence based on chronological age, or reaching physical maturation are too narrow, and propose a notion of extended adolescence (Arnett, 2000, 2007). This is based on a growing body of longitudinal neuroimaging evidence which demonstrates that brain maturation continues beyond puberty

(Giedd, et al., 1999; Sowell et al., 1999; Sowell et al., 2001), and continues until around the age of 25. During this period of neurological and psychosocial development, the brain is undergoing a period of intense maturation. Regions of the brain which underline executive function (i.e. the frontal lobes) such as forward planning, impulse control and working memory are among the last to develop (Johnson et al., 2009; Sowell et al., 1999). Additionally, development of these functions may operate on different timelines, making adolescent a period of vulnerability for risky decision making and behaviours, as well as the emergence of mental health problems (Dahl, 2004; Blakemore, 2018; Keating, 2004; Steinberg, 2005). In light of this, adolescence has been likened to "starting an engine without yet having a skilled driver behind the wheel" (Steinberg, 2005, p. 70).

While different fields will variously define adolescence (e.g. in relation to neurobiological maturation, or to achievement of social and cultural roles), for clarity the current research takes guidance from bodies such as the American Psychological Association (APA), which defines adolescents as being those aged between 10 and 18 (APA, 2002); and the WHO, who defines adolescence as being between 10 and 19 years (WHO, 2005). While there are the aforementioned arguments to broaden definitions of adolescence to include those up to the age of 25, adolescence in this thesis will use the more accepted, and narrower definition. This is to avoid conflating adolescents and young adults, which represent distinct phases of development (McDonagh, 2018), and are defined by the United Nations (1989) as those aged between 15 and 24 years.

2.3 Emergence of mental health problems in adolescence

There is a well-documented rise in mental health problems in adolescence (Bor et al., 2014; Collishaw, 2015.) It is estimated that 50% of mental health problems begin by the age of 14, with 75% emerging by 24 years of age (Kessler et al., 2005). While other research has shown that 85% of adults with a diagnosed mental illness were first diagnosed between the ages of 11 and 21 (Kim-Cohen et al., 2003). These findings represent that adolescence represents a critical period for the emergence of mental health problems that may persist into adulthood. There is therefore a clear need to develop a better understanding of help-seeking processes. By better understanding adolescent help-seeking, it is possible to develop interventions to increase this behaviour in

adolescence, and therefore potentially negate negative consequences of mental health problems persisting through the life course. A key area for research is therefore the associations between MHL, stigma and help-seeking and how the interplay of these variables may help or hinder help-seeking among adolescents during this critical period.

Despite the prevalence of mental illness and mental health problems in the adolescent population, research has found that around 70% of children and adolescents do not receive treatment at an early age (Pople, 2008), meaning that these disorders may persist into adulthood. Indeed, this under-treatment of adolescent mental health has been recognised as a public health concern (Polanczyk, et al., 2015), and the reduction of mental health stigma among young people has been identified as a priority area for research and policy development (WHO, 2013). There is therefore a clear need for early intervention as a preventative measure mental illness in adulthood, and to improve the wellbeing of young people.

2.3.1   Adolescent mental health inequalities

While youth mental health problems are on the increase generally, there is a well-documented social gradient in relation to health, with those experiencing greater deprivation also experiencing worse outcomes in relation to health (Marmot, et al., 2010; 2020), and mental health (Fryers et al., 2003; Henderson et al., 1998). This social gradient is also demonstrable among an adolescent population (Collishaw et al., 2019; Fairchild, 2019; Langton et al., 2011; Reiss, 2013).

For instance, it has been found that 54% of adolescents with an emotional disorder are from low income families, and that 15% of children with parents in routine occupations experience a mental health disorder compared to 4 % of children with parents in higher professional groups (Kavanagh et al., 2009). It has also been shown that 80% of children and young people in need of treatment who live in poverty-impacted areas do not receive treatment, while 50% of those who do attend at least one appointment drop out of treatment prematurely (Acri et al., 2016).

In addition to the greater prevalence of problems among adolescents from more disadvantaged backgrounds, there is evidence that mental health literacy is lower among adults with lower levels of education, income and occupational status (von dem Knesebeck et al., 2012) and among adults

with lower education (Kaneko & Motohasi, 2007), a common proxy for SES (Shavers, 2007). Considering that low MHL is known to be a significant barrier to help-seeking (Gulliver et al., 2010), and that MHL may be important for successful help-seeking and recovery (Bonabi et al., 2016; Kutcher, et al., 2016; Neufeld et al., 2017) this inequality in literacy may perpetuate poor help-seeking and poorer mental health outcomes from adolescents from low SES backgrounds.

While there is some evidence for lower MHL among low SES adults, adolescent literature rarely looks at the associations between measures of SES and MHL. While there is limited research, what does exist shows mixed results. Research has found that adolescents attending schools in deprived areas showed similar levels of MHL as other adolescents (Leighton, 2010), while other work has noted that higher family income was associated with higher level of MHL among adolescents (Attygalle et al., 2017). Differences in relation to SES may be due to different methods of measurement. For instance, Leighton (2010), uses percentage of deprivation at the school level, while Attygalle et al., (2017) use measures of maternal and paternal education, as well as family income at the individual level, as different measures of SES are likely to be differentially associated with outcomes, such as MHL. However, greater research is needed into associations between MHL and SES among adolescents.

There is evidence that the 'mental health gap' between the poorest and richest children and adolescents is increasing (Collishaw et al., 2019; Fairchild, 2019). This is of particular concern given that more than half of adult mental health problems are preceded by mental health problems during adolescence (Kim-Cohen, et al., 2003). With the recognition that health and mental health services for the most disadvantaged families have been particularly hard hit by public spending cuts (Stuckler et al., 2017), research elsewhere highlights the need for policy changes that close this mental health gap in adolescence (Collishaw et al., 2019).

2.3.2   Current youth mental health policy context.

As previously noted, rates of mental health problems in adolescence are a significant public health concern, (Singh & Winsper, 2017), and as such, policy responses have been developed to help counteract the effects of increasing rates of mental health problems, as well as prioritising early intervention and prevention (e.g. Parkin et al., 2019; Scottish Government, 2017a; WHO,

2005). While it is not possible to give an in-depth policy review within the scope of this thesis, it is however, important to provide a 'snapshot' of current mental health policy to contextualise the research, and to link findings with the current policy environment. First a broad, global policy context will be discussed, before narrowing the scope to look at Scottish specific youth mental health policy.

Globally, the cost of all mental health problems in 2010 was estimated to be $2.5 trillion (USD), and is expected to rise to $6 trillion by 2030 (Bloom et al., 2011). This represents an economic burden similar to that of cardiovascular diseases, and a greater economic burden than cancer or diabetes. In addition, mental health problems are the leading cause of disability among young people in all global regions (Booysen et al., 2019; Kieling et al., 2011). Despite mental health representing such a significant global economic cost, there is a notable lack of funding and accessibility of mental health services specifically for children and adolescents. It is argued that this translates into poorer mental health outcomes, higher rates of unemployment, and increased engagement in the criminal justice system, and that "immediate global action" is needed to develop public policy frameworks which prioritise young mental health (Booysen et al., 2019).

A key policy imperative from a global mental health perspective, is to improve the mental health literacy of children and adolescents (Booysen et al., 2019). Ideally, via school-based approaches to promoting awareness, reducing stigma and increasing help-seeking intention. It is also recommended that parents or caregivers are involved in promoting mental health literacy. Further policy priorities in relation to youth mental health pertained to the need to adopt a holistic approach and early intervention strategies, as well as making sure adolescents themselves play a key role in the development of policy and services (Booysen et al., 2019).

Within the European context, there is a move towards a *Mental Health in All Policies* approach (MHiAP), which is a policy approach that promotes population mental health by embedding a focus on mental health in all areas of public policy. This includes incorporating mental health into areas such as environmental, labour and importantly, educational policy. Recommendations are made which relate to promoting mental health literacy, and embedding this in the school curricula, which has been successfully done in countries such as Iceland, Italy and Finland (e.g. Mental

Health And Wellbeing EU Joint Action, 2017a, 2017b). Additionally, through use of a MHiAP approach, it is possible to highlight the impacts of public policies in all sectors on the social determinants of mental health, and reduce inequalities in mental health, which is a particularly important in relation to adolescence.

2.3.3 Scottish policy context

As the research was conducted in Scotland, a brief overview of contemporary Scottish mental health policy is provided to contextualise the research and link it to current policy priorities. Policy in relation to youth and adolescent mental health has been shifting rapidly. The Scottish Government's mental health strategy for 2017-2027 is the dominant mental health policy framework in Scotland currently. While there is not a standalone strategy for children and young people, there is a strong emphasis in the strategy on youth mental health contained within the main strategy itself. The strategy identifies several key areas for change, and where more research is needed. It contains forty actions, and fifteen of these refer specifically to children and young people (Scottish Government, 2017a).

Key recommendations coming from the mental health strategy and third sector agencies (e.g. Mental Health Foundation 2018; SAMH, 2018; Young Scot Observatory, 2019) involve education-based interventions. These largely involve a 'whole school' approach to mental health promotion, whereby all staff, whether teaching staff or not, as well as parents and pupils are actively involved in mental health promotion and build skills and knowledge around mental health. The aim here is to create a positive environment whereby discussion of mental health related issues is open and minimally stigmatising. Further recommendations included increased training in mental health related issues for teaching staff, and an increase in provision of counsellors based in-school.

Policy recommendations have been made by young people themselves, via the Scottish Youth Parliament's report 'Our Generation's Epidemic' (Scottish Youth Parliament, 2016), and the Scottish Youth Commission on Mental Health Services (see: Young Scot Observatory, 2019). Recommendations focus on improving access to information around mental health and related services; increasing support and promoting mental health in schools; reduction of stigma and

community engagement on mental health matters; and adopting rights-based, and person-centred models of care for adolescents.

While the current mental health strategy in Scotland makes important moves in prioritising youth and adolescent mental health, the strategy itself has not been without criticism. The strategy's focus on early intervention and prevention has also been criticised, as it is argued that in practice, early intervention is limited, and mental health services for young people are largely focussed on crisis and specialist care. It is further argued that access to services varies across the country and this poses an additional barrier to young people and their families in accessing appropriate help for mental health problems (Audit Scotland, 2018).

There is however, a particularly pressing need for policymakers to understand and tackle health inequalities in Scotland, as it has some of the widest health inequalities in Western Europe (Popham & Boyle, 2011). Further to this, the Health Behaviour in School Aged Children Study (HBSC) has found that the decline in wellbeing among adolescents in Scotland shows a steeper decline than in other countries (Elgar et al., 2015; SAMH, 2018), underwriting a particular need to explore barriers to help-seeking among adolescents in Scotland through a health inequalities lens.

2.4 Help-seeking in adolescence

As noted above, there is an evident treatment gap between rising rates of mental health problems, and relative lack of help-seeking among adolescents (Gulliver et al., 2010; Merikangas et al., 2011; Rickwood et al., 2005) and that this gap is wider adolescents from low socioeconomic backgrounds (Collishaw et al., 2019; Fairchild, 2019). Evidence suggests that a lack of help-seeking results in worsening mental health outcomes for young people (Dell'Osso et al., 2013; Neufeld et al., 2017), the effects of which may still be felt in adulthood (Hazell, 2007; Kessler et al., 2005). The reluctance of adolescents to seek help represents a significant barrier to the delivery of appropriate support, and can place adolescents at a greater risk of developing severe mental health problems (Rickwood et al., 2007). The following section aims to give an overview of help-seeking in adolescence. Specific barriers to help-seeking (i.e. low MHL and stigma) will be discussed subsequently.

In a mental health context, help-seeking has been defined as "an adaptive coping process that is the attempt to obtain external assistance to deal with a mental health concern" (Rickwood and Thomas, 2012, p. 178). The WHO (2007), defines help-seeking as a behaviour that is performed when a person perceives that they are in need of assistance with a problem, when the intended outcome of that behaviour is addressing that problem. Cauce et al. (2002) proposed a model for mental health help-seeking which proposed three interrelated components of help-seeking. These were: problem recognition; the decision to seek help, and selection of a help source. These stages reflect why MHL is particularly important, as high MHL is needed for each of the component parts of the help-seeking process.

Help-seeking acts as a key first step in improving mental health problems. In order to improve mental health related outcomes, it is necessary for adolescents to communicate any difficulties relating to their mental health to others as a means of seeking support and further treatment (i.e. mental health help-seeking (Rickwood et al., 2012). Difficulties can be communicated to either informal sources, such as family and friends, or formal sources, such as primary care physicians (GPs), or mental health professionals. Help-seeking broadly refers to all stages of the process, including initiation of, and engagement with care (Kovandžić et al. 2011)

Help-seeking is generally low among adolescents (Kessler et al., 2005), with one survey carried out in England and Wales finding that 61% of 11-17 year olds are unwilling to talk to someone about their mental health (YMCA, 2016), with similar findings reported in other surveys (Scottish Youth Parliament, 2016, Time to Change, 2014). There is additional empirical evidence throughout the literature which states that the proportion of adolescents with mental health problems who have sought help from formal services are low (Essau, 2005; Merkingas et al., 2011; Zachrisson et al., 2006).

2.4.1 Formal and informal help-seeking

It is important to distinguish between formal and informal help-seeking. This is a particularly important distinction in relation to adolescence, as adolescents have less autonomy in initiating formal mental health support than adults (Logan & King, 2001; WHO, 2007; Wilson & Deane, 2012). This lack of autonomy, particularly among younger adolescents means that parents are

commonly the one to instigate help-seeking from formal avenues (Langeveld et al., 2010). Definitions of formal and informal help-seeking are intuitive, with informal help-seeking referring to seeking help from family and social networks, such as parents and friends; while formal refers to seeking professionals who have a recognised training in providing appropriate support, such as counsellors, teachers and youth workers (Rickwood et al., 2005; WHO, 2007).

While adolescent help-seeking is generally low, with far fewer seeking help than are estimated to have mental health problems (Gould et al, 2009; Polanczyk, et al., 2015; Wasserman et al., 2010). This may in part be related to the transitional period of development, in which adolescents aim to assert their own identity and independence (Erikson: 1959, 1968). Broadly, it is argued that seeking informal help from peers or parents, or formal help which necessitates assistance from parents is contrary to the developmental goals of adolescence, namely separation from family in order to achieve individuation and independence (e.g. Logan & King, 2001).

When adolescents do seek-help it is usually from informal sources in the first instance (Del Mauro et al., 2013; Gronholm et al., 2016; Rickwood et al., 2005; 2007). It is argued that informal help-seeking is seen as being less confronting than talking to an unknown professional (Raviv et al., 2000), and that the views of significant others matter most, particularly in adolescence where close relationships can be protective factor or coping resource against mental health problems (van Wel et al., 2000). Despite this, the majority of studies examine help-seeking from formal sources (Brown et al., 2014; Yap et al., 2011). For example, Rickwood & Thomas, (2012), conducted a systematic review of mental health help-seeking literature. Of these, only 12% referred to adolescent populations. Of all papers included for review (including all age groups), only 2% of included studies investigated informal help-seeking exclusively, while 32% investigated both formal and informal help-seeking. This demonstrates that not only is adolescent help-seeking comparatively understudied, but that informal help-seeking is also understudied and therefore likely to be less well understood

What research does exist identifies that for adolescents, informal help-seeking may act as a coping mechanism, and it is contingent on a trusting relationship and a perceived low risk of being judged (Heerde & Hemphill, 2018; Huggins et al., 2016; Gronholm et al., 2016; Van Wel, et al, 2000).

For example, in a qualitative study by Gronholm et al. (2016) it was demonstrated that disclosure of mental health problems by adolescents was conditional on a trusting relationship and a low risk of being devalued by the person they disclose to (i.e. low perceived stigma). In addition, Buchholz et al. (2015) investigated informal help-seeking and suggested that while disclosure is a useful coping strategy, adolescents may be exposed to additional risks when seeking informal help, particularly in relation to negative reactions of peers.

There are findings in the literature to suggest that while informal help-seeking is a first step in accessing formal help, that it is not always beneficial to adolescents. For example, Rickwood et al., (2005), state that seeking help from peers may be problematic as 'disturbed young people shows a strong leaning towards other disturbed peers (Sarbornie & Kauffman, 1985), and therefore have peer group relations that often involve conflict and poor social-cognitive problem solving (Marcus, 1996). More recent research also demonstrates that adolescents with externalising disorders are more likely to be friends with those who exhibit similar behaviours, although this was not the case for internalising disorders which were not associated with peer relationships (Long et al., 2020).

In contrast to these findings, there is a body of research which suggests that informal help-seeking, in the form of peer support, is an important and effective strategy among adolescents. Peer support is based on a shared lived experience of peers, and typically involves at least one of the individuals in the peer support group having recovered, or being in recovery from a mental health problem (Ansell & Insley, 2013). Peer support as a means of informal help-seeking may be particularly effective for adolescence given that identity and social development is key during this period. It is argued that since adolescents are highly invested in peer relationships and are particularly negatively affected by social exclusion (Branje et al., 2014), adolescent peer support may be a particularly effective method of informal help-seeking. It also has the potential to reduce self-stigma (Álvarez-Jiménez et al., 2012), as well as providing adolescents with support and increased self-efficacy (Christiani et al., 2008).

Peer support could provide a developmentally relevant method of support, as well as a vehicle to improve mental health literacy and reduce stigma. For example, recent research has shown that

peer led mental health first aid sessions (which aim to improve knowledge, attitudes and helping behaviour) can increase adolescents' ability to correctly identify mental health problems among peers, and increase their confidence and knowledge in how to help that peer (Hart et al., 2018). Additionally, research with adults experiencing serious mental illness has found online peer support (via social media) helps to increase feelings of connectedness and challenge stigma towards mental health problems (Naslund et al., 2016), and it has been noted that this may be a particularly useful strategy for adolescent peer support (Álvarez-Jiménez et al., 2016).

Formal help-seeking is arguably the more effective route to improved mental health outcomes, as it has been shown to provide protection against a number of mental health risks (Martin, 2002; Neufield et al., 2017; Rickwood, et al., 2005). However, adolescents are largely unlikely to seek formal help (D'Avanzo et al., 2012; Rickwood et al., 2005; Wilson et al., 2005). One systematic review of adolescent mental health help-seeking described adolescents preference to seek help informally as a "barrier to seeking professional help", and this barrier was reported in 24% of the 53 papers reviewed (Radez et al., 2020). Lack of formal help-seeking may be related to lack of autonomy as previously mentioned, as well as other factors such as not wanting parents to find out (Wilson & Deane, 2012); not knowing where to seek help (Fortune, Sinclair, & Hawton, 2008; YMCA, 2016); fear of receiving a stigmatising diagnosis (Gulliver et al., 2010); fear of being treated "like a child" by mental health professionals (Corry & Leavey 2017; Zachrisson et al., 2006), and a preference for self-reliance (Gulliver et al., 2010; Radez et al., 2020). Additionally, in their systematic review, Radez et al., (2020), identified 'logistic' barriers to formal help-seeking, such as prohibitive costs, and lack of access to transportation, with excessive waiting times and limited availability of formal services being a particularly important barrier.

These barriers need to be tackled via targeted intervention and policy changes to encourage formal help-seeking among adolescents. Unwillingness or reduced ability to seek formal help-seeking also places low-SES participants in a particularly vulnerable position. While adolescents are unlikely to seek formal help themselves, it is high-SES parents who are disproportionately more likely to seek referrals to formal services (Benjet et al., 2016). This is compounded by findings which show that one negative interaction with health care professionals can create mistrust and

perceived stigma, and Allen et al. (2014), have noted that low-SES individuals are less likely to use services due to experience or expectation of demeaning patient-provider interactions. This means that low-SES parents may be less likely to initiate and engage in formal help services. These findings mean that low-SES adolescents are arguably the least likely to seek or receive formal help. Therefore, further research is required in order to better understand both barriers and facilitators of formal help seeking.

There are factors which may impact on formal and informal help-seeking differently. The literature documents that both MHL and stigma may act differently on formal and informal help-seeking. For example, interventions based on improving MHL have differing effects on formal and informal help-seeking. In a systematic review of literature evaluating interventions aimed at improving help-seeking in all age groups, Xu et al. (2018) note that these interventions improved MHL, personal stigma, and increased formal help-seeking. However, this increase in formal help-seeking was not found among adolescent participants. It was additionally found that these interventions had no effect on informal helpseeking, suggesting that in this case, MHL did not impact on informal help-seeking intention.

Contrary to this, later evidence suggested that in some cases, provision of interventions aimed at improving help-seeking through increasing literacy showed increases in formal help-seeking intention compared to informal in adolecents (Robles & Bronstein, 2020). However, informal is defined as "family, teachers etc", with formal defined as "health and MH professionals". This presents a narrower definition of formal help-seeking than used in this thesis and elsewhere in the literature, and is in contrast to research with adolescents in which teachers are considered formal sources of help rather than informal (e.g. Cakar & Savi, 2014; D'Avanzo et al., 2012; Wilson et al., 2005). These findings demonstrate differences in succesful strategies for improving help-seeking between adults and adolescence, and demonstrate differences in findings for formal and informal help-seeking, suggesting that these help-seeking behaviours differ. However, attention must be paid to how formal and informal help-seeking is defined and measured in adolescent research, as differences in these definitions may lead to mixed findings in the literautre.

Stigma has also been demonstrated as being differentially assoicated with formal and informal help-seeking. Yap and Jorm (2011) state that most pre-existing literature around stigma and help seeking has examined help seeking from formal sources, and much less is known about how stigma effects help seeking from informal sources. When investigating formal and informal help seeking it was found that adolescents who attribute mental disorder to personal weakness are more likely to seek informal help, while those who consider mental disorder to be an illness would be more likely to seek formal help (Yap & Jorm, 2011). Work in an adult population has noted that perceived stigma inhibited informal help-seeking, while self-stigma was associated with reduced intention to seek formal help (Pattyn et al., 2014), however it is less clear how differing forms of stigma may impact on adolescent intentions to seek formal and informal help. Additionally, Polaha et al. (2015) found that perceived stigma made it less likely for parents to seek help for their children via informal mechanism, but this association was not found in relation to seeking informal help. While stigma is a known, and well demonstrated barrier to help-seeking, less is known about how stigma, and specific forms of stigma may act differently on formal and informal help-seeking.

While evidence is emerging that informal and formal help-seeking are distinct processes and that these processes may be different in adolescents compared to adults, it has been concluded that more research is needed in relation to how informal and formal help-seeking may influence each other (D'Avanzo et al., 2012). The current study will model the relationship between informal and formal help-seeking, hypothesising that informal help-seeking will be associated with formal help-seeking.

2.4.2   The role of parents and peers in adolescent help-seeking.

As noted above, parents often play a vital role in referring adolescents to formal mental health support, however both parents and peers have been shown to be influential in adolescent help-seeking intention and behaviour. For example, evidence suggests that adolescents with greater social support from family and friends may be more likely to seek help from informal networks compared to those with less supportive relationships (Heerde & Hemphill, 2018; Rickwood et al., 2005; Sheffield et al., 2004).

As well as practicalities of sourcing and initiating formal help, parents and friends may impact on adolescent help-seeking via their beliefs and attitudes (Wilks, 1986). It is evident in the broader literature that beliefs of parents are modelled by adolescents (Degner & Dalege, 2013), and this applies to beliefs about help-seeking. For example, if parents, or other significant adults or peers in an adolescent's social network hold negative beliefs about help-seeking, it is likely that these beliefs will influence that adolescent's help-seeking intentions (Cauce et al., 1992; Heerde & Hemphill, 2018; Rickwood & Braithewaite, 1994; Wilson & Deane, 2001). Cauce et al. (1992) also noted that where social norms do not encourage help-seeking, help is less likely to be sought. Conversely, where norms and beliefs are favourable, this can have a positive influence on adolescent help-seeking. It has been found that in relation to formal help services, the most significant influence comes from family and parents, with 55% of 15 to 17 year olds reporting that family was the key factor in seeking formal help (Rickwood et al., 2015). Furthermore, early work further noted that friends and peers are more likely to influence adolescent behaviour through modelling. Parents on the other hand are more likely to influence behaviour through norms (Biddle, et al., 1980).

While parents may facilitate help-seeking via initiation of formal help-seeking, or through modelling positive attitudes towards help-seeking, parents may also impede help-seeking. For example, parents who anticipate stigma are less likely to seek help for their adolescent children (e.g. Polaha et al., 2015), and if stigma hinders help-seeking it is possible that young people may be at risk of untreated or worsening illness (Wong et al. 2009). It is also noted in a WHO discussion paper on adolescence, that while parents and family may be sources of support, they may also restrict access to support services, particularly if their own beliefs, including stigma, are unfavourable towards the need for help (WHO, 2007). Additionally, parental perception of need, and recognition of a problem are significantly related to adolescent mental health service use (Logan & King, 2001; Ryan et al., 2015). This may indicate that parents who have low MHL are potentially less likely to immediately recognise a mental health problem or perceived need for help, and ultimately be less likely to initiate formal help.

Friends are also influential in both informal and formal help-seeking, both due to peer group norms, and because friends may an important source of help-seeking information and support. For instance, adolescent participants were most likely to recommend that a peer with depressive symptoms seek help from a counsellor (Burns & Rapee, 2006). While adolescents experiencing depression are more likely to seek formal help after receiving a recommendation from someone they know (Vogel et al., 2007), and it has also been identified that peers may be able to observe symptoms of poor mental health that adults may not see (Olsson & Kennedy, 2010). This suggests that adolescents may play an important role in supporting other adolescents to seek appropriate help both formal and informal.

Some research has recognised the role of social networks more broadly in relation to help-seeking, for example, the Network Episode Model (Pescosolido, 1992) places help-seeking behaviour in a social context. This was later revised (the Network Episode Model-Revised: NEM-R, Costello et al., 1998) to make it more appropriate for young people. The NEM-R recognises that adolescents have less independence in relation to health care decision making than adults, and highlights that adolescents are reliant on others to seek help on their behalf. Therefore, there is less emphasis on individual help-seeking choices, and more on the need for parents or other significant adults to notice a problem and instigate the help-seeking process.

A proposal in the literature that frame adolescent stigma specifically, within the context of social groups and peers is the Normalisation Hypothesis (Draucker, 2005). This suggests that social contexts such as peer groups are highly influential, and that adolescents are particularly sensitive to negative assessment. As a result, an adolescent may be reluctant to take part in a behaviour, such as help seeking, which may mark them as being different. This is consolidated in work by Raviv et al. (2000) who argued that adolescents are working towards establishing a sense of independence, and therefore, needing the help of others, and in particular the help of adults, may be viewed as a threat to their newly forming, independent identity.

2.5 Barriers to help-seeking: Mental Health Literacy

Mental health literacy represents a form of knowledge relating to recognition of mental health problems and effective help-seeking and treatment strategies. Therefore, when MHL is low,

effective help-seeking is impeded. The WHO (2013) recognise that health literacy is vital in improving outcomes for individuals and populations. It is expected that MHL is equally vital in improving outcomes in relation to mental health (Kutcher et al., 2016). The term 'mental health literacy' was coined by Jorm et al. (1997) as referring to "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (p.182). This definition is proposed to contain six knowledge-based components, which include the ability to recognise mental health problems; prevention of mental health problems; ability to identify risk factors; how to seek appropriate help; and knowledge of appropriate treatments (Jorm, 2015). It has also been proposed that MHL can be conceptualised as existing at three levels (O'Connor et al., 2014): recognition, knowledge and attitudes. Recognition relates to an ability to recognise and identify specific mental disorders; knowledge relates to knowledge of risk factors and the causes of mental health problems, as well as effective treatments, and finally, attitude relates to attitudes about help-seeking. These three levels conflate the six knowledge based components (Jorm, 2015) into a three level model of MHL. The current study aimed to measure MHL at each of these levels, and used a measure of MHL (Mental health Knowledge Schedule, MAKS: Evans-Lacko et al., 2010), which can be used to explore relationships between knowledge, attitudes and behaviours (Pingani et al., 2019; Wei et al., 2015) and was designed to assess knowledge pertaining to: help-seeking, recognition, support, employment, treatment and recovery (Evans-Lacko et al., 2010).

While there are calls to extend definition of MHL (Spiker & Hammer, 2018), it remains the case that definitions of MHL typically are developed based on research in adult populations (Ratnayake & Hyde, 2019). However, recent research has identified the importance of establishing developmentally appropriate frameworks of MHL for adolescents (Bale et al., 2018).

2.5.1 MHL in adolescence

While MHL has traditionally been conceptualised via research with adult populations, initial research into developing MHL models specifically for adolescents has identified some key areas relating to adolescent mental health knowledge. These are similar to areas seen in adult models, but include: the importance of having an overview of mental health problems; reduction of stigma; improved understanding of risk factors for mental health problems; building resilience and

increasing help-seeking (Riebschleger et al., 2017). These components are argued to provide a foundation for building developmentally appropriate MHL interventions which focus on improving adolescent mental health outcomes, rather than focussing solely on promotion of well-being (Jorm et al., 1997; Jorm, 2015; Kutcher et al., 2015). In other words, it is proposed that MHL interventions should relate to each of these six areas to be effective in increasing adolescent help-seeking among an adolescent population.

Recognising a mental health problem is regarded as the first step to seeking help, whether formally or informally. As noted, mental health knowledge and literacy has generally been found to be low in adolescent populations (Olsson & Kennedy, 2010; Myers et al., 2009; Wright et al., 2007; Wright & Jorm, 2009). This is demonstrated in a range of research both academic and through charitable organisations. For example, a survey of adolescents (12-17 years) in Scotland found that only a third would know how to help a friend who was 'feeling down all the time' (Myers et al., 2009), indicating that there is a low level of knowledge as to effective treatments and help-seeking strategies. Furthermore, it was found that there was confusion around what constitutes a mental health problem, with similar numbers of adolescents identifying stress as a mental health problem (56%) as identified schizophrenia (59%) and anorexia (51%). This demonstrates a lack of understanding of what constitutes a mental health problem or illness among adolescents (Myers et al., 2009).

2.5.2   MHL as a barrier to help-seeking

While low MHL is considered a barrier to effective help-seeking, it follows that, good mental health literacy among adolescents facilitates individual help-seeking and ability to recommend appropriate help-seeking to others (Gulliver et al., 2010; Kelly et al., 2007). Researchers have argued that poor mental health literacy amongst young people, is a significant barrier to professional help seeking (Rickwood et al., 2007). Using an example to demonstrate the extent of this barrier, a recent survey of adolescents found that 51% of young people said that they did not seek help for mental health problems because they did not understand what it was they were going through (Young Minds, 2018).

Young people themselves have noted that a lack of mental health literacy is a barrier to help-seeking. In a series of focus groups with young people aged 16-23 years, this lack of mental health literacy was highlighted by participants as one of their main barriers to accessing support (Gulliver et al., 2012). This was also deemed to be a significant barrier by adolescents in Scotland. A wide ranging-survey of 1,453 young people (the majority of whom were aged 12 to 17 years) was conducted by peer researchers. It was found that nearly three quarters (74%) of respondents did not know what mental health information, support, and services were available in their local area (Scottish Youth Parliament, 2016). Several key recommendations were made which placed a focus on improving knowledge around accessing appropriate help.

In relation to empirical research, it is notable that the majority of MHL literature investigates MHL and help-seeking in relation to specific mental health problems such as, depression (Dardas, 2016), anxiety (Hadjimina & Furnham, 2017), PTSD (Merritt et al., 2014) or borderline personality disorder (Furnham et al., 2014). While these studies add nuance to the MHL literature, it may not be as readily generalised and incorporated into broad based interventions aiming to improve MHL more generally. Therefore, an aim of the current study is to explore help-seeking for mental health problems more broadly.

Due to the noted links between MHL and help-seeking, interventions which aim to improve help-seeking by improving knowledge are relatively common. However, systematic reviews have revealed that these interventions often have mixed or temporary effects. Following a rigorous review of available literature, including RCTs and quasi-experimental approaches, Wei et al. (2013) concluded that, "there is insufficient evidence to claim for positive impact of school mental health literacy programs on knowledge improvement, attitudinal change or help-seeking behaviour" (p.109). Similarly, Sakellari et al. (2011) reviewed the literature on education-based interventions for secondary school students, and cited a lack of consistent methodology around delivery and measurement of intervention efficacy as a limitation of findings to date.

It has been noted that such interventions need to be refined if they are to change attitudes and behaviours towards help-seeking (Lo et al., 2018). While low MHL represents a key reason why there is a lack of help-seeking among young people, there are other reasons why young people

may show limited intention to seek help. In a systematic review of perceived barriers to mental health help-seeking amongst adolescents, while poor mental health literacy was one of the three most important barriers stigma was another highly relevant contributor to lack of help-seeking among young people (Gulliver et al., 2010).

2.6   Mental health stigma

Stigma towards mental health problems is a considerable barrier to help-seeking both among adults (Henderson et al., 2013; Schomerus & Angermeyer, 2008) and adolescents (Clement et al., 2015; Kaushick, 2016; Mukolo et al., 2010; Pescosolido et al., 2007). However, comparatively less stigma research has been conducted in adolescent population, despite research suggesting that childhood and adolescence is when attitudes towards mental illness are being formed (Corrigan & Watson, 2007; Hinshaw and Stier, 2008; Wahl et al., 2007). The following sections aim to give an overview of what stigma is, what mental health stigma looks like in adolescence, and how it impacts on help-seeking.

2.6.1   Mental health stigma in adolescence

Mental health stigma in adolescence is again, largely understudied (Heflinger & Hinshaw, 2010; Link et al., 2004), with the majority of research exploring stigma in adulthood (e.g. Schomemrus et al., 2008). Stigma mechanisms and consequences are argued to be poorly understood in relation to young people (McKeague et al., 2015), and that this lack of understanding has resulted in the failure of some anti-stigma campaigns targeted at young people, and an increase in understanding would, "better inform future stigma reduction policies and improve engagement, peer relationships and outcomes." (Kaushik et. al. 2016, p.417).

While there is comparatively less research in adolescent mental health stigma it is known that stigmatising attitudes can start at an early age. The building blocks of stigma are argued to develop through exposure to, and assimilation of parental views (Gale, 2007). This is reflective of findings outside of the stigma literature, which states that attitudes and beliefs of children are modelled from their parents (Degner & Dalege, 2013). Children as young as six have demonstrated an ability to grasp terms associated with mental illness and are well familiarized with cultural

stereotypes by age 10, or even earlier if they themselves are part of a stigmatized group or identity (Costello et al., 2005, Gale, 2007).

While stigma beliefs may begin at a relatively young age, research has shown that adolescents receive and perceive more stigma than younger children, or adults (Martin et al., 2007; Pescosolido et al., 2007). Stigma is a commonly reported experience among adolescents experiencing a mental health problem. For example, 75% of surveyed adolescents believe that young people with mental health difficulties are treated negatively as a result of stigma (YMCA, 2016). Another survey of young people demonstrated that 77% of young people with a mental illness have missed days at school and that 48% of adolescent respondents chose not to disclose their mental health problems, and instead blamed absenteeism from school or college on a physical illness instead (Time to Change, 2014). This illustrates the pervasive nature of exposure to stigmatising attitudes and behaviours. These findings demonstrate that stigma is widely felt among adolescents and not only has impacts on help-seeking but on broad aspects of life, including missed days from school. Due to its impact on help-seeking, mental health outcomes and on educational and social contexts, stigma represents a significant problem in relation to improving adolescent help-seeking and mental health.

2.6.2 Conceptualising stigma: origins, complexity and proposed frameworks

While stigma has received an increased degree of attention among healthcare professionals, social researchers and the general public over recent years (Earnshaw & Quinn, 2012; Scambler, 2009; Pescosolido & Martin, 2015;Weiss et al., 2006) stigma remains a highly complex, trans-disciplinary construct. The multiple realms in which stigma is investigated has resulted in different theoretical orientations having differing perspectives about the nature of stigma (Link & Phelan, 2001). Furthermore, stigma can be applied to a vast array of groups and circumstances (see Pescosolido et al., 2008). Perhaps because of this, stigma research has been criticised for lack of unanimity of stigma as a construct, and researchers have yet to produce one common conceptual definition of stigma (Deacon, 2006).

However, contemporary definitions mostly find their origin from Goffman's (1963) key text on stigma. In this Goffman defined the phenomenon of stigma as a pejorative belief about an

individual or marginalised group, and has been described as something which can reduce the individual "from a whole and usual person to a tainted, discounted one" (Goffman, 1963). Goffman described stigma as a 'mark' or 'attribute' that, when assigned to an individual or group, disqualifies them from full social acceptance (Weiss et al., 2001). Similarly, the World Health Organisation (WHO, 2001) defined stigma as a mark of shame, disgrace or disapproval which results in a person being rejected, discriminated against, or excluded from participating in a number of areas of society.

More recently, it has been pointed out that definitions such as this, which focus on an inherent flaw of character or status, underplays the role of the psycho-social process of labelling stigmatised individuals (Link & Hatzenbuehler, 2016). It is argued that a language shift from "attribute" to "label" is a necessary adjustment in syntax, as it challenges the idea of stigma as something inherent in a person's character, and switches the locus from an internal feature to something that is affixed to an individual by others and their beliefs.

An accepted conceptualisation of stigma in contemporary research is that stigma consists of three components: stereotypes, prejudice and discrimination (Corrigan & Watson, 2002; Fiske, 2000). This is borne out of research around attitude formation, which contends that attitudes are comprised of three main components; cognitive, affective and behavioural (e.g. Breckler, 1984). In relation to stigma, the cognitive component relates to stereotypes; the affective component to prejudice, and discrimination represents the behavioural component of stigma (Corrigan & Watson, 2002).

While this tripartite model of stigma (Corrigan & Watson, 2002), is a commonly used model of mental health stigma, there is a lack of research among adolescents which empirically measures all three (stereotypes, prejudice and discrimination) components (McKeague, et al., 2015), and it is argued that this hinders attempts to understand and diminish stigma among this age group (Dixon et al., 2013). Silke et al. (2016) have assessed this model in an adolescent population and found it to be a valid means of conceptualising stigma in adolescence. However, it was stressed that there is a need for further assessment in order to further refine the model. It was further proposed that future research should assess stigma across all three components to gain a better

understanding of how stigma operates across them, and that this may be particularly useful in adapting and developing stigma reduction interventions (Silke et al. 2016).

A competing conceptualisation comes from, Thornicroft (2006; 2008) who also put forward a tripartite model of mental health stigma. This proposed mental health stigma to consisting of three main 'problems'; the problem of knowledge (ignorance), problems of negative attitudes (prejudice), and problems of behaviour (discrimination). The problem of knowledge most closely related to a lack of mental health literacy, or what mental health problems are, as well as their causes and effects. Negative attitudes are argued to be formed from this lack of knowledge and dependence on negative stereotypes, which then go to form problems of behaviour in the form of active discrimination against those with a mental illness. It is argued that anti-stigma campaigns could be most effective be seeking to "solve" these problems and effectively create behaviour changes which would see a reduction in stigmatising beliefs and attitudes (Thornicroft, 2008).

Finally, it has been proposed that key to mental health stigma are beliefs around dangerousness and an individual's responsibility or "blame" for their mental health problems (e.g. Corrigan et al., 2000, 2002; Jorm et al., 2012). Corrigan et al., (2003) discuss how beliefs around blame and dangerousness may influence affective responses towards people with mental health problems, and how these are enacted behaviourally. Corrigan et al. (2003) found that attribution about an individual's responsibility for their mental ill health affects attitudes and behaviour towards that person. For example, it was found that if a person was deemed responsible for their illness, participants were more likely say they would avoid that person. It was further found that if a person is deemed able to control their illness, this was more likely to lead to rejection and discrimination. Alternatively, a greater understanding that a person's behaviour is caused by an illness they are neither responsible for nor have control over should hypothetically lead to affective responses such as pity, which would be more likely to result in helpful behaviour towards that person. Although some contemporary research would dispute this, and state that attributing blame to "biogenetic" causes (i.e. an illness) may well lessen attributions of blame, but increase avoidance and the belief that a person with a mental illness is dangerous (Haslam & Kvaale, 2015).

Dangerousness is most typically associated with psychotic disorders, though Reavley and Jorm (2001) also found perceptions of dangerousness to be increased towards hypothetical peers with depression. Perceptions of danger are related to a desire for social distance from someone with a psychological disorder (e.g. Corrigan, Green, et al., 2001), and social distance is common measures of stigmatising attitudes (Kaushik et al., 2016). Greater desire for social distance is seen to be related to diagnosis (Corrigan et al., 2005; Mukolo & Heflinger, 2011) with mental health conditions resulting in a greater desire for social distance than physical health conditions.

Adolescents are known to face uniquely stigmatising contexts, and adult frameworks of stigma may be insufficient. Numerous researchers have declared a need for developmentally appropriate frameworks (Heflinger & Hinshaw, 2010; McKeague et al., 2015; Mukolo et al., 2010; Silke et al., 2016). While strides have been made towards understanding the processes and mechanisms of adult mental health stigma these processes cannot automatically be assumed to be the same in the context of adolescence, in which social norms, roles and expectations vary to that of adulthood (Corrigan, et al., 2005). As will be discussed in greater depth below, adolescents have been demonstrated to both hold and receive a greater degree of stigma (Martin et al., 2007; Pescosolido et al., 2007); are under more pressure to adhere to group norms (e.g. Tomé et al., 2012), have less autonomy over health care behaviours (Langeveld et al., 2010), and have lower MHL (Olsson & Kennedy, 2010; Myers et al., 2009; Wright et al., 2007). All of these factors, and likely multiple others outline that adolescents and adults inhabit different social spheres. Stigma is a social process (Link & Phelan, 2001), and therefore these differences will inherently impact upon how stigma is felt and enacted in adulthood and adolescence.

Recent research (Heary et al., 2017) has noted the over-reliance on findings from the adult stigma literature and noting why this may not be appropriate. The differing social contexts of childhood, adolescence and adulthood is likely to result in contrasting stigma experiences and more research is needed to understand processes unique to mental health stigma in adolescence (Heary et al., 2017; Heflinger and Hinshaw, 2010; Mukolo et al., 2010).

With reference to adolescent stigma the emphasis is very much on the need to create frameworks which link aspects of stigma to reduced help-seeking and incorporate parent or care-giver roles

in help-seeking (e.g. Mukolo et al., 2010). This is especially important given that parents often act as gate-keepers to more formal avenues of help-seeking (Benjet et al., 2016; Logan & King, 2001; Wilson & Deane, 2012), and that adolescent stigma and help-seeking may be modelled by the beliefs of parents (Cauce et al., 1992; Heerde & Hemphill, 2018; Rickwood et al., 2015). These results reflect that adolescent help-seeking, particularly when formal in nature, is rarely without the influence of parents, though research reflecting this is relatively sparse in the literature. By not acknowledging the role of parents in adolescent attitudes and behaviours there is a risk of missing key targets for interventions aiming to increase help-seeking, and a results of research not being placed in the broader realities in which adolescents live.

2.6.3   Differing forms of mental health stigma

The stigma literature identifies various forms of stigma, often defined by the source of that stigma (e.g. public stigma vs self-stigma). As stigma occurs in a variety of ways, this makes it resistant to change, for example, if one type of stigma is reduced, or becomes socially unacceptable, other forms may take its place (Link & Phelan, 2001). There are numerous forms of stigma identified in the literature, which reflects the complex nature of this construct. Commonly studied forms of stigma are defined below.

Public stigma

Public stigma refers to stigmatising attitudes endorsed by the general public (Pescosolido et al., 2015) and occurs when more powerful groups in society restrict or limit opportunities for people with mental health problems (Corrigan et al., 2005; Link & Phelan, 2001). Individuals affected by mental health problems are likely to adopt these negative social judgments and begin to devalue themselves and their place in society (Muñoz et al., 2011).

Public stigma has been sub-dived to explore perceived stigma (or the extent to which a person believes stigma exists), personal stigma (the extent to which a person holds stigmatising attitudes towards devalued groups or persons), as well as self-stigma (the extent to which public stigma is internalised). These will be summarised in turn below.

Self-stigma

Self-stigma is conceptualised as the internalisation of public stigma (Corrigan et al., 2005) and has demonstrated negative impacts on help-seeking (Hartman, 2013; Chen et al., 2014, Clement et al., 2015) and self-esteem (Hartman et al., 2013; Moses, 2009a, 2009b).

Courtesy stigma

Courtesy stigma whereby someone feels stigma as a result of being closely associated with someone in a stigmatised group (e.g. Angermeyer et al., 2003) and may also be termed "associative stigma" but means the experience of stigma from people closely associated with a primary source of stigma (e.g. Ostman & Kjellin, 2002). In relation to adolescence courtesy stigma may be felt by parents of adolescents with a mental health problem, or indeed by adolescents who have a parent, friend or family member with a mental health problem.

Stigma of seeking help

Aside from other variants of stigma, the act of seeking help for mental illness is proposed to be a stigmatising act in and of itself. Shechtman et al. (2016) argues that this is an important barrier in help-seeking among adolescents and defines the stigma of seeking help as, "the fear that seeking help would diminish one's sense of self-worth" (p.1).

Macro level stigmas

Macro level stigmas relate to stigma which originates from broader structures and takes stigma beyond the interpersonal. Pescosolido et al. (2015) includes provider-based stigma and structural stigma within this concept. Provider based stigma referring to stigma from mental health professionals and other care providers. Pescosolido et al. (2015) describe provider level stigma as, "Prejudice and discrimination voiced or exercised, consciously or unconsciously, by occupational groups designated to provide assistance to stigmatized groups" (p.92) In the case of adolescent mental health stigma, provider-based stigma may refer to health professionals, or school staff; structural stigma would refer to broader policies or institutions which restrict opportunities for adolescents with mental illness. Though only one study could be identified which explored adolescent participants' awareness of structural stigma (Elkington et al., 2012),

several noted the need to further research macro level stigmas in adolescence (e.g. Chandra, 2014; Heflinger & Hinshaw, 2010).

Structural stigma, refers to broader socio-political structures. Corrigan (2004) describes structural stigma as: "policies of private and governmental institutions that intentionally restrict the opportunities of people" and "policies of institutions that yield unintended consequences that hinder the options of people" (p. 481). Link et al. (2004) conducted a comprehensive review of the literature around stigma towards mental ill health identified just two studies into the impact of structural stigma, and that, "the under-representation of this aspect is a dramatic shortcoming in the literature on stigma, as the processes involved are likely major contributors to unequal outcomes" (Hatzenbuehler et al., 2013, p.818).

2.6.4   Personal and perceived stigma

As the research in this thesis specifically investigates personal and perceived stigma in an adolescent sample, particular attention is paid here to outlining the extent of research into personal and perceived stigma and where gaps in the literature lie.

Personal stigma represents the extent to which an individual holds their own stigmatising views towards a population (e.g. people with mental health problems). Perceived stigma in comparison, is the extent to which an individual believes others hold stigmatising views towards a population (Corrigan & Shapiro, 2010). Typically, perceived stigma is reported as being higher than participants' own personal stigma (e.g. Calear et al., 2010; Eisenberg et al., 2009; Pedersen & Paves, 2014), meaning that adolescents rate their peers' stigmatising beliefs as being higher than their own. Calear et al. (2011) suggest that this effect is due to the presence of a social desirability bias whereby participants are reluctant to report their true beliefs about people with mental health problems, as these may not be socially acceptable, but are more comfortable giving a rating of other's stigmatising attitudes. However, it does indicate that interventions aimed at increasing help-seeking among adolescents should address both their personally held stigma, and the extent to which stigma is perceived from others. This is reflective of studies demonstrating that adolescents display less stigma then 'other people' (e.g. McKeague et al., 2015) and represents an important finding to convey to adolescents.

These findings illustrate that perceived and personal stigma are distinct, and act on help-seeking differently. In a systematic review and meta-analysis, Schnyder et al. (2017) examined the relationship between four specific forms of stigma and attitudes towards help-seeking among the general population. It was found that personal stigma negatively impacted intended help-seeking while perceived stigma showed no significant impact. This meta-analysis was based on research conducted in an adult population, and mirrors other findings in young adult, and adult populations. For example, perceived stigma is consistently rated higher than personal stigma (e.g. Busby et al., 2016; Eisenberg, et al, 2009; Lally et al., 2013; Pedersen & Paves, 2014). It is most commonly reported that personal stigma decreases help-seeking, while perceived stigma shows no associations (Eisenberg et al., 2009; Lally et al., 2013), reflecting that these forms of stigma act differently on help-seeking within an adult population. Heary et al. (2017) note that while the adult stigma literature was key in differentiating personal and perceived these forms of stigma, to date, little has been done in measuring both these concepts together in adolescent stigma research.

As noted in the introduction to this thesis, only six studies could be identified which investigated perceived and personal stigma in adolescents (Calear et al., 2011; Dardas et al., 2016; Moses 2010; Nearchou et al., 2018; Elkington et al., 2012; Yoshioka et al. 2014). While these studies provide insight on the rates of perceived and personal stigma, only one, recent study links perceived and personal stigma to help-seeking (Nearchou et al., 2018), and conversely to findings in the adult literature, this study found that perceived stigma was a stronger predictor of help-seeking for depression and self-harm. Nearchou et al., (2018) highlight the importance of investigating different types of stigma when examining adolescent help-seeking intention. However, with there being only one recent addition to the literature on personal and perceived stigma and its impacts on help-seeking in adolescence, there is a clear need for more research linking these constructs. In addition, Nearchou et al. (2018), despite making use of the General Help Seeking Questionnaire (GHSQ, Wilson et al., 2005), did not delineate the impact of personal and perceived stigma on both formal and informal help-seeking.

Additionally, a significant flaw in relation to research investigating perceived and personal stigma is that it uses broad measures which lack specificity. For example, previous studies have

asked participants how "most people" (e.g. Calear et al., 2011; Eisenberg et al, 2009; Griffiths et al., 2004; Nearchou et al., 2018; Yoshioka et al., 2014) or "other people" (Moses, 2010) would regard those with a mental health problem. This measurement of perceived stigma does not reference specific groups of significant others (e.g. friends, family etc.). This does not allow for an understanding of how specific social relationships may impact on stigma and intended help-seeking. Indeed Moses (2010) states of their study:

> "The questions asked about stigma experiences were broad, and not directed toward eliciting information about specific stigmatizing individuals or relationships (e.g., not distinguishing between peers vs. friends, or not specifying particular family relationships) such that responses mainly reflect participants' most salient and general impressions of stigmatization" p.992

Here Moses (2010) makes the case for increased specificity when asking about sources of perceived stigma and enforces the idea that perceived stigma needs to be investigated with reference to specific relationships and social groups. To date, no study has explored discrete groups as sources of perceived stigma, and how these may moderate personal stigma, and outcomes such as help-seeking. This is recognised as a particular gap in the research in reference to adolescents, especially in light of the significant influence of peers and parents in informing beliefs, attitudes and behaviours.

Therefore, it is important for measures of perceived stigma to be anchored around significant others, in order to understand which groups of significant others have a greater impact on stigma and help-seeking. Given that work has shown that adolescents are most likely to seek informal help from family or friends in the first instance (Del Mauro et al.,2013; Chandra & Minkovitz, 2006) it is important to investigate the extent to which adolescents believe their parents, peers or friends would hold negative beliefs towards mental health problems, as this may deter self-disclosure. Considering that adolescents rely on parents for formal help-seeking, and are also influenced significantly by their peers, decomposition will allow for an in-depth understanding of how specific significant others influence the relationship between perceived stigma and help seeking. Therefore, a further aim of the proposed study is to investigate stigma from specific

forms of significant others (such as peers and parents). This would allow for a greater understanding of the main sources of stigma among adolescents, and allow for targeted anti-stigma interventions

2.6.5 Mental health stigma and help-seeking.

Part of the reason why stigma acts as particular deterrent among adolescents is due to the fact that developmental stage is marked by a perceived need to adhere to group norms (Draucker, 2005). Stigma, as noted by Goffman (1963), marks a person as "other", and this is particularly undesirable during adolescence. Adolescents can be argued to be acutely susceptible to avoiding stigma and adhering to peer group norms, because they are 'hypersensitive' to peer rejection (e.g. Blakemore & Mills, 2014; Peake et al., 2013; Sebastien et al., 2010). Stigma is particularly damaging to adolescents' self-image and sense of autonomy (Rappaport & Chubinsky, 2000). This in part, explains the particular power that stigma holds over adolescents, and why the detrimental effects of stigma on help-seeking are notably disproportionate in relation to adolescents (Clement et al., 2015).

As noted in reference to MHL and help-seeking, it has been found that adolescents prefer to seek help informally in the first instance (Del Mauro et al., 2013). Research has indicated that although adolescents prefer informal help-seeking options, they are reluctant to do so due to anticipated negative and stigmatising responses (Marcell & Halpen-Felscher, 2007; Pinto-Foltz, 2010; Pinto-Foltz et al., 2011). Help-seeking for psychological symptoms was found to be low as participants believed that this would elicit stigmatising responses from friends, parents and teachers (MacLean et al., 2013). This mirrors both the particularly stigmatising effects of mental health problems over physical ones, and comments by Mukolo et al., (2010) that frameworks of stigma and help-seeking in adolescents need to incorporate the role of parents. This is especially the case when referring to formal help-seeking, as it is parents who, largely instigate formal pathways to help-seeking.

2.7 Individual differences in MHL, stigma and help-seeking

Within the literature there are noted sub-group differences in relation to MHL, stigma and ultimately help seeking. These represent important effects which should be addressed and

investigated in research in order to ensure applicability of findings and recommendations arising from research. Key sub-group differences have been noted in relation to gender, age and ethnicity, and are discussed below.

2.7.1   Gender Differences

In relation to MHL, there are a number of studies which have investigate gender differences in levels of literacy. These have demonstrated that MHL tends to be higher among female adolescents (Cotton et al., 2006; Burns & Rapee, 2006; Haavik et al., 2017). In a survey of secondary school aged adolescents, Williams & Pow (2007) found that boys had lower mental health literacy, and were also less likely to think education around mental illness was important. Additional studies (Chandra & Minkovitz, 2006; Burke, et al., 2008) both identified that boys had lower MHL, and that boys are more unwilling to seek help due to increased fear of stigma. In contrast, Furnham, et al. (2014), found that gender differences in MHL were not especially prominent, though this investigation was carried out among older adolescents and young adults aged 17-24. It does however suggest that there are less pronounced gender differences in MHL towards the end of adolescence. While it is unclear exactly why girls have a higher level of MHL than boys, it is possible that this is related to a particular increase and prevalence of common mental health problems in adolescent girls (e.g. NHS Digital, 2018; Scottish Government, 2018), and girls therefore having more lived experience of mental health problems and help-seeking. Given that lower MHL is related to lack of help-seeking, this may be why girls show greater help-seeking intention (Chandra & Minkovitz, 2006; Haavik et al., 2017; Hadjimina & Furnham, 2017).

There are noted gender differences in relation to mental health stigma among adolescents. For example, there is a body of literature which states that boys are particularly prone to hold stigmatising attitudes, and are more likely to be stigmatised against for having a mental health problem (e.g. Chandra & Minkovitz, 2006; Dolphin & Hennessy, 2016; O'Driscoll et. al., 2012). Early research found that vignette characters displaying mental illness were typically identified as male, regardless of the gender of the participant (aged 10-13), while physical illnesses were more likely to be associated with female gender (Roberts et al., 1981; Roberts et al., 1984). This

provides an indication that from a relatively early age, boys are most often associated with externalising behaviours and 'severe psychological disturbance', which are associated with a greater degree of stigma (Arbanas, 2008; Kaushik et al., 2016). It is also reported that girls are more accepting of peers with mental help problems than their male peers (Jorm & Wright, 2008; Williams & Pow, 2007).

Stigma and gender have also shown specificity to specific disorders. When examining gender differences in stigma towards depression, Dolphin & Hennessy (2016) found that responses towards male and female peers with depression varied, with male participants demonstrating higher levels of stigma than their female counterparts. Earlier work (Dolphin & Hennessy, 2014) found that both male and female participants are more accepting of depression if it is not deemed to be the fault or cause of the individual, but did find that males view other males as having more control over the cause of their depression. Additionally, Swords, Hennessy and Heary (2011) found that while female adolescents became more accepting of peers with ADHD and depression with increasing age, this was not the case for boys, who became less accepting of peers with depression with age. This suggests differences in relation to both age and gender in stigma towards mental health problems. As indicated by further work (O'Driscoll et. al., 2012) which also found older boys more likely to hold negative implicit attitudes towards depression than girls or younger boys.

While gender moderates both stigmatising attitudes towards others and likelihood of being stigmatised by others, it is important to note the implications this may have for help-seeking and stigma reduction interventions. There is clearly a need to address the greater reluctance of boys to disclose mental illness or seek help when needed by reducing their fear of stigma. While research has noted these differences, it is lacking in suggesting or evaluating effective mechanisms to redress these issues, and this should be high on the research agenda going forward.

There are also noted gender differences in help-seeking, with the majority of literature reporting that female adolescents are more likely to seek help than male counterparts, and that there are gender differences in preferred sources of help (e.g. Chandra & Minkovitz, 2006), for example, males may prefer to talk to a parent in the first instance, while girls are more accepting of seeking

formal help. Research has noted that formal help-seeking among girls may be higher due to an increased awareness of referral pathways, and the role of parents in the help-seeking process (Haavik et al., 2017). As a result of increased willingness to seek help, adolescent girls are more likely to be in receipt of care than adolescent males (Boldero & Fallon, 1995; Kelly et al., 2007; Haavik et al., 2017).

It is likely that this gender difference is a result of broader societal norms which reinforce and reward female adolescents for acting in a caring, inter-dependent way; and which conversely encourage and reward male adolescents for acting 'tough' and independent (Cauce et al., 2002; Menna & Ruck, 2004). Indeed, qualitative work by Clark et al. (2018) found that norms of masculinity were a key barrier to help-seeking among male adolescents, for example, ideas of anxiety not being a 'real' illness, and that help-seeking was a sign of 'weakness' were prominent themes emerging from their work with male adolescents. Therefore, any differential effects of gender on MHL, stigma and help-seeking will be explored in the current study.

2.7.2 Age

There is some research which suggests that MHL or knowledge of mental health increases with age (Brook & Geva, 2001; Poster, 1992; Reavley, Morgan & Jorm, 2014; Spitzer & Cameron, 1995), and in general the literature reflects that MHL is higher in older adolescents. However, research elsewhere found no associated between age and MHL in adolescence (Coles et al., 2016). There is limited evidence in relation to the association between age and level of MHL in adolescence. While the adult literature notes that older age is associated with poorer MHL (e.g. Furnham & Swami, 2018), this is likely due to older age adults having poorer levels of literacy than young adults (e.g. Farrer et al., 2008), and relatively less is known about the effect of age on MHL levels within adolescence. As this is a rapid stage of development (e.g. Steinberg 2005), it is likely that there will be significant differences between adolescents who differ in age, even if this difference is relatively small.

Generally, findings on age related differences in mental health stigma are mixed. The evidence suggests that while older adolescents are generally shown to have greater MHL, they do not necessarily show a corresponding decrease in level of stigma (Kaushik et al., 2016). Yap & Jorm

(2011) found that younger participants held a greater degree of stigma while other work (McKeague et al., 2015) has found the opposite, with adolescents showing greater rates of stigmatisation towards mental illness than primary school aged children. Similarly, Gonzalez et al. (2005) found that adolescents are more likely to hold stigmatising beliefs than adults. While demonstrating that adolescents show a higher degree of stigma than children and adults, these findings show differences in degree of stigmatising beliefs across the lifespan, but not within adolescence itself.

There are findings in the literature in relation to specific mental health problems (ADHD and depression) and the extent to which these receive stigma depending on the age of participants. For example, Swords, Hennessey, & Heary, (2011) found that participants aged between 14 and 18 were more positive towards those with ADHD and depression than younger adolescents. However, there is a limited degree of research which investigates changes in stigma levels within the adolescent age range (10-19 years), with studies largely comparing adolescents overall to other populations such as younger children and adults.

Findings have shown further nuance in relation to associations between age and stigma in that age-related differences in stigma were related to which aspects of stigma were being measured (O'Driscoll et al., 2012). When assessing stigma using measures of social distance, perceived fear and behavioural intention (discrimination), it was found that adolescents showed less desire for social distance from peers with mental illness than younger participants, but did report more fear and a desire to exclude peers with mental health problems from activities more. Therefore, age related endorsement of stigma may vary depending on specific stigma variables and target diagnoses.

Work specifically investigating personal and perceived stigma has identified that older participants are more likely to hold higher perceived stigma, while younger participants are likely to report higher personal stigma (e.g. Calear et al., 2011; Jorm & Wright, 2008), while more recent work found that while age demonstrated a significant negative correlation with personal stigma (as age increased, personal stigma decreased), there was no association between age and perceived stigma (Nearchou et al., 2018). These results would suggest that personal and perceived stigma

have distinct associations with age, and that generally personal stigma is higher in younger adolescents, while perceived stigma is higher among older adolescents.

Finally, in relation to effects of age on help-seeking, evidence is limited as relatively few studies have reported on the association between age and help-seeking among adolescents. This may be due to comparisons with young adults rather than within adolescents (e.g. Yap et al., 2011; Yap et al., 2013), or that a relatively narrow age range of adolescents are sampled (e.g. Rughani et al., 2011; Wilson et al., 2005). There is limited evidence which indicates age effects in relation to help seeking, for instance Rossow & Wichstrøm (2010) found that older participants were more likely to have sought formal help, while Farrand et al. (2007) identified differences in relation to the source of help preferred (e.g. mental health professional vs school based support). Nearchou et al. (2018) found that age demonstrated a negative association with help-seeking for both depression and self-harm, suggesting that younger adolescents demonstrated greater help-seeking intention. These findings while mixed suggest that there is a need to investigate age related differences in MHL, stigma and help-seeking to ensure that interventions can be suitably, and effectively tailored.

2.7.3   Socioeconomic Status (SES)

In general, there is a lack of consistency in how SES is measured in the literature relating to adolescent mental health literacy, stigma and help-seeking. A range of proxy variables are deployed from "number of cars in the family" and "has own bedroom" (Goçalves et al., 2015) to level of parental education. This is the most consistently used, and validated measure (Aarø et al., 2009), though work has noted the difficulties in finding a consistent variable for SES in health research, as there are many ways to approximate SES (Braveman et al., 2005; Shavers, 2007).

Mixed results are again demonstrated in terms of the relationship between SES and stigma. Whilst developing and validating the Peer Mental Health Stigmatisation Scale (PMHSS; McKeague et al., 2015), it was found that SES had no significant association with the extent to which adolescents stigmatise their peers with mental illness. McKeague et al. (2015) noted that this mirrors previous findings in relation to peer attitudes towards ADHD (Swords, Hennessey & Heary, 2011). However, Swords, Hennessey & Heary (2011) acknowledge that a limitation of

their work may have been simply calculating SES with a dichotomous variable of high vs low SES. Earlier work by Roberts (1984) also used a dichotomous low / high SES variable and found no significant impact of SES on perceptions of peers with either psychological or physical illness. The only difference identified was that those in the high SES category would be more likely to recommend professional interventions for those described in psychological illness vignettes (Roberts, 1984).

Andersson et al. (2010) used three levels of parental education and other contextual variables (e.g., living with one parent or both, if participants were in general vs vocational education etc.) and found that stigma was more common among adolescents from lower socioeconomic status families. Moses, (2009a) found that SES impacts on adolescents' willingness to self-label, particularly that those from lower SES backgrounds were less likely to identify themselves as having a mental illness label, which resulted in a tendency not to seek help. Moses (2009a) also found that those who self-labelled were more likely to have higher levels of self-stigma. Meaning that low SES adolescents were less likely to experience self-stigma. Barraclough (2014) also found SES to be more closely correlated with perceived stigma than with self-stigma, although due to a small sample size this was merely trending towards significance and would merit further, more robust research and analyses.

Work exploring the impact of SES on the adolescent stigma experience is extremely limited, and what has been done uses varying methods and produces mixed findings. The existing literature is inconclusive as to whether adolescents from lower SES backgrounds are more or less likely to stigmatise others with a mental illness, as some papers report no impact, while others (Andersson et al., 2010; Gonçalves et al, 2015) report that SES does influence stigmatising attitudes.

As noted earlier, there are some findings in the literature to suggest that SES may impact on degree of MHL and on help-seeking intentions. Again, this typically refers to adult MHL and help-seeking, though in a systematic review of help-seeking measures used in adolescence, Divin et al. (2018) noted that while parents are often key in initiating formal help, there are a disproportionately high level of parent referrals in families with higher SES (Benjet et al., 2016), and other work in a UK context has noted similar (Campbell et al., 2015). Divin et al. (2018)

highlight that this places 'economically vulnerable adolescents' (p.114) at risk, as they are typically unwilling to interact with formal sources of help.

Mixed findings have indicated that higher family income is associated with greater MHL among adolescents (Attygalle et al., 2017), while there have also been findings reporting no association between levels of SES and MHL (Leighton et al., 2010). These two studies were conducted in different settings (e.g. Attygalle et al., 2017 studied adolescents in Sri Lanka, while Leighton et al., 2010 studied English adolescents), and used differing measures of SES. It is therefore difficult to ascertain a clear pattern of association between SES and MHL. Therefore, the current study makes no hypotheses pertaining to direction of association, and will take an exploratory approach when examining any possible interactions between SES measures and key variables.

2.8 Summary of gaps in existing literature.

It is clear from the research detailed above, that mental health literacy is important in reducing stigma, and in encouraging help-seeking. However, MHL is noted to comprise several specific forms of knowledge (Jorm, 2015; Riebschleger et al., 2017), and it is not detailed in the literature if any of these forms of knowledge are more predictive of increased help-seeking than others.

Both the MHL and stigma literature lack developmentally appropriate frameworks for adolescence (Bale et al., 2018; Kaushik et al. 2016). Given the reduced autonomy of adolescents, and their increased susceptibility to the beliefs of peers and parents, it is important for new frameworks to incorporate the role of parents and peers in the help-seeking process. Indeed, work has called for an incorporation of parents attitudes in adolescent frameworks of stigma and help-seeking (e.g. Mukolo et al., 2010). While there is evidence that adolescents model parental attitudes (Degner & Dalege, 2013), research to date has not fully examined the role of parents in development of adolescents attitudes and stigma beliefs. For example, Heary et al. (2017) state that no work has yet explored the effects of parents' stigma beliefs on their children, and whether these beliefs are internalised by adolescents, and the role of parents in the help-seeking intentions and behaviours of their children is a significant gap in the current literature (e.g. Chandra, 2011).

The literature on stigma suggests that different forms of stigma (e.g. self-stigma, public stigma etc) impact on help-seeking differently (Yap et al. 2011). In a recent systematic review, Schnyder et al. (2017) examined the relationship between specific forms of stigma and attitudes towards help-seeking among the general population. It was found that personal stigma negatively impacted intended help-seeking while perceived public stigma showed no significant impact. However, it is possible that this discrepancy in the effect of personal and perceived stigma is due to perceived stigma being measured broadly without making reference to specific groups of individuals.

While some of the papers reviewed by Schnyder et al. (2017) included adolescent samples, the analyses did not specifically examine the nature and role of stigma within this group. This is particularly important as sub-types of stigma may have a differing level of effect on help-seeking within this age range. As only one study (Nearchou et al., 2018) has investigated adolescent personal and perceived stigma and linked this directly to help-seeking intention, and this represents a key gap in the literature. Additionally, differences in findings with respect to personal and perceived stigma in particular have received little attention from researchers (Pedersen & Paves, 2014). An aim of this study is therefore to close this knowledge gap by investigating the role and interaction of two subtypes of stigma (perceived and personal) among adolescents. Considering the importance of help-seeking for improved outcomes for adolescents, it is envisaged that findings will provide greater conceptual clarity about the role of perceived and personal stigma on help-seeking in the adolescent population

Furthermore, as noted in the preceding chapter, a key problem of the existing literature on perceived stigma is that measures of perceived stigma lack specificity. While previous studies have asked participants how "most people" (e.g. Calear et al., 2011; Eisenberg et al, 2009; Griffiths et al., 2004; Yoshioka et al., 2014) or "other people" (Moses, 2010) would regard those with a mental health problem, no study could be identified which made reference to stigma perceived from specific referent groups. This does not allow for an understanding of how specific social relationships may impact on stigma and intended help-seeking, and given the particular

influence that peer groups and parents have in adolescence, the represents a significant shortfall in the adolescent stigma and help-seeking literature.

While both decreased stigma and improved mental health literacy have been found to be key to help-seeking (e.g. Gulliver et al., 2010; Kelly et al., 2007) little research has examined how specific forms of stigma may mediate or moderate the relationship between MHL and help-seeking intention. Typically, MHL and stigma are examined in isolation when studying help-seeking intention. Therefore, an aim of the current research is to investigate how stigma may impact on the associations between MHL and help-seeking among adolescents. It will be argued subsequently that personal stigma, when conceptualised as an attitude, acts to moderate the impact of knowledge on behaviour. As knowledge (MHL) is not necessarily predictive of behavioural intent (help-seeking) in and of itself (e.g. Happel et al., 2014), it will be proposed in this thesis that MHL informs personal stigma which then informs individual help-seeking intention.

While perceived stigma does not relate to an individual's own levels of MHL or attitude towards people experiencing mental health problems (personal stigma) directly, perceived stigma can be conceptualised as a subjective norm. Subjective norms relate to the beliefs of others, and are a strong influence on intended behaviour (Azjen, 1988; 1991). Therefore, perceived stigma from specific groups (parents and friends) will evaluated to determine whether they impact on the strength of association between adolescent MHL, personal stigma, and help-seeking intention.

Finally, while the main body of the help seeking literature examines help-seeking from formal sources, much less is known about how stigma affects help seeking from informal sources, such as friends or family (e.g.Yap & Jorm, 2011). Given that research shows that most adolescents prefer to disclose mental health problems informally (Del Mauro et al., 2013 Gulliver et al., 2010; Gronholm et al., 2016) more research is needed to understand the mechanisms by which stigma may impact on informal help seeking in this age group. This can help to better understand discrepancies around peers often being cited as a key source of perceived stigma, as well as a preferred source of disclosure. Therefore a further aim of the current research is to investigate how MHL, and personal and perceived stigma may impact on help-seeking from both informal and formal sources.

2.8.1 Brief overview of the gap between knowledge and intended behaviour

There are noted problems with the definition of MHL in the literature. While traditionally MHL has been conceptualised as pertaining to knowledge, with most researchers citing the definition put forth by Jorm et al. (1997), which is considered the "gold standard" definition (Spiker & Hammer, 2018). However, there is a case being made that definitions of MHL should be expanded (Kutcher et al., 2016; Wei et al., 2015, 2016), and that MHL should be reconceptualised as theory in its own right, rather than as a singular construct (i.e., knowledge) (Spiker & Hammer, 2018).

MHL has been differentially defined, though most often in relation to knowledge. For example, Jorm et al. (1997) conceptualise MHL as mental health knowledge, while others have defined MHL as mental health knowledge which also includes attitudes, stigma and help-seeking (Kutcher et al., 2016). It has further been conceptualised as knowledge that is beneficial to good mental health (Bjørnsen et al., 2017). However, according to broader, fundamental theories in psychology (the Knowledge, Attitude, Behaviour [KAB] model; Theory of Reasoned Action; Theory of Planned Behaviour) knowledge, while necessary for informing behaviour, is not sufficient to inform behaviour, whether actual or intended.

With the majority of researchers conceptualising and operationalising MHL strictly as knowledge (Chen et al., 2017; Coles et al., 2016; Furnham & Sjokvist, 2017), rather than knowledge and attitude, or placing it in the broader context of normative beliefs, this raises questions around the validity of MHL interventions in relation to improving help-seeking behaviour. If MHL interventions aim to improve knowledge only they risk not having a long-term impact on behaviour. This may explain why there is limited success of some school-based interventions targeting increased knowledge (MHL), in affecting long term attitudinal or behavioural change (Wei et al., 2013).

Psychological theories, such as those listed above, argue that the gap between knowledge and behaviour is filled by attitudes or normative beliefs which are more predictive of behaviour. Indeed, a paper from the WHO (2007), argues that even when adolescents (and adults) have access to information or knowledge, this does not always impact positively on behaviour. It is then

argued that it may be preferable to seek to change "group and contextual social norms, rather than focussing solely on the individual adolescent" (WHO, 2007, p. 6). Based on this well-known theoretical gap between knowledge and behaviour, and on the literature cited above which identifies stigma as a significant predictor of reduced help-seeking, this thesis aims to explore the extent to which personal stigma mediates the relationship between MHL and help-seeking. In this case it will be argued that personal stigma acts as an attitudinal driver of behaviour while perceived stigma, framed as normative beliefs from others also act as a moderator, which strengthens the link between literacy, attitude and intended help-seeking behaviours.

2.9   Chapter summary

By summarising aspects of what is known about MHL, stigma and help-seeking within the context of the current adolescent mental health landscape, particularly in respect adolescence as a sensitive period for the emergence of mental health problems, mental health policy and barriers to help-seeking, it is hoped that the current research has been sufficiently contextualised. This chapter aimed to provide a rationale as to why the current research is of potential value to ongoing discourses in both research and policy concerning adolescent mental health. From a theoretical point of view, there is a disconnect between attempts to increase mental health literacy and resultant help-seeking behaviour which must be resolved to better understand mechanisms of help-seeking, and ultimately increase this vital behaviour among adolescents. Central to this thesis is the proposal that personal stigma partly explains links between mental health literacy and help-seeking, and that perceived stigma from friends and parents may affect the strength or direction of these relationships. The next chapter will provide an overview of theoretical drivers of the thesis, and details a proposed theoretical framework which draws on established theory as well as findings in the relevant literature.

Chapter 3: Proposing a theoretical framework of adolescent mental health literacy, stigma, and help-seeking.

3.1 Aim of the chapter

While the previous chapter aimed to provide an overview of the literature relating to MHL, stigma and help-seeking among adolescents, this chapter provides an overview of psychological theories of behaviour which link knowledge with behaviour via constructs such as attitude and beliefs. A framework is then proposed which places emphasis on the role of attitude and subjective norms in predicting adolescent behaviour. This provides both a theoretical basis for the current research and addresses the evident need for a developmentally appropriate framework of help-seeking which incorporates not just personal beliefs, but the beliefs of significant others, particularly parents, which is lacking from existing literature.

3.2 Introduction

There is a necessity to provide a theoretical framework linking adolescent MHL, stigma and help-seeking. It has been noted elsewhere in the literature that there is a need for adolescent frameworks to incorporate the role of parental beliefs (Heary et al., 2017; Heflinger and Hinshaw, 2010; Mukolo et al., 2010). Researchers in the field of mental health literacy have argued that the influence of parental beliefs on adolescent help-seeking behaviour, and how this may differ in relation to subgroups of adolescence, warrants further attention (Haavik et al, 2017; Jorm et al., 2007a; 2007b). The framework proposed in this thesis will address this by incorporating the subjective norms of parents, as well as friends, in the form of perceived stigma from these referent groups.

The development of an adolescent framework is a necessary addition to the literature, especially in light of findings that only 12% of studies attempting to measure help-seeking are conducted with adolescents (Rickwood & Thomas, 2012), and that frameworks which adequately account for the role of stigma as a barrier to care are especially lacking from the adolescent literature (Mukolo et al., 2010).

In order to outline the key theories implicated in the derivation of the proposed framework, key theories and models of behaviour will be summarised below. First the Knowledge-Attitude-

Behaviour (KAB) model will be outlined to provide the fundamental framing of the model of mental health literacy, stigma and intended help-seeking. Secondly, limitations of KAB model will be addressed using aspects of alternative theories, in this case, the Theory of Planned Behaviour (TPB: Ajzen, 1991; Ajzen, 1988). It will be demonstrated how key constructs of the TPB can inform the proposed model, particularly through incorporating subjective norms. Next, empirical evidence will be summarised to inform hypotheses and directionality of relationships between variables in the model. Finally, the proposed model, and an alternative model will be outlined prior to statistical testing.

3.2.1 Theories, models and frameworks of behaviour

While models, frameworks and theories of behaviour all play a role in underpinning empirical research, these are distinct methods of proposing predictors of behaviour. For example, theory has been defined as "a set of interrelated concepts, constructs and propositions that present a systematic view of a domain of study for the purpose of explaining and predicting phenomena" (Coreil, 2008, p. 69). This demonstrates that a theory should incorporate a range of variables which are predictive of behaviour, and also clearly define how these variables are related to each other (Glanz & Bishop, 2010). Theory can then be used to inform and understand why individuals do or do not engage in a chosen behaviour.

A model, while also used in the literature to explain behaviour, is generally less broad, and models are often considered to be more simplistic in nature. While a theory is abstract and can be applied to different behaviours, models are more contained and specific to a particular behaviour and specific set of predictive constructs, and are considered to be less generalisable (e.g. Bem & de Jong, 2006; Coreil, 2008). Models generally relate to empirical testing of variables within a framework, and can also be used to help build more complex theory (Morgan & Morrisson, 1999).

A framework, though often used interchangeably for "theory" or "model" tends to describe, though not necessarily explain, factors that are believed to influence an outcome (e.g. how knowledge influences behaviour). Frameworks are used to provide a broad overview of various constructs and how they might relate to each other (Lederman & Lederman, 2015). A framework is comprised of concepts and their definition, and draws on existing theory. Frameworks must be

theoretically driven, particularly in quantitative work which attempts to tests the validity of existing theory. It is argued that research should have a valid theoretical framework as this will provide a justification for the importance and significance of the work being conducted (Lederman & Lederman, 2015).

The remainder of this chapter will outline theories of behaviour which may be applied to prediction of help-seeking behaviour, these will be used to propose a framework, which will be tested empirically by a proposed model which aims to demonstrate relationships between specific variables and how they may operate on intended help-seeking. This framework was developed based on gaps in the empirical literature, for example the role of MHL in predicting both formal and informal help-seeking. Additionally, the framework was based on existing theories which suggest that attitude (personal stigma) plays an important role in linking knowledge and behaviour.

3.3 Knowledge-Attitude-Behaviour (KAB) model

A particularly relevant model for the current research is the Knowledge-Attitude-Behaviour (KAB) model. Also known as the Knowledge-Attitude-Practice (KAP) model in the literature, this is an important theoretical model in relation to behaviour change. The most common examples of the KAB model are from the health and biomedical literature (e.g. Miller et al., 1990; Xu et al., 2010). The KAB model proposes that knowledge informs attitudes, and that these attitudes go on to determine whether or not a person will perform a behaviour (Kemm & Close, 1995).

The KAB model has its origins in the 'taxonomy of instructional objectives' developed by Bloom et al. (1956). This taxonomy is primarily used in educational contexts and proposes that for learning to be effective, there should be cognitive, affective and sensory components included to effectively influence learning and behaviour. The cognitive component centres around knowledge, and how this is understood, applied and evaluated to form judgements and attitudes. The taxonomy defines the affective component as emotional reactions and development of empathy and how these contribute to development of attitude. The sensory component here refers to development of psychomotor skills, but has been developed to include knowledge of correct

responses to situations, including adapting behaviour to meet specific contexts (Simpson, 1972). Research has noted particularly strong connections between the cognitive and affective components (Alexander, 2003), as has further identified a connection between these constructs and behaviour (e.g. Woolfolk, 1998). In addition, Ajzen and Fishbein, (1977), have noted that attitude is an essential component in behaviour change, stating that while it is not the only factor in changing a behaviour it is key to this process.

The KAB proposes that behaviour change is relatively gradual, and that this occurs when knowledge is accumulated, and over time, allows for attitude change. These changes in attitude will then lead to changes in behaviour. In relation to the current study, the components of the KAB model would suggest that mental health knowledge (hereafter referred to as literacy) will influence people's attitudes (personal stigma) and intended behaviour (help-seeking) towards mental health. Within the context of this study, personal stigma is investigated as a key attitudinal variable. In other words, the KAB model would indicate that mental health literacy has a direct effect on personal stigma, or an indirect effect on behaviour (via personal stigma) (see fig.3.1). The key components of the KAB model are discussed in greater detail below.
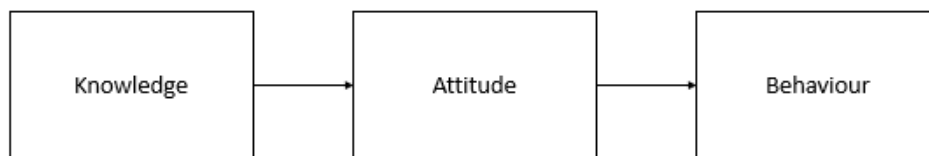
Fig 3.1: KAB model

3.3.1 Knowledge

Looking at the component parts of the KAB in turn, knowledge is seen as the primary driver of behaviour change (Baranowski et al., 2003). An accumulation of knowledge informs and helps to build attitudes. For example, if people are informed about the negative health consequences of smoking (knowledge), they may form a negative view of smoking (attitude) and then subsequently choose to give up smoking (behaviour).

Knowledge itself can be defined as comprising three components: declarative knowledge (knowing what); procedural knowledge (knowing how), and conditional knowledge (knowing when / why). Declarative knowledge is factual knowledge, that serves as the basis or building blocks of knowledge in its entirety. Procedural knowledge refers to knowing how to perform a task of behaviour (such as driving a car). Conditional knowledge is knowledge of 'when,' 'why,' and under what conditions declarative and procedural knowledge should be used (Paris et al., 1983).

In relation to mental health literacy, this has been defined as being comprised of six components, some of which relate to ability to recognise a mental health problem, and knowledge of appropriate treatments and how to access them (Jorm, 2015). These components may capture different forms of knowledge, for example, knowing what a mental health problem is may be declarative, while components of MHL such as knowledge of how to seek help, or knowledge of effective treatment, may relate to procedural or declarative knowledge. Therefore, different forms of MHL may impact differently on personal stigma (attitude) or intended help-seeking (behaviour).

Generally, when aiming to promote change of health-related behaviours, information is provided to build upon knowledge (e.g. via an intervention) and changes in attitudes and behaviours are assessed following this. An example from the mental health domain, would be the provision of mental health literacy or stigma-reduction interventions. In relation to adolescent mental health, these interventions are usually classroom based sessions which deliver educational content around mental health and mental health problems, and are proposed to work on the premise that greater knowledge of a condition will reduce stigma, and, or improve help-seeking behaviours (e.g. Pinto-Foltz et al., 2011; Perry et al., 2014; Wei et al., 2013). This is an approach which has shown positive results in the adult population (Corrigan, River, Lundin, et al., 2001). However, findings in the adolescent literature have been less conclusive, according to Wei et al (2013):

> "Research into school-based mental health literacy is still in its infancy and there is insufficient evidence to claim for positive impact of school mental health literacy programs on knowledge improvement, attitudinal change or help-seeking behaviour" (p.109)

While the current study does not attempt to evaluate a mental health literacy intervention, it does aim to further explore the relationships between mental health literacy (knowledge), attitude (stigma) and intended help-seeking (behaviour).

It has been noted however, that knowledge-based interventions are not always effective in bringing about persistent changes in beliefs or behaviours. For example, it has been noted that education-based interventions only change specific aspects of knowledge and attitudes. For example, explicit, but not implicit stigma beliefs (Saporito et al., 2011) are impacted by provision of knowledge following an intervention. This demonstrates the important distinction between behaviour and beliefs or attitudes in relation to stigma. Indeed, this is a major drawback of the literature around MHL based interventions aiming to reduce stigma, as outcomes of interventions are mostly based on explicit attitudinal scales and not explicit behaviours or implicit attitudes. (e.g. Heary et al., 2017).

There is only limited support in the literature for the role of knowledge in influencing behaviour change, even when using complex predictive models with large sample sizes (Baranowski et al., 2003). For example, in a longitudinal study, with over 4,000 participants, measures of knowledge were weakly associated with behaviour change (in this case, an increase in physical activity) (Rimmal, 2001). The health psychology literature also demonstrates that knowledge alone is insufficient in promoting behaviour change (e.g. Happell et al., 2014), suggesting that the link between knowledge and behaviour is not strong in its's own right, and requires other component parts such as attitudes, or intentions. This would suggest that improved or increased knowledge alone in not enough to inform behaviour, and that attitude must therefore also play an important role.

3.3.2 Attitude

Attitude, along with knowledge, is a construct that has been variously defined and conceptualised in the literature. One definition of attitude is, "a relatively enduring organization of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols" (Hogg & Vaughan, 2005). Broadly, attitudes have been defined as being either cognitive

and behavioural (e.g. Allport, 1967; Ajzen & Fishbein, 1977) or as being subjective or affective (e.g. Thurstone, 1947). The behavioural or cognitive conceptualisation relates to attitudes being viewed as a "mental and neural state of readiness, conditioned by stimuli" (Schrader & Lawless, 2004, p.10) which direct a response (attitude) towards an object or person. The affective or subjective conceptualisation of attitudes by contrast, relates more to notion that attitudes are the amalgamation of feelings and emotional responses towards an object or person.

Further research has built on early conceptions of attitudes to create the ABC model of attitudes (Breckler, 1984). This proposes that attitudes are composed of: Affective, Behavioural and Cognitive components. Essentially, the affective component represents a person's feelings towards a behaviour or object. The behavioural component refers to how an attitude informs behaviour, for example, fear (affect) of something may lead to avoidance (behaviour). Finally, the cognitive component refers to a person's belief about an object or behaviour (e.g. "I believe that people with mental health problems are dangerous").

In models such as the KAB, there is often the assumption of consistency in relation to attitudes and behaviour, as these models propose that attitudes lead directly to behaviour. In real terms, this means that it is expected that a person's behaviour will be consistent with the attitudes that they hold. However, people can act in ways that are inconsistent with their beliefs (e.g. LaPiere, 1934). This is particularly the case in relation to risky behaviours, for example, to use the previous example of smoking: a person can have the knowledge that smoking is harmful for health and still choose to smoke. This suggests that the cognitive and affective components of behaviour may not always correspond with actual behaviour.

The ability of attitude to predict behaviour is a source of debate in the literature. For example, some researchers would argue that attitudes are the "crown jewel of psychology", (Crano & Prislin, 2006, p.360) specifically because they are seen to be predictive of behaviour. Others are more sceptical and suggest that attitudes are not in fact good predictors of behaviour and have found only modest correlations between attitude and behaviour (e.g. Chevance et al., 2019; Gregson & Stacey, 1981; Wicker, 1969). While attitude and behaviour are often shown to be associated in the literature, it has been identified that these associations are often moderate in

strength (Bamberg & Moser, 2007; Wallace et al., 2005). It has further been demonstrated that the strength of attitude on behaviour is often moderated by other factors (Muthén 2002), and that researchers should document statistically the influence of moderators on the relationship between attitude and behaviour (Marcinkowski & Reid, 2019; Steg & Vlek, 2009).

What has become clear is that while attitude is not necessarily a direct predictor of behaviour, there are situations which can promote or hinder the link between attitude and behaviour, (Doll & Azjen, 1992; Smith & Stasson, 2000). For example, whether others are aware of you performing a behaviour, and how strongly a person identifies with a group where that behaviour is normative. These are issues which may be particularly pertinent when studying the link between attitude and behaviour in adolescents, who may be more prone to conceding to group norms at the cost of adaptive behaviours. For example, Blakemore (2018) demonstrates that adolescents partake in more 'risky' behaviours than children or adults, and that this is in response to peer group norms. Adolescents are arguably particularly susceptible to group norms because they are "hyper-sensitive" to social exclusion and peer rejection (e.g. Blakemore & Mills, 2014; Sebastien et al., 2010; Peake et al., 2013). This highlights that for adolescents, subjective, or group norms may take precedence over knowledge (i.e. knowing a behaviour is unsafe) in predicting adolescent behaviour.

Based on the adult literature, attitudes have been shown to be a strong predictor of help-seeking when looking specifically at mental health stigma and help-seeking, (Vogel et al., 2007). A number of previous studies have identified that MHL, influences attitudes towards mental health problems in a manner that suggests higher MHL is indicative of more positive attitudes towards mental health problems (e.g. Heights et al., 1998; Ratnayake & Hyde, 2019). Given that attitudes towards mental health problems is shown to influence help-seeking, it may be reasoned to act as a mediator of the relationship between MHL and intended help-seeking.

Additionally, positive attitudes to help-seeking have consistently been associated with mental health help-seeking behaviours (Kelly & Achter, 1995; Deane and Todd, 1996; Mojtabi et al., 2016). Attitudes have also been shown to be a strong predictor of help-seeking for mental health problems in adolescence (e.g. Carlton & Deane, 2000; Sheffield et al., 2004). Carlton & Deane

(2000) looked specifically at attitudes towards help-seeking in relation to suicidal thoughts. However, little work has been conducted in the adolescent literature which examines the role of mental health literacy on multiple forms of mental health stigma (e.g. personal, and perceived), *and* intended help-seeking for general mental health problems.

3.3.3 Behaviour

Behaviour, despite being a well-known and readily understood term, does have varying definitions and conceptualisations in the literature. Though it is broadly described as the observable product of knowledge and attitudes. It is often defined as being the sum total of a person's response to the environment, and is typically the simplest component of KAB to observe and measure.

It is important to note the distinction between intended behaviour, and actual behaviour, particularly in light of the current study, which measures intended behaviour (help-seeking), rather than actual help-seeking (i.e. whether participants have actually sought help for a mental health problem). As noted previously, the KAB model supposes that attitudes can inform behaviour, though the effect of attitude on behaviour is not always guaranteed. This gap between attitude and behaviour may exist as a person's ability to enact a specific behaviour is likely to be influenced by the availability of certain resources. This limitation of the KAB model may be addressed by focusing on behavioural intentions rather than behaviour itself.

Ajzen (1991, 1988) in the Theory of Planned Behaviour suggests that behaviour is determined by a person's behavioural intentions. Behavioural intentions can be defined as a person's attitude towards the behaviour in question (e.g. help-seeking), and intentions may be favourable or unfavourable towards that behaviour (Kuther, 2002). Intentions also relate to motivational factors, such as how willing a person is to expend effort in performing a behaviour, and how willing they are to try a new behaviour (Ajzen, 1991).

Behavioural intentions are seen as a key determinant of behaviour and are demonstrated to be the most reliable predictor of actual behaviour (e.g. Armitage & Conner, 2001; Sheppard et al., 1988). To demonstrate this, there have been several correlational studies which show that intentions are the most consistent predictor of behaviour. In a metanalysis of 422 studies, it was found that

intentions when measured at one time point, were highly positively correlated with measures of behaviour taken subsequently (Sheeran, 2002). In addition, intentions show more predictive reliability than other constructs, such as attitudes, norms, and self-efficacy (McEachan et al., 2011; Sheeran et al., 2014). Therefore, in reference to the current study, it is argued that by assessing how MHL and stigma influence help-seeking intention, this can be extrapolated with a degree of certainty to actual help-seeking behaviour.

3.3.4   Criticism of the KAB model

Given the issues outlined above demonstrating that there may be weak links between knowledge and behaviour, and in some cases between attitude and behaviour, the KAB may in fact oversimplify the process at play in relation to behaviour. This is where arguably more complex theories of behaviour may provide a more complete framework on which to understand behaviour. Attitudes are not the only factor which influence behaviour. For example, the Theory of Planned Behaviour (Ajzen, 1991; Ajzen, 1988) proposes that there are three additional factors which affect the attitude-behaviour link. These are the strength of the attitude towards the behaviour; subjective norms (beliefs of significant others) and perceived behavioural control (the ease or difficulty perceived in performing a behaviour). It is argued that these factors predict an individual's intention to perform a behaviour, which then in turn predicts actual behaviour.

The Theory of Planned Behaviour (TPB: Ajzen, 1991; Ajzen, 1988), for example, suggests that not only is one's own attitude an important indicator of behaviour, but so are the normative beliefs of significant others (e.g. friends, parents, relevant social groups). Again, adolescents may be particularly susceptible to the role of normative beliefs and subjective norms, and the role of subjective norms will be further outlined below. This will build on the KAB model by suggesting that not only does mental health literacy (knowledge) influence help-seeking (behaviour), but that it does so via influence from personal stigma (attitude) and perceived stigma (normative beliefs).

While the KAB model, has been demonstrated empirically in the health behaviour literature, including in an adolescent population (e.g. Tolvanen et al., 2012), little work has made explicit use of the KAB model in relation to mental health related behaviours. An additional limitation of the KAB model is that it specifies only a direct effect of knowledge on attitude, and attitude on behaviour. It does not consider direct effect of knowledge on behaviour. In the current study, the component parts of the KAB model would relate to: mental health literacy (knowledge); stigma (attitude), and help-seeking (behaviour). However, given the limitations of the KAB model, the standard KAB model (shown in fig. 3.2) was adapted to reflect the inclusion of subjective norms, and to allow for direct effects of attitude on behaviour, as seen below (see fig. 3.3).
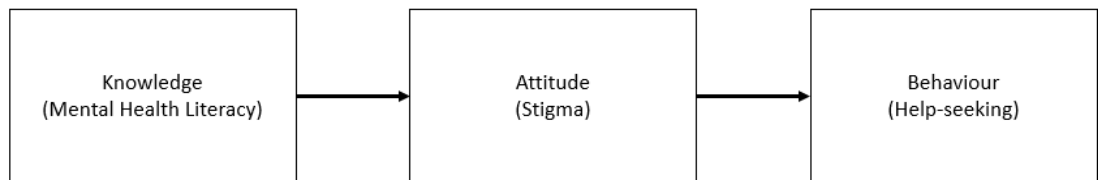
Fig. 3.2: KAB model with key research variables
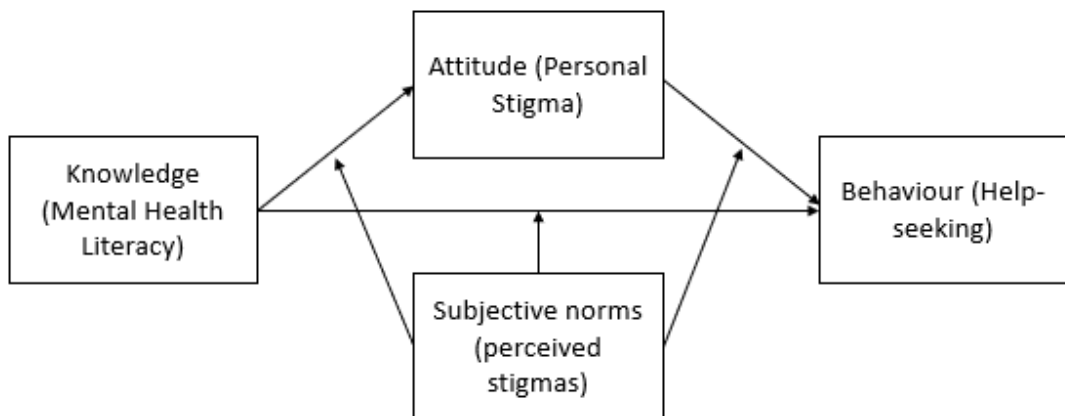
Fig. 3.3 Adapted model representing proposed theoretical framework

3.4 Subjective norms as predictors of behaviour.

While the proposed framework primarily draws on the KAB model, limitations in this are addressed by incorporating aspects of other significant theories of behaviour. The Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and the TPB provide frameworks for explaining behaviour in specific contexts. The TRA and TPB argue that intention to perform a specific behaviour is the strongest predictor of *actual* behaviour. These theories also state that intention to perform a behaviour is predicted by the subjective norms associated with that behaviour, (Ajzen, 1985, 1991; Ajzen & Fishbein, 1980). Subjective norms refer to the belief that significant others (friends, family etc) will approve of, or support a particular behaviour. Subjective norms can refer to the perceived social pressure from significant others to behave in a particular way in order to comply with their normative beliefs. The current framework incorporates subjective norms and attitude, as these are predictive of intended behaviour, and also because the beliefs of others may be especially relevant in adolescence.

In the context of this study, normative stigma beliefs from significant others are likely to be important determinants of behavioural intentions. As subjective norms represent an individual's belief about whether groups of significant others think they should engage in a behaviour or not, they can act as a barrier or a facilitator of behaviour. In this case, subjective norms are proposed to function through perceived stigma from friends and parents.

Friends and parents were chosen to be the significant others of interest in this study, as these significant others are particularly relevant during adolescence. The role of parents and friends in adolescent behaviour is well documented, with adolescents identifying friends and parents as the two most influential and important groups in relation to decision making (Wilks, 1986). Furthermore, early work further noted that friends and peers are more likely to influence adolescent behaviour through modelling. Parents on the other hand are more likely to influence behaviour through norms (Biddle, et al., 1980). More recent work has demonstrated that parental attitudes have an impact on adolescent help-seeking and service use (e.g. Angold et al., 1998; Hassett et al., 2018; Menna & Ruck, 2004; Ryan et al., 2015; Seiffge-Krenke, 1995).

The TRA and TPB state that behaviours are influenced by a person's intentions, and that intentions towards a behaviour are based on beliefs about that behaviour. For example, an adolescent may intend to seek help, but only if help-seeking does not result in stigma or negative responses from others. The TPB has particularly been used in predicting health-based behaviours (Ajzen 1991; Godin & Kok 1996), and research has further demonstrated that the TPB can accurately predict intentions to seek help in a mental health context (Schomerus et al., 2009; Mo & Mak, 2009). Again, this has predominantly been studied in the adult literature, with little work utilising the TPB to assess adolescent intentions to seek help. Additionally, as the current study looks at *intended* help-seeking, these theories provide a basis for arguments that the effects of MHL (knowledge) and personal stigma (attitude) on intended help-seeking (behaviour) can be reliably translated to actual help-seeking behaviour.

In the case of the current research, the KAB model and subjective norms may be applied in predicting adolescent help-seeking in light of personal and perceived stigma. Help-seeking represents the behavioural outcome. Subjective norms in the proposed framework refer to whether an adolescent's significant others think they should engage in help-seeking or not, i.e. perceived stigma may be translated as a negative belief towards mental health problems and is predicted to reduce help-seeking intention. Personal stigma represents the role of attitude in predicting behaviour. It is argued that personal stigma will mediate the relationship between MHL and intended help-seeking. This means that attitude (personal stigma) is proposed as the key variable in explaining the connection between increased literacy and help-seeking intention.

In the proposed framework, it is argued that subjective norms (perceived stigmas) do not act as mediators, but rather as moderators of the MHL, personal stigma, help-seeking relationship. This rationale is based on the argument that personal knowledge (MHL) may inform personal attitudes (personal stigma) and go on to influence an individual's intended behaviour. However, perceived stigma does not logically behave as a mediator. For example, the KAB suggests that knowledge, leads to attitude which leads to behaviour. The TPB incorporates the beliefs of others (subjective norms), but personally held knowledge does not directly influence the attitudes of other people (perceived stigma from parents and friends). Therefore, perceived stigma can only act to influence

the strength of association between MHL, personal stigma and help-seeking, but cannot explain the association between literacy and help-seeking in and of itself. This would resemble an erroneous model whereby an individual's knowledge influences the normative beliefs of others (i.e. subjective norms) which then goes on to inform the same individual's behaviour. Therefore, perceived stigmas are proposed as moderators in the framework (see Fig. 3.3).

3.5 Development of a model of mental health literacy, stigma and help-seeking in adolescence

One of the key differences between adult and adolescent knowledge, help-seeking and stigma experiences is the developmental context in which they occur. These differences may have implications for the influence of certain components of the KAB, and role of subjective norms, which may operate differently within the context of adolescence. It can be argued that adolescents are more likely to place greater emphasis on the social consequences of a behaviour, given that adolescence is a developmental stage marked by pressure to adhere to group norms (Ragelienė, 2016).

In relation to the current, proposed model, this may mean that subjective norms play a larger role in determining adolescent behaviour. For example, research has demonstrated the significant influence of peer-group on adolescent behaviour as being strongly associated with subjective norms (e.g. Blakemore, 2018; Padilla-Walker & Bean., 2009; Tomé et al., 2012). Subjective norms have been demonstrated to be among the strongest predictors of certain adolescent behaviours such as substance misuse (Bashirian, et al., 2012); social behaviours (Heirman et al., 2016) and health behaviours (Riebl et al., 2016). This provides a basis, along with developmental literature citing the importance of peer groups (e.g. Chirkov et al., 2003; Deci & Ryan, 2008; Steinberg & Monahan, 2007) for hypothesising that subjective norms are of key importance in relation to help-seeking behaviours.

Further evidence from the literature is presented below in order to build the case that aspects of the TPB, such as subjective norms may operate differently in the context of adolescent help-seeking behaviour. Research was identified which applied TPB to other adolescent health behaviours such as smoking (Moan & Rise, 2006); diet (Lien et al., 2002; McDermott et al., 2015)

and alcohol consumption (Cooke et al., 2016), and these found that behavioural intentions were more associated with actual behaviour than other factors such as subjective norms. However, these health behaviours are likely to carry less stigma than seeking help for a mental health problem, and it may be the case that subjective norms, may play a larger role in behaviours which carry a higher stigma burden. For example, research has indicated that mental health problems are more stigmatised than physical health problems (Bawaskar, 2006; Stuart, 2006; Stuart et al., 2014).

In relation to attitude as a predictor of behaviour, generally speaking, the more favourable the attitude, the more likely a person is to perform a behaviour. In relation to mental health help-seeking, it has been found that those with more favourable attitudes towards mental health, had higher mental health literacy (Beatie et al., 2016) and were more likely to seek help (Rafal et al., 2018; Rickwood et al., 2015; Thomas et al., 2014). It should be noted that these findings are in the adult literature and predominantly relate to adult attitudes and behaviours. As will be explored further below, the developmental literature would suggest that adolescent attitudes may be formed under particular pressure to adhere to peer group norms (e.g. Blakemore & Mills, 2014; Draucker, 2005; Peake et al., 2013; Sebastien et al., 2010).

Adolescence is noted as being a key period for identity formation, (Guyer et al., 2014) with social acceptance and group membership being key factors during this stage of development (Ragelienė, 2016). Additionally, fear of being stigmatised may pose particular threats to adolescents' identity and self-concept (Wisdom et al., 2006). It is also argued, that young people "may feel the dissonance between their preferred self and social identity and mental illness stereotypes more acutely than others and this may increase the effects of stigma of help seeking for this group." (Clement et al., 2015, p.24).

While adolescence is a key period for identity building, and developing a sense of self-esteem and independence, these are constructs which are well developed in adults. Therefore, adults have more personal and social resources to draw upon than adolescents (Kranke et al. 2011). Due to their stage of development, adolescents may be more prone to the detrimental effects of stigma as they do not have a well-developed sense of self (e.g. Erikson, 1968; Arnett, 2000) to protect

and buffer from stigma. This may in turn mean that stigma can have a negative impact on identity formation (Karp, 2006; Kranke et al. 2011; Kellison et al., 2010), and therefore, adolescents are especially likely to avoid potentially stigmatising behaviours.

In fact, Erikson (1950; 1959; 1968) in his theory of psycho-social development, outlines adolescence (defined as 12-18 years of age) as the age in which the 'crisis' of identity must be solved. In this period adolescents undergo identity-formation, in which adolescents must create and inhabit a newly independent identity. Erikson (1950; 1959; 1968) did however, highlight the importance of social networks in recognising the newfound independence of adolescents, stating that adolescents interact with a growing "social radius" (Erikson, 1950, p.270), meaning that adolescents respond to expectations of increasing social groups. This combined with a growing need to assert independence may be linked to adolescents' reluctance to seek help, as they may risk losing this new-found sense of independence.

Threat to social identity (i.e. a person's sense of who they are in relation to others, often based on group membership [e.g. Tajfel, et al., 1979]) due to stigma seems to be particularly relevant to aspects of help seeking and disclosure. Del Mauro et al. (2013), when comparing adolescents and children found that adolescents were concerned that they would be subjected to stigma or viewed negatively by peers and were less likely to seek help because of this. This was not the case in younger children. In other words, social identity is more relevant in adolescents than children, or adults in relation to engaging in help-seeking behaviours. Del Mauro et al. (2013) claim that these findings are in line with Erikson's stages of development (Crain, 2005; Erikson, 1950; 1959; 1968) which, as stated, argues that during adolescence individuals struggle with identity development and this can lead to concern about how they are viewed by others, and therefore may not seek professional help for fear of being negatively viewed. Conclusions are drawn elsewhere in the literature (Prior, 2012; Gaziel et al., 2015) which highlight the role of threatened identity and negative evaluation in adolescent's willingness to seek help. Adolescence is a clear sensitive period for identity consolidation, and as stigma poses a threat to a positively evaluated identity, adolescents may withdraw, and not disclose their struggles with mental illness. Identity is

especially significant in adolescent stigma, and again identifies a reason why adult frameworks of stigma and help seeking may not be translatable to adolescents.

In a review of adolescent stigma and help-seeking behaviours it was found that adolescents are prone to uniquely stigmatising contexts (Mukolo et al., 2010), such as relatively less autonomy or status in society (Hinshaw 2005), and added stigma from care-givers (Sirey et al., 2001) which all compound to create additional consequences of stigma, particularly in relation to help-seeking. With reference to youth stigma, the emphasis of their findings is very much on the need to create frameworks which links aspects of stigma to reduced help-seeking and incorporate parent or care-giver roles in seeking help. The current research addresses this need by proposing a framework which incorporates the role of stigma, and in particular, perceived stigma from parents, as well as friends.

Recent work in an adult population (Damghanian & Alijanzadeh, 2018), noted that stigma was both directly, and indirectly associated with help-seeking. This however looked into self-stigma, and formal help-seeking only. It is as yet undetermined how the TPB can be applied when looking at different types of stigma (e.g. personal and perceived) and how these may influence help-seeking behaviour in an adolescent population. While encouraging that the direct and indirect effect of stigma on help-seeking is supported by findings in the adult literature, a framework which outlines the role of mental health literacy, stigma, and help-seeking is yet to be described or tested in the adolescent population.

3.6   Existing frameworks and models

Mukolo et al. (2010) proposed the Framework Integrating Normative Influences on Stigma (FINIS) model (Pescosolido et al., 2008) as a key model which could be developed, in order to make it salient for adolescents. The FINIS takes a broader look at process relating to stigma, and looks at multi-level factors (e.g. individual, community and societal factors) which influence stigma as well as the consequences of stigma. As stated by Pescosolido et al., (2008):

> "The FINIS framework focuses on the central theorem that several different levels of social life – micro or psychological and socio-cultural level or individual factors; meso or social network or organizational level factors; and macro or societal-wide factors – set

the normative expectations that play out in the process of stigmatization" (Pescosolido, et al, 2008, p. 433).

The framing of stigma at this level is lacking from the adolescent stigma literature, in which social and community factors are infrequently addressed. The framework proposed in this chapter aims to partly contextualise the associations between MHL, stigma and help-seeking within the social landscape of adolescents by inclusion of subjective norms.

While Mukolo et al. (2010) acknowledge that the FINIS is one model which can elucidate the role of stigma in adolescent lack of help-seeking and under-utilisation of services, and that it is consistent with social psychological models of development, it is acknowledged that it lacks key constructs that are needed to better understand stigma and its consequences for young people. While the FINIS model is unique in its inclusion of societal factors which influence stigma, it is crucially lacking mention of the delay or absence of help-seeking as a "particularly pernicious" consequence of stigma (Heflinger & Hinshaw, 2010). The current framework hopes to address this limitation by examining the mechanisms by which stigma may impede intended help-seeking.

One proposal in the literature that does specifically frame adolescent stigma within the context of social groups and peers is the Normalisation Hypothesis (Draucker, 2005). This suggests that social contexts such as peer groups are highly influential, and that adolescents are particularly sensitive to negative assessment. As a result, an adolescent may be reluctant to take part in a behaviour, such as help seeking, which may mark them as being different. This is consolidated in work by Raviv et al. (2000) who argued that adolescents are working towards establishing a sense of independence, and therefore, needing the help of others, and in particular the help of adults, may be viewed as a threat to their newly forming, independent identity. They further argue that speaking with informal sources, such as friends or parents, may seem as being within the bounds of 'normal' behaviour, but that asking for help from a teacher of mental health professional involves asking for adult help at a time when they are trying to become independent. This provides a theoretical basis as to why adolescents show a greater willingness to seek help informally. Additionally, it argues that help-seeking is a threat to the developing sense of self, and can therefore mitigate intentions to seek help.

While these frameworks are useful in identifying why stigma may be a particular hindrance to help-seeking among adolescents, they do not address the role of knowledge as an antecedent of help-seeking behaviour. The framework proposed here aims to consolidate theory and empirical research outlining the links between MHL and help-seeking and stigma and help-seeking with consideration of social processes present in adolescence.

3.7   Summary of empirical evidence informing proposed framework

While a majority of the research looking at links between stigma or mental health literacy and help-seeking is in college-aged or adult populations, there has been some work conducted in the adolescent population which has helped to provide a basis for proposed models in the current study. For example, it has been found that increasing mental health literacy among adolescents, increases ability to label disorders, and therefore encourage help-seeking (Wright et al., 2007; Wright et al., 2012). However, the current research aims to examine the role of mental health literacy levels on stigma and help-seeking for general mental health problems (as conceptualised in a developmentally relevant way). The previous studies examine mental health literacy's direct effect on help-seeking, but do not examine the role of stigma, whether perceived or personal. Furthermore, a review of interventions to improve mental health literacy, found that increases in mental health literacy was effective in improving help-seeking intentions for adults, but not for adolescents (Xu et al., 2018). In light of this, the current research will provide further evidence as to the role of mental health literacy on adolescent help-seeking.

Hartman et al., (2013) found that self-stigma was the key barrier to seeking help for adolescents, and further found that a brief educational intervention resulted in lower levels of self-stigma and lower levels of stigma of seeking help (stigma relating to the act of help-seeking itself). However, this study did not measure intention to seek help, only stigma around this particular behaviour. Research has also identified that perceived stigma is more likely to negatively impact intentions to seek help than personal stigma among adolescents (Nearchou et al., 2018). To date, no literature has been identified which investigates the effects of both personal and perceived stigma, *and* mental health literacy on intentions to seek help in an adolescent population. Research has however, investigated this in a male, college-aged sample (Rafal et al., 2018) and found that male

college students had relatively high stigma, low mental health literacy, and low help-seeking intention. However, results of this were largely descriptive in nature (means scores and bivariate analyses) and do not offer insight into causality or moderating effects of these variables. There is therefore a need to propose and test a model which addresses these gaps and aims to explore the strength of the relationships between mental health literacy, perceived stigma (from different referent groups), personal stigma, and help-seeking, from both formal and informal sources.

3.8   Moderators of MHL, stigma and help-seeking

There is evidence of gender differences in relation to adolescent help-seeking behaviours. For example, adolescent females are more likely to seek, and be in receipt of care than adolescent males (Boldero & Fallon, 1995; Chandra & Minkovitz, 2006; Haavik et al., 2017). It is likely that this gender difference is a result of broader societal norms which reinforce and reward female adolescents for acting in a caring, inter-dependent way; and which conversely encourage and reward male adolescents for acting 'tough' and independent (Cauce et al., 2002; Menna & Ruck, 2004).

Elkington et al. (2012) also noted gender differences in research relating to identity and stigma. It was demonstrated that identity is an important factor in adolescent mental health stigma and noted that adolescents who receive a diagnosis of a mental health problem report struggling with their new identity or label as someone with a mental illness. It was further noted that female participants main threat to self-concept was because they thought others would devalue them, with males it was because they were more likely to devalue themselves. In the context of the current study, this could suggest that personal and perceived stigma may influence male and female adolescents differently, as there appears to be a gender difference in relation to fears of being devalued. It was noted that youths with stigmatised identities struggled with disclosure and tended to deny their diagnosis, which has the potential to lead to worsening mental health outcomes (Elkington et al., 2012).

Gender differences in level of MHL have been noted, with girls showing higher levels of literacy than boys, including better ability to identify a mental health problem, and more endorsement of adaptive coping strategies than boys (Cotton et al., 2006; Ratnayake & Hyde). However, the

findings in relation to gender differences in MHL are mixed overall, with some research finding mixed or no effect of gender on MHL (Furnham et al., 2014; Nearchou et al., 2018).

In regard to potential moderators of associations in the proposed framework, Mukolo et al. (2010) suggested that frameworks be developed to include "interactions between mental illness and other socially devalued statuses" (p.10), such as ethnicity, gender, disability, and socioeconomic status. The proposed model of mental health literacy, personal stigma and intended help-seeking addresses gender and SES as potential moderators, however planned analyses does not allow for examination of ethnicity as a moderator due to small sample size. A systematic review of child and adolescent stigma (Kaushik et al., 2016), found that few studies examined the role of ethnicity, and that these were not comparable due to quality issues and different ethnicities considered. Though this review did identify that there may be a "trend towards ethnic minority groups holding more stigmatising views" (Kaushik et al., 2016, p.490), but that this needs further investigation.

3.9   Proposed models

Taking on board what is known about the KAB and TPB; shortcomings of existing frameworks in adolescence as well as drawing on the literature pertaining to adolescent mental health literacy, stigma and help-seeking, a suggested model was proposed and tested to empirically evaluate the proposed framework.

The models proposed below, further draw on existing literature which states that stigma is directly associated with help-seeking intention (Clement et al., 2015; Gronholm et al., 2016; Schnyder et al., 2017), and that mental health literacy is also a determinant of help-seeking (Beatie et al., 2016; Evans-Lacko, et al., 2012, Reavely et al., 2012; Rickwood et al., 2015). There is also work in the adolescent literature which suggests that improving mental health literacy may decrease stigma (and therefore, indirectly, improve help-seeking), (Chisholm et al., 2016).

These models are also grounded in literature which states that personal and perceived stigma may have differing impacts on help-seeking, and it argued that personal stigma acts to mediate the relationship between MHL and stigma, while perceived stigmas may moderate these relationships.   In general, there has been several studies investigating stigma and help-seeking in

adults (Barney et al., 2006), though more research is necessary within the adolescent population (Clement et al., 2015) to build on primarily qualitative work which suggests that adolescents find stigma to be a major barrier to help-seeking (Gulliver et al., 2010; Nearchou et al., 2018).

The adult literature, unlike the adolescent literature delineates specific types of stigma that may predict help-seeking. For example, personal stigma has been shown to be predictive of help-seeking, while perceived stigma does not (Schnyder et al., 2017; Eisenberg et al., 2009). With the recent exception of Nearchou et al (2018), work examining personal and perceived stigma specifically in adolescence has not linked this to help-seeking behaviour (e.g. Calear et al., 2011; Dardas et al., 2016; Moses 2010; Elkington et al., 2012; Yoshioka et al. 2014). Nearchou et al., (2018) found that perceived stigma is more likely to negatively impact intentions to seek help than personal stigma among adolescents. However, this examined help-seeking for self-harm or depression rather than mental health problems more broadly. Additionally, this did not incorporate the influence of parental beliefs, and measured only perceived stigma from "most people", so it is as yet undetermined whether perceived stigma from parents may be more strongly associated with help-seeking intention than either personal stigma, or perceived stigma from friends.

Therefore, the current study will examine how personal and perceived stigma may inform help-seeking behaviours in an adolescent population. The proposed models draw on evidence in the adult and adolescent literature outlined above, which states that perceived and personal stigma may predict help-seeking differently. The models will also propose that mental health literacy and stigma may predict formal and informal help-seeking to a differing degree, as these are conceptually differing constructs and distinct help-seeking behaviours. As previously noted, personal stigma is proposed to act as a mediator of the relationship between MHL and intended help-seeking, while perceived stigmas may alter the strength of relationships between these constructs. This is based on theory outlined about that suggests that knowledge informs attitude, which informs behaviour. However, self-held knowledge cannot directly influence normative beliefs of others and can only affect the strength of the relationships between knowledge, attitude and behaviour.

Model one (see fig. 3.4) proposes direct effects of mental health literacy on personal stigma, as well as direct effects of stigma on help-seeking (formal and informal). Model one proposes that mental health literacy has an indirect effect on help-seeking (formal and informal), via personal stigma. The alternative model (fig. 3.5) is almost identical, but for the fact that it also proposes a direct effect of informal help-seeking upon formal help-seeking (as indicated by the additional single-headed arrow between informal and formal help-seeking). This direct effect is proposed in light of the fact that adolescents often require parental input to initiate formal help-seeking and therefore must first seek help from parents, who can then source formal help-seeking from mental health professionals. Formal help-seeking in adolescence is often via gatekeeping through parents, and therefore there may not be a direct pathway between stigma, mental health literacy and formal help-seeking in this age group.
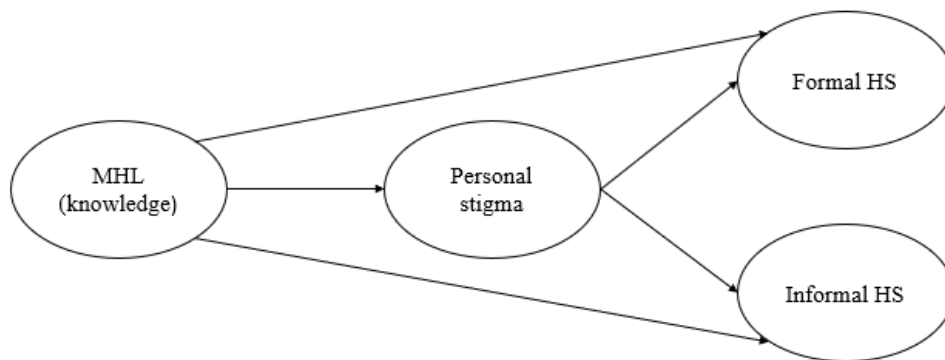
Fig 3.4: Proposed model of mental health literacy, stigma and help-seeking.

In summary, model one proposes that there are direct effects of mental health literacy on: personal stigma; informal help seeking and formal help-seeking. Additional direct effects are proposed between all personal stigma on both formal and informal help-seeking. Indirect effects are proposed between mental health literacy and both formal and informal help-seeking (via personal stigma). As previously stated, the alternative model is near identical, except for the fact that there is an additional direct relationship proposed between informal and formal help-seeking.

It is hypothesised that greater mental health literacy will be predictive of greater intention to seek help (both formal and informal). It is further hypothesised that low levels of personal stigma will be predictive of higher levels of intended help-seeking. It is further hypothesised that perceived stigma from friends, and perceived stigma from parents will moderate relationships present in the model, in particular that perceived stigma will act to further reduce the relationships between personal stigma and intended help-seeking. Finally, it is hypothesised, that informal help-seeking is predictive of formal help-seeking.
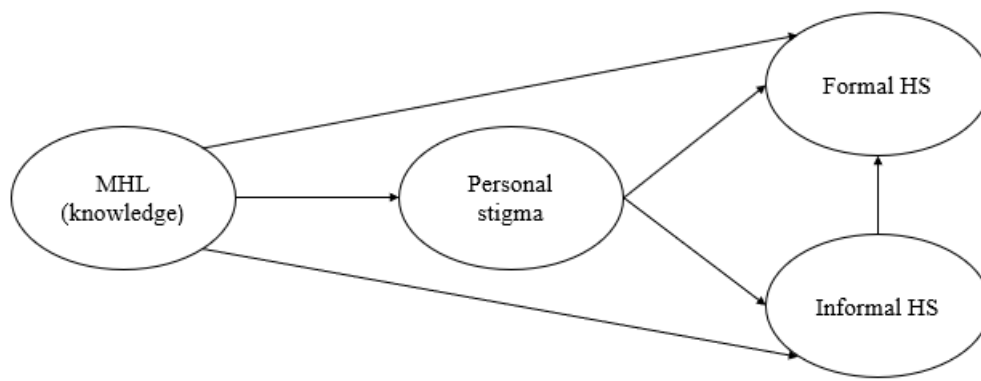
Fig 3.5. Alternative model (proposing direct effect of informal on formal help-seeking.

Models will be tested via Structural Equation Modelling (SEM), which will allow for an investigation into the relationship between MHL and help-seeking and how it may be moderated by personal stigma, and moderated by perceived stigmas, as well as demographic variables such as age, gender, and measures of SES (see fig. 3.6). This will allow for an exploration of factors which are most likely to encourage or inhibit help-seeking (or lack there-of) from formal and informal sources. This will also allow for greater clarity on the extent to which mental health literacy, and personal and perceived stigma play in informing help-seeking intention among adolescents.
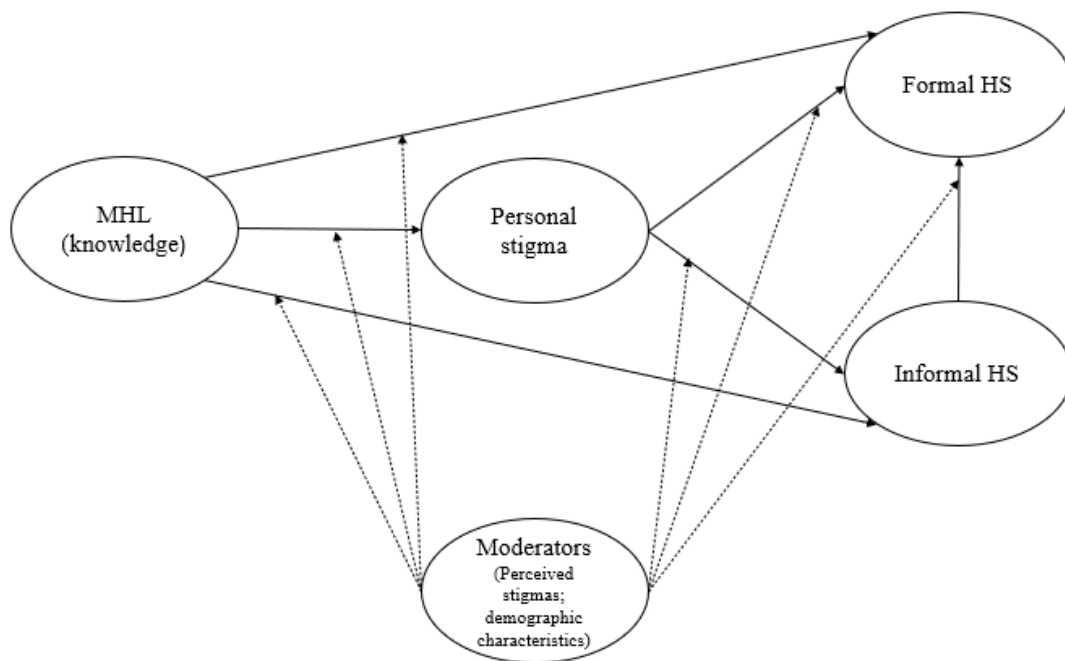
Fig 3.6. Alternative model with moderating variables (perceived stigmas and demographic characteristics) represented.

3.10 Chapter Summary

This chapter began by summarising the KAB model and how this proposes that knowledge informs behaviour by influencing attitude towards that behaviour. While this provided a basis for arguing that MHL influences help-seeking via personal stigma. It was felt that this model of behaviour had limitations which prevented it from providing a complete framework of adolescent MHL and help-seeking. It was argued that components of the TPB, namely subjective norms, could be incorporated to provide a more powerful and developmentally relevant framework. It was proposed that subjective norms may be a particularly influential aspect of adolescent help-seeking and it was hypothesised that while personal stigma may help explain the association between MHL and help-seeking, perceived stigmas may vary the strength of relationships between literacy, personal stigma and intended help-seeking. By leaning on KAB and proposing that knowledge influences attitudes, and behaviour and incorporating subjective norms of friends and parents it is believed that an appropriate framework has been proposed for testing in an adolescent population. The model was also adapted to allow for the investigation of indirect effects of knowledge on behaviour via attitude, as well as a direct effect of knowledge on behaviour. It is hypothesised that when moderated by subjective norms, higher perceived stigma

will have a detrimental effect on intended help-seeking, meaning that subjective norms may be more predictive of reduced intention to seek help. This is based on research which demonstrates that perceived stigma is more predictive of reduced help-seeking than personal stigma (e.g. Nearchou et al., 2018), and that subjective norms have been shown to be more powerful predictors of behaviour among adolescents than attitude (e.g. Padilla-Walker & Bean., 2009; Tomé et al., 2012).

Chapter 4: Research procedure and methodology.

4.1   Aim of the chapter

The following chapter aims to outline the research design and procedures used in the study. The chapter discusses research design; questionnaire design; piloting procedure; and design and operationalisation of the primary research. The aim is to justify methodological and procedural decision making. Finally, detail about statistical approaches applied to the data collected will be discussed in chapter five.

4.2   Research Questions

In response to previously outlined gaps in the research, the following research questions were formulated. The key aims of the research were to gain an overview of mental health literacy and stigma among a general adolescent population, and how these factors influence help-seeking intention. Given the proposed theoretical framework detailed in chapter three, another key aim of the research was to ascertain the extent to which personal stigma may mediate the relationship between MHL and help-seeking intention. Subsequent to this, it is important to determine the extent to which perceived stigma acts to moderate this relationship, and to whether key demographics such as age, gender and ethnicity do the same.

1. Does personal stigma mediate the relationship between mental health literacy and intended help-seeking, both formal and informal, in a general adolescent population?

2. Does perceived stigma from parents and from friends act as a moderator of the relationship between mental health literacy, personal stigma and help-seeking?

2a) Does perceived stigma from a specific referential group (friends or parents) have a greater moderating effect?

3. To what extent do demographic factors such as socioeconomic status, gender, age and ethnicity, moderate associations between MHL, personal stigma and help-seeking?

4. What is the extent of mental health literacy among a general adolescent population and does this differ by age, gender, ethnicity or measures of SES?

5. Is greater mental health literacy associated with greater help-seeking intention in a general adolescent population?

> **5a**) Is mental health literacy significantly associated with both formal and informal help-seeking?

6. Is greater mental health literacy associated with lower personal stigma among a general adolescent population?

7. To what extent does personal stigma influence willingness to seek formal and informal help among a general adolescent population?

> **7a**) Is there a significant difference between degree of self-reported personal stigma and perceived stigma in a general adolescent population?

> **7b**) Do adolescents in the general population perceive stigma to a different degree depending on which specific group of significant others (parents, friends) are the source of that stigma?

> **7c)** What is the extent of personal and perceived stigma among a general adolescent population and does this differ by age, gender, ethnicity or measures of SES

4.3 Research Design

A cross-sectional survey was used to collect data. This was chosen to facilitate data collection from a large number of participants in a limited window of time. It is also used to obtain information from a single group of people at a single point in time, and therefore creates a 'snapshot' without any attempt to follow up over time (Ruane 2005). Cross-sectional studies allow for collection of data about current beliefs of participants, and also allows for an exploration of any associations between variables of interest (in the case of the current research: MHL, stigma and intended help-seeking). Creswell (2012) states that cross-sectional research is useful in collecting data relating to, "current attitudes, opinions, or beliefs" (p.377).

Cross-sectional surveys are economical in terms of time and resources, as it allows for large numbers of participants to be reached, with low levels of participant attrition (Bowling, 2009; Coolican, 2009). Additionally, cross-sectional surveys that involve pencil and paper and carry the advantages of being familiar to schools (Silverman et al., 2009). These factors make a cross-sectional surveys a particularly appropriate and efficacious in a school setting, allowing for collection of data for all variables in a way that is both familiar to participants, and that allows for data to be collected from large sample sizes relatively quickly.

While problems with identifying causality are a limitation of a cross-sectional approach, it is still possible to use cross-sectional data to test hypotheses. For example, statistical approaches such path analysis or structural equation modelling may be used to identify and test hypotheses about mediators, and support notions about the relationship between variables under investigation (Baron & Kenny, 1986; Visser et al., 2000). As a result, data collected via a cross-sectional survey is able to facilitate hypothesis testing in relation to whether personal stigma mediates the relationship between MHL and help-seeking and whether perceived stigma from parents and friends, and other demographic data moderate this relationship.

4.4 Questionnaire measures and design

To answer the research questions, the following constructs needed to be measured: mental health literacy; personal stigma; perceived stigma (from parents, and friends); intended help seeking, and other sociodemographic characteristics. Table 4.1 below outlines variables and their corresponding measure.

The questionnaire was designed so that participants could complete basic demographic questions including age, gender and ethnicity (replicating categories used in the UK Census), though would not be asked to provide their name or identifying information.

Table 4.1: Variables and corresponding measures

Variables	Measures	Appendix
1.Mental health literacy	Mental Health Knowledge Schedule (MAKS; Evans-Lacko et al., 2010)	B1
2. Personal stigma	Peer Mental Health Stigma Scale (PMHSS; McKeague et al., 2015) *	B2
3. Perceived stigma	Peer Mental Health Stigma Scale (PMHSS; McKeague et al., 2015) *	B2
4.Help-seeking intentions	General Help Seeking Questionnaire (GHSQ; Wilson et al., 2005)	B3
5. SES	Perceived family wealth question (used in Health Behaviour in School aged children study, HBSC: Currie, et al. 2014). SIMD decile of school.	B4
6. Demographics (gender, age, ethnicity)	Questionnaire items.	A3

*Measures adapted for use in current study.

Clear, and accessible language was deliberately used throughout. Instructions were given before each section of the questionnaire, and any potentially confusing terms explained. Questions relating to the same topic were placed on the same page to avoid confusion. Whenever necessary new instructions were used when moving between sections of the questionnaire (i.e. "The next few questions are about your attitude towards X"). A statement of thanks was also printed at the end of the questionnaire to acknowledge the time taken by participants to complete.

It has been noted that it is often best to ask questions relating to SES at the end of a survey (Bowling, 2009), therefore measures of SES were placed at the end of the questionnaire. All materials and planned research procedures were subject to rigorous review by university ethics committee, and the research was designed to be mindful of issues relating to informed consent and any potential for participant distress.

4.4.1   Mental Health Literacy

Mental health literacy was measured using the Mental Health Knowledge Schedule (MAKS; Evans-Lacko et al., 2010). This is a frequently used and well validated measure with good internal and retest reliability (Wei et al., 2015). The MAKS has a moderate Cronbach's alpha of 0.65 (Evans-Lacko et al., 2014). Chisholm et al. (2016) contribute this moderate Cronbach's alpha to individials being likely to have different levels of knowledge in each of the domains of knowledge assessed. The MAKS is designed to assess six domains of knowledge relating to mental health.

These include: accessing appropriate support, e.g. "*Most people with mental health problems go to a healthcare professional to get help*"; support, "*If a friend had a mental health problem, I know what advice to give them to get professional help*"; employment, "*Most people with mental health problems want to have paid employment*"; treatment "*Medication can be an effective treatment for people with mental health problems*"; recovery, "*People with severe mental health problems can fully recover*", and recognition, in which participants are asked to rate the final six items in regard to the extent that they think these items are a mental health problem, e.g. "*stress*", "*depression*", "*grief*" etc. (Evans-Lacko et al., 2010; Chisholm et al., 2015). MAKS items are scored on an ordinal scale from 1 ("strongly disagree") to 5 ("strongly agree). Total scores can range from 12-60 with higher scores reflecting a higher level of mental health literacy. The first six statements are related to aspects of mental health knowledge described above. Items 7 to 12 refer to six clinical conditions to identify the levels of recognition and familiarity with those clinical situations. Items 6, 8, and 12 must be reversed (Evans-Lacko et al. 2010).

The MAKS (Evans-Lacko et al., 2010) was developed for use with a general adult population and has been validated for use across a range of socioeconomic groups. It has also been used in a British secondary school context (Chisholm et al., 2012;2015). The MAKS was found to be an acceptable measure in an adolescent population, with few participants skipping items (Chisholm et al., 2015), and therefore deemed a suitable measure of MHL in the current research. The MAKS is comprised of two separate subscales designed to measure distinct aspects of mental health knowledge. Therefore, a two-factor model was proposed and tested using Confirmatory Factor Analysis (CFA), and a model generation approach adopted (Joreskog, 1993) should initial model fit or other parameters perform poorly.

4.4.2 Personal and perceived stigma

To measure both personal and perceived stigma, The Peer Mental Health Stigma Scale (PMHSS, McKeague et al., 2015) was used The PMHSS has good retest reliability for children and teenagers (McKeague et al., 2015), and has a good Cronbach's alpha of 0.80 (McKeague et al, 2015). The PMHSS is based on the tripartite model of stigma (Corrigan & Watson, 2002) which defines stigma as being composed of stereotypes, prejudice and discrimination, and the measure

explicitly incorporates these three constructs when assessing stigma (McKeague et al. 2015).To the best of the author's knowledge, is the only validated measure of personal and perceived stigma for adolescents (e.g. Nearchou et al., 2020). To meet the above described research aims to assess the levels of perceived stigma from different groups, (friends and parents) the PMHSS was adapted, and piloted with adolescents to assess for any issues in comprehension, or difficulties in completing the measure.

The PMHSS contains both positive and negatively worded statements. An example of statements to measure perceived stigma are: "*Most people believe that children with emotional or behavioural problems are just as intelligent as other children*", "*Most people believe that children with emotional or behavioural problems are dangerous*" (McKeague et al., 2015, p.166-167). This is measured on a Likert-scale from "Disagree Completely" (1), to "Agree Completely" (5). To investigate specific social groups, these statements were adapted so that statements in the original instrument which referenced "most people" were changed in the current study to "My parents", or "My friends". The PMHSS contains 24 items: 8 measuring personal stigma, 8 measuring perceived stigma; and 8 total items measuring positive reactions (4 in the personal stigma scale and 4 in the perceived stigma scale).

The original PMHSS has four possible subscales: stigma awareness (perceived stigma); stigma agreement (personal stigma); overall stigma score; and positive reactions. The adapted version subscales included: perceived stigma from friends; perceived stigma from parents; and personal stigma. Items relating to 'positive reactions' were retained in their original format. While the personal stigma items remained the same, perceived stigma items were adapted to reflect the two groups of significant others relevant to the study, friends and parents.

This created a total of 12 items per referent group, and 12 items measuring personal stigma. This was done to ensure consistency of measurement (across both referent groups). Including items for both personal and perceived stigma, the adapted version of the PMHSS has a total of 36 items to be completed. Finally, in line with the current research aims, wording of items in the measure were changed from "emotional and behavioural problems", to "mental health problems".

The PMHSS was developed in 2015 and found to be, "psychometrically sound instrument with good retest reliability" (McKeague et al., 2015, p.163). Due to its relative 'newness' and that mental health stigma remains widely under-researched, this measure has not been widely used in the extant literature. Given the adaptations made to the scale, the proposed research may serve to further validate the use of this scale in assessing perceived and personal stigma in a general adolescent population.

At the time of designing and conducting the current research, the Peer Mental Health Stigmatisation Scale (PMHSS) had previously only been subject to a Principal Components Analysis (PCA) (McKeague et al., 2015). In light of this it was proposed that CFA be used to assess factor structure of newly adapted sub-scales (perceived stigma from parents, and from friends), and to examine whether similar factor structures to those in the original PCA were found. Additionally, a limitation of PCA is that results cannot be extrapolated beyond the original participant sample. This means that results from the original PCA cannot be generalised to the population unless analysis from a different sample reveals the same factor structure (Field, 2009).

More recently the PMHSS was subject to exploratory factor analysis (EFA) (Nearchou et al, 2020), which retained 11 of 16 of the original stigma items and proposed a two-factor structure. One factor representing perceived stigma ('stigma awareness') and one personal stigma ('stigma agreement'). Following EFA, the PMHSS was subject to CFA which supported this reduced factor structure for use with adolescents and young adults (Nearchou et al., 2020).

The current research used an adapted version of the PMHSS and found that the data were also indicative of individual factors for perceived and personal stigma, however the adapted scale used here had two perceived stigma scales. Data fit well to a model proposing these as individual structures following specification. This will be discussed further in chapter six. Given that an EFA has been conducted on the PMHSS (Nearchou et al., 2020), a model generating approach to CFA will be taken in the current study in response to prior validation and theoretical assumptions pertaining to factor structure.

4.4.3 Intended help-seeking

Intended help-seeking was measured using the General Help Seeking Questionnaire (GHSQ; Wilson et al., 2005). This was deemed to be a particularly appropriate measure as it is intended for use in secondary school aged participants and has been shown to have satisfactory reliability and validity. It measures intended help-seeking from a variety of sources, both formal and informal. The GHSQ has good internal consistency (Cronbach's alpha = .85), and test-retest reliability (.92) (Wilson et al., 2005).

The GHSQ is a ten-item measure, which investigates intended help-seeking on two subscales: formal, and informal. The first three items ("*friend* [*not related to you*]"; "*parent*"; "*other family member / relative*") measure intentions to seek help from informal sources. Items 4-8 measure formal sources (e.g. "teacher", "*mental health professional*". Item 9 states "*I would not seek help from anyone*" and required reverse coding.

There is an extended form of the GHSQ which uses several vignettes (GHSQ-V; Wilson et al., 2011), and asks participants what they would do if they were feeling similarly to characters described in the vignette. While the GHSQ-V may have also been an appropriate measure, it represented a much more substantial participant burden. As the GHSQ measures the same constructs, it was decided that the shorter form be used in this case.

The GHSQ (Wilson et. al., 2005) has been subject to EFA (Tuliao & Velasquez, 2014), which supported a two-factor structure. Therefore, in the current study the GHSQ was subject to CFA based on theoretical assumptions, and on the basis of existing factor analysis.

4.4.4 Socioeconomic status

SES was measured using two approaches, that is, subjective SES and school neighbourhood deprivation. Research indicates that having more than one measure of SES is best practice when using proxy indicators of SES (e.g. Currie et al., 1997; Lien et al., 2001). Proxy indicators include, for example, parental income or education. Parental income is a common proxy, although adolescent reporting of parental SES has been shown to suffer from high rates of "missingness" (Currie et al., 2008). Additionally, while there is evidence that young people know their parents occupation they do not always provide detailed enough information to sufficiently infer a level of

SES (Vereecken & Vandegehucthe, 2003). Subjective measures of SES refer to how adolescents perceive their own socioeconomic status in relation to others. It has been found that subjective assessments of SES in an adolescent population, are more closely linked to health and wellbeing outcomes than objective measures (e.g. Chen & Paterson, 2006; Quon & McGrath, 2014).

In the current research subjective SES was measured via use of the HBSC study question on perceived family wealth, "*How well off do you think your family is*?" (Currie et al., 2014). The question aims to capture adolescents' own perception of their family's socio-economic status (Svedberg et al., 2016). Participants can select from five options in response to the question ("Very well off", "quite well off", "average", "not so well off", "not at all well off"). These responses are then scored and grouped into three categories: low ("not at all", "not so well off"); medium ("average"); and high ("quite" and "very") (Svedberg et al., 2016; Currie et al., 2014). Measuring perceived SES in this way has been shown to be a more sensitive measure than more objective measures (e.g. parental occupation) when assessing SES in an adolescent population (Svedberg et al., 2016; Euteneuer, 2014), and may be especially appropriate for assessing the relationship between stigma and SES due to its sensitivity and subjective nature.

It is worth noting that adolescents have been found to overestimate their SES (Elgar et al., 2016; Goodman et al., 2007), and in particular, low-SES adolescents have been shown to consistently over-estimate their socioeconomic status (Goodman et al., 2015).

In relation to objective measures of SES, SIMD data were used. The SIMD (Scottish Index of Multiple Deprivation) was used to assess for school neighbourhood deprivation. The SIMD measures and identifies areas of poverty and inequality in Scotland (Scottish Government, 2016). The SIMD ranks 6,976 areas or "data zones" which each contain 760 people (Scottish Government, 2016) and splits these areas into deciles (ranging from 1-10). Areas ranked as 1, or in the first decile are most deprived, those ranked 10 are least deprived. The SIMD is a relative measure of deprivation and is based on indicators which measure different components of deprivation, such as school performance, travel times to a GP, crime, and unemployment. In the case of the current study, SIMD decile was determined based on the post code of participating schools, and is not an individual deprivation measure. While measures of SES on individual level

may provide greater clarity of the impact of SES on stigma and help-seeking, school level demographics may be useful in multilevel analyses.

4.4.5 Demographic data

Gender age and ethnicity were based on participant self-report. Options for gender include "*male, female, other*". The option to select "*other*" was to remain inclusive of non-binary gender identity. Ethnicity was based on census categories and asked participants to identify whether they were: White / Caucasian; Mixed / multiple ethnic groups; Asian / Asian British / Asian Scottish; Black / African / Caribbean / Black British; other ethnic group (please state). To gain participant age, participants were asked to complete the phrase "*I am _____ years old*".

4.5 Piloting of questionnaire and assessing adolescent conceptualisation of 'mental health problems'

There were several research incentives for piloting prior to distributing the questionnaire for primary data collection. These included: gaining greater clarity around how adolescents conceptualise "mental health problems"; ensuring that language and terms used are understandable and unambiguous for target participants; and to determine practicalities of administration (i.e. time take to complete). It was important to pilot the questionnaire to ensure validity, as stated by Bowling (2009), "the validity of questionnaire data depends on shared assumptions and understanding of the questions and response categories" (p.301).

One of the key challenges with the research questionnaire was how to define "mental health problems" in a way that resonated with how adolescents may conceptualise the term, particularly given problems of definition and understanding described in the introductory chapter to this thesis. While there has been research into how adolescents conceptualise constructs such as mental health literacy (Mansfield et al., 2020) or specific diagnoses such as depression (Georgakakou-Koutsonikou & Williams, 2017) little is known about how adolescents themselves conceptualise 'mental health problems'.

Additionally, while the MAKS (Evans-Lacko et al., 2010), had been used previously with adolescents (e.g. Chisholm et al., 2012, 2015), this merited further piloting prior to inclusion in

the current research, to ensure that it was well understood and developmentally appropriate for use in the study.

In response to an awareness that researchers and mental health professionals may hold differing understandings of what constitutes a "mental health problem" compared to adolescents, piloting aimed to explore how adolescents conceptualised this term. It has been demonstrated that the general public often have differing understandings of terms relating to mental health and mental illness (e.g. Chisholm et al., 2018; Hogg et al., 2011). In an attempt to overcome any potential disconnect between how the researcher and participants conceptualised what constitutes a mental health problem, and to gain a greater understanding of how "mental health problems" are conceptualised by adolescents, piloting was guided by the principles of Cognitive Interviewing (CI).

4.5.1   Use of Cognitive Interviewing to assess construct validity

Cognitive Interviewing (CI) is "a qualitative method that examines the question-response process, specifically the processes and considerations used by respondents as they form answers to survey questions" (Miller, 2014). The main aim of CI is to determine the extent to which the meaning of questions created by a researcher are consistent with how participants will interpret them (Efremova et al., 2017). CI is most commonly used as a pre-test method to identify problematic items prior to primary data collection. Additionally, Bowling (2009) states that "pre-testing of questions should include asking people to describe what they are thinking of when they listen to, or read each question, and about how they interpret it. This technique is known as 'think-aloud' testing (Suchman & Jordan, 1992)" (p.301).

One of the main goals of cognitive interviewing consists of determination of the extent to which the meaning of the questions as written by the researcher, is consistent with the way respondents interpret them. This can be done using a variety of CI methods, such as, think-aloud, verbal probing, and paraphrasing (Efremova et al., 2017). In line with this, a CI informed approach was used during piloting. CI was used both to explore what adolescents understood by "mental health problems" and also to evaluate validity of the questionnaire. Through piloting in this way, it was hoped that key concepts were captured sufficiently well for meaningful data to be collected.

4.5.2 Participants

In total, 17 adolescents participated in piloting activities. This is consistent with the view that piloting of survey-based research requires a small sample size of about 10-30 participants (e.g. Isaac & Micheal, 1995; Hill, 1998).

In line with the main study protocol, to meet inclusion, participants needed to be between 12 and 18 years of age. Also in line with the main study, those aged 10 or 11 years were excluded from participation, due to a likely reduced ability or awareness necessary to provide informed consent. Participants also needed to be fluent in English to ensure full understating of information sheets (and therefore allow for informed consent) as well as being able to understand the questions included in the questionnaire.

In adherence with British Educational Research Association: BERA (2011) ethical guidelines, participants needed to have the intellectual capacity to consent to participate in research. Therefore, any potential participants identified as having additional support needs, who may have potentially lacked the capacity to provide informed consent, were excluded from participation at the discretion of a responsible adult. This relied on responsible adults (e.g. teachers, youth group leaders) making the researcher aware of any adolescents who met these criteria.

Initial consent was provided by adults in a position of authority and care for participants (e.g. youth group leaders). In line with ethical guidelines above, participants were provided with participant information sheets, and informed that they were participating in the piloting stage of the research. Participants were thanked for their participation, but no incentives or rewards were offered.

4.5.3 Piloting procedure

Stage one of the piloting involved using an open-ended worksheet to explore how participants conceptualised "mental health problems". This was to ensure that there was construct validity between what the researcher and participants understood by the term. This was also in response to a lack of existing literature which explores how adolescents conceptualise mental health problems. For expediency this was done as a small group exercise. Participants were handed the worksheets and asked to write down a few words or short sentences to explain what they believed

the term "mental health problems" meant. Participants were reminded that there were no right or wrong answers and were encouraged to respond with whatever came to mind. This followed the principles of the "think-aloud" aspect of Cognitive Interviewing, though participants were asked to write down their responses, rather than verbalise these. This was to provide confidentiality and to reduce responder bias when discussing a stigmatising construct.

Following on from this exercise, participants worked individually with the researcher to work through the questionnaire. Again, this was informed by the principles of Cognitive Interviewing. Participants were informed when filling out questionnaires that they did not have to give 'true' answers to the questions if they didn't want to, and that the main aim of the exercise was to ensure that they understood all questions and possible responses. As participants worked through each question, they were asked to vocalise their thoughts and reactions to questions. These responses were noted by the researcher to identify any questionnaire items which were particularly unclear or problematic.

'Verbal probing' was also used to further explore participant understanding of questions, or individual items used in the questionnaire. Similar to think-aloud, verbal probing aims to capture cognitive process of participants (Wilson & Miller, 2014), though the key difference is that the researcher is more present and asks specific questions or probes. Verbal probing was done concurrently (after each item) rather than retrospective (after completion of the questionnaire). It was hoped that this approach would minimise the likelihood of participants forgetting any items which were unclear or otherwise problematic. An example of verbal probing used included "*what does the word "depression" mean to you?*", or "*Is there anything in that question that doesn't make sense to you?*" Again, the researcher took note of responses to these probes. Notes taken by the researcher were not identifiable and remained anonymous.

Results were then collated to determine if specific terms or item frequently caused confusion or other problems. Results from the worksheet exercise were subject to analysis to detect common themes and terms used by adolescent participants in response to the phrase "mental health problems". This helped with the creation of a definition of "mental health problems" which was relevant to adolescents and was used in the questionnaire during primary data collection.

4.5.4   Analysis and results of Cognitive Interviewing

In order to determine how adolescents conceptualise "mental health problems", participants were asked to "tell us what you understand by the phrase, 'mental health problems'". To analyse the responses, data were coded and themes identified. Four key themes were identified from the collected data. These included: thoughts and feelings; diagnostic labels; causes, and slang terms.

Thoughts and feelings

Several respondents highlighted the role of thoughts and feelings when describing what "mental health problems" meant to them. For example, one respondent wrote: "*your thoughts and how you think about stuff*", while another described mental health problems as "*Your thoughts and feelings, and not being at a point where you feel comfortable. Not in the best headspace*". This was a common theme, and often referred to negative feelings or being unhappy.

Diagnostic labels

Many respondents listed mental health diagnoses. For example, one respondent stated: "*Like lots of different mental health problems that could include depression, anxiety, eating disorders, OCD, ADHD, bipolar, anger issues, PTSD*". This was a fairly common form of response, with several participants listing various diagnostic labels, with depression and anxiety being among the most commonly listed. This is in line with previous findings around mental health literacy in adolescents which state that adolescents are able to recognise depression more readily than other disorders (e.g. Burns & Rapee, 2006; Coles et al., 2016).

Causes of mental health problems

Also common, was making reference to the brain, demonstrating that mental health problems were commonly conceptualised as being biomedical in nature. One respondent described mental health problems as "*something wrong with your brain*". Another wrote, "*Brain. Something that may be wrong in your brain*", while one respondent identified specific regions of the brain: "*Issues with the prefrontal cortex that may lead to psychological problems*". Two respondents did note that "*everybody can get them*", noting the universal, non-discriminatory nature of mental health problems, and an awareness that people with a mental health problem are not to "blame" (e.g. Corrigan & Watson, 2002; Jorm, Reavley & Ross, 2012). One respondent noted that mental health problems "*occur through a series of events*" while one also listed "*complicated family*" as

being a component of mental health problems. This indicates that the young people sampled were aware of both social and biological factors involved in precipitating mental health problems.

Slang terms

Finally, several respondents used terms such as "*psycho*", or "*crazy*" when detailing what they understood by the term "mental health problems". For example, one respondent listed the terms, "*Psycho, depression, feeling lonely*", while another wrote, "*Bit of a psycho. […] They go crazy easily*". Given that terms such as these perpetuate stigma towards people with mental health problems (Wahl et al., 1989; Rose et al., 2007), they were not deemed suitable for inclusion in the research definition of mental health problems. While clearly prevalent in the discourse around mental health problems, due to their pejorative nature, and due to their ability to bias stigma scales included in the questionnaire, they were not included.

4.5.5 Defining mental health problems

Once themes were identified, these needed to be used to build a definition of mental health problems that would resonate with how adolescents conceptualise this. Given the nature of the research, and the pejorative nature of words like "crazy" and "psycho", these terms were deemed not suitable for inclusion. Furthermore, despite the common use of diagnostic labels such as "depression", "anxiety", "schizophrenia" etc., these terms were deemed not suitable for inclusion in the research definition. This was because the questionnaire included a measure of mental health literacy, which specifically named a number of mental health diagnoses and asked participants to state to what extent they felt that these conditions were a mental health problem. It was felt that the inclusion of these terms would bias responses of participants during the mental health literacy measure. Furthermore, the research deliberately focussed on general mental health problems, rather than specific diagnoses, which may be prone to differing levels of stigma (e.g. Kaushick, 2016). Therefore, the definition of mental health problems could refer to aspects of these conditions, but not specifically name them.

Similarly, the stigma literature states that a core component of stigma may reside in "blame" for a mental illness, or its root cause (Corrigan et al., 2003). For example, it has been found that attributing blame to "biogenetic" causes (i.e. an illness) may well lessen attributions of blame, but

increase avoidance and the belief that a person with a mental illness is dangerous (Haslam & Kvaale, 2015). As respondents identified both biological and environmental factors as causes of mental health problems, it is felt that the definition of "mental health problems" should not include reference to potential causes, as this may bias results. For example, if the definition stated that mental health problems were caused by "problems in the brain", this may reduce "blame", but increase perceived "dangerousness", and may ultimately influence how participants complete the stigma measures.

Many respondents made reference to thoughts and feelings, particularly negative thoughts and feelings, and this formed a key part of the definition of mental health problems. The definition below draws on findings from the piloting activity. The statement that, "there are many different types of mental health problem", reflects the number of diagnostic labels provided by participants, without directly naming them.

The following definition was developed and used in questionnaires while remaining mindful of above analysis and considerations:

> "Mental health problems can influence how someone thinks, feels and behaves, and there are many different types of mental health problems. Mental health problems may mean people feel worried or unhappy or have difficulties with their thoughts, feelings and behaviour in ways that affect their everyday life."

4.5.6 Adaptations to questionnaire.

Most items in the questionnaire were well understood by piloting participants. Particular attention was paid to the wording of the MAKS (Evans-Lacko et al., 2010), as this used potentially complex language (e.g. "psychotherapy") and was initially designed for an adult population. Through use of verbal probing it was found that all items were easily understood. The MAKS item "*Psychotherapy (e.g. talking therapy or counselling) can be an effective treatment for people with mental health problems.*", was well comprehended by participants, and comprehension was aided with the parenthetical explanation included in the item. Some participants did note that they had a poor understanding of "*schizophrenia*" and "*bi-polar disorder*" when asked to rate the extent to which they believed these were mental health problems. However, as the instrument is aiming to

establish knowledge of these items, and are vital to the measurement of aspects of mental health literacy they were retained in their original format.

One change made following use of Cognitive Interviewing and verbal probing was a small amendment to the subjective measure of SES. This item was phrased, "*How well off do you think your family is*?". This question was however, found to be ambiguous when piloting the questionnaire among adolescents. This was due to the question immediately following questions pertaining to mental health, and it was noted that some participants were unclear as to whether this question referred to the health or mental health of their family, or whether related to family income. Therefore, following piloting, this was amended to "*How well off do you think your family is* **financially**?".

4.5.7   Limitations of piloting.
There were several limitations of the piloting work conducted. Firstly, the sample was overwhelmingly female, and it is noted in the literature that male and female adolescents may have differing levels of mental health literacy; different levels of stigma towards mental health problems; and different attitudes to help-seeking (Chandra & Minkovitz, 2006; Cotton, 2006; Kaushick, et al, 2016; Williams & Pow, 2007). Again, while the literature reflects that degree of stigma towards mental health varies with age during adolescence (Kaushik et al., 2016; McKeague et al., 2015; Yap & Jorm, 2011), this relates to stigma specifically, and not an understanding of what it means to have a mental health problem, which while clearly related, are distinct concepts. It was hoped that the definition provided was relevant across the proposed participant age range of 12-18 years.

4.6   Main study
Primary data collection took place between June and October 2018, in ten secondary schools across eight local authorities in Scotland. Participants were aged 12-17 and data were collected from 734 participants in total. Procedures relating to recruitment and data collection are detailed below.

4.6.1 Participants

The target population was adolescents (aged 12-18 years). Participants were recruited through cooperation with secondary schools across numerous local authorities in Scotland. Over 100 schools were contacted and invited to participate.

The participant sample was drawn from the general, non-clinical population, rather than recruiting through clinical services. This was due to the nature of the research questions which focus on attitudes and beliefs of a general population. However, it is acknowledged that a general population sample will include a portion of adolescents who are not treatment naïve.

Schools in urban and suburban areas of Scotland were approached for participation. Both local authority schools, and private (fee-paying) schools were contacted. A random sampling strategy was not used, but rather, a convenience sampling strategy. Schools across a large geographic area and number of local authorities were approached in order to maximise opportunities for participation and data collection from a wide range of geographic locations.

Following on from initial data collection in six schools in June 2018, a more purposive sampling strategy was used in order to target schools in the most deprived areas (according to Scottish Index of Multiple Deprivation). This was in response to the participant profile of initial data collection largely representing young people who identified as being from high, or medium income background, and in order to achieve a relatively heterogeneous sample. Therefore, schools in a broad range of geographic areas, of varying size, and level of deprivation (based on SIMD) were targeted.

While non-probability samples have been criticised due to potential self-selection bias, and a lack of ability to depend on probability theory, there are conditions under which non-probability sampling may be a reasonable sampling strategy (Brick, 2015), and it is still useful for making inferences to a larger population. Additionally, research has indicated that purposive samples may closely approximate a random sample of the population (e.g. Campbell, 1955; Karmel & Jain, 1987; Topp et al., 2004).

4.6.2 Sample size

Planned statistical analyses required a large data set (e.g. Tabachnick and Fidell, 2007). When conducting Structural Equation Modelling (SEM), there are various recommendations pertaining to sample size (Wolf et al., 2013). Sample size is often based on recommendations in the literature about an absolute number of minimum participants. For example, it has been recommended that at least 100 to 150 participants are needed (e.g. Tinsley & Tinsley, 1987; Anderson & Gerbing, 1988; Tabachnick and Fidell, 2007), while more conservative suggestions of 200 are also common (e.g. Boomsma & Hoogland, 2001; Kline, 2011). In the methodological literature, there is also the argument that it is not so much the sample size that matters in factor analysis, but rather the ratio of participants to items (Pallant, 2010, p.183). Some have recommended a ratio of 10 to 1 so, 10 participants for each indicator variable (Nunnally, 1978), while more recently, the recommended ratio has been reduced to 5 to 1 (Tabachnick & Fiddell, 2007).

In light of such recommendations in the literature, it was an aim to have a sample size no smaller than 200 participants. Though a larger sample size would be preferable to account for potential non or part completion of questionnaire items. This would also allow for more stable models and standard errors (SE) (e.g. Hancock & Mueller, 2013; Lei, 2009).

For guidance, a power calculation was also used to calculate an appropriate sample size. Given that the number of secondary school students in Scotland in 2017 was an estimated 281,993 (Scottish Government, 2017c) a sample of 384 participants was recommended. This takes into account a sampling error of 0.05, and a confidence level of 95%. To counter for any potential non-completion of questionnaires a suggested 25% was added, meaning a participant sample size of 480 would be needed. In the current research, data was analysed from 734 participants and therefore meets sample size requirements for both initial factor analysis and SEM analysis.

4.6.3 Recruitment

In the first instance, head teachers were approached via email correspondence to request permission to conduct research in their secondary school. This was in the form of a letter addressed to each individual head teacher, attached as a pdf file to an introductory email.

In the event that there was no response within a certain timeframe (e.g. two weeks), a further reminder email was sent. Local authorities were contacted with information about the study if head teachers requested this. Emails sent to head teachers also contained a copy of the proposed questionnaire and associated materials. The researcher liaised with the head teacher or nominated staff member to organise suitable times to meet with teaching staff to explain the study, and a timeframe for data collection.

Over 100 secondary schools were contacted, thirteen provisionally agreed to participate. Of these, ten schools consented to and facilitated data collection. Data collection took place in June, September and October 2018.

4.6.4   Research Procedure

For primary data collection, once head teachers had provided consent, schools were then provided with parent information sheets and opt-out forms and were responsible for distributing these in line with standard school communication procedures. The researcher requested that schools distribute parent information and opt-out consent forms two weeks prior to planned pupil participation in the research. This was deemed to be a suitably long enough time period for parents to consider their child's participation, and notify the school (via the opt out form) if they did not wish their child to participate. In total, only four parental opt-outs were reported from all 10 schools participating in the research study. Five pupils in total did not provide consent as they did not wish to participate by completing a questionnaire.

Opt-out rather than opt-in parental consent was used in this study. This was reflective of considerations around capacity to consent to research, with adolescents being deemed competent to provide consent (e.g. British Educational Research Association, 2011). The research was designed so that consent was gained from head teachers in the first instance and participants themselves also provided informed consent. The study included opt-out parental consent as an additional safeguard. This was in line with ethical guidelines (British Psychological Society, 2010) which states that "researchers should ensure that parents or guardians are informed about the nature of the study and given the option to withdraw their child from the study if they so wish" (p.32). This method of consent has been used in other classroom-based research in Scotland (e.g.

Clarke et al., 2011; Tennant et al., 2007), which investigated similar themes of mental health and wellbeing.

Dates for completion of paper-based questionnaires were arranged in advance, and the emphasis was placed on making this as easy as possible for schools and pupils. Head teachers were encouraged to nominate classes in ways which would impact least on the regular running of this school. The researcher liaised with a member of teaching staff in each school, who indicated which classes would be participating. Teaching staff directed the researcher to participating classes where the researcher was then able to introduce the study, and describe the questionnaire and how the session would progress. Information sheets, consent forms and questionnaires were administered by the researcher, and participating pupils were given chances to ask questions both before and after completing questionnaires. Pupils were also informed that they did not have to answer any questions they did not want to. Upon completion the researcher collected questionnaires and thanked participants for their time. Completed questionnaires were then stored securely and anonymously. Consent forms were stored securely in a different location to ensure anonymity of responses.

Chapter 5: Analytic procedure

5.1   Aim of the chapter

This chapter provides an overview of statistical methods used and why they were an appropriate choice given the research aims. It first details how data were treated prior to analyses, including data cleaning and handling of missing data. This is followed by an overview of substantive statistical approaches including factor analysis; structural equation modelling (SEM); mediation and moderation analysis; and multi-group SEM.

5.2   Preparation of data

Data from each questionnaire were entered by hand into SPSS 24 software. Questionnaires contained a maximum of 64 possible response items. Individual schools, and participants were assigned ID numbers and dummy variables were created for gender (male and female) and ethnicity (Caucasian and other). Items which were in opposite direction were reverse scored. Once all data had been collected and entered, 20% of the questionnaires were selected at random and responses contained in paper copies were checked against entries in SPSS 24. The aim of this was to ensure consistency and accuracy of data entry.

As data was manually inputted, checks were undertaken to ensure that scores were within expected boundaries. Consistency checks were performed to ensure reliability of data collected (Meyer et al., 2013; Pallant, 2010). Any data which appeared invalid was checked against original questionnaire scores. Meyers et al. (2013) recommend using frequency tables to help identify missing data, and this was done in the first instance.

Data was initially screened for outliers by creating box-plots in SPSS. Outliers are data points that are noticeably different to other values and may occur due to error, or because of random variability. Outliers can lead to distorted error rates and estimates, and ultimately skew the data (Zimmerman, 1995, 1998). According to Osborne & Overbay (2004), outliers can increase error variance and reduce power of statistical tests; can decrease normality, violating assumptions of sphericity; and can bias estimates of interest. When checking for outliers, this revealed very few out of range values which were checked with the original questionnaire and corrected

5.2.1 Missing data

Missing data is common in survey methodology and can have a significant effect on conclusions that may be drawn from the data (Graham, 2009). Missing data can occur either when participants do not want to answer a question, especially if this is of a personal nature, or participants don't see the items (e.g. skipped a page), or if participants simply don't know the answer (Bors, 2018).

Missing data poses several problems. It can reduce statistical power; can cause bias; it can reduce the representativeness of the samples; and it may complicate the analysis of the research (Kang, 2013). There are three types of missing data (Rubin, 1976; Little & Rubin, 2002). These are: Missing Completely at Random (MCAR); Missing at Random (MAR); Missing Not at Random (MNAR). MCAR means the patterns of missingness are not related to the items or any values in the data set; the pattern is random. MAR data is related to observed variables. For example, whether or not a participant answers a particular question is not related to patterns of missing data, but is related to values of another variable. In social survey research, missing data may be dependent on observed variables, such as age and gender, therefore these patterns of missing data are not MCAR, but MAR (Rässler et al., 2008)

If the data does not meet characteristics of MCAR or MAR, then data is considered to be MNAR. In this case, missing data is presumed to be related to other variables not included in the research (Bors, 2018). This makes it difficult to address missing data with confidence, and missing data would need to be modelled to obtain an unbiased estimate (Kang, 2013).

To assess patterns of missing data, data was subject to Little's (1988) Missing Completely at Random (MCAR) test. When running this test, if it is not significant, then the data may be assumed to be MCAR. In the current study, Little's MCAR test was run using IBM SPSS version 24 software and was found to be significant ($\chi 2$ [5183] = 5675.126, p <.001), indicating that the data was not missing completely at random. In light of this, Expectation Maximisation (EM: Graham, 2009) was used to impute missing data. EM is deemed to be a good, and appropriate procedure for handling missing data (Allison, 2001) and is advised when the data are MCAR or MAR or when the percentage of missing data is small to minimal. In the current study the highest level of missingness for any item was 9%, this related to item number nine in the MHL scale used,

and asked participants to identify the extent to which they believed "*schizophrenia*" was a mental health problem, and likely reflects participants unable to identify this item, and therefore leaving it blank. No other items exceeded this level of missingness, and therefore, the data was deemed suitable for EM. One item had 77% missing and was excluded from all analyses. This was an item from the General Help Seeking Questionnaire ("*I would seek help from another not listed above (please list who this night be.*"). This was not deemed to be a critical question in relation to the outcomes of interest, and more a supplementary question to explore alternative sources of help preferred by adolescents.

5.3 Statistical approaches

Once the data had been assessed as to its suitability, substantive analyses were undertaken in response to research questions. While initial research questions are answered with bivariate analyses, questions relating to mediating and moderating effects required more complex analyses. Prior to these analyses, psychometric properties of measures used in the questionnaire were assessed using factor analyses to assess validity of measures and determining factor structure. CFA allowed for the establishment of the measurement model, prior to building and testing a full structural model which allowed for an examination of associations between latent variables and their observed variables. The following sections will discuss the use of SEM to analyse relationships between key variables, and within this, the role of CFA.

5.3.1 Overview of Structural Equation Modelling (SEM)

SEM was proposed as the most appropriate method of data analyses to meet the needs of the research questions. While more traditional statistical methods, such as regression analysis can only use observed variables, a benefit of SEM is that it can be used to analyse structural models which contain latent variables (Meyers et al, 2013). These are variables that are not directly observable but are inferred through statistical modelling. Given that the research aimed to examine key constructs (MHL, stigma, help-seeking), via the use of questionnaire items, SEM represents an appropriate choice of statistical methods, as it allows for an examination of complex associations between latent and observed variables. Observed variables here refer to variables which are directly measured, i.e. items in measures or questionnaires.

Observed variables are distinct from latent variables and may also be termed as a measured variable. Observed variables, as opposed to latent variables are those that can be measured directly, such as questionnaire scores, gender, age etc. (Dodge, 2003). Observed variables may also be subdivided into exogenous and endogenous variables. An exogenous variable is not affected by other variables in the model. An endogenous variable, however, is affected by other variables in the system.

SEM involves the construction and testing of a measurement model, via CFA. The measurement model examines the relationships between observed variables which represent individual items used in measures, and latent variables (or "factors") which represent abstract concepts, such as attitudes, behaviours, and beliefs that cannot be easily measured with a single item. Therefore, SEM is often used as it is an approach to statistical analysis that combines both factor analysis and simultaneous regression equations (Ecob & Cuttance, 1987). Factor analysis tests hypotheses of how well the measurement model, this is, how well observed variables measure latent constructs in the data (Bowen & Guo, 2012). Following the building and testing of a measurement model, SEM involves the building of full structural models which examine links between latent variables (or factors).

SEM can be viewed as an approach which encompasses numerous statistical approaches, such as analysis of variance, multiple regression, path analysis, multilevel modelling, and latent growth curve modelling (Bowen & Guo, 2012). In other words, SEM is not a single statistical technique in its own right, but rather an umbrella term for a collection of multivariate techniques. According to Schumacker & Lomax (2010), "various theoretical models can be tested in SEM that hypothesize how sets of variables define constructs and how these constructs are related to each other" (p.2). This makes it an appropriate analytical approach in answering the proposed study's research questions, which aim to examine how variables (MHL, stigma, help-seeking) are interrelated.

5.3.2 Confirmatory Factor Analysis (CFA): building the measurement model, and validating measures.

CFA is a form of factor analyses, and factor analysis is not intended to test hypotheses per se, but rather, is a 'data reduction' technique, and is typically used in scale development and validation. It reduces large sets of variables by grouping them into a smaller set of components or factors (Pallant, 2010). Factor analysis achieves parsimony, as it can explain the maximum amount of variance using the fewest constructs.

The term 'factor analysis' encompasses several different, but related techniques. There are two main types of factor analysis: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA is often used to explore the interrelationships between variables and is useful for identifying whether a number of observed variables (questionnaire items) can be grouped together into a single factor (Howitt & Cramer, 2014). EFA allows for items to be related to any possible underlying factors, and is therefore most appropriate technique when the relationships between individual items and factors are unknown. Tabachnick and Fidell (2007) state, "in exploratory factor analysis the question is: what are the underlying processes that could have produced correlations among these variables" (p.585).

CFA however, is more theory-driven, as it requires a theoretical basis for assuming a specific factor structure (Byrne, 2016; Fabrigar, et al., 1999; Hoyle & Panter, 1993). CFA can be used to test the extent to which previous analysis or a prior EFA can be reproduced with new data (Howitt & Cramer, 2014). All measured variables in the proposed model (mental health literacy, stigma and help-seeking) were subjected to CFA to examine their proposed dimensions, factor structure and psychometric properties.

There are several steps involved in factor analysis. First, the data must be assessed to determine whether or not it is suitable for factor analysis. This is where sample size is key, and as a rule of thumb is that the bigger the sample size the better. This is because in smaller samples, correlation coefficients between variables are less reliable. Tabachnick and Fidell (2007), suggest, "it is comforting to have at least 300 cases for factor analysis" (p. 613).

As well as taking into account sample size, the strength of intercorrelations between items should be addressed, this is achieved by running the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1970, 1974), and, or Bartlett's test of sphericity, (Bartlett, 1954). For factor analysis to be appropriate, Bartlett's test of sphericity should be significant, and the KMO score should be above .6 to go ahead with factor analysis (Tabachnick & Fidell, 2007). All measures in the study met this threshold.

5.3.2.1 Use of CFA in assessing validity

In the current study CFAs were carried out to assess the validity of measurement constructs used within the research. CFA models were then refined in the case of poor fit, in order to arrive at a parsimonious and explanatory structure for the collected data. CFA deals specifically with measurement models and represents a sensitive psychometric analytic technique that provides information about reliability, item quality, and validity of measures (Byrne, 2016). It is a popular statistical method for providing support of construct validation in the psychological assessment literature (DiStefano & Hess, 2005; Graham, et al. 2003). CFA is also particularly useful, as it verifies the number of underlying dimensions contained with an instrument or measure (i.e. the number of factors), as well as the nature of item-factor relationships (i.e. the factor loadings), and gives further confirmation that the psychometrics of a scale is strong (Noar, 2003). Additionally, CFA can be used to test the extent to which previous analysis or a prior EFA can be reproduced with new data (Howitt & Cramer, 2014), for example, using a pre-validated measure with a new population.

It is important to determine the validity of measures used, particularly when these measures are new, have not previously been validated, or are being used with a new sample population. Looking specifically at validity, this can be defined as the extent to which instruments or scales measure what they intend to (Carmines & Zeller, 1979). There are various forms of validity. For example, construct validity refers to whether or not a measure relates to other similar, pre-existing measures and is based on theoretical knowledge of the concepts being assessed (e.g., stigma). Construct validity is especially key when there is no universal 'gold standard' measure for the construct being measured (Cronbach & Meehl, 1955), and is therefore key in this study, where

there is no universally accepted measure of stigma (Corrigan, Markowitz & Watson, 2004), particularly in the context of adolescence. This is also relevant for the measure of MHL used in this study, which was initially designed for an adult population.

Construct validity can further refer to convergent and divergent validity. Convergent validity assesses whether constructs that are expected to be related to each other are indeed related (Furr & Bacharach, 2013). Divergent (or discriminant) validity tests that constructs that have been proposed to have no relationship, do not in fact have any relationship. CFA, unlike EFA, can be used to address convergent and discriminant validity (Cole, 1987).

For example, CFA can assess whether items have convergent validity by demonstrating whether they have high factor loadings (whereby the factor loading represents the correlation between an observed variable or questionnaire item, and its latent factor). CFA can also demonstrate divergent validity among subscales (i.e. that each scale is conceptually distinct), by demonstrating whether latent factors correlations are below the recommended values of .090 (Kline, 2011). In regard to the current study, CFA can determine whether subscales (e.g. formal and informal help-seeking) demonstrate divergent validity and therefore represent distinct constructs. CFA can also then demonstrate convergent validity by identifying whether individual items are strongly associated with the proposed latent factor, for example, whether items in the PMHSS measuring personal show high factor loadings to the latent factor representing personal stigma.

The use of CFA as well as serving to validate measures used in the study is also an essential first step in SEM. Anderson and Gerbing (1988), set out two stages to be undertaken during SEM. CFA represented the first stage, in which all variables were individually specified and tested as a measurement model. This is then followed by the second stage in which a structural model is specified and examined.

It is argued that this two-step approach is advantageous, as specifying and modifying the measurement model and structural model separately allows for easier identification of sources of poor fit in a model. If both the measurement and structural model are specified and tested simultaneously, it is difficult to determine whether the source of poor fit is in the measurement or

structural component of the model (Kline, 2011). By using CFA to specify the measurement model in the initial stages, this makes it possible to avoid confusion around the source of poor fit. This also means that if there is poor fit in the initial measurement model, this can be rejected and re-specified, allowing for good model fit to be identified before proceeding to testing of the structural model

5.3.3   The structural model

The structural model examines the extent of the relationship among latent constructs as well as the relationship among other measured variables. In other words, structural equation models can use a measurement model to define latent variables using one or more of the observed variables. SEM uses a structural model that infers a relationship between latent variables. (Kaplan, 2007; Kline, 2011). In other words, a measurement model represents the theory that specifies how measured variables come together to represent the theory. The structural model represents the theory that shows how constructs are related to other constructs. Therefore, SEM allows for a set of hypothesised relationships between multiple observed and latent variables to be examined (Hoyle, 1995).

SEM is also particularly useful in answering questions relating to measurement of latent constructs, often collected through questionnaires (Bowen & Guo, 2012). SEM also allows for simultaneous regressions to determine relationship between latent variables under investigation, and for assessing the moderating effect of variables (Bowen & Guo, 2012), thus making it a suitable statistical approach for use in the proposed research. SEM will allow for an investigation into the relationship between MHL, personal stigma and help-seeking and how it may be moderated by perceived stigma, SES, gender or age of participants.

As noted, testing of the structural model occurs after suitable measurement models are established. The structural model additionally assesses causal relationships between latent variables. These may be either direct or indirect relationships, therefore, SEM models allow for examination of direct, indirect and total effects. Bollen (1987, p.40) defines direct effect as "those influences unmediated by any other variable in the model" and indirect effects as those influenced

"mediated by at least one intervening variable" and total effects are sums of direct and indirect effects.

5.3.3.1 Mediation

Indirect relationships are representative of mediation. Mediation and moderation analysis both involve investigating how a third variable affects a relationship between other intermediate variables. Essentially, the mediator functions as a mechanism through which the independent variable is able to influence the dependent variable; whereas the moderator focuses on the factors that influence the strength and/or direction of the relationship between variables (Musairah, 2015). While moderation and mediation both involve examining the role of third variable, they are distinct process, though are often (incorrectly) used interchangeably (Baron & Kenny, 1986; Frazier et al., 2004).

Mediation analysis is used to test a hypothetical causal chain, where one variable (X) affects a second variable (M) and in turn, this affects a third variable (Y). In other words, mediation indicates that the effect of an independent variable on the dependent variable is transmitted through an intervening variable, which is called a mediator variable (Edwards & Lambert, 2007; MacKinnon et al., 2007). In the current study moderation analysis is required to establish the extent to which mental health literacy (X) affects personal stigma (M) and how this affects help-seeking intentions (Y).

Mediators describe how or why two other variables are related. A mediating effect is also known as an indirect effect (Shrout & Bolger, 2002). A mediator acts as a mechanism where an antecedent affects a mediating variable, which in turn affects an outcome. Therefore, a mediator can be a behavioural, biological, psychological, or social concept that transmits the effect of independent variable to dependent variable (MacKinnon et al., 2007). Essentially, a mediator is a method of explaining a process or mechanism in which one variable affects another. One reason why mediation analysis is of key importance in behavioural and psychological studies, is because it is the foundation of many psychological theories (MacKinnon et al., 2007). An example of mediation, which is closely related to the research presented in this thesis is the Theory of Planned

Behaviour (Ajzen, 1991), which specifies broadly that the attitude is a mediator of behavioural intention.

In the current study, mediating effects were assessed in AMOS software when examining models. Key mediating effects present in the current study relate to the mediating effect of personal stigma on the relationship between MHL and intended formal and informal help-seeking. A second mediating effect is present in the proposed model relates to the mediating effect of literacy and personal stigma on formal help-seeking via informal help-seeking (which is the mediator in this case).

5.3.3.2 Inconsistent mediation

Finally, it is important when running SEM analyses to avoid inconsistent mediation. Inconsistent mediation occurs when "at least one mediated effect has a different sign [i.e. positive or negative] than other mediated or direct effects in a model (Blalock, 1969; Davis, 1985; MacKinnon et al. 2000)." (MacKinnon et al., 2007, p.602). If this is the case, the mediating variable may act as a suppressor variable. Inconsistent mediation is also likely to minimise total effects in the model (because direct and indirect effects may counteract each other). When inconsistent mediation occurs, there is also a chance that the direct effect may be larger than the total effect.

To counter these negative effects, stigma variables were reverse coded to avoid inconsistent mediation. The original coding of variables meant that higher stigma scores representing greater stigma. Higher mental health literacy scores reflected higher mental health literacy. Higher mental health literacy and help-seeking are negatively associated with stigma, and these differing 'directions' between relationships may lead to inconsistent mediation. To prevent this, stigma variables were recoded and computed into a new variable so that higher scores represented lower stigma. To avoid confusion, stigma variables in the model were then named "low stigma". This now means that higher mental health literacy scores and higher stigma scores are now positively associated, and better reflects the relationship outlined between these variables in the literature. All results of SEM and Multigroup SEM described in the following chapters are from models with recoded stigma scores, to ensure inconsistent mediation was avoided.

5.3.3.3 Bootstrapping

According to Byrne (2016, p.367) the term "Bootstrapping" actually derives from the phrase, "to pull oneself up by the bootstraps", apparently referring to the fact that the original sample data gives rise to a multitude of further samples. Bootstrapping is known as a re-sampling procedure (Byrne, 2016; Efron & Tibshirani, 1993), and was first described by Efron (1979, 1982). The importance of the procedure to the field of statistics was later noted by Kotz & Johnson (1992).

During the bootstrapping procedure, multiple subsamples are drawn randomly (e.g. 5,000 times). The procedure is based on the 'law of large numbers', which states that if you resample multiple times, your data should approximate the population (e.g. Athreya et al., 1984). Estimates and standard errors are computed from the bootstrap sample, which may then be compared to estimates obtained from the original sample. This allows for evaluation of the stability of model parameters as well as a variety of other estimated properties (Kline, 2011; Stine, 1989; Yung & Bentler, 1996).

Bootstrapping is a popular method of testing for indirect effects (Bollen & Stine 1990; Shrout & Bolger, 2002), and is therefore helpful in the current research in determining the indirect effect of personal stigma on the relationship between mental health literacy and help-seeking intention in adolescents. From each of the subsamples drawn during bootstrapping, the indirect effect is computed. The bootstrapping method of assessing indirect effects is considered more powerful than the traditional approach, in which individual paths in the model would be assessed, and if all direct effects (which make up the indirect effect) were significant, then the indirect effect is considered significant. This approach is argued to have limited statistical power (Shrout and Bolger (2002), and therefore bootstrapping will provide more accurate and robust results.

The statistical literature recommends bootstrapping to test for the significance of indirect effects in structural models. In particular, the Bias-Corrected bootstrap approach is recommended. This method is helpful as it does not assume multivariate normality (Yung & Bentler, 1996). The bias-corrected method of bootstrapping also has been shown to result in the greatest statistical power for detecting indirect effects when compared to other methods (Cheung & Lau, 2007). Based on

this evidence in the statistical literature, all analyses reported in the following chapters used a bias-corrected bootstrapping method with 95% confidence intervals.

5.3.4   Multigroup Analyses in SEM: assessing moderating effects

Research questions relating to the moderating effect of perceived stigmas; age; gender, and SES required the use of a specialised SEM method. This method, multigroup analyses, compares model fit based on pre-specified groups of data (e.g. data from male and female participants) Since research questions relate to the moderating effect of perceived stigmas and demographic factors (age, gender, SES), multigroup SEM was used to determine if the proposed mediating effect of personal stigma would vary across different moderating variables.

AMOS software was used to undertake the multi-group analysis via the inbuilt multiple-group analysis function. This allows for the data set to be subdivided into groups based on grouping variables of interest allowing the user to compare estimates, factor loadings, and model fit for each group. Multiple-group analyses is known to be a powerful method for assessing differences and similarities between different sub-groups of the sample population (e.g. Cole & Maxwell, 1985; Deng & Yuan, 2015; Schmitt, 1982 Vandenberg & Lance, 2000). Multiple-group analysis is particularly appropriate for the given study as it is useful for examining hypothesised moderating effects,

Moderation is similar to mediation only in that it also allows for testing of the influence of a third variable (Z) on the relationship between X and Y. However, rather than testing a causal link between these variables, moderation tests for when (or under what conditions) an effect occurs. Generally, a moderator is a qualitative (e.g., gender, ethnicity, SES) or quantitative (e.g., level of stigma) variable that affects the direction or strength of the relation between an independent or predictor variable (e.g., MHL) and a dependent variable (e.g. help-seeking) (Baron & Kenny, 1986).

Moderating variables relate to strength of a relationship, and can strengthen, weaken or even reverse the nature of a relationship (Baron & Kenny, 1996). Moderation effects are typically discussed as an interaction between factors or variables, where the effects of one variable depend on levels of the other variable in analysis (Fairchild & MacKinnon, 2009).

In the current study, moderating effects were assessed using multigroup-SEM. When one variable is categorical (e.g., age, gender, level of stigma), a multiple-group approach can be used in which the relation between the predictor and outcome estimated separately for the multiple groups (Frazier et al, 2004). When analysing model fit using multigroup SEM, there is evidence of moderation if the unconstrained model is a better fit for the data than the subsequent, more constrained models. While regression analysis is traditionally used to assess moderation, it has been argued that SEM is a superior approach (Baron & Kenny, 1986; Busemeyer & Jones, 1983; Holmbeck, 1997; Jaccard et al., 1996), as SEM provides a means to control for unreliability in measurement (Frazier et al., 2004). Additionally, SEM can be used to examine moderating effects involving both categorical and continuous variables (Bollen & Paxton, 1998; Frazier et al., 2004).

There are several steps when conducting multiple-group analysis in AMOS. Steps taken were based on recommended procedure from Byrne (2016), whereby an initial, unconstrained model acts as a baseline comparator for further iterations of the model which become more and more constrained (meaning specific paths and indicators in the model are constrained to equality across groups of interest).

Model comparisons compared the unconstrained model to the constrained measurement and structural model. AMOS software allows for model comparison on several, consecutively more constrained models, to obtain a more restricted final model. The unconstrained model represents a model where all parameters are estimated freely for groups simultaneously, and means that no parameters are constrained to equality across groups (Byrne, 2016).

This unconstrained model was then compared to models where the loadings of indicator variables were constrained to equal. If there was a significant chi-square difference test (model comparison) or significant change in goodness of fit indices, this indicated that factors were not operating equally across groups (i.e. there is a lack of invariance). Essentially, if there was limited change in goodness of fit indices, and if the chi-square difference test was not significant, it was concluded that the model had measurement invariance, and the model operated equally well across groups.

5.3.4.1 Assessing model fit

The chi-square difference test or 'model comparison' is an inbuilt feature of AMOS software, and commonly used to assess for model invariance. However, while commonly used, it has been noted that the chi-square difference test is sensitive to marginal differences, and does not perform as well as other indices such as changes in CFI, RMSEA and SRMR (among others) between models (Cheung & Rensvold, 2002; Chen, 2007; Little, 2013; Sosu & Schmidt, 2017). It is also noted that the chi-square difference statistic is sensitive to both sample size (Cheung & Rensvold, 2002), model size (Herzog et al., 2007) and non-normality (Brown, 2006).

Changes in fit indices are deemed to be superior to chi-square differences tests, as they are not affected by sample size, and are not overly sensitive to borderline differences between groups. While it is a source of debate in the literature which specific fit indices should be reported when testing for invariance, it is recommended that at least two to four be used. In this case, change in the CFI, RMSEA and SRMR were reported (Putnick & Bornstein, 2016). Chen (2007) suggests evaluating change in fit indices using the following criteria: a change of $> .01$ change in CFI, paired with changes in RMSEA of $>.015$ and SRMR of $>.030$ (for metric invariance) or $.015$ (for scalar invariance) (Chen, 2007; Little, 2013).

Therefore, when examining model invariance, a model was considered invariant (i.e. the data is a good fit for all models) if at least one of the indices (i.e. CFI, RMSEA, SRMR) was within the cut-off range, and the overall model had good fit. Cut off range is determined by change in fit indices. Therefore, while chi-square statistics were reported for each model, change in fit indices were also reported, and these were definitive in assessing model invariance.

The first stage of invariance testing tested the model's ***configural invariance***. Essentially configural invariance shows that the factor structure is the same across each group in the multigroup analysis. To test configural invariance the unconstrained model fit was assessed, as this helps to evaluate how well data fits the model when allowed to vary freely (Kline, 2011; Putnick & Bornstein, 2016). Once the baseline, unconstrained model was established, the next step was to constrain only the measurement model to be equal across groups. This assessed for the next level of invariance, known as ***metric invariance***.

115

Metric invariance occurs when factor loadings are similar across all groups in the multigroup analysis. This involved constraining only factor loadings while other parameters were estimated freely. This establishes that latent variables are conceptualised similarly across groups (Holmes-Smith, 2001). This relates to the "measurement weights model" output in AMOS software.

Finally, once configural and metric invariance were established, *scalar invariance* was assessed. This involved adding additional constraints to the model by constraining intercepts (item means), and "means that mean differences in the latent construct capture all mean differences in the shared variance of the item" (Putnick & Bornstein, 2016, p.5), in other words, this step assessed that intercepts were equivalent across groups. By constraining the measurement model, this ensured that the latent constructs being measured across groups were the same (Holmes-Smith, 2001), and that these were conceptualised similarly across groups.

Finally, in order to assess moderating effects present in the structural model, *structural invariance* was be assessed. This involved constraining structural regression weights (paths between latent variables) to be equal across groups. If invariance was indicated (i.e. if model fit did not significantly worsen) this suggested that the model was not moderated by the variable in question (gender, perceived stigma etc), as regression weights did not differ significantly between groups. If non-invariance was indicated, this suggested the presence of moderation, as associations between latent variables in the model differed between groups.

Again, by examining changes in goodness of fit, and the chi-square difference statistic it was possible to see if the model fit decreased by having equality constraints across groups. If there were no significant difference between models, the model was accepted as being the same across both groups, indicating that the model fits well for all groups being tested.

If invariance was detected at any level of testing, the source of invariance needed to be identified and modified. This involved inspecting constrained parameters (e.g. intercepts, factor loadings etc) as well as modification indices in unconstrained and constrained models. This helped to identify parameters that may show large degrees of difference across groups. Invariant parameters were then constrained, while non-invariant parameters were freed, and invariance was assessed

again after each modification. If models were lacking invariance, (i.e. are significantly different) between the unconstrained and partially constrained models, the unconstrained model was chosen as the baseline, as it is the most parsimonious (Holmes-Smith, 2001; Byrne 2016).

5.3.5 Steps in SEM

While SEM can be undertaken broadly as a two stage process of specifying and testing a measurement model, before doing the same for a full structural model (Anderson & Gerbing, 1988), within these stages are a number of essential steps which must be undertaken. SEM consists of five sequential steps: model specification; model identification; model estimation; model testing; and model modification (Crockett, 2012). Model specification is the first step, and occurs early in the research process. A model is proposed by the researcher on the basis of existing literature, and the researcher should be able to provide explanations for relationships included in the model based on that literature. Given that SEM models contain both observed and latent variables, model specification is a two-step building process (Anderson & Gerbing, 1988). Both a measurement model and a structural model are to be proposed at this stage. The measurement model referring to the section of the model in which examines the relationship of observed variables (i.e. item responses) on latent variables (i.e. personal stigma etc.) this stage involves CFA analyses, as previously mentioned.

The second stage is model identification, which involves the structural component, occurs prior to estimating parameters, or the relationships between variables in the model. For a model to be considered identified, it must be possible to establish a unique estimate for each parameter (Hoyle, 1995; Kelloway, 1998; Schumacker & Lomax, 2010). Model identification requires that the number of estimated parameters must be equal to or less than the number of observed variances and covariances for the model as a whole. If there are more estimated parameters than observations the model is 'under-identified'. Where the number of parameters are equal to the number of observations, then the model is 'just identified'. If there are more observations than parameters, the model is 'over-identified'. Over-identification is beneficial as it is then possible to identify which parameter estimates are the best fit to the data (Kline, 2011). In an overidentified

model, the purpose of SEM is to select the solution that comes closest to explaining the observed data (Kelloway, 1998).

Third is model estimation, this involves determining the value of the free parameters and their errors (Hoyle, 1995). Unlike regression methods which use a least squares method, SEM methods usually use iterative estimation methods. This iterative procedure is often called 'fitting' and attempts to improve initial parameter estimates. There are multiple fitting functions, including: ordinary least squares (OLS); generalised least squared (GLS); and maximum likelihood (ML). ML is the most frequently used fitting method, followed by GLS (Kelloway, 1998). These are iterative procedures which involve repeated attempts to obtain estimates of parameters that result in the best fit of the model to the data. ML and GLS assume data normality, and are full estimate techniques, which means that all model parameters are estimated simultaneously to produce a full estimation model (Crockett, 2012). In the current study ML was used, as it is known to be robust and can provide reliable estimates even if the assumption of data normality is moderately violated (Chou & Bentler, 1995).

Fourth is model fitting or testing. The aim of this is to determine how well the data fit the model and is the next step once models have been estimated. Schumacker and Lomax (2010) suggest three criteria for determining model fit. First of all, a non-significant chi square value, which indicates that the sample and 'model-implied' covariance matrices are similar. The significance and strength of parameters should be taken into account, and also, "the magnitude and direction of the parameter estimates to ensure that they are consistent with the substantive theory" (Teo et al., 2013).

The issue of best strategy for model fit remains contentious, however it is generally considered good practice for researchers to analyse multiple indices of fit (Hoyle, 1995; Martens, 2005). There are three main indices of fit: absolute fit (or model fit), comparative fit (or model comparison), and parsimonious fit (Kelloway, 1998; Mueller & Hancock, 2004; Schumacker & Lomax, 2010). These indices are used to determine the degree to which the theoretical model fits the sample data (Crockett, 2012). It is also important to note that the measurement model must represent a good fit before analysing the structural model. The main absolute fit index is chi-

square; a significant chi-square suggests that the model does not fit the sample data (and therefore, a non-significant chi-square means that the model does fit the sample data well). Fit indices and their strengths and limitations will be discussed in more depth in a subsequent section (5.3.6).

There are various approaches to testing structural models. When summarising the general framework for testing structural equation models Joreskog (1993), proposed three main scenarios. These are, a strictly confirmatory approach (SC); alternative models (AM) and a model generating (MG) scenario. The SC scenario is applied when a researcher simply rejects or accepts the model based on the results without any further modifications to that model (Byrne, 2016). The AM scenario, refers to the scenario whereby the researcher proposes several alternative models, all of which are grounded in theory, and tests their acceptability using the same data. One model is then selected as the most appropriate in representing the sample data. Finally, the MG scenario represents the case where the researcher, having proposed a model based on theory, and having to reject it due to poor fit, proceeds in an exploratory (rather than confirmatory) way. The purpose here being to locate the source of the poor fit in the model and to propose a model that better fits the data.

The MG scenario is the most common of the three approaches (Kline, 2011; Byrne, 2016). In the current study, the MG scenario was applied, as SEM was applied in a more exploratory manner in relation to model generation, although an initial model was proposed based on key theoretical assumptions.

The final step in SEM is model modification, which relates closely to the model generating approach, as outlined by Joreskog (1993), which was adopted by the researcher. If the model is not rejected outright for poor fit, either alternative models are generated, or the source of poor fit is explored and identified. In this final step, researchers use model modification strategies in an attempt to find a model that better fits the data. In this stage the researcher can add or remove parameters to improve model fit, although this should be guided by pre-existing theoretical knowledge (Teo et al., 2013). While model modifications may result in a better fitting model, there is the risk that too many modifications may result in data-driven (rather than theory-driven) models (Martens, 2005), and these may not be generalisable to the population. Crockett (2012)

advises, "Researchers should be advised that model modification is an exploratory procedure and is based on the sample data instead of the extant literature. Re-specified models will need to be cross-validated with a new sample" (p.34).

5.3.6 Evaluating model fit in factor analysis and SEM

In SEM techniques, there are several indicators of model fit. This stage occurs once models have been estimated and refers to the extent to which the model fits the sample data used (Schermelleh-Engel et al., 2003). There is no single indicator or statistical test that identifies a correct model. As noted earlier, a nonsignificant chi-square value has traditionally been used as evidence of good model-data fit, but it is widely demonstrated that the chi-square value is sensitive to model size and non-normality (Bollen, 1989). Therefore a combination of absolute and exact fit indices must be used and interpreted, and there is considerable discourse in the statistical literature about which measure is most appropriate in determining model fit (Weston & Gore, 2006; Kline, 2011; McDonald & Ho, 2002). Therefore, it is best to report multiple indicators of model fit (McDonald & Ho, 2002; Hu & Bentler, 1999; Hoyle & Panter, 1995). Following this argument, as well as guidance from (Byrne 2001; 2012) and Kline (2011) several indicators of model fit will be reported. A brief summary of various fit indices used in the current study are provided below.

Chi-square

The model chi-square is the most frequently used measure of fit. The chi-square assesses the magnitude of discrepancy between the fitted covariance matrix and the covariance matrix from the sample data (Hu & Bentler, 1999). A significant chi-square value suggests that the model does not fit the sample data well, conversely, therefore a non-significant chi-square value is preferred. However, use of the chi-square does have limitations, particularly in relation to sample size, where it has been noted to be more likely to be significant in sample sizes exceeding 200 (Kline, 2011). This particularly pertinent to the current study which has a sample size exceeding 700. Bryne, (2016) notes that it is possible to have a good model fit, but have a statistically significant chi-square value. In light of this limitation, it is recommended that additional fit indices are used when reporting model fit, particularly when sample size is large (Hooper, et al. 2008). An alternative is also to use the normed chi-square index.

Root Mean Square Error of Approximation (RMSEA)

This is an absolute fit index and is a measure of the approximate fit of the model in the population. The RMSEA is concerned with any discrepancy due to approximation (Schermelleh-Engel et al., 2003). The RMSEA provides information about 'badness of fit', with lower RMSEA values indicating good model fit (Kline, 2011). A value of less than 0.5 indicates good fit, with values of 0.8 to 0.10 indicating poor fit. Hu and Bentler (1999) advise that a value of .06 is indicative of good fit but advise that when sample size is small, the RMSEA may over-reject models. It is recommended that the RMSEA be reported with its 90% confidence intervals (CI) to assess the accuracy of this fit index (Byrne, 2016; Kenny, et al., 2015; Shi et al., 2020; Steiger, 1990). It is recommended that the lower CI should be 0 for an exact fit, or less than 0.5 for a close-fitting model (Schermelleh-Engel et al., 2003). It is also noted that care should be taken when reporting the RMSEA CI s when there is a small sample size (Kline, 2011).

Comparative fit index (CFI)

The CFI is a popular fit index as it less prone to sample size problems (Fan, Thompson & Wang, 1999). The CFI assumes that all latent variables are uncorrelated and compares the sample covariance matrix with this null model (Hooper et al., 2008). Guidance for the CFI is that values greater than .95 indicate a good fit (Hu & Bentler, 1999) however values above .90 may indicate reasonably good fit of the researcher's model (Byrne, 2016).

Tucker Lewis Index (TLI)

Hu and Bentler (1999) have suggested that a TLI value >.90 is necessary for acceptable model fit and that a TLI value ≥ 0.95 represents the threshold for excellent model fit. A problem with the TLI index is that it is also susceptible to small sample sizes and in such cases may indicate poor model fit despite other indices indicating good model fit (Tabachnick & Fidell, 2007).

Standardised Root Mean Square Residual (SRMR)

The SRMR is the standardised square root of the difference between the residuals of the sample covariance matrix and the hypothesised covariance model (Hooper et al., 2008). Hu and Bentler (1999) recommend the reporting of SRMR values when assessing model fit. Values for the SRMR

range from zero to one, with values less than .08 indicating an acceptable model fit (Hu & Bentler, 1999).

5.3.7   Limitations of SEM

While SEM has many advantages, there is no 'perfect' method of analysis, and there are of course some limitations associated with the use of SEM. As SEM examines correlations among variables, it cannot establish causal effects. Therefore, successful use of SEM relies on the researcher's own theoretical knowledge of each variable (Stage et al., 2004). It is also noted by Crockett (2012) that because SEM is a confirmatory approach, it is most useful when the researcher has an a priori theoretical model to test. It is further noted that it is not an exploratory methods, and is "ill-suited for exploring and identifying relationships" among variables (Kelloway, 1998, p.7). However, the current research is using this to confirm hypothesis that: higher MHL is associated with lower stigma and higher help-seeking intention; and that personal stigma acts as a mediator in this relationship.

5.4   Chapter Summary

This chapter aimed to provide a comprehensive overview of the range of analytical approaches used in the research, as well as providing some theoretical context. This chapter also outlined the steps taken to check the accuracy of data imputation; screening the data for outliers; and assessment and resolution of problems relating to missing data. The chapter then gave an overview of analytical procedures used. This included an overview of SEM, and the use of CFA in both validating measures, and in testing the measurement model and ensuring good fit prior to specifying the full structural model. Discussion of the structural model included an overview of mediation, and the importance of avoiding inconsistent mediation when specifying and testing models. Multigroup SEM as a method of assessing moderation was then discussed. It is hoped that this provides context for the results provided in the following chapters.

Chapter 6: Results: Assessment of measurement models and descriptive overview of MHL and stigma and help-seeking.

6.1 Aim of Chapter

The aim of this chapter is to outline analyses undertaken in determining validity and factor structure of measures used in the research using Confirmatory Factor Analyses (CFA). This chapter will also provide a descriptive overview, summarise bivariate associations between key variables and outline differences related to demographics such as gender, age and measures of SES. Results of CFA will form the basis for SEM model building and testing discussed in chapter seven.

6.2 Overview of sample characteristics

In total there were 734 survey responses included in analyses. These were from ten schools across eight different local authorities in Scotland. All schools were in urban or semi-urban areas. The sample was 46.9% male ($n = 344$), and 52% female ($n = 382$), eight participants did not indicate their gender. Participants were all aged between 12 and 17 years, with an average age of 14.23 years (SD 1.505). The population was 88.4% ($n = 649$) Caucasian. The next largest proportion of the sample identified at as "Asian / Asian British / Asian Scottish" at 6.5%. Ethnicity was therefore dummy coded as "white" ($n = 649$), or, "other" ($n = 83$).

In relation to subjective measures of SES, the majority of the 734 participants sampled indicated that they were in the high SES group (51.2 %, $n = 367$), followed by 40.4% ($n = 290$) indicating that they believed their SES to be average. Fewer considered themselves to be in the low SES category (8.4%; $n = 60$).

Additional data was collected to reflect a different dimension of SES. The Scottish Index of Multiple Deprivation (SIMD) data were collected to investigate school neighbourhood poverty. While sampling strategy aimed to collects data from pupils attending schools in a wide range of SIMD deciles, schools fell into eight of the ten deciles, and no participating schools were in SIMD decile 6 or 9. Number and percent of participants attending school in each applicable decile is outlined in Table 6.1 below.

Table 6.1: SIMD distribution in participant sample

SIMD decile	n	Percent of sample
1 (most deprived)	50	6.8
2	77	10.5
3	148	20.2
4	129	17.6
5	110	15.0
7	71	9.7
8	63	8.6
10 (least deprived)	86	11.7

6.3 Assessment of factor structure: CFA applied to psychometric instruments

A first step in the analyses of data was to assess the reliability, validity and factor structure of the measures used in the research. This has implications for results of both descriptive and substantive analyses and represented a first step towards these analytical stages. The section below details the process of using Confirmatory Factor Analysis (CFA) to assess the psychometric properties of measures used, and whether pre-conceived factor structures represented a good fit for the data.

6.3.1 Measurement of mental health literacy: MAKS

The Mental Health Knowledge Schedule (MAKS; Evans-Lacko et al., 2010) is a frequently used and well validated measure with good internal and retest reliability (Wei et al., 2015). While the MAKS has been used with adolescents previously, to the best of the author's knowledge it has not been subject to psychometric assessment with this population. The MAKS is comprised of two subscales each containing six items which use a five-point Likert scale. The first six items of the MAKS were designed to assess six areas of knowledge (help-seeking; recognition; support; employment; treatment; and recovery), the second set of six items enquire about knowledge of mental health problems (Evans-Lacko et al., 2010; Chisholm et al., 2015). MAKS items are scored on an ordinal scale from 1 ("strongly disagree") to 5 ("strongly agree"), and several items (items 6 "*Most people with mental health problems go to a healthcare professional to get help*", 8 "*stress*", and 12, "*grief*") are reverse scored (Evans-Lacko et al., 2010).

Studies using the MAKS among adolescents noted only a low Cronbach's alpha (Chisholm et al., 2015), which suggests poor internal consistency. The authors of the scale noted that this may be due to individuals having different levels of knowledge based on the domains contained within the scale (Evans-Lacko et al., 2010), while Chisholm et al. (2015) argued that this may be more pronounced among adolescents. A two-factor model (one relating to domains of mental health knowledge and one to relating to levels of recognition and familiarity with various mental health conditions) was proposed and tested using CFA. Of the six domains measured by the MAKS, these captured recognition of mental health problems, and knowledge of treatment. As previously noted, a model generation approach was taken (Joreskog, 2003), meaning that if the proposed factor structure results in poor fit, an exploratory approach is taken to determine sources of poor fit and to create a model that better fits the data.

When the first two-factor model was tested, this had a poor model fit: $\chi2$ (53) = 449.897, p <.001; RMSEA = .101 (90% Confidence Interval .093, .110); CFI = .681; TLI= .602; SRMR = .0843. Factor loadings were poor on several items. For guidance, factor loadings below .30, or some cases, .40, are generally considered poor fit (Brown, 2015). Several items in this model had low factor loadings below this threshold. For example, item 8 (extent to which participants rated *"stress"* to be a mental health problem) had a factor loading of .196, while five other items (1, 2, 6, 12, and 11) all had factor loadings below .30. In regards of fit indices, the RMSEA (0.101), the CFI (.681) and TLI (.602) all indicated poor model fit. High modification indices were also reported in the model.

Reverse coded items (6, 8 and 12) proved particularly problematic to the model, with high modification indices between these items (e.g. a MI of 146.695 between items 8 and 12) and low factor loadings (.218, .196, and .267 respectively). Items 1 and 2, from the first proposed factor also demonstrated low factor loadings (.229 and .237). Due to high modification indices and low factor loadings of reverse coded items, the decision was made to remove these items and reanalyse the model. In order to justify this, a literature search was conducted to find previous work which has undertaken a CFA on the MAKS. The only study to examine the MAKS factor structure (Garcia et al., 2017) found similarly poor factor loadings in their model, when assessing the

validity of a French translation of the MAKS. This was conducted with adult participants and was used as a guide in validating the MAKS for an adolescent population. To counter this, Garcia et al. (2017) removed reverse-coded items. This model was replicated using the current data set, and while model fit was improved, (χ^2 (26) = 48.876, p <.000; RMSEA = .035 (90% Confidence Interval .019, .049); CFI = .971; TLI= .959; SRMR = .0386) several factor loadings remained low. For example, items 1 ("*Most people with mental health problems want to have paid employment*"), 2 ("*If a friend had a mental health problem, I know what advice to give them to get professional help*") and 11 (extent to which "*drug addiction*" was considered to be a mental health problem) had factor loadings of .216, .227 and .221 respectively. Item 5 also had a borderline acceptable factor loading (.319). According to a rule of thumb, a factor needs to be at least .32 to be considered statistically meaningful (Tabachnick & Fidell, 2007). Elsewhere it is argued that below .30 is not meaningful, though it is also argued that a higher cut-off of .40 may be more acceptable (Brown, 2015).

 Although item 11 ("*drug addiction*") had a low factor loading, there is theoretical reasoning for retaining this item in that, while drug addiction is a mental health condition, it may be poorly recognised as such by adolescents in the sample. The other items with low factor loadings in the first scale relate to matters of employment of people with mental health problems (i.e., item 1), and how to obtain professional help (item 2), which may not be pertinent among adolescents. For example, Nearchou et al. (2020) when assessing a different psychometric measure, recommended removal of items relating to employment, as this loaded well for young adults but not for adolescents.

Therefore, items with low factor loadings were removed, and a reduced two-factor CFA was tested. The first factor contained two items. Both of these related to knowledge of treatment for a mental health problem, the second factor contained four items. These referred to schizophrenia, depression, bi-polar disorder and drug-addiction, and the extent to which participants believed them to be a mental health problem. Drug-addiction (item 11), which despite having low factor loading was retained in order to assess model fit with this item. Model fit was much improved (χ^2 (8) = 8.479, p = .338; RMSEA = .009 (90% Confidence Interval .000, .045); CFI = .999; TLI=

.999; SRMR = .0191), though the factor loading for item 11 remained persistently low (.218). As drug addiction again had a low factor loading, this suggests that adolescent may not recognise this as a mental health problem in the same way that they would with diagnoses such as schizophrenia, and depression which may be conceptualised as more biomedical in nature. There is evidence in the literature that drug addiction is conceptualised differently to other mental health problems (e.g. Barry et al., 2014), and this may be why it was such a low factor loading when compared to other mental health problems contained in the MAKS, and provides some theoretical basis for removal of this item. Therefore, the decision was made to remove this item. Model fit was good: $\chi^2 (4) = 2.663$, $p = .616$; RMSEA = .000 (90% Confidence Interval .000, .046); CFI = 1.00; TLI= .999; SRMR = .0133). The final factor model is shown below in Figure 6.1.
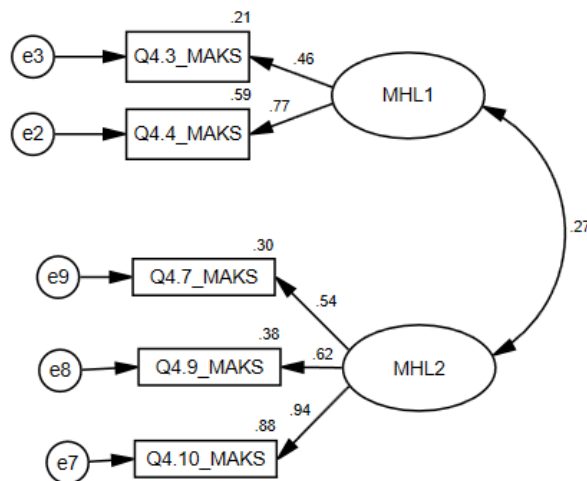
Fig 6.1. Final two factor model of Mental Health Literacy.

Factor one retained two items (3: "Medication can be an effective treatment for people with mental health problems", and 4: "Psychotherapy (e.g. talking therapy or counselling) can be an effective treatment for people with mental health problems"), these factors represent an apparent *knowledge of treatment efficacy*. Factor two retained three items (Schizophrenia, Depression, Bi-Polar disorder). It is proposed that this factor represent participants' *ability to identify organic mental health problems*.

6.3.2 Measurement of stigma: PMHSS

As outlined in the methodology chapter (chapter four), the Peer Mental Health Stigmatisation Scale (PMHSS) in its original form consists of 24 items, 16 of which measure stigma. These 16 stigma items represent 8 personal stigma items, and 8 perceived stigma items measuring perceived stigma from "most people". The original scale was adapted to measure personal stigma as well as the perceived stigma beliefs of specific groups (friends and parents). This created a total of 24 stigma items (8 for personal stigma, 8 for perceived stigma from friends, and 8 for perceived stigma from parents).

As discussed previously, the PMHSS also contains a 'positive' subscale. Given that the current research is interested in researching stigma only, and not positive reactions to mental health problems, the decision was made to remove these items. This decision was retrospectively supported by Nearchou et. al., (2020) who did not include positive items after conducting EFA and CFA on the unadapted PMHSS. As the PMHSS had previously been subject to a Principal Components Analysis (PCA) (McKeague et al., 2015), it was proposed that CFA be used to assess factor structure of both newly adapted sub-scales (perceived stigma from friends and from parents).

In the current study, an initial CFA was conducted to assess a three-factor model of stigma. This decision was made as the original PMHSS was explicitly based on a tripartite model of stigma, in which stigma is conceptualised as comprising three components (prejudice, stereotypes and discrimination), (Corrigan &Watson, 2002; Corrigan & Shapiro, 2010). CFA is theory driven, and based on this theoretical model of stigma, it was deemed appropriate to evaluate if a three-factor model of stigma could be determined from the data, and to evaluate whether the three-factor model of stigma held true in an adolescent population.

The developers of the PMHSS (McKeague et al., 2015) state:

> "The items chosen for inclusion measured stereotypes (dangerousness, blameworthiness, poor self-care, academic ability), prejudice (fear, not trustworthy, behaviour in class), discrimination ('hang out with', refusing employment) and low social status ('look down on'). These items were chosen because they are consistent with Corrigan and Shapiro's (2010) conceptualisation of the components of stigmatising response" (p.164).

A three-dimensional model for each construct (personal stigma, perceived stigma from friends, perceived stigma from parents) was specified and tested, an example can be seen in figure 6.2 below. While some goodness of fit indices reflected good fit, the RMSEA was high in each model, (***personal stigma***: $\chi2$ (17) = 74.26, p <.001; RMSEA = .068 (90% Confidence Interval .052, .084); CFI = .957; TLI= .929; SRMR = .0371; ***perceived stigma from friends:*** ($\chi2$ (17) = 98.63, p <.001; RMSEA = .081 (90% Confidence Interval .066, .097); CFI = .957; TLI= .929; SRMR = .0373; ***perceived stigma from parents***: $\chi2$ (17) = 147.58, p <.001; RMSEA = .102 (90% Confidence Interval .088, .188); CFI = .951; TLI= .920; SRMR = .0388). While an RMSEA of ≤ .06 can be considered acceptable (Hu & Bentler, 1999), a model with an RMSEA ≥ .10 is considered "unworthy of serious consideration" (Browne & Cudeck, 1993). In addition to the poor RMSEA, this factor structure also resulted in Heywood cases. A Heywood case cases represent estimates in a model which are "out of bounds" whereby standardised estimates have a greater value than 1 (Kolenikov & Bollen, 2012), and can be problematic, and representative of poor model fit. With these issues in mind an alternative, single factor structure for each construct was proposed to determine whether this was a better fit for the data.
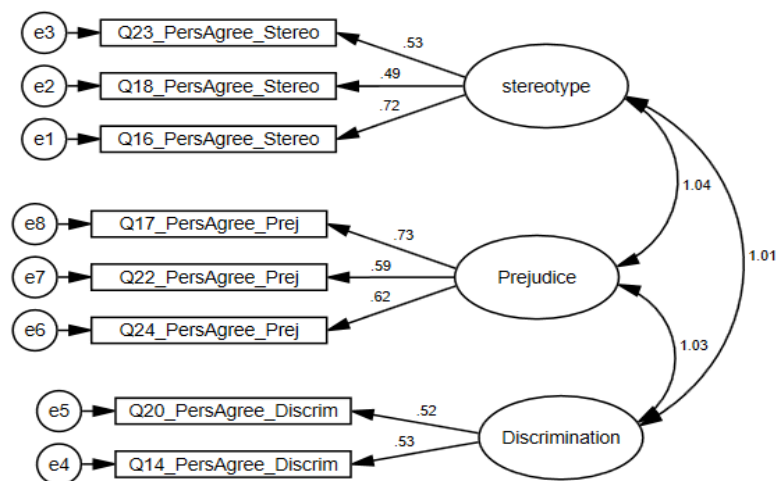
Figure 6.2: Three-factor model of personal stigma.

The factor structure of personal stigma was first subject to CFA. This was a single factor structure containing all personal stigma items. Model fit for personal stigma was good, and improved from

the three-factor structure (χ2 (20) = 75.847, p <.001; RMSEA = .062 (90% Confidence Interval .047, .077); CFI = .962; TLI= .947; SRMR = .0374). The same process was applied to perceived stigma from friends, which also had good model fit (χ2 (20) = 102.292, p <.001; RMSEA = .075 (90% Confidence Interval .061, .090); CFI = .956; TLI= .939; SRMR = .0373), as did perceived stigma from parents (χ2 (20) = 75.847, p <.001; RMSEA = .062 (90% Confidence Interval .047, .077); CFI = .962; TLI= .947; SRMR = .0374).

These findings indicated that perceived stigmas and personal stigma were a good fit for a single factor model. A single factor structure reduced the RMSEA, and improved fit of other indices. This indicated that a single factor model was a better fit for the data than the three-factor model of stigma. An example of the accepted single factor models can be seen below in Figure 6.3. For completeness, a table of fit indices for both the single and three factor models are shown below in Table 6.2

Table 6.2: Model fit for three and single factor models

Model fit index	Personal stigma	Perceived from parents	Perceived from friends
Three-factor model			
CFI	.957	.951	.957
RMSEA	.068 (.052, .084)	.102 (.088, .188)	.081 (.066, .097)
TLI	.929	.920	.929
SRMR	.0371	.0388	.0373
X^2 (df), p.	74.263 (17), <.001	147.578 (17), <.001	98.634 (17), <.001
Single factor model			
CFI	.962	.956	.962
RMSEA	.062 (.047, .077)	.075 (.061, .090)	.062 (.047, .077)
TLI	.946	.939	.947
SRMR	.0374	.0376	.0374
X^2 (df), p.	76.092 (20), <.001	102.292 (20) <.001	75.847 (20), <.001
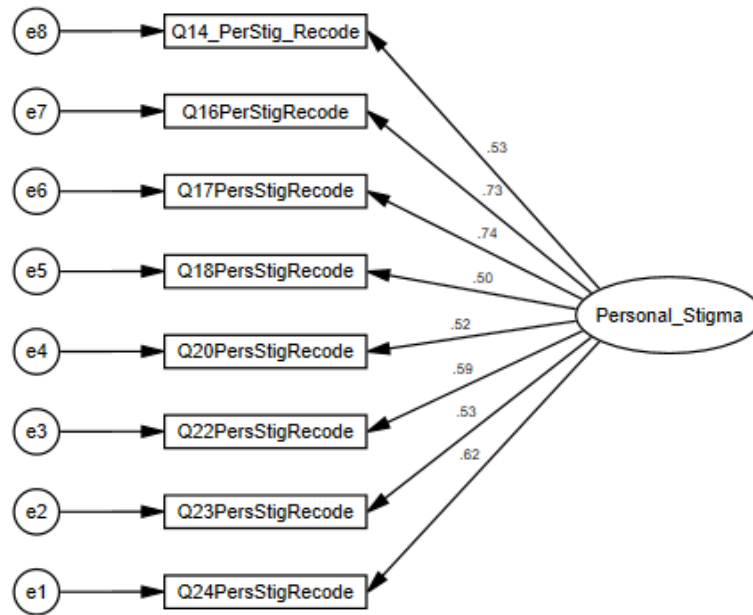
Fig. 6.3: Final single factor model for personal stigma.

Finally, in order to assess validity in the adapted PMHSS used in the research, a three-factor model was proposed which contained all three stigma variants. The assumption here being that good fit would identify that the items contained in the measure are indeed measuring three distinct factors (personal stigma; perceived stigma from friends; and perceived stigma from parents).

Taking cue from statistical techniques used in longitudinal studies, where the same questions are asked at different time periods, the decision was made to account for this covariance in the model. In longitudinal data analyses, positive correlation is expected (Sutradhar, 2011), and this correlation must be modelled to properly assess the data. If data are treated as independent, there is the risk of over, or under-estimating the strength of conclusions and research findings (Weiss, 2005). It is therefore necessary that analysis of the data should account for the clustered nature of the data (Verbeke, et al., 2014). Accounting for the covariance in this way provided good model fit (χ^2 (225) = 630.261, p <.001; RMSEA = .050 (90% Confidence Interval .045, .054); CFI = .952; TLI= .941; SRMR = .0406). The model can be seen in figure 6.4 below.
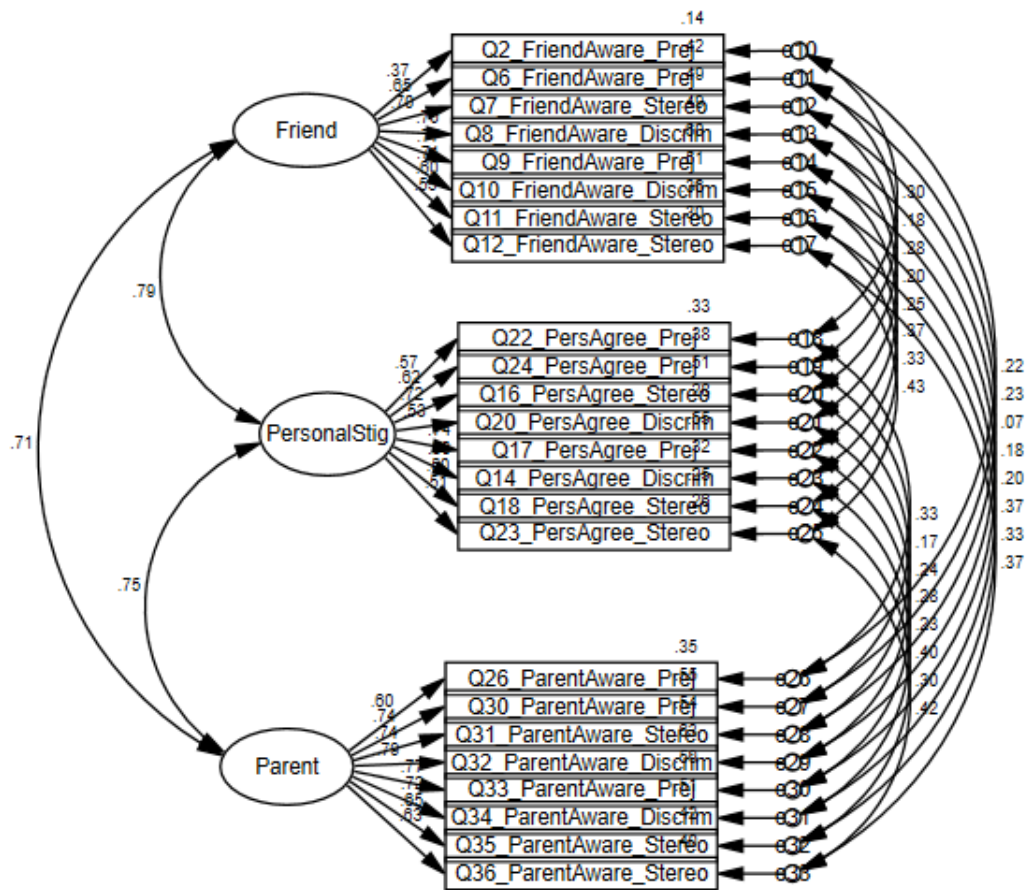
Figure 6.4: Three-factor model of all stigma constructs

The findings here indicate that the adapted PMHSS was measuring three distinct constructs as outlined by the good model fit of the three-factor structure. In relation to building a measurement model for subsequent SEM analyses, CFA conducted here indicates that single factor models, containing stigma items only also provide good fit to the data. Therefore, when analysing the extent to which perceived stigma mediates the relationship between MHL and intended help-seeking, a single factor structure for personal stigma will be entered into the measurement model.

These analyses confirmed findings from McKeague et al. (2015), that stigma subscales are best represented by single factor models. While the results of these CFAs question the likelihood that adolescents conceptualise stigma as composing of stereotypes, prejudice and discrimination, it does suggest that perceived and personal stigma are distinct. It also serves to expand upon initial PCA work by McKeague et al (2015), to generalise this finding across a new and larger population of adolescents.

When comparing these findings with later work from Nearchou et al. (2020), it was found that both the current study and Nearchou et al. (2020) supported a factor structure in which personal and perceived stigma are distinct. The current study adds to this by demonstrating a factor structure whereby perceived stigma from different groups (parents and friends) are not only distinct from personal stigma, but also from each other.

6.3.3 Measurement of intended help-seeking: GHSQ

The General Help Seeking Questionnaire (GHSQ: Wilson et al., 2005) is a ten-item measure, which investigates intended help-seeking on two subscales: formal, and informal. The first three items ("*friend* [*not related to you*]"; "*parent*"; "*other family member / relative*") measure intentions to seek help from informal sources. Items 4-8 measure formal sources (e.g. "*Doctor / GP*"; "*mental health professional*"; "*teacher*"). Item 9 states "*I would not seek help from anyone*" and required reverse coding.

A two factor (formal and informal) model was tested. Item 9 ("*I would not seek help from anyone*") was not included as it is indicative of neither formal nor informal help seeking. Item 10 ("I *would seek help from another not listed above*") was also excluded from analyses due to very high levels of missingness (77%). Model fit was good: $\chi2$ (19) = 102.792, p <.001; RMSEA = .078 (90% Confidence Interval .063, .093); CFI = .943; TLI= .917; SRMR = .0427. However, it was found that item 2 "friend" was not loading highly on informal help-seeking (factor loading: .207). This would suggest that family (parents and other relatives) may be a distinct factor within informal help seeking, while friends may be seen as a distinct source of help-seeking among adolescents.

A three-factor model was then proposed which looked at formal, informal (family), and informal (friends). For this model, the "friend" item was a single observed variable, while informal (family) and formal items created two latent variables. Covariances were specified between factors. Separating informal help seeking into friends and family did not improve model fit ($\chi2$ (18) = 99.868, p <.001; RMSEA = .079 (90% Confidence Interval .064, .094); CFI = .945; TLI= .914; SRMR = .0410). In light of this minimal change to model fit, it was proposed to retain the original scale, and include the "friends" item in the informal factor.
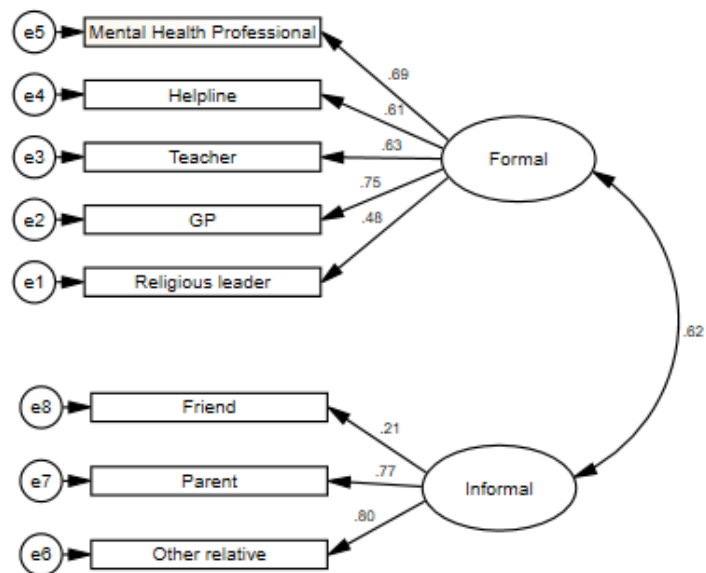
Fig 6.5. Final two factor model of help-seeking intention.

While the better model fit of the two factor model suggests that help-seeking is a two factor construct in terms of formal and informal help-seeking, the low factor loading for the "friend" item would suggest that friends are distinctively conceptualised by adolescents as an informal source of help. Low factor loadings indicated that the item in question does not properly measure the factor, and therefore has poor convergent validity (Kline, 2011). However, it was retained due to literature which states that friends are an important informal source of help (e.g. Gronholm et al, 2016; Wilson et al., 2014), and due to the improved model fit when this item is incorporated as two factor structure rather than three.

6.4   Results of descriptive analyses in response to initial research questions

The following section reports descriptive and bivariate findings of key variables in the study. Descriptive analyses relating to MHL, stigma and help-seeking intention will be provided. Results described here are informed by results of CFA. For example, where specific items have been shown to be poor fit following factor analyses, these items were not used in computation of total score. For example, when computing total scores of the MAKS scale, only items 3 and 4 were included in the first sub-scale and items 7, 9 and 10 in the second scale.

6.4.1 Descriptive associations between mental health literacy, and background characteristics

Initial descriptive research questions aimed to determine the extent of MHL in the sample population, and whether this differed by age, gender and ethnicity or measures of SES. In order to analyse levels of MHL, composite scores were computed. This created two subscales, one relating to items 3 and 4 of the MAKS (Evans-Lacko et. al., 2010), which following CFA were deemed to be representative of *knowledge of treatment efficacy.* The second subscale contained items 7, 9 and 10 and was considered representative of *ability to identify a mental health problem*. Mean scores and standard deviations can be seen in Table 6.3 below, these are then ordered to show mean scores for different sub-samples of the population. Overall sample means for both scales are relatively high given the possible range of scores. Knowledge of treatment efficacy had a possible total of 10 (two items with a maximum score of 5 each), while ability to identify a mental health problem had a maximum possible score of 15 (three items retained).

Table 6.3: Mean score of MHL by population sub-group

	Sub-group	*n*	Knowledge of treatment efficacy		Ability to identify MH problem	
			Mean	*SD*	Mean	*SD*
Overall mean	--	734	7.58	1.55	13.40	1.98
Gender	Male	344	7.43	1.59	13.04	2.18
	Female	382	7.73	1.50	13.71	1.73
Age	12-13 years	267	7.50	1.55	13.01	2.10
	14-15 years	276	7.66	1.54	13.48	1.86
	16-17 years	189	7.61	1.57	13.86	1.87
Ethnicity	White	649	7.58	1.55	13.42	1.94
	Other	83	7.58	1.64	13.29	2.25
SES	High	367	7.70	1.53	13.54	1.88
	Low-Med	290	7.45	1.59	13.30	2.02
SIMD deciles	1-3	275	7.50	1.61	13.05	2.22
	4-7	310	7.57	1.56	13.53	1.81
	8-10	149	7.58	1.55	13.40	1.98

Knowledge of treatment efficacy scores have a possible range of 2 – 10
Ability to identify a mental health problem scares have a possible range of 3-15
SIMD deciles: 1-3 = most deprived; 4-7 = mid-range; 8-10 = least deprived

First of all, in relation to gender, t-tests revealed that female participants had significantly higher knowledge of treatment efficacy than male participants (t (724) = -2.613, p = .009), and scored significantly higher on ability to identify a mental health problem than male participants (t (724) = - 4.57, p < .001).

To assess if MHL varied by age of participant, a one-way ANOVA was used. In this case participants were grouped into "younger adolescents" (12-13 years), "middle adolescence" (14-15 years) and "older adolescents" (16-17 years). A post-hoc Bonferroni correction was applied. This was chosen over the Tukey test, as the Bonferroni has more power than the Tukey when the number of comparisons are small (Field, 2009). Looking first at *knowledge of treatment efficacy*, there were no significant differences based on age of participants (F (2,729) = .685, p = .505). There were significant differences in relation to level of *ability to identify a mental health problem* depending on participant age (F (2,729) = 11.024, p < .001). Bonferroni corrections revealed that there was a significant difference between younger (M = 13.01, SD = 2.10) and older (M = 13.86, SD = 1.87) adolescents, and younger and mid-age adolescents (M = 13.48, SD =1.86), but not between mid and old. Suggesting here that ability to identify a mental health problem significantly increases with age.

There were no differences in level of knowledge of treatment efficacy (t (730) = -.007, p = .994) or ability to identify a mental health problem (t (730) = .572, p = .568) based on participant ethnicity.

To examine the difference levels of subjective SES may have, participants were grouped into either high, medium or low SES categories. It should be noted that there are fewer participants contained within the "low" subjective SES category (n = 60), this is in comparison to 290 participants in the medium category, and 367, in the high SES category. In order to avoid small sample, those who indicated they were in "low" or "medium" SES groups were grouped together and dummy coded as "Low-Medium SES" (n = 350) and "High SES" (n = 367). This was also based on literature which states that adolescents are prone to over inflate their SES when asked (Elgar et al., 2016; Goodman et al., 2007), and that this is particularly the case in low-SES adolescents (Goodman et al., 2015). A t-test was undertaken to determine any differences in SES

between those rating themselves as being in the high SES category and those in low and medium categories. A significant differences was identified between SES categories in relation to *knowledge of treatment efficacy* (t (715) = -2.166, p = .031), with those in the high SES category (M = 7.70, SD = 1.53) scoring significantly higher than participants who rated themselves as being low or medium SES (M = 7.45, SD = 1.59). There were no differences *ability to identify a mental health problem* depending on subjective SES (t (715) = -1.688, p = .092).

When examining differences in MHL based on school neighbourhood deprivation of school attended, there was no significant difference in levels of *knowledge of treatment efficacy* (F (2,731) = 1.261, p = .284). However, there was significant main effect of school SIMD on *ability to identify a mental health problem* (F (2,731) = 8.167, p < .001). Post-hoc tests indicated that significant differences lay between pupils attending schools in the most deprived school neighbourhoods (M = 13.05, SD = 2.22) and those in mid-range school neighbourhoods (M = 13.53, SD = 1.81), as well as between those in the most deprived areas and least deprived (high SIMD) school neighbourhoods (M = 13.80, SD = 1.75). This indicates that different measures of SES are differently associated with both forms of MHL assessed. In summary, there are significant differences in levels of knowledge of treatment efficacy between participants who considered themselves to be the average, and very well off financially, with higher scores among those who considered themselves to be in the high SES category.

In summary, there were significant differences *in knowledge of treatment efficacy* based on, participant gender, where it was higher among female participants, and in relation to participants' self-rated SES, with high SES participants indicating higher levels of knowledge. However, there was no significant difference in knowledge based on area-level measures of SES (SIMD of school attended). Nor were there significant differences in knowledge based on participants age, or ethnicity. Turning to *ability to identify a mental health problem,* this was significantly higher among female participants, older participants and those who rated themselves as being in the high SES category. This form of MHL was not associated with school neighbourhood deprivation or with ethnicity of participants.

6.4.2 Associations between MHL and outcome variables.

Once mean scores of various population sub-groups, and any differences between these had been established, bivariate correlations between MHL, help-seeking and personal stigma were examined.

As seen in Table 6.4 below, ***knowledge of treatment efficacy*** subscale was positively correlated with informal (r =.094 p = .012) and formal help-seeking (r =.113, p = .002) and negatively associated with personal stigma (r = -.202, p =.000). Correlations indicate that participants who reported higher knowledge were also more likely to report higher levels of intention to seek formal and informal help. The negative association between knowledge and personal stigma suggest that higher knowledge is associated with lower personal stigma.

Ability to identify a mental health problem was negatively associated with informal help-seeking (r = -.101, p = .006), formal help-seeking (r =-.134, p =.000), and personal stigma (r = -.237, p =.000). This indicates that as this ability increases, help-seeking and stigma decreases. The finding that this ability was associated with reduced help-seeking intention was contrary to expectations, though reflects that different dimensions of MHL may not be equal in increasing help-seeking intention.

Table 6.4: Mean scores and correlations between MHL and outcome variables

Variable	M	SD	MHL1	MHL2	Informal	Formal	Personal stigma
MHL1	7.581	1.55	--	.193**	.094*	.113**	-.202**
MHL2	13.40	1.98		--	-.101**	-.134**	-.237**
Informal	14.38	4.12			--	.426**	-.073*
Formal	15.56	6.41				--	-.015
Personal stigma	16.19	5.14					--

** p <.01; * p <.05
MHL1: first MAKS subscale following CFA, knowledge of treatment efficacy; MHL2: second MAKS subscale following CFA, ability to identify a mental health problem
Maximum possible score for: informal help-seeking = 21; formal help-seeking = 35; personal stigma = 40

In summary, both forms of MHL were associated with decreased personal stigma. Specifically, adolescents who show higher literacy, whether related to ***knowledge of treatment efficacy*** or to

ability to identify a mental health problem, also show lower levels of personal stigma, however, MHL scales have differing associations with help-seeking intention.

6.4.3   Descriptive associations between stigma, and background characteristics

Next, research questions aimed to establish the landscape of personal and perceived stigma among the sample population. This included establishing mean levels of stigma, whether stigma differed in relation to gender, age, ethnicity or measures of SES, and determining key associations. Below, in Table 6.5, mean stigma scores are detailed, these represent mean scores with a possible maximum score of 40 (eight items rated 1 to 5).

Descriptive analyses were undertaken to examine whether the nature of self- reported personal and perceived stigma differed. Perceived stigma from friends is the highest rated form of stigma ($M = 17.38$, $SD = 5.26$), followed by perceived stigma from parents ($M = 16.46$, $SD = 5.79$) and personal stigma was rated lowest ($M = 16.19$, $SD = 5.14$). To determine whether these mean scores were significantly different from each other, paired sample t-tests were carried out to establish any statistical differences in mean scores. This indicated that perceived stigma from friends is significantly higher than the mean value of personal stigma (t (733) = 8.855, $p < .001$); that perceived stigma from friends is also rated higher than perceived stigma from parents (t (733) = 6.160, $p < .001$); however, mean ratings for personal stigma and perceived stigma from parents did not differ (t (733) = -1.515, $p = .130$). This indicates that participants reported a significantly higher perceptions of mental health stigma from friendship referent groups than those held by parental referent groups or themselves. However, they did not perceive a significantly higher mental health stigma from parents in comparison to their own stigma.

To examine any significant differences in mean scores based on gender, independent samples t-tests were conducted. These revealed that personal stigma showed a significant difference (t (724) = 6.640, $p = <.001$) with male adolescents ($M = 17.49$, $SD = 5.37$) showing significantly higher scores than female participants ($M = 15.02$, $SD = 4.61$). Similar results were found for perceived stigma from friends (t (724) = 6.640, $p = <.001$), where scores for male participants ($M = 18.48$, $SD = 5.15$) were significantly higher than female participants ($M = 17.368$, $SD = 5.207$). Finally, a t-test again revealed significant differences between male ($M = 17.35$, $SD = 5.94$) and female

($M = 16.40$, $SD = 5.76$) scores for perceived stigma from parents (t (724) = 4.209, p <.001). This indicates that boys both perceive and hold more stigma than girls.

Table 6.5: Mean stigma scores by population sub-group

	Sub-group	n	Personal stigma		Perceived stigma from parents		Perceived stigma from friends	
			Mean	SD	Mean	SD	Mean	SD
Overall mean	--	734	16.19	5.14	16.46	5.79	17.38	5.26
Gender	Male	344	17.49	5.37	17.35	5.94	18.48	5.15
	Female	382	15.02	4.61	15.55	5.47	16.36	5.06
Age	12-13 years	267	16.69	5.17	16.62	5.67	17.81	4.79
	14-15 years	276	16.18	5.13	16.65	5.92	17.51	5.55
	16-17 years	189	15.49	5.07	15.93	5.76	16.55	5.38
Ethnicity	White	649	15.98	5.08	16.26	5.78	17.18	5.26
	Other	83	17.81	5.34	17.87	5.70	18.84	4.99
SES	High	367	16.61	5.05	16.58	5.92	17.61	5.24
	Low-Med	350	15.79	5.08	16.34	5.63	17.10	5.29
SIMD Deciles	1-3	275	16.55	4.73	16.80	5.43	17.85	5.14
	4-7	310	15.71	5.44	16.09	5.97	16.72	5.21
	8-10	149	16.51	5.16	16.59	6.03	17.87	5.45

SIMD deciles: 1-3 = most deprived; 4-7 = mid-range; 8-10 = least deprived
Possible total score for all stigma scores = 40

To assess if stigma varied by age of participant, a one-way ANOVA was used. A post-hoc Bonferroni correction was again applied. Results showed that levels of stigma varied depending on age group. In reference to personal stigma, this varied significantly by age (F (2, 729) = 3.029, p =.049). Post hoc comparisons using the Bonferroni correction indicated that the mean score for younger participants ($M = 16.69$, $SD = 5.17$) was significantly higher than mean scores for older adolescents ($M = 15.49$, $SD = 5.07$). There were however, no significant difference in mean scores between younger adolescents and adolescents in the mid-age group ($M = 16.18$, SD =5.13) or between the mid age group and older adolescents. Mean scores indicate that personal stigma was highest in the youngest age group.

Results were similar in regard to perceived stigma from friends, with mean scores varying significantly by age-group (F (2, 729) = 3.353, p =.036). Post-hoc multiple comparisons again revealed that the only significant difference was between younger ($M = 17.81$, $SD = 4.79$) and

older adolescents ($M = 16.55$, $SD = 5.38$), but not between the middle age group ($M = 17.51$, $SD = 5.55$) and older age group; or between the middle age group and younger age group. Again, mean scores indicate that perceived stigma from friends is higher in the youngest participants, and this is significantly different to levels of perceived stigma in older adolescents. Finally, in regard to perceived stigma from parents, this was not significantly different between age groups ($F (2, 729) = 1.050$, $p = .351$).

To investigate differences in stigma based on participant ethnicity (dummy coded to 'White' and 'other' due to small sample size), independent t-tests were used. These found significant differences in relation to participant ethnicity. Looking first at personal stigma, this showed a significant difference ($t (730) = -3.074$, $p = .002$). Personal stigma was significantly lower among Caucasian adolescents ($M = 15.98$, $SD = 5.08$) than those who indicated they were of another ethnicity ($M = 17.81$, $SD = 5.34$). There was also a significant difference found in levels of perceived stigma from friends ($t (730) = -2.727$, $p = .007$), again with White adolescents showing significantly lower mean scores ($M = 17.18$, $SD = 5.26$) than adolescents of differing ethnicity ($M = 18.84$, $SD = 4.99$). Finally, a significant difference was found in relation to levels of perceived stigma from parents ($t (730) = -2.382$, $p = .017$), again with white adolescents showing significantly lower levels of perceived stigma from parents ($M = 16.26$, $SD = 5.78$) than adolescents of other ethnicities ($M = 17.87$, $SD = 5.70$).

Subjective SES, which was again dummy coded ('high' and 'low-medium' categories) was examined for differences in levels of stigma using independent samples t-tests. There were no significant differences in level of perceived stigma from friends ($t (715) = -1.277$, $p = .202$) or parents ($t (715) = -.544$, $p = .587$). However, there were significant differences in levels of personal stigma based on level of subjective SES ($t (715) = -2.162$, $p = .031$). This revealed that personal stigma was higher among those who rated themselves as being high SES ($M = 16.61$, $SD = 5.05$) than those who rated themselves as being in the medium to low SES ($M = 15.79$, $SD = 5.08$).

Finally, a one-way ANOVA, was used to identify any significant differences in levels of stigma in relation to school neighbourhood deprivation (categorised as high, medium and low based on

SIMD deciles). Looking at personal stigma, this did not differ significantly depending on category of school neighbourhood deprivation (F (2, 731) = 2.341, p =.097). Nor did perceived stigma from parents differ in relation to school neighbourhood deprivation category (F (2, 731) = 1.161, p = .314). Perceived stigma from friends however, did differ significantly (F (2, 731) = 4.175, p = .016). Post-hoc corrections demonstrated that a significant difference lay between those in the group with high levels school neighbourhood deprivation (M = 17.8473, SD = 5.14) and those attending schools in the 'medium' category (M = 16.72, SD = 5.21) only. While mean scores were highest in those in schools with low neighbourhood deprivation (M = 17.87, SD = 5.45), this was not shown to be statistically different to scores of those attending schools in other areas. Those attending school in the most deprived areas (low SIMD) had significantly higher ratings of perceived stigma from friends than those attending school in mid-SIMD areas.

Ultimately, stigma was found to vary in relation to gender, with boys showing higher personal and perceived stigma than girls. Perceived stigma from parents was not shown to differ depending on participants age, though both personal stigma and perceived stigma from friends was shown to be significantly higher among younger participants. All forms of stigma were found to be significantly lower among Caucasian adolescents than those of other ethnicities   Personal stigma was the only stigma variable found to differ based on subjective SES, with those who believed themselves to be the most 'well off' holding higher levels of personal stigma. Finally, while personal stigma, and perceived stigma from parents showed no difference depending on the SIMD category of school attended, perceived stigma from friends did differ. It was found that perceived stigma from friends was significantly higher among those attending schools in the least deprived areas compared to those in mid-range school. This was despite those attending schools in the least deprived (more affluent) areas showing highest overall mean score.

6.4.4   Association between stigma and help-seeking intentions.

To assess the extent to which stigma was associated with both formal and informal help-seeking, these variables were subject to bivariate correlation (see Table 6.6 below).

Table 6.6 Correlations between stigma and help-seeking

Variable	M	SD	Personal	Parent	Friend	Informal	Formal
Personal	16.19	5.14	--	.684**	.682**	-.073*	-.019
Parent	16.46	5.79		--	.628**	-.159**	-.031
Friend	17.38	5.26			--	-.118**	-.045
Informal	14.38	4.12				--	.426**
Formal	15.56	6.41					--

** $p < .01$; * $p < .05$

Total possible scores: informal help-seeking = 21; formal help-seeking = 35; all stigma scales = 40.

It was found that stigma was significantly associated with informal, though not formal help-seeking. For example, personal stigma was negatively associated with informal help-seeking ($r = -.073$, $p = .049$). The same negative associations were shown with perceived stigma from parents ($r = -.159$, $p = .000$), and from friends ($r = -.118$, $p = .002$). The associations between personal stigma ($r = -.019$, $p = .606$.) stigma from parents ($r = -.031$, $p = .402$) and friends ($r = -.045$, $p = .734$) and formal help-seeking on the other hand were not statistically significant.

6.4.5 Descriptive associations between help-seeking intention, and background characteristics.

The mean item rating (out of a maximum score of 7) shows that informal sources received higher scores ($M = 4.79$, $SD = 1.37$) than formal sources ($M = 3.11$, $SD = 1.28$) of help. This indicates that adolescents show greater intention to seek help from informal over formal sources. Break down of items in the scale shows that parents received the highest rating as a source of help ($M = 5.38$, $SD = 1.91$), followed by friends ($M = 4.65$, $SD = 1.67$) and other relatives ($M = 4.36$, $SD = 1.97$). The least preferred source of help was a religious leader, ($M = 1.88$, $SD = 1.45$), followed by a helpline ($M = 2.69$, $SD = 1.79$) and teachers ($M = 3.01$, $SD = 1.78$).

There were no significant differences on either informal ($t (724) = .014$, $p = .989$) or formal help-seeking ($t (724) = -.045$, $p = .964$) based on participant gender. When subject to ANOVA, there were significant differences in help-seeking scores in relation to participant age. Looking first at informal help-seeking, this was found to differ significantly ($F (2, 731) = 8.338$, $p < .001$). Post-hoc comparisons identified that the youngest participants (12-13 years) ($M = 15.15$, $SD = 3.84$) were more likely to seeking informal help than 14-15 year olds ($M = 14.07$, $SD = 4.431$) and the

oldest participants (16-17 years olds), (M = 13.64, SD = 4.03). There were no significant differences in informal help-seeking scores between 14-15 year olds and 16-17 year olds.

Table 6.7: Mean help-seeking score by subgroup

	Sub-group		Informal help-seeking			Formal help-seeking	
		n	Mean	SD		Mean	SD
Overall mean	--	734	14.36	4.16		15.50	6.43
Gender	Male	344	14.44	4.17		15.59	6.33
	Female	382	14.43	4.04		15.61	6.46
Age	12-13 years	267	15.15	3.84		16.56	6.74
	14-15 years	276	14.08	4.43		14.74	6.15
	16-17 years	189	13.64	4.03		15.06	6.19
Ethnicity	White	649	14.47	4.20		15.42	6.31
	Other	83	14.27	3.98		16.31	7.36
SES	High	367	14.42	3.88		15.57	6.19
	Low- Medium	350	14.25	4.47		15.45	6.69
SIMD Deciles	1-3	275	13.77	4.33		15.43	6.71
	4-7	310	14.96	3.87		15.40	6.13
	8-10	149	14.31	4.07		16.16	6.42

SIMD deciles: 1-3 = most deprived; 4-7 = mid-range; 8-10 = least deprived
Total possible scores: informal help-seeking = 21; formal help-seeking = 35

Next, turning to formal help-seeking, there was again a significant main effect of participant age (F (2, 731) = 5.983, p = .003). Again, post-hoc comparisons revealed that the youngest participants were significantly more likely to seek formal help (M = 16.56, SD = 6.74) than those in the oldest age group (M = 15.06, SD = 6.19), or middle age group (M = 14.74, SD = 6.15). There were again no significant differences between 14-15 year olds and 16-17 year olds' mean scores. These results indicate that younger participants show a greater intention to seek both formal and informal help-seeking than their older peers.

There were no differences in informal (t (730) = .209, p = .835) or formal help-seeking based on participant ethnicity (t (730) = -1.168, p = .243). Nor were any differences noted based on level of subjective SES in reference to informal (t (709) = -.538, p = .591), or formal help-seeking (t (709) = -.269, p = .788).

Finally, a one-way ANOVA was conducted to investigate any differences in help-seeking intention based on school neighbourhood deprivation. No difference was found in relation to

formal help-seeking intention (F (2, 733) = .799, p = .450), however, informal help-seeking was found to be significantly different (F (2, 733) = 6.133, p = .002). Post-hoc comparisons identified that informal help-seeking intention scores were significantly lower in those attending schools in the most deprived areas (M = 13.77, SD = 4.33) than those in the mid-range deciles for school neighbourhood deprivation (M = 14.96, SD = 3.87), though did not significantly differ from those in the least deprived school neighbourhood group (M = 14.31, SD = 4.07). Results indicate that those attending schools in the most deprived areas are the least likely to show intention to seek formal help.

In conclusion, there were no differences in help-seeking intention depending on gender, subjective SES, or participant ethnicity. There was no difference in formal help-seeking in relation to school neighbourhood deprivation. However, results indicated that those attending schools in the most deprived areas are significantly less likely to show intention to seek informal help. There were also significant differences in help-seeking intention in relation to participant age group, which demonstrate that younger participants are significantly more likely to show intention to seek help that older adolescents.

6.5 Chapter Summary

This chapter began by reviewing analytic strategy in determining factor structure of measures used in the research. This aimed to determine validity of measures and to provide a basis for building a full structural model. Ultimately, MHL was found to be a two-factor structure, personal stigma a single factor structure and help-seeking a two-factor structure. The process of model building using SEM will be described in the next chapter.

This chapter then provided an outline of initial bivariate analyses in response to research questions which aimed to explore the extent of MHL, stigma and help-seeking among the adolescent sample. MHL showed significant gender differences, with each MHL subscale being higher among female participants. MHL was higher among those rating themselves to have high SES. While knowledge of treatment efficacy was associated with increased intention to seek help, ability to identify a mental health problem was associated with reduced intention to seek help.

This was not an expected result and indicates that different forms of knowledge may impact differently on intended behaviours.

An overview of stigma in the sample population was provided. It was found that perceived stigma from friends highest rated among participants. Stigma was correlated with informal but not formal help-seeking intention. This was a negative association indicating that higher levels of stigma are associated with reduced informal help-seeking intention. It was found that stigma varies depending on gender of participants with male adolescents showing higher levels of both personal and perceived stigma. Younger participants were found to have higher personal stigma, and perceive more stigma from friends, though perceived stigma from parents did not differ in reference to age of participants. There were clear differences in levels of stigma depending on participants' ethnicity, though measures of SES showed less clear results. There were differences in level of perceived stigma from friends only, depending on SIMD category of school attended. In relation to subjective measures of SES, this showed differences in relation to level of personal stigma only, with those considering themselves to be in the high SES category showing significantly higher levels of personal stigma. Finally, informal help-seeking was significantly lower among those attending school in the most deprived areas. Both formal and informal help-seeking was significantly higher among younger adolescents.

The following chapter will discuss the results of SEM analysis to determine the mediating effect of personal stigma, as well as any direct effects of MHL or personal stigma on intended help-seeking. This will be followed by results of multigroup SEM which was used to determine any moderating effects of perceived stigma or demographic variables.

Chapter 7: Results: Structural Equation Modelling (SEM) and multigroup SEM

7.1   Aim of Chapter

This chapter reports results derived from analysis of full structural models. The process of model building and testing involved several stages. A full structural model was proposed, evaluated and modified to achieve the best possible fit. A model generation approach was taken (Joreskog, 1993), meaning that models were proposed based on theoretical assumptions. If models had poor fit, an exploratory approach was taken to identify sources of poor fit and modify the model in response. The aim was to test the proposed model of mental health literacy, stigma and intended help-seeking developed in chapter three of this thesis. This model hypothesised associations between literacy, stigma and intended help-seeking.

The first section of this chapter details the model testing procedure and how a final model was derived, as well as the results of this model. Results explain key effects found in the model and reference the mediating effect of personal stigma. The next section of this chapter details the analysis utilised in multigroup analyses to examine the extent to which the hypothesised associations between mental health literacy, personal stigma and help-seeking are moderated by perceived stigmas from referent groups (parents and friends). Lastly, multigroup analyses were undertaken to examine the extent to which demographic factors moderate the relationships between literacy, personal stigma and intended help-seeking.

7.2   Structural Equation Modelling (SEM) and Model Testing.

An initial model was specified early in the research process. This model was reflective of the findings in the literature which state that mental health literacy can influence levels of stigma (e.g. Gulliver et al., 2010; Ratnayake, & Hyde, 2019) and that stigma may influence help-seeking (e.g. Shechtman, et al., 2016). The initial hypothesised model was also constructed based on proposed research questions looking to investigate the mediating effect of personal stigma on the relationship between mental health literacy and help-seeking. Following on from factor analyses which determined validity and factor structure of measures, these findings were incorporated in the main hypothesised model. MHL was determined to have a two-factor structure. Factor one contained two items relating to knowledge of treatment efficacy. Factor two contained three items

relating to participants' ability to identify a mental health problem. Personal stigma was retained as a single factor containing 8 items relating to personal stigma beliefs. Help-seeking was also a two-factor model with one factor containing three items relating to informal sources of help, and a second factor containing five items relating to formal sources of help. The original hypothesised model can be seen in Fig 7.1.
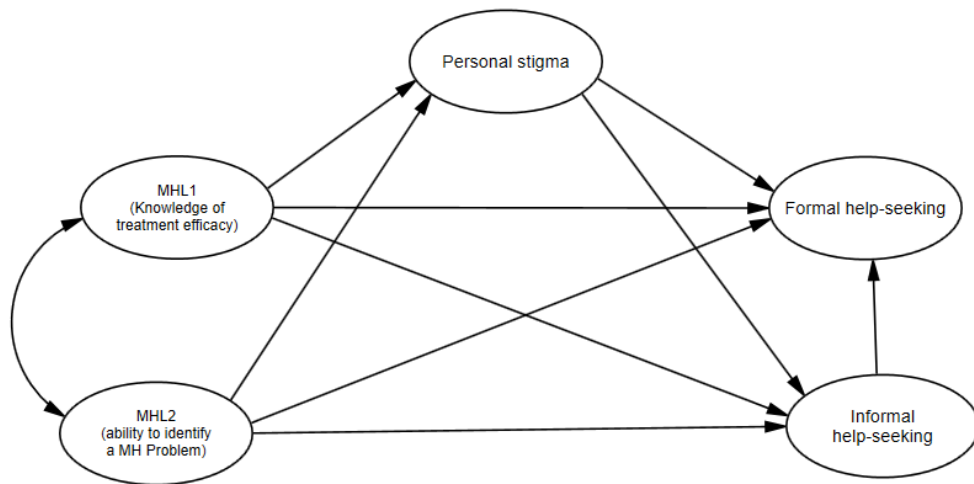
Fig 7.1: Hypothesised model of MHL, stigma and help-seeking.

NB: curved arrows represent covariances; straight arrows represent direct paths between variables. For simplicity, only latent variables are represented in this model. The full structural model with all indicators is presented in figure 7.2

This model proposed several direct and indirect effects. Direct effects are proposed for MHL (both forms) on: personal stigma, informal help-seeking and formal help-seeking. Additional direct effects are proposed between personal stigma on both formal and informal help-seeking. Indirect effects are proposed between mental health literacy and both formal and informal help-seeking (via personal stigma), as well an indirect effect between personal stigma and formal help-seeking (via informal help-seeking).

The hypothesised model indicates a direct effect of informal on formal help-seeking. An alternative model which specified no direct effect, but rather a covariance (based on the inter-related nature of help-seeking factors), was also proposed. This was found to have identical model fit to the hypothesised model. Given that the literature cites that informal help-seeking is the preferred first port of call for adolescents (Gronholm et al., 2016), and that informal help-seeking

in often necessary for adolescents to access formal help, the direct relationship in the model was retained. A counterfactual model was proposed, to examine any direct effects of formal help-seeking on informal. Model fit indices were again identical to the hypothesised model. In this counterfactual model, formal help-seeking was found to have a significant direct effect on informal help-seeking ($\beta = .614$, $p = .004$). However, examination of effects found that there were no significant effects of literacy on informal help-seeking in the counterfactual model, though these were present in the hypothesised model. Given that informal help-seeking influences formal help-seeking among adolescents, the hypothesised model was retained, details of this model are outlined below. As noted in the previous chapter, stigma items were recoded to avoid inconsistent mediation. Therefore, higher scores, rather than representing higher stigma, represent lower personal stigma. Details and output of the alternative and counterfactual model can be found in Appendix C, Table C3.
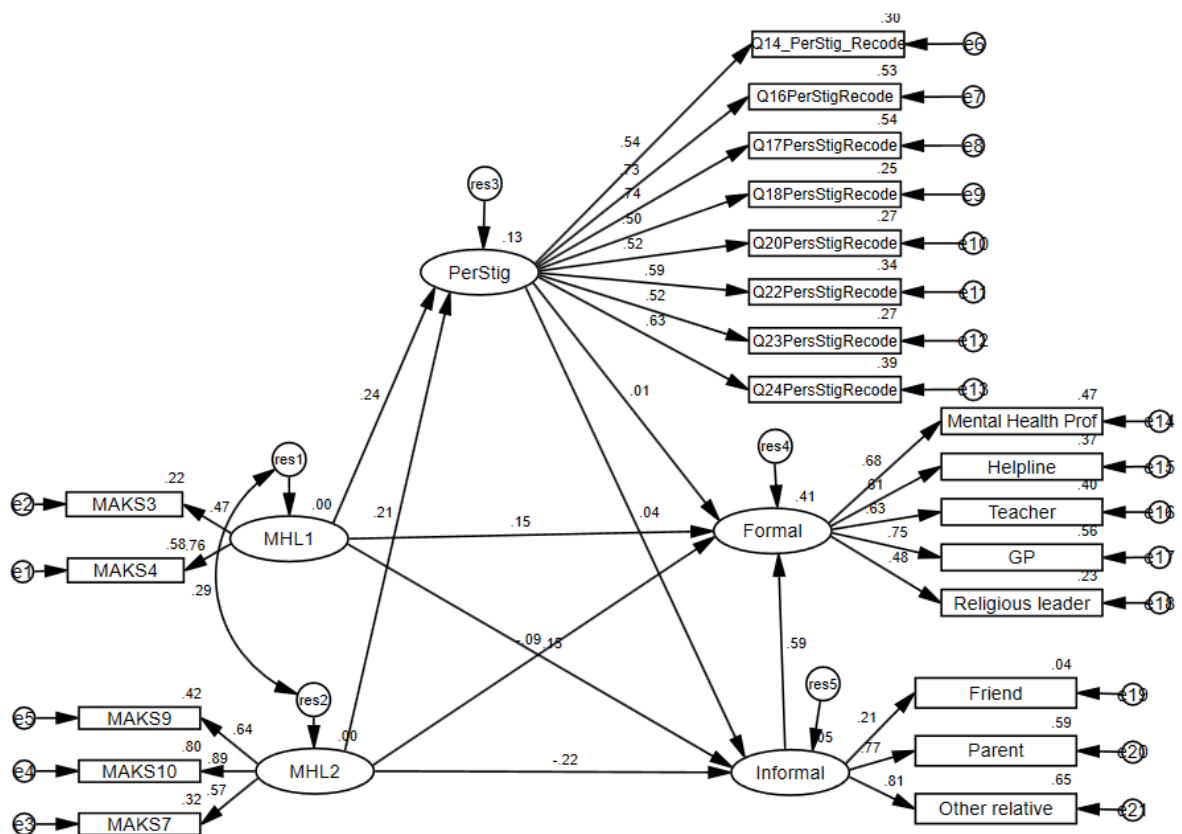
Fig 7.2: Final model of mental health literacy, personal stigma and intended help-seeking.
NB: MHL1 = knowledge of treatment efficacy. MHL2 = ability to identity a mental health problem

7.2.1 Association between mental health literacy and help-seeking: Mediating role of personal stigma

The hypothesised model, in which personal stigma is proposed to act as a mediator of literacy and help-seeking intention was examined. Model fit for this model was good ($\chi 2$ (179) = 457.047, p < .001; RMSEA = .046 (90% Confidence Interval .041, .051); CFI = .927; TLI= .915; SRMR = .0503), with all fit indices within acceptable range. Additionally, all factor loadings, and estimates for direct and indirect paths were theoretically meaningful. A summary of direct and indirect effects for this model are displayed in Table 7.1 below. Both standardised and unstandardised estimates and their standard error are reported where these indicators are available in AMOS.

Table 7.1: Direct, indirect and total effects of proposed model

Direct Effects	Standardised Est (SE)	Unstandardised Est (SE)
MHL1 -> Low Stigma	.239 (.064) **	.163 (.051)
MHL1 -> Informal	.149 (.074) *	.071 (.045)
MHL1-> Formal	.154 (.055) *	.291 (.110)
MHL2 -> Low Stigma	.215 (.061) **	.245 (.078)
MHL2 -> Informal	-.221(.056) **	-.177 (.062)
MHL2 -> Formal	-.092 (.049)	-.289 (.149)
Low Stigma -> Informal	.037 (.065)	.026 (.048)
Low Stigma ->Formal	.005 (.045)	.014 (.126)
Informal ->Formal	.594 (.039) **	2.332 (.646) **
Indirect Effects	Standardised	Unstandardised
Total: MHL1 -> Stigma -> Informal	.009 (.016)	.004 (.008)
MHL1 -> Stigma -> Formal	.001	*002*(.022)
MHL1 -> Informal -> Formal	.089 *	*166* (.092) *
MHL1->Stigma -> Informal -> Formal	.005	*010* (.019)
Total: MHL1 -> Formal	.095 (.042) *	.178 (.089) *
Total: MHL2 -> Stigma -> Informal	.008 (.015)	.006 (.012)
MHL2 -> Stigma -> Formal	.001	*003* (.031)
MHL2 -> Informal -> Formal	-.131 **	*-413* (.115) **
MHL2 -> Stigma -> informal -> Formal	.005	*015* (.028)
Total: MHL2 -> Formal	-.125 (.034) **	-.394 (.114) **
Total Effects	Standardised	Unstandardised
MHL1 -> Informal	.158 (.068) *	.076 (.044) *
MHL1 -> Formal	.249 (.058) **	.469 (.134) **
MHL2 -> Informal	-.213 (.054) *	-.171 (.059) **
MHL2-> Formal	-.217 (.053) **	-.684 (.162) **
Low Personal -> Formal	.027 (.056)	.074 (.156)

*** p <.001; ** p < .01; *p < .05
MHL1 = Knowledge of treatment efficacy; MHL2 = Ability to identify mental health problems

As mentioned in the methodology chapter, to gain specific indirect effects in AMOS software user-defined estimands had to be specified to calculate estimates, standard errors and p-values. This does not provide standardised estimates or standard error. Therefore, standardised estimates and significance were hand calculated using the Baron & Kenny (1986) method in which standardised estimates of each direct path involved in the indirect effect are multiplied to gain the standardised estimate for the specific indirect effect. Using this method, significance is assumed if each direct path included in creating the indirect effect are significant. If one of these paths is non-significant, the indirect effect is also assumed non-significant. For ease of comparison, both standardised and unstandardised estimates are included. AMOS software does calculate standardised *total* indirect effects, so estimate, SE and significance for these effects were included in Table 7.1

7.2.1.1 Direct effects.

Looking at direct effects present in the model, it is clear that ***knowledge of treatment efficacy***, is significantly associated with low personal stigma (β = .239, *p* = .005), so as knowledge of treatment increases, personal stigma decreases. Next, the direct effects of knowledge of treatment efficacy on informal help-seeking (β = .149, *p* = .025) and formal help-seeking (β = .154, *p* = .014) were both statistically significant and positive, indicating that as knowledge of treatment efficacy improves, both formal and informal help-seeking intentions increase.

Looking at direct effects of ***ability to identify a mental health problem***, this ability was positively associated with reduced stigma (β = .215, *p* = .003), meaning that as this ability improves, personal stigma is reduced. As seen in initial descriptive analyses, this ability is negatively associated with help-seeking. There is a significant negative effect of this ability on informal help-seeking (β = -.221, *p* = .010). This indicates that as ability improves, informal help-seeking is significantly reduced. Ability to recognise a mental health problem was not significantly associated with formal help-seeking (β = -.092, *p* = .060).

Low personal stigma was not significantly associated with either formal (β = .005, *p* = .836) or informal help-seeking (β = .037, *p* = .525). With respect to the association between help-seeking

151

variables, there was a significant direct association between ***informal help-seeking*** and formal help-seeking ($\beta = .594$, $p = .005$).

7.2.1.2 Indirect effects

Looking first at ***knowledge of treatment efficacy***, the only significant indirect effect found was between this mental health literacy scale and formal help-seeking via informal help-seeking ($\beta = .166$, $p = .027$). Specifically, adolescents with higher knowledge of treatment efficacy were more likely to report a higher intention to seek informal help, and those with higher informal help-seeking intentions were more likely to report higher intention to seek formal help. Personal stigma did not mediate the relationship between knowledge of treatment efficacy and formal ($\beta = .002$, $p = .788$) or informal help-seeking ($\beta = .004$, $p = .461$) as hypothesised. The total indirect effect of knowledge of treatment efficacy on formal help-seeking ($\beta = .095$, $p = .025$) was significant.

Looking next at ***ability to identify a mental health problem*** (MHL2), there were again no mediating effect of personal stigma on informal or formal help-seeking. The only significant specific indirect effect is demonstrated in a path that does not involve stigma. This shows a significant indirect effect of ability to identify a mental health problem on formal help-seeking via informal help-seeking ($\beta = -.413$, $p = .007$). Contrary to the hypothesis, adolescents with a greater ability to recognise a mental health problem were more likely to report reduced intention to seek informal help, and those with lower intention to seek informal help were more likely to report reduced intention to seek formal help also. The total indirect effect of ability to label a mental health problem on formal help-seeking was significant ($\beta = -.125$, $p = .009$).

7.2.1.3 Total effects

The total effects (i.e. combined direct and indirect effect) of knowledge of treatment efficacy is positive for both informal ($\beta = .158$, $p = .016$) and formal help-seeking intention ($\beta = .249$, $p = .004$). This shows a clear association between increased knowledge of effective treatments for mental health problems and help-seeking intentions. However, ability to recognise a mental health problem showed a negative association with both informal ($\beta = -.213$, $p = .010$) and formal ($\beta =$

-.217, p = .009) help-seeking intention, indicating that this form of knowledge is associated with decreased help-seeking intentions.

7.2.2 Summary of mediating effects of personal stigma

From examining the model, it seems that while mental health literacy is associated with reduced stigma, it has mixed effects on intended help-seeking. ***Knowledge of treatment efficacy*** had significant direct, and total effects on increased formal and informal help-seeking intention. While ***ability to recognise a mental health problem*** had a significant negative direct effect on informal help-seeking, and significant negative total effects on both formal and informal help-seeking. This suggests that simply being able to recognise what is and what is not a mental health problem is not sufficient in improving help-seeking intentions. The results show that knowledge around effective treatments for mental health problems are consistently associated with improved intention to seek help, both formal and informal. Therefore, it seems that knowledge of treatment efficacy is key to increasing intention to seek both formal and informal help.

Personal stigma had no significant effect on formal or informal help-seeking among the adolescents sampled. This suggests that it is mental health literacy that has a greater direct impact on help-seeking intentions than stigma, and therefore, improving mental health literacy should be a key priority to improve adolescent help-seeking. It is clear also, that while mental health literacy is associated with decreased stigma, it will not necessarily improve help-seeking on its own. However, it is not known at this stage whether stigma from significant others are influential upon help-seeking intentions, and this will be established in the next stage of analysis.

The proposed theoretical framework (Chapter three) hypothesised that subjective norms are particularly important in adolescent help-seeking behaviour. The following multigroup analyses will determine the extent to which perceived stigma from friends, and perceived stigma from parents (as subjective norms) moderate the relationship between MHL, stigma, and help-seeking intention. It will determine whether stigma of significant referent groups alter the strength or direction of relationships in the current model.

7.3 Multigroup SEM: Moderating effects

The model derived above, which examined associations between MHL, personal stigma, and intended help-seeking was subject to multiple-group analysis. This was to determine whether stigma from referent groups (friends and family) moderated the relationships present in the model, and whether there were any differences in the models based on key demographic variables of interest.

If models are invariant (i.e. show minimal change between groups), then it can be assumed that these variables do not moderate the nature of the associations specified in the model. If there are significant differences in the model, this suggests that the variable (e.g. perceived stigma from friends) moderates the associations among the variables in the model. Multigroup SEM was carried out based on: level of perceived stigma from friends; level of perceived stigma from parents; age; gender; and socioeconomic background (subjective SES and school neighbourhood deprivation [SIMD]). While ethnicity was also a variable of interest, it was not possible to run a multi-group analysis due to a small sample size for participants who were not Caucasian ($n = 83$).

Invariance was assessed at multiple levels, and in relation to the preceding level of invariance. As detailed in the methodology chapter, the first step is to assess *configural invariance*. This relates to the unconstrained model, and establishes that the basic organisation of constructs (e.g. same number of loadings in each factor etc) are the same in both groups. Once this has been established, the next step is to assess *metric invariance,* this involves constraining factor loadings to be equal across groups, and comparing this model to the configural model. If there is good fit, and therefore metric invariance is supported, this indicates that each item contributes to the latent construct to a similar degree across groups. Then, once metric invariance is established, *scalar invariance* is tested. This retains any constraints to factor loadings applied in the metric invariance model, and additionally constrains item intercepts. Fit is assessed in relation to the metric model. Scalar invariance indicates that item intercepts do not differ significantly across groups). Scalar invariance implies that differences in item means are the results of differences in the means of corresponding latent factors (i.e. personal stigma, help-seeking) (Byrne, 2016; Davidov, 2008).

Finally, in order to assess moderating effects present in the structural model, ***structural invariance*** is assessed. This involves constraining structural regression weights (paths between latent variables) to be equal between groups. If invariance is indicated this suggests that the model is not moderated by the variable in question (gender, perceived stigma etc), as regression weights do not differ significantly between groups. If non-invariance is indicated, this suggests the presence of moderation, as associations between latent variables in the model differ between groups.

As noted previously, invariance was assessed based on chi-square difference tests, and via assessment of fit indices, in particular, CFI, RMSEA and SRMR. Chen (2007) suggests evaluating change in fit indices using the following criteria: a change in CFI of $> .01$, changes in RMSEA of $>.015$ and change in SRMR of $>.030$ (for metric invariance) or .015 (for scalar invariance), (Chen, 2007; Little, 2013). SRMR is known to be more sensitive to lack of invariance in factor loadings (metric invariance) than in intercepts (scalar invariance) and therefore has limits. CFI and RMSEA are equally sensitive in assessing both metric and scalar invariance (Chen, 2007). When assessing invariance, if one of these indices is within acceptable limits, and overall model fit is good, then invariance is accepted in the model. If non-invariance is demonstrated, further analytic strategies will be undertaken (Chen, 2007; Little, 2013; Putnick & Bornstein, 2016).

7.3.1 Moderating effects of perceived stigma from friends

The first multigroup analyses to be conducted related to perceived stigma from friends, and the extent to which this may moderate any relationships present in the model in which personal stigma was hypothesised to act as a mediator. The theoretical framework outlined in this thesis proposed that perceived stigma, which is conceptualised as a subjective norm, is an important determinant in adolescent intended behaviour, and may moderate relationships present in the model. Two groups (high vs low perceived stigma from friends) were created based on Z-scores of perceived stigma from friends. Dummy codes were generated with negative values (those below the mean) representing low stigma, and those with positive values (above the mean) representing high stigma These two groups were then examined to assess whether the model was invariant in relation to high or low levels of perceived stigma.

Configural invariance was assessed first, and unconstrained model fit was good ($\chi 2$ (358) = 591.358, $p < .001$; RMSEA = .030 (90% Confidence Interval .026 .034); CFI = .924; TLI= .911, SRMR = .0544). Good unconstrained model fit indicated configural invariance, as this is indicative of measurement models being consistent across groups.

Table 7.2 Invariance testing for model with perceived stigma from friends as a moderator.

Model	χ^2 Diff	CFI	RMSEA (90% CI)	SRMR	ΔCFI	ΔRMSEA	ΔSRMR
Unconstrained	--	.924	.030 (.026, .034)	.0544	--	--	--
Metric invariance	$\chi 2$ (16) = 45.309, $p < .001$ **	.914	.031 (.027, .035)	.0578	.010	.001	.0034
Scalar invariance	$\chi 2$ (21) = 352.687, $p < .001$**	.806	.045 (.042, .049)	.0891	.108*	.014	.0313*
Partial Scalar invariance	$\chi 2$ (6) = 8.648, $p = .194$	.913	.031 (.027, .035)	.0579	.001	--	.0001
Structural invariance (partially constrained intercepts)	$\chi 2$ (15) = 20.443, $p = .156$	.913	.031 (.027, .035)	.0597	--	--	.0018
Structural invariance (partially constrained intercepts and regression weights)	$\chi 2$ (7) =5.794, $p = .564$	.914	.031 (.026, .035)	.0583	.001	--	.0004

For invariance to be accepted change should not exceed: CFI > .01; RMSEA > .015; SRMR.> .030 for metric and > .015 for scalar

To assess for metric invariance all factor loadings were constrained to equality across groups. Subsequently, changes in fit indices and the chi-square model comparison were assessed. Looking at fit indices (Table 7.2), change in CFI when compared to the unconstrained model is at the limit of acceptable change (ΔCFI = .010), though is not greater than .01. While .01 is commonly indicated as an acceptable degree of change in CFI (Chen, 2007), recent statistical literature states that .02 is within acceptable limits for assessing metric invariance (Rutowski & Svetina, 2014), and therefore ΔCFI was considered indicative of invariance. Other indices are well within limits (ΔRMSEA = .001; ΔSRMR=.0034). While the chi-square model comparison is significant ($\chi 2$ (16) = 45.309, $p <.001$), this statistic is known to be a less reliable indicator of invariance, particularly in large sample sizes (Cheung & Rensvold, 2002; Chen, 2007; Little, 2013), and therefore non-invariance is only assumed when two or more fit indices exceed acceptable limits of change. In this case, metric invariance was supported.

156

Factor loadings and intercepts were then set to equal between groups to investigate whether scalar invariance was indicated. When compared to fit of the metric invariance model, two fit indices indicated non-invariance (ΔCFI = .108; ΔSRMR = .0313), while change in the RMSEA was close to non-invariant (ΔRMSEA = .014), these indices therefore suggested that item intercepts (means scores on items) varied significantly across groups.

To identify which item intercepts were contributing to lack of scalar invariance, further analyses were undertaken. To do this, individual intercepts can either be sequentially freed (in a backwards manner) or can be individually constrained (in a forwards manner) (Putnick & Bornstein. 2016; Jung & Yoon, 2016). Invariant items are then constrained in order to improve fit (as non-invariant items reduced model fit when constrained). To determine intercepts which were contributing to non-invariance individual intercepts were constrained in a forward manner, with all other intercepts being allowed to vary freely. This revealed a number of intercepts which were contributing to non-invariance, indicating that these intercepts were significantly different across groups. Invariant items are indicated by a non-significant chi-square test and changes in fit indices. These parameters should remain constrained, as constraints did not significantly reduce model fit. Non-invariant items show a significant chi-square test and changes in indices. These parameters should then be freed, as constraining them causes a significant decrease in model fit.

Invariant intercepts (i.e. those that did not significantly differ between groups) all represented help-seeking items, (except item 1, indicating intention to seek help from a friend and item 8, indicating intention to seek help from a religious leader, e.g. a minister, which differed significantly between groups). Therefore, all personal stigma and MHL items were non-invariant (varied significantly between groups). Statistics for invariant intercepts, when constrained individually (i.e. testing for invariance in a forward manner by constraining parameters in turn, [Jung & Yoon, 2016]) can be seen in Table C4, Appendix, C.

Next, all invariant intercepts were constrained, and non-invariant intercepts were freed and the model re-assessed. This involved constraining items 2-7 of the General Help-Seeking Questionnaire (GHSQ; Wilson et al., 2005) and freeing all other intercepts. When these intercepts were freed, fit indices and chi-square were indicative of invariance (χ2 (6) = 8.648, p = .194;

ΔCFI = .001, ΔSRMR = .0001; no change in RMSEA) as model fit did not significantly reduce in comparison to the metric invariance model. This indicates that partial measurement invariance was achieved.

A final step in the analysis of this model was to test for structural invariance. Individual regression weights were assessed in turn. This identified one non-invariant structural paths in the model based on chi-square difference test. This pertained to the association between knowledge of treatment efficacy and formal help-seeking ($\chi2$ (1) = 3.783, p = .029). One path, between ability to identify a mental health problem and informal help-seeking approached a significant chi-square difference ($\chi2$ (1) = 3,599, p = .058), and when this was freed, overall model fit improved. Once these structural regression weights were freed, model fit was improved and invariance established model ($\chi2$ (7) =5.794, p = .564, ΔCFI = .001 ΔSRMR = .0004, no change in RMSEA).

The initial lack of scalar invariance however, implies that there were significant differences in the measurement model between groups, while lack of structural invariance demonstrated that there were also variations at the structural level of the model. This indicated that the model operated differently between high and low perceived stigma groups. Output is provided below in Table 7.3 in relation to the metric invariance model, in which factor loadings only were constrained. This allows for differences at the scalar and structural level to be detailed.

7.3.1.1 Direct effects

Effects present in the model were compared across groups, starting with direct effects. It is evident that there are relatively more significant effects in the ***high perceived stigma from friends*** group. In this group knowledge of treatment efficacy is associated with lower personal stigma (β = .251, p = .018) and with formal help-seeking (β = .266, p = .008), meaning that higher levels of knowledge among this group of adolescents is associated with lower personal stigma, and increased intention to seek formal help. Knowledge of treatment efficacy had no association with informal help-seeking (β = .146, p = .069).

Table 7.3: Direct, indirect and total effects of model with constrained factor loadings and partially constrained intercepts

Direct Effects:	High friend stigma (*n* =350)		Low friend stigma (*n* = 381)	
	Standardised Est (SE)	Unstandardised Est (SE)	Standardised Est (SE)	Unstandardised Est (SE)
Total: MHL1 -> Low Stigma	**.251 (.098)** *	**.177 (.074)** *	.175 (.111)	.117 (.083)
MHL1 -> Informal	.146 (.090)	.066 (.047)	.146 (.111)	.078 (.078)
MHL1-> Formal	**.266 (.097)** **	**.479 (.218)** *	.027 (.093)	.057 (.234)
Total: MHL2 -> Low Stigma	**.218 (.099)** *	**.148 (.073)** *	.147 (.086)	.092 (.057)
MHL2 -> Informal	**-.310 (.071)** **	**-.135 (.046)** **	-.119 (.078)	-.059 (.046)
MHL2 -> Formal	-.066 (.075)	-.114 (.132)	**-.127 (.061)** *	**-.254 (.129)** *
Total: Low Stigma -> Informal	.032 (.089)	.020(.047)	.017 (.103)	.013 (.089)
Low Stigma ->Formal	-.011 (.097)	-.029 (.203)	.079 (.065)	.255 (.220)
Informal -> Formal	**.542 (.067)** **	**2.166 (.687)** **	**.649 (.051)** **	**2.625(.754)** **
Indirect Effects	Standardised	Unstandardised	Standardised	Unstandardised
Total: MHL1 -> Stigma -> Informal	.008 (.026)	.004 (.012)	.003 (.023)	.002 (.014)
MHL1 -> Stigma -> Formal	-.003	-.005 (.041)	.014	.030 (.042)
MHL1 -> Informal -> Formal	.079	.143 (.094)	.095	.204 (.213)
MHL1->Stigma -> Informal -> Formal	.004	.008 (.026)	.002	.004 (.038)
Total: MHL1 -> Formal	.081 (.051)	.146 (.099)	.111 (.074)	.238 (.208)
Total: MHL2 -> Stigma -> Informal	.007 (.021)	.003 (.009)	.002 (.018)	.001 (.010)
MHL2 -> Stigma -> Formal	-.002	-.004 (.031)	.012	.023 (.026)
MHL2 -> Informal -> Formal	**-.168** *	**-.293 (.086)** **	-.077	-.155 (.111)
MHL2 -> Stigma -> informal -> Formal	.004	.007 (.020)	.002	.003 (.025)
Total: MHL2 -> Formal	**-.167 (.044)** **	**-.290 (.085)** **	-.064 (.055)	-.128 (.117)
Total Effects:	Standardised	Unstandardised	Standardised	Unstandardised
MHL1 -> Informal	.154 (.085)	.070 (.045)	.149 (.103)	.079 (.073)
MHL1 -> Formal	**.347 (.096)** **	**.625 (.234)** **	.137 (.086)	.295 (.216)
MHL2 -> Informal	**-.303 (.067)** **	**-.132 (.043)** **	-.116 (.079)	-.058 (.045)
MHL2-> Formal	**-.232 (.075)** **	**-.405 (.135)** **	**- .190 (.074)** **	**-.382 (.165)** **
Low Personal -> Formal	.006 (.082)	.015 (.218)	.090 (.089)	.013 (.288)

*** p <.001; ** p < .01; *p < .05
MHL1 = Knowledge of treatment efficacy; MHL2 = identification of mental health problems

Staying in the high stigma group, but turning to direct effects of ability to identify a mental health problem this has a direct effect on lower personal stigma (β = .218, *p* = .031) and informal (β = -.310, *p* =.004) though not formal help-seeking intention (β = -.066, *p* = .313). This indicates that, among adolescents in this group, a higher ability is associated with decreased personal stigma, and decreased informal help-seeking. Low personal stigma had no effect on either informal (β = .032, *p* = .831) or formal help-seeking (β = -.011, *p* =.866).

Among adolescents with high perceived stigma from friends, it appears that MHL has different associations with different forms of help-seeking. In other words, knowledge of treatment efficacy is associated with only formal help-seeking, while ability to identify a mental health problem is associated with informal help-seeking, albeit in a negative direction. In the ***low perceived stigma from friends group***, the only significant direct effect was of ability to identify a mental health problem on formal help-seeking (β = -.127, p = .024), meaning that among this group, increased ability is associated with decreased intention to seek formal help. Similar to the high perceived stigma group, there was no direct effect of low stigma on either formal (β = .017, p = .255) or informal help-seeking (β = .079, p = .809). Among both the high and low stigma groups, informal help-seeking shows a direct effect on formal (β = .542, p = .004; β = .649, p = .007 respectively).

Therefore, commonalities between groups include a lack of effect of knowledge of treatment efficacy on informal help-seeking, as well as the lack of direct effect of personal stigma on informal and formal help-seeking. Key differences are notable in that the model explains help-seeking better among those reporting high perceived stigma than those reporting low perceived stigma. Among the low stigma group there is only one significant direct effect (ability to identify a mental health problem is associated with decreased formal help-seeking intention). This is in comparison to the high stigma group, in which there are several more significant direct effects.

7.3.1.2 Indirect effects

Turning next to indirect effects present in the model, and again beginning with the high stigma group there were two significant indirect effects. Both of these relate to ***ability to identify a mental health problem*** on formal help-seeking intention. This ability shows an indirect effect on formal help-seeking, via informal help-seeking (β = -.168, p <.05; unstandardised: β = -.293, p = .002). Meaning that adolescents in this group who had higher ability, were more likely to report decreased intention to seek informal help, and those less likely to seek formal help, were in turn less likely to be willing to seek formal help. There was also a negative total indirect effect of ability to identify a mental health problem on formal help-seeking (β = -.167, p =.002). In the low perceived stigma from friends group, there were no significant indirect effects

7.3.1.3 Total effects

Finally, turning to total effects; in the high stigma group ***knowledge of treatment efficacy*** has a number of significant total effects. As well as the previously noted total effect on reduced personal stigma (β = .251, p = .008), knowledge also has a significant total effect on increased formal help-seeking (β = .347, p =.003). ***Ability to identify a mental health problem*** was also associated with both formal (β = -.232, p =.002) and informal help-seeking intention (β = -.303, p =.004), although in a negative direction. This indicates that adolescents who were more able to discern which items were and were not a mental health problem, were less likely to show intention to seek informal and formal help.

In the group reporting low stigma from friends, the only significant total effect was the total effect of ability to identify a mental health problem on formal help-seeking (β = -.190, p = .011), indicating that among this group, better ability to identify a mental health problem was associated with reduced intention to seek formal help.

7.3.1.4 Latent mean scores

In addition to assessing for invariance, latent means present in the model were assessed to determine whether means varied between groups. Scalar invariance is typically required to assess differences in latent means (e.g. Meredith, 1993), as this determines that significant differences in group means are not due to differences in scale properties between groups. While scalar invariance was not supported in this case, invariance of factor loadings (metric invariance) can be sufficient for comparison of latent means in some conditions, and scalar invariance is considered less important in research which aims to explore group differences in factors (e.g. MHL, stigma) which are indicative of individual difference (Meredith & Teresi, 2006). Given that the current study is interested in differences between groups, latent means were compared to assess for differences between groups. As full scalar invariance was not supported, differences in latent means are partly reflective of differences in mean scores for specific items between groups.

To compare latent means (i.e. mean scores of mental health literacy, personal stigma and help-seeking), means are typically constrained to zero in the referent group (Byrne, 2016). In this case high perceived stigma from friends was the referent group where latent means were constrained,

while these were free to vary in the low stigma group. The value of the critical ratio (CR) was used to assess latent mean differences. CR is calculated by parameter estimate divided by its standard error, which tests whether the coefficient is significantly different from 0. A CR value larger than 1.96 indicates statistically significant differences in the latent means. A positive CR implies that the comparison group has higher latent mean than the reference group. Conversely, a negative CR suggests that the comparison group's latent mean is smaller than the reference group.

It was found that knowledge of treatment efficacy was significantly higher in the low perceived stigma group (β = .222 (SE =.066), CR = 3.344, p <.001); as was ability to identify a mental health problem (β = .210 (SE = .058), CR = 3.604, p <.001), and low personal stigma (β = .699 (SE = .051), CR = 13.623, p <.001), however mean scores of informal (β = -.001 (SE =.054), CR = -.023, p =.982) and formal help-seeking (β = -.236 (SE =.187), CR = -1.261, p = .207) did not vary between groups. This suggests that while levels of mental health literacy and personal stigma vary significantly between groups, help-seeking intention does not vary depending on level of perceived stigma from friends.

7.3.1.5 Summary of moderating effects of perceived stigma from friends

Multigroup SEM analysis identified significant differences between groups, and analysis of latent means also revealed differences between groups. Those with low perceived stigma had significantly higher MHL and lower personal stigma, though levels of help-seeking intention were similar between groups. Invariance testing in the measurement model identified multiple non-invariant intercepts, demonstrating that the groups understood and responded to MHL and personal stigma items differently. Following assessment of measurement model invariance two structural regression weights were identified as being non-invariant, which related to knowledge of treatment efficacy on formal help-seeking intention, and ability to identify a mental health problem on informal help-seeking intention, which differed between groups.

Inspection of effects in the model reflects some differences, with those in the high perceived stigma group demonstrating considerably more effects of MHL on help-seeking than those in the low stigma group. Therefore, associations in the structural model indicate that the model provides

a more comprehensive understanding of help-seeking intentions among adolescents reporting high perceived stigma from friends.

7.3.2 Moderating effects of perceived stigma from parents

Next, attention was turned to perceived stigma from parents as a potential moderator. Stigma scores were again standardised to create Z-Scores, and then dummy coded into high and low stigma groups. The unconstrained model fit for this multigroup analysis was good ($\chi 2$ (358) = 624.692, $p < .001$; RMSEA = .032 (90% Confidence Interval .028, .036); CFI = .916; TLI= .901, SRMR = .0572). Both changes in fit indices (see Table 7.4) and chi-square model comparison were used to assess for metric and scalar invariance, or lack thereof.

Table 7.4 Invariance testing for model with perceived stigma from parents as a moderator.

Model	χ^2 Diff	CFI	RMSEA (90% CI)	SRMR	ΔCFI	ΔRMSEA	ΔSRMR
Unconstrained	--	.916	.032 (.028, .036)	.0572	--	--	--
Metric invariance	$\chi2$ (16) = 74.901, $p <$ .001 **	.897	.035 (.031, .039)	.0639	.019*	.003	.0067
Scalar invariance	$\chi2$ (21) = 309.261, $p <$ .001 **	.807	.046 (.043, .050)	.0866	.090*	.011	.0227*
Partial Scalar invariance	$\chi2$ (6) = 7.637, $p =$ .266	.897	.035 (.031, .038)	.0639	--	--	--
Structural invariance (partially constrained intercepts)	$\chi2$ (9) = 13.515, $p =$ .141	.896	.034 (.031, .038)	.0661	.001	.001	.0022
Structural invariance (partially constrained intercepts and regression weights)	$\chi2$ (6) = 2.924, $p =$ .818	.898	.034 (.030, .038)	.0651	.001	--	.0018

For invariance to be accepted change should not exceed: CFI > .01; RMSEA > .015; SRMR.> .30 for metric and > .015 for scalar.

When assessing metric invariance, there was a significant chi-square ($\chi2$ (16) = 74.901, $p < .001$) However, two indices were within limits (ΔSRMR = .0067; ΔRMSEA = .003). Change in CFI exceed acceptable limits (ΔCFI = .019), though again, this is considered acceptable in assessing metric invariance (Rutkowski & Svetina, 2014). Therefore, metric invariance was accepted.

Scalar invariance was then assessed by constraining item intercepts to be equivalent. This model was significantly different (χ2 (21) = 309.261, p < .001, ΔCFI = .090, ΔSRMR = .227). As more than one fit index exceeded acceptable limits of change, this indicated lack of scalar invariance.

Partial scalar invariance was examined to see which intercepts were contributing to lack of scalar invariance. This revealed several non-invariant intercepts related to MHL, personal stigma, and help-seeking item relating to help-seeking form a parent or teacher (Table C5 in Appendix C). Invariant items all represented help-seeking items, (except help-seeking from a *parent* or a *teacher* which varied significantly between groups) suggesting that these did not differ between groups. When non-invariant intercepts were freed in the model, partial scalar invariance was achieved as there were no significant differences in comparison to the metric invariance model (χ2 (6) = 7.637, p = .266 ΔCFI= .0, ΔRMSEA= 0, ΔSRMR= 0).

Finally, to investigate structural invariance, regression weights were constrained to be equal across the two groups. This initially identified two regression weights which were non-invariant (i.e. showed a significant difference between groups. These related to structural paths between low personal stigma and formal help-seeking (χ2 (1) = 5.435, p = .020); and ability to identify a mental health problem to formal help-seeking (χ2 (1) = 4.601, p = .032). The path between ability to identify a mental health problem and informal help-seeking did not return an initial significant chi-square (χ2 (1) = 3.074, p = .80), however this was freed to investigate whether model fit would improve. Freeing this parameter did improve fit, and this change was retained (Table7.5).

7.3.2.1 Direct Effects
Again, looking at direct effects present in the model, and beginning with the ***high perceived stigma from parents*** group, there is only one significant direct effect of knowledge of treatment efficacy on help-seeking intention, and this is on formal help-seeking (β = .177, p = .043). There is also a direct effect of ability to identify a mental health problem on *informal* help-seeking (β = -.183, p =.003), meaning that among adolescents who perceive a high degree of stigma from parents, a better ability to recognise a mental health problem is associated with reduced intention to seek informal help. This ability was also associated with reduced personal stigma (β = .273, p =.002).

Table 7.5: Direct, indirect and total effects of model with constrained factor loadings only

Direct Effects:	High parent stigma (*n* =341)		Low parent stigma (*n* = 383)	
	Standardised Est (SE)	Unstandardised Est (SE)	Standardised Est (SE)	Unstandardised Est (SE)
Total: MHL1 -> Low personal stigma	.094 (.109)	.068 (.085)	.111 (.103)	.073 (.080)
MHL1 -> Informal	.127 (.088)	.061 (.052)	.094 (.097)	.044 (.048)
MHL1-> Formal	**.177 (.085)** *	.322 (.175)	.110 (.075)	.230 (.181)
Total: MHL2 -> Low personal stigma	**.273 (.092)** **	**.184 (.068)** **	**.198 (.071)** **	**.124 (.049)** **
MHL2 -> Informal	**-.277 (.071)** **	**-.124 (.045)** **	-.108 (.077)	-.048 (.039)
MHL2 -> Formal	.003 (.079)	.004 (.133)	**-.178 (.060)** **	**-.352 (.126)** **
Total: Low personal stigma -> Informal	-.017 (.079)	-.011 (.057)	-.057 (.094)	-.040 (.071)
Low personal stigma ->Formal	-.050 (.068)	-.125 (.175)	**.136 (.061)** *	**.429 (.196)** *
Informal -> Formal	**.602 (.058)** **	**2.270 (.718)** **	**.618 (.059)** **	**2.758 (.759)** **
Indirect Effects	Standardised	Unstandardised	Standardised	Unstandardised
Total: MHL1 -> Pers. Stigma -> Informal	-.002 (.012)	-.001 (.006)	-.006 (.018)	-.003 (.010)
MHL1 -> Pers. Stigma -> Formal	-.005	-.009 (.022)	.015	.032 (.041)
MHL1 -> Informal -> Formal	.076	.139 (.115)	.058	.121 (.154)
MHL1-> Pers.Stig -> Informal -> Formal	-.001	-.002 (.015)	-.004	-.008 (.028)
Total: MHL1 -> Formal	.071 (.054)	.129 (.116)	.069 (.059)	.145 (.151)
Total: MHL2 -> Pers.Stigma -> Informal	-.005 (.024)	-.002 (.011)	-.011 (.019)	-.005 (.009)
MHL2 -> Pers.Stigma -> Formal	-.014	-.023 (.033)	**.027** *	**.053 (.032)** *
MHL2 -> Informal -> Formal	**-.153** **	**-.281 (.092)** **	-.067	-.132 (.098)
MHL2 -> Pers. Stig -> informal -> Formal	-.003	-.005 (.024)	-.007	-.014 (.024)
Total: MHL2 -> Formal	**-.183 (.048)** **	**-.309 (.093)** **	-.047 (.048)	-.093 (.099)
Total Effects:	Standardised	Unstandardised	Standardised	Unstandardised
MHL1 -> Informal	.125 (.086)	.060 (.051)	.088 (.092)	.041 (.054)
MHL1 -> Formal	**.248 (.088)** **	**.451 (.206)** **	**.179 (.081)** *	**.375 (.202)** *
MHL2 -> Informal	**-.282 (.067)** **	**-.126 (.042)** **	-.119 (.076)	-.053 (.038)
MHL2-> Formal	**-.181 (.081)** *	**-.305 (.141)** *	**-.225 (.073)** **	**-.445 (.159)** **
Low Personal -> Formal	-.017 (.073)	-.150 (.189)	.101 (.080)	.319 (.251)

*** p <.001; ** p < .01; *p < .05
MHL1 = Knowledge of treatment efficacy; MHL2 = identification of mental health problems

In comparison to the ***low perceived stigma from parents*** group, ability to identify a mental health problem was associated with reduced *formal* help-seeking (β = -.178, *p* =.005). This ability was again associated with reduced personal stigma (β = .198, *p* = .008), so a greater ability to determine which items were a mental health problem is associated in lower levels of personal stigma. This group is the only group to show a significant direct effect of personal stigma on formal help-seeking (β = .136, *p* =.025), suggesting that among adolescents who perceive a lower degree of stigma from parents, low personal stigma is predictive of increased intention to seek formal help. Indicating that in the case of adolescents in this group, a more positive attitude to

mental health problems, and more positive subjective norms are associated with increased intention to seek help from formal sources.

While both groups are similar in that they do not demonstrate direct effects of knowledge of treatment efficacy on personal stigma, informal help-seeking and (partially) on formal help-seeking, nor does personal stigma show an association with informal help-seeking. Key differences lie in relation to personal stigma showing an effect on formal help-seeking among those perceiving low stigma only; and that ability to identify a mental health problem has an effect on formal help-seeking in the low stigma group, but an effect on informal help-seeking in the high stigma group.

7.3.2.2   Indirect Effects

The low perceived stigma from parents group shows two significant indirect effects, while the higher perceived stigma group shows one. In the ***high perceived stigma group*** the two significant indirect effects related to ability to identify a mental health problem on formal help-seeking ($\beta = -.153$, $p < .01$; unstandardised: $-.281$, $p = .002$). This means that, among participants in this group, greater ability to identify a mental health problem was associated with reduced intention to seek informal help, and in turn, those who are less likely to seek informal help are significantly less likely to seek formal help. The only other significant indirect effect in this group was the total indirect effect of ability to identify a mental health problem on formal help-seeking ($\beta = -.183$, $p = .002$).

In the ***low perceived stigma from parents group***, there was again only one significant indirect effect. This related to the indirect effect of ability to identify a mental health problem on formal help-seeking via personal stigma ($\beta = .027$, $p < .05$; unstandardised: $\beta = .053$, $p = .011$). This means that among this group, adolescents who perceive low stigma from parents show significantly greater low personal stigma (i.e. lower personal stigma) when ability to identify a mental health problem is high, and in turn those who have less personal stigma are significantly more likely to show an increased intention to seek formal help. This is reflected by the direction of direct effects in the model for this group and is again the first group to show a significant effect of low personal stigma on help-seeking.

7.3.2.3 Total effects

Finally, there were multiple total effects of MHL on help-seeking in the *low perceived stigma* group. Knowledge of treatment efficacy was associated with increased formal help-seeking intention (β = .248, *p* =.007). Ability to identify a mental health problem, however, was negatively associated with both informal (β = -.282, *p* =.004), and formal help-seeking (β = -.181, *p* =.016). Suggesting that different forms of MHL act differently on help-seeking intentions among adolescents whose families hold high mental health literacy.

In the *low perceived stigma group*, significant total effects applied to formal help-seeking only. Knowledge of treatment efficacy again showed a positive association (β = .179, *p* =.048), while ability to identify a mental health problem was again negatively associated with formal help-seeking intention β = -.225, *p* =.005). Therefore, a key difference between groups is that in the low stigma group there are significant effects of MHL on formal help-seeking only, while in the high stigma group, MHL is associated with both formal and informal help-seeking.

7.3.2.4 Latent mean scores

Again, to assess for differences in latent means between groups identified that in the those who perceived low stigma from family members reported significantly higher knowledge of treatment efficacy (β = .386, (SE = .068), CR = 5.687, *p* <.001), ability to identify a mental health problem, (β = .145, (SE = .059), CR = 2.459, *p* <.05) low personal stigma (β = .656, (SE = .053), CR = 12.268, *p* <.001) and informal help-seeking intention (β = .103, (SE = .051), CR = 2.021, *p* <.05) compared to those who perceived higher mental health stigma from their families. Formal help-seeking was significantly lower (β = -.404, (SE = .179), CR = -2.260, *p* <.05) when perceived stigma from parents was low. This indicates that differing levels of perceived stigma impact differently on all latent variables in the model.

7.3.2.5 Summary of moderating effects of perceived stigma from parents

Initial Multigroup SEM analysis identified lack of scalar invariance in the model, again indicating that items were differently understood and responded to between groups. Significant differences were identified in strength of structural regression weights, indicating that the strength of specific associations differed between groups. Latent mean scores were found to vary, with both forms of MHL, and low personal stigma, and informal help-seeking found to be significantly higher among

those in the low perceived stigma from parents group, and formal help-seeking significantly lower.

While in the high perceived stigma group there was an indirect effect of ability to identify a mental health problem on formal help-seeking via informal help-seeking; in the low stigma group there was an indirect effect of this ability on formal help-seeking, but via low personal stigma. This was a rare instance in which ability to identify a mental health problem was not associated with reduced help-seeking intention. This suggests that when perceived stigma from parents is low, those with a higher ability to identify a mental health problem are likely to have lower personal stigma, and are in turn, more likely to seek formal help. The implications of these findings will be discussed in greater detail in the following chapter.

7.3.3 Moderating effects of gender

The moderating effects of gender was examined for male ($n = 344$), and female ($n = 382$) participants. The unconstrained model fit was good and represented configural invariance ($\chi2$ (358) 607.391, $p < .001$; RMSEA = .031 (90% Confidence Interval .027, .035); CFI = .930; TLI= .918, SRMR = .0545).

Table 7.6 Invariance testing for model with gender as a moderator.

Measures of invariance							
Model	χ^2 Diff	CFI	RMSEA (90% CI)	SRMR	ΔCFI	ΔRMSEA	ΔSRMR
Unconstrained	--	.930	.031 (.027, .035)	.0545	--	--	--
Metric invariance	$\chi2$ (16) = 24.498, p =.079	.928	.031 (.027, .035)	.0554	.002	--	.0009
Scalar invariance	$\chi2$ (21) = 123.015, p <.001**	.899	.035 (.032, .039)	.0578	.029*	.004	.0024
Structural invariance	$\chi2$ (9) = 11.629, p = .235	.898	.035 (.031, .039)	.0605	.001	--	.0027

For invariance to be accepted change should not exceed: CFI > .01; RMSEA > .015; SRMR.> .30 for metric and > .015 for scalar.

Metric invariance was accepted as there was no significant reduction in fit indices compared to the unconstrained model (ΔCFI =.002, ΔSRMR = .0009, ΔRMSEA = 0; $\chi2$ (16) = 24.498, p =.079). Given metric invariance was accepted, scalar invariance was then tested. This returned two indices which did not significantly differ from the metric model (ΔRMSEA = .004, ΔSRMR

168

= .0024). CFI showed a significant reduction in fit compared to the metric model (ΔCFI = .029),

however, as other indices were within range, scalar invariance was accepted, and structural

invariance then evaluated. Structural invariance was tested by constraining regression weights to

be equal. Findings indicated invariance at the structural level also ($\chi2$ (9) = 11.629, p = .235;

ΔCFI = .001; ΔRMSEA = 0; ΔSRMR = .0027), suggesting that regression weights in the model

do not differ significantly on the basis of gender.

Table 7.7: Direct, indirect and total effects of model with constrained factor loadings, intercepts and regression weights.

Direct Effects:	male (n =344)		female (n = 382)	
	Standardised Est (SE)	Unstandardised Est (SE)	Standardised Est (SE)	Unstandardised Est (SE)
Total: MHL1 -> Low personal stigma	**.244 (.069)** **	**.217 (.069)** **	**.260 (.068)** **	**.217 (.069)** **
MHL1 -> Informal	**.161 (.081)** *	**.075 (.045)** *	**.148 (.069)** *	**.075 (.045)** *
MHL1-> Formal	**.143 (.062)** *	**.277 (.122)** *	**.135 (.056)** *	**.277 (.122)** *
Total: MHL2 -> Low personal stigma	**.204 (.062)** **	**.157 (.051)** **	**.185 (.054)** **	**.157 (.051)** **
MHL2 -> Informal	**-.240 (.060)** **	**-.096 (.033)** **	**-.187 (.047)** **	**-.096 (.033)** **
MHL2 -> Formal	-.101 (.057)	-.169 (.093)	-.081 (.043)	-.169 (.093)
Total: Low Personal Stigma -> Informal	.029 (.067)	.015 (.036)	.025 (.058)	.015 (.036)
Low personal stigma ->Formal	.004 (.051)	.008 (.112)	.003 (.046)	.008 (.112)
Informal -> Formal	**.591 (.046)** **	**2.459 (.781)** **	**.607 (.042)** **	**2.459 (.781)** **
Indirect Effects	Standardised	Unstandardised	Standardised	Unstandardised
Total: MHL1 -> Pers. Stigma -> Informal	.007 (.017)	.003 (.008)	.006 (.015)	.003 (.008)
MHL1 -> Pers. Stigma -> Formal	.001	.002 (.025)	.001	.002 (.025)
MHL1 -> Informal -> Formal	**.095** *	**.184 (.098)** *	**.090** *	**.184 (.098)** *
MHL1-> Pers.Stig -> Informal -> Formal	.004	.008 (.019)	.004	.008 (.019)
Total: MHL1 -> Formal	**.100 (.045)** **	**.194 (.096)** **	**.094 (.041)** **	**.194 (.096)** **
Total: MHL2 -> Pers.Stigma -> Informal	.006 (.014)	.002 (.006)	.005 (.011)	.002 (.006)
MHL2 -> Pers.Stigma -> Formal	.001	.001 (.018)	.001	.001 (.018)
MHL2 -> Informal -> Formal	**-.142** *	**-.236 (.063)** **	**-.114** *	**-.236 (.063)** **
MHL2 -> Pers. Stig -> informal -> Formal	.004	.006 (.014)	.003	.006 (.014)
Total: MHL2 -> Formal	**-.137 (.036)** **	**-.229 (.062)** **	**-.110 (.029)** **	**-.229 (.062)** **
Total Effects:	Standardised	Unstandardised	Standardised	Unstandardised
MHL1 -> Informal	**.168 (.075)** *	**.078 (.044)** **	**.154 (.064)** **	**.078 (.044)** **
MHL1 -> Formal	**.243 (.067)** **	**.471 (.139)** **	**.229 (.054)** **	**.471 (.139)** **
MHL2 -> Informal	**-.234 (.058)** **	**-.094 (.031)** **	**-.182 (.046)** **	**-.094 (.031)** **
MHL2-> Formal	**-.239 (.064)** **	**-.398 (.103)** **	**-.191 (.046)** **	**-.398 (.103)** **
Low Personal -> Formal	.021 (.060)	.045 (.132)	.018 (.054)	.045 (.132)

*** p <.001; ** p < .01; *p < .05
MHL1 = Knowledge of treatment efficacy; MHL2 = identification of mental health problems

Invariance was supported at each level tested and indicated that factor loadings, intercepts, and

regression weights in the model did not vary significantly depending on gender, and that the

model held well for both male and female participants. This indicates that gender does not moderate associations between latent variables in the model. Table 7.7 above outlines effects in the model, as metric, scalar and structural invariance was determined, output reflects that of the model with both constrained factor loadings, intercepts and regression weights. As a result of multiple parameters being constrained to equality, unstandardised estimates for both male and female participants are identical across groups.

7.3.4 Moderating effects of age

A multigroup analyses was conducted to examine if there were any differences in models based on age. To conduct this analysis three 'age groups' were created. In this, 12 and 13 year olds were grouped as "younger adolescents", 14 and 15 year olds as "mid-adolescence" and 16 and 17 year olds as "older adolescents".

Table 7.8: Invariance testing for model with age as a moderator.

Model	χ^2 Diff	CFI	RMSEA (90% CI)	SRMR	ΔCFI	ΔRMSEA	ΔSRMR
			Measures of invariance				
Unconstrained		.926	.027 (.023, .031)	.0609	--	--	--
Metric invariance	χ^2 (32) = 66.448, $p <$.001 **	.917	.028 (.024, .031)	.0629	.009	.001	.0020
Scalar invariance	χ^2 (42) = 139.012, $p <$.001**	.891	.031 (.027, .034)	.0635	.026*	.003	.0006
Structural invariance	χ^2 (18) = 54.119, $p <$.001**	.882	.031 (.028, .034)	.0702	.009	--	.0067

For invariance to be accepted change should not exceed: CFI > .01; RMSEA > .015; SRMR.> .30 for metric and > .015 for scalar.

In this multigroup analysis, configural invariance was supported by good unconstrained model fit (χ^2 (537) 823.041, $p < $.001; RMSEA = .022 (90% Confidence Interval .020, .024); CFI = .924; TLI= .919, SRMR = .0609). When factor loadings were constrained, and this model compared to the unconstrained model, metric invariance was supported, as all change in fit indices were within acceptable limits (ΔCFI = .009, ΔRMSEA = 0, ΔSRMR =.0020). Scalar invariance was assessed by constraining factor loadings and intercepts to be equal between the groups. Two of the three indices showed acceptable levels of change (ΔRMSEA, = .003, ΔSRMR = .0006), while one fit index showed a significant decrease in fit (ΔCFI = .026). As only one fit index suggested lack of

invariance, scalar invariance was accepted in this case, and structural invariance then evaluated. Invariance was also demonstrated at the structural level (ΔCFI = .009, ΔRMSEA, = 0, ΔSRMR = .0067).

Table 7.9: Direct, indirect and total effects of model with constrained factor loadings, intercepts and regression weights.

Direct Effects:	12-13 years (*n* =267)		14-15 years (*n* = 276)		16-17 years (*n* = 189)	
	Standardised Est (SE)	Unstandardised Est (SE)	Standardised Est (SE)	Unstandardised Est (SE)	Standardised Est (SE)	Unstandardised Est (SE)
Total: MHL1 -> Low personal stigma	**.233 (.080)** **	**.208 (.083)** **	**.244 (.082)** **	**.208 (.083)** **	**.259 (.085)** **	**.208 (.083)** **
MHL1 -> Informal	**.153 (.073)** *	**.076 (.047)** *	**.149 (.069)** *	**.076 (.047)** *	**.148 (.073)** *	**.076 (.047)** *
MHL1-> Formal	**.157(.068)** **	**.319 (.151)** *	**.171 (.078)** *	**.319 (.151)** *	**.158 (.063)** *	**.319 (.151)** *
Total: MHL2 -> Low personal stigma	**.243 (.073)** **	**.181 (.067)** **	**.187 (.058)** **	**.181 (.067)** **	**.230 (.085)** **	**.181 (.067)** **
MHL2 -> Informal	**-.247 (.066)** **	**-.102 (.040)** **	**-.177 (.047)** **	**-.102 (.040)** **	**-.203 (.061)** **	**-.102 (.040)** **
MHL2 -> Formal	**-.109 (.057)** *	**-.183 (.100)** *	**-.087 (.046)** *	**-.183 (.100)** *	**-.093 (.053)** *	**-.183 (.100)** *
Total: Low Personal Stigma -> Informal	.032 (.069)	.018 (.040)	.030 (.064)	.018 (.040)	.028 (.060)	.018 (.040)
Low personal stigma ->Formal	-.001 (.049)	-.003 (.112)	-.001 (.050)	-.003 (.112)	-.001 (.045)	-.003 (.112)
Informal -> Formal	**.551 (.506)** **	**2.253 (.708)** **	**.614 (.042)** **	**2.253 (.708)** **	**.574 (.056)** **	**2.253 (.708)** **
Indirect Effects	Standardised	Unstandardised	Standardised	Unstandardised	Standardised	Unstandardised
Total: MHL1 -> Pers. Stigma -> Informal	.008 (.017)	.004 (.009)	.007 (.017)	.004 (.009)	.007 (.017)	.004 (.009)
MHL1 -> Pers. Stigma -> Formal	-.000	-.001 (.027)	-.000	-.001 (.027)	.024	-.001 (.027)
MHL1 -> Informal -> Formal	**.084** *	**.171 (.094)** *	**.091** *	**.171 (.094)** *	**.085** *	**.171 (.094)** *
MHL1-> Pers.Stig -> Informal -> Formal	.004	.008 (.020)	.005	.008 (.020)	.004	.008 (.020)
Total: MHL1 -> Formal	**.088 (.040)** *	**.179 (.093)** *	**.096 (.042)** *	**.179 (.093)** *	**.089 (.043)** *	**.179 (.093)** *
Total: MHL2 -> Pers.Stigma -> Informal	.008 (.018)	.003 (.008)	.006 (.013)	.003 (.008)	.006 (.015)	.003 (.008)
MHL2 -> Pers.Stigma -> Formal	-.000	-.001 (.021)	-.000	-.001 (.021)	-.000	-.001 (.021)
MHL2 -> Informal -> Formal	**-.136** *	**-.230 (.070)** *	**.109** *	**-.230 (.070)** *	**-.117** *	**-.230 (.070)** *
MHL2 -> Pers. Stig -> informal -> Formal	.004	.007 (.018)	.003	.007 (.018)	.004	.007 (.018)
Total: MHL2 -> Formal	**-.132 (.036)** **	**-.223 (.067)** **	**-.105 (.030)** **	**-.223 (.067)** **	**-.113 (.035)** **	**-.223 (.067)** **
Total Effects:	Standardised	Unstandardised	Standardised	Unstandardised	Standardised	Unstandardised
MHL1 -> Informal	**.161 (.069)** *	**.080 (.047)** *	**.157 (.065)** *	**.080 (.047)** *	.155 (.070)	**.080 (.047)** *
MHL1 -> Formal	**.246 (.072)** **	**.497 (.169)** **	**.267 (.079)** **	**.497 (.169)** **	**.247 (.065)** *	**.497 (.169)** **
MHL2 -> Informal	**-.239 (.063)** **	**-.099 (.037)** **	**-.171 (.045)** **	**-.099 (.037)** **	**-.197 (.058)** **	**-.099 (.037)** **
MHL2-> Formal	**-.241 (.063)** **	**-.406 (.117)** **	**-.192 (.053)** **	**-.406 (.117)** **	**-.206 (.066)** **	**-.406 (.117)** **
Low Personal -> Formal	.016 (.059)	.037 (.136)	.017 (.061)	.037 (.136)	.015 (.054)	.037 (.136)

*** p <.001; ** p < .01; *p < .05
MHL1 = Knowledge of treatment efficacy; MHL2 = identification of mental health problems

As invariance was indicated at every level, this suggests that the model does not differ between age groups, either at the measurement or structural level. Full metric, scalar and structural invariance suggests that concepts used in measures are equally well understood across age groups, that item means do not differ significantly by age, and that strength of associations between variables are similar across groups. Because of this, it was determined that age does not moderate relationships present in the model. Output of estimates of the structural invariance model are provided above in Table 7.9 for information.

7.3.5 Moderating effects of school neighbourhood deprivation SES

Next, a multigroup analysis was undertaken based on school neighbourhood deprivation. For the multiple-group analysis, three school neighbourhood deprivation groups representing "low" (deciles 1, 2 and 3), "medium" (deciles 4, 5, 6 and 7) and "high" SES (deciles 8, 9 and 10) were used. Decile 1 is representative of the most deprived areas, and 10 the least deprived. When multigroup analysis was conducted with the above defined groups specified, the model fit for the unconstrained model was good, (χ2 (537) 892.337, p < .001; RMSEA = .030 (90% Confidence Interval .027, .034); CFI = .910; TLI= .894, SRMR = .0629), indicating configural invariance

To assess for metric invariance, goodness of fit indices and chi-square difference were evaluated. Results for the model with factor loadings constrained, compared with the baseline unconstrained model indicates clear metric invariance in this case (χ2 (32) = 43.349, p = .087; ΔCFI =.003; ΔSRMR = .0004, no change in RMSEA).

Table 7.10: Invariance testing for model with SIMD as a moderator.

			Measures of invariance					
Model	χ^2 Diff	CFI	RMSEA (90% CI)	SRMR	ΔCFI	ΔRMSEA	ΔSRMR
Unconstrained		.910	.030 (.027, .034)	.0629	--	--	--
Metric invariance	χ2 (32) = 43.349, p =.087	.907	.030 (.026, .033)	.0644	.003	--	.0015
Scalar invariance	χ2 (42) = 131.819, p <.001 **	.884	.032 (.029, .035)	.0655	.023*	.002	.0011
Structural invariance	χ2 (18) = 49.263, p <.001 **	.876	.033 (.029, .036)	.0693	.008	.001	.0038

For invariance to be accepted change should not exceed: CFI > .01; RMSEA > .015; SRMR.> .30 for metric and > .015 for scalar.

Next, scalar invariance was assessed, the change in two indices were within acceptable limits (ΔSRMR = .0011, ΔRMSEA = .002), while the change in CFA was beyond the .01 limit (ΔCFI = .023). However, given that the other indices were representative of good fit and minimal change from the unconstrained model, scalar invariance was supported.

Table 7.11: Direct, indirect and total effects of model with constrained factor loadings, intercepts and regression weights.

Direct Effects:	Low SIMD (*n* =275)		Mid SIMD (*n* = 310)		High SIMD (*n* = 149)	
	Standardised Est (SE)	Unstandardised Est (SE)	Standardised Est (SE)	Unstandardised Est (SE)	Standardised Est (SE)	Unstandardised Est (SE)
Total: MHL1 -> Low personal stigma	**.263 (.095)** **	**.174 (.082)** **	**.201 (.070)** **	**.174 (.082)** **	**.210 (.097)** **	**.174 (.082)** *
MHL1 -> Informal	.122 (.082)	.051 (.044)	.097 (.068)	.051 (.044)	.123 (.090)	.051 (.044)
MHL1-> Formal	**.169 (.071)** *	**.268 (.134)** **	**.130 (.051)** **	**.268 (.134)** **	**.155 (.069)** **	**.268 (.134)** **
Total: MHL2 -> Low personal stigma	**.240 (.077)** **	**.162 (.058)** **	**.180 (.068)** **	**.162 (.058)** **	**.178 (.064)** **	**.162 (.058)** **
MHL2 -> Informal	**-.250 (.059)** **	**-.107 (.035)** **	**-.195 (.045)** **	**-.107 (.035)** **	**-.234 (.067)** **	**-.107 (.035)** **
MHL2 -> Formal	-.097 (.057)	-.159 (.092)	-.074 (.043)	-.159 (.092)	-.083 (.049)	-.159 (.092)
Total: Low Personal Stigma -> Informal	.053 (.060)	.033 (.040)	.055 (062)	.033 (.040)	.066 (.079)	.033 (.040)
Low personal stigma ->Formal	.006 (.046)	.016 (.110)	.007 (.046)	.016 (.110)	.007 (.053)	.016 (.110)
Informal -> Formal	**.620 (.041)** **	**2.347 (.624)** **	**.599 (.044)** **	**2.347 (.624)** **	**.566 (.064)** **	**2.347 (.624)** **
Indirect Effects	Standardised	Unstandardised	Standardised	Unstandardised	Standardised	Unstandardised
Total: MHL1 -> Pers. Stigma -> Informal	.014 (.018)	.006 (.008)	.011 (.014)	.006 (.008)	.014 (.020)	.006 (.008)
MHL1 -> Pers. Stigma -> Formal	.002	.003 (.024)	.001	.003 (.024)	.001	.003 (.024)
MHL1 -> Informal -> Formal	.076	.120 (.099)	.058	.120 (.099)	.070	.120 (.099)
MHL1-> Pers.Stig -> Informal -> Formal	.009	.014 (.019)	.007	.014 (.019)	.008	.014 (.019)
Total: MHL1 -> Formal	.086 (.049)	.137 (.097)	.066 (.040)	.137 (.097)	.079 (048)	.137 (.097)
Total: MHL2 -> Pers.Stigma -> Informal	.013 (.015)	.005 (.007)	.010 (.012)	.005 (.007)	.012 (.014)	.005 (.007)
MHL2 -> Pers.Stigma -> Formal	.001	.003 (.018)	.001	.003 (.018)	.014	.003 (.018)
MHL2 -> Informal -> Formal	**-.155** **	**-.252 (.066)** **	**-.117** **	**-.252 (.066)** **	**-.132** **	**-.252 (.066)** **
MHL2 -> Pers. Stig -> informal -> Formal	.008	.013 (.016)	.006	.013 (.016)	.007	.013 (.016)
Total: MHL2 -> Formal	**-.145 (.039)** **	**-.237 (.067)** **	**-110 (.030)** **	**-.237 (.067)** **	-.124 **(.039)** **	**-.237 (.067)** **
Total Effects:	Standardised	Unstandardised	Standardised	Unstandardised	Standardised	Unstandardised
MHL1 -> Informal	.136 (.076)	.057 (.043)	.108 (.064)	.057 (.043)	.137 (.085)	.057 (.043)
MHL1 -> Formal	**.255 (.077)** **	**.405 (.168)** **	**.196 (.058)** **	**.405 (.168)** **	**.234 (.084)** **	**.405 (.168)** **
MHL2 -> Informal	**-.237 (.059)** **	**-.102 (.034)** **	**-.186 (.045)** **	**-.102 (.034)** **	**-.22 (.066)** **	**-.102 (.034)** **
MHL2-> Formal	**-.243 (.066)** **	**-.396 (.108)** **	**-.184 (.050)** **	**-.396 (.108)** **	**-.208 (.065)** **	**-.396 (.108)** **
Low Personal -> Formal	.039 (.057)	.094 (.137)	.039 (.057)	.094 (.137)	.045 (.067)	.094 (.137)

*** p <.001; ** p < .01; *p < .05
MHL1 = Knowledge of treatment efficacy; MHL2 = identification of mental health problems

Finally, structural invariance was also supported (Δ=.008; ΔRMSEA =.001, ΔSRMR = .0015). The results of this multigroup analysis indicate there were no significant differences in the model based on school neighbourhood deprivation by participants. This reflects that neighbourhood deprivation (in this case relating to the post-code of the schools attended by participants) does not moderate associations in the model. Estimates present in the structural invariance model are outlined in Table 7.11 above.

7.3.6 Moderating effects of subjective SES

Next a multiple-group analyses was used to explore any differences based on self-reported SES. Initially, participants were categorised into either high, medium or low SES groups. There were, however, fewer participants contained within the "low" subjective SES category (*n* = 60), this is

in comparison to 290 participants in the medium category, and 367, in the high SES category. In order to avoid small sample, those who indicated they were in "low" or "medium" SES groups were conflated and dummy coded as "Low-Medium SES" ($n = 350$) and "High SES" ($n = 367$).

Results of the multi-group analysis on the basis of self-rated SES, revealed that unconstrained model fit was good, ($\chi 2$ (358) 658.570, $p < .001$; RMSEA = .034 (90% Confidence Interval .030, .038); CFI = .919; TLI= .905, SRMR = .0585), as with previous multigroup analyses, this indicates good configural invariance.

Factor loadings were then constrained to assess for metric invariance. Change in fit indices were within acceptable limits and clearly indicated metric invariance (ΔSRMR = .0004, no change in CFI or SRMR). Chi-square model comparisons for was also non-significant, ($\chi 2$ (16) = 18.396, $p =.301$), suggesting metric invariance. All changes in fit indices for this multigroup analysis are summarised in Table 7.12

Table 7.12: Invariance testing for model with subjective SES as a moderator.

Model	χ^2 Diff	CFI	RMSEA (90% CI)	SRMR	ΔCFI	ΔRMSEA	ΔSRMR
Unconstrained		.919	.034 (.030, .038)	.0585	--	--	--
Metric invariance	$\chi 2$ (16) = 18.396, $p =.301$	.919	.034 (.030, .038)	.0589	--	--	.0004
Scalar invariance	$\chi 2$ (21) = 37.835, $p =.013$ *	.914	.034 (.030, .038)	.0590	.005	--	.0001
Structural invariance	$\chi 2$ (9) = 13.112, $p =.158$	913	.033 (.030, .037)	.0600	.001	.001	.0010

For invariance to be accepted change should not exceed: CFI > .01; RMSEA > .015; SRMR.> .30 for metric and > .015 for scalar.

As metric invariance was accepted, a test for scalar invariance was conducted in which a model was specified with all intercepts and factor loadings constrained. This also showed minimal change in fit indices (ΔCFI = .005; ΔSRMR = .0001; no change in RMSEA) and was a clear indicator of scalar invariance. Finally, structural invariance was assessed and evaluated in comparison to the scalar invariant model. All fit indices were within acceptable limits (ΔCFI = .001; ΔRMSEA = .001; ΔSRMR = .0010) and indicated invariance at the structural level. Indicating that there are no significant differences in the model based on level of self-rated SES,

and that this does not moderate the effects present in the model. This indicates that the model

holds equally well, and does not vary for participants who rated themselves as being in the low

or medium SES as those who rated themselves as being in the high SES category.

Table 7.13: Direct, indirect and total effects of model with constrained factor loadings, intercepts and regression weights.

Direct Effects:	Low-medium SES (*n* =350)		High SES (*n* = 367)	
	Standardised Est (SE)	Unstandardised Est (SE)	Standardised Est (SE)	Unstandardised Est (SE)
Total: MHL1 -> Low personal stigma	**.233 (.071)** **	**.177 (.067)** **	**.224 (.072)** **	**.177 (.067)** **
MHL1 -> Informal	**.129 (.069)** *	**.062 (.041)** *	**.136 (.071)** *	**.062 (.041)** *
MHL1-> Formal	**.150 (.055)** **	**.271 (.114)** **	**.149 (.057)** **	**.271 (.114)** **
Total: MHL2 -> Low personal stigma	**.201 (.060)** **	**.163 (.054)** **	**.201 (.061)** **	**.163 (.054)** **
MHL2 -> Informal	**-.209 (.052)** **	**-.106 (.037)** **	**-.230 (.055)** **	**-.106 (.037)** **
MHL2 -> Formal	-.078 (.047)	-.150 (.093)	-.081 (.051)	-.150 (.093)
Total: Low Personal Stigma -> Informal	.034 (.058)	.021 (.039)	.037 (.063)	.021 (.039)
Low personal stigma ->Formal	.018 (.048)	.042 (.113)	.018 (.049)	.042 (.113)
Informal -> Formal	**.619 (.046)** **	**2.339 (.777)** **	**.581 (.043)** **	**2.339 (.777)** **
Indirect Effects	Standardised	Unstandardised	Standardised	Unstandardised
Total: MHL1 -> Pers. Stigma -> Informal	.008 (.014)	.004 (.007)	.008 (.015)	.004 (.007)
MHL1 -> Pers. Stigma -> Formal	.004	.007 (.022)	.004	.007 (.022)
MHL1 -> Informal -> Formal	**.080** **	**.144 (.090)** *	.079	**.144 (.090)** *
MHL1-> Pers.Stig -> Informal -> Formal	.005	.009 (.016)	.005	.009 (.016)
Total: MHL1 -> Formal	**.089 (.041)** **	.160 (.087)	**.088 (.039)** **	.160 (.087)
Total: MHL2 -> Pers.Stigma -> Informal	.007(.012)	.003 (.007)	.008 (.014)	.003 (.007)
MHL2 -> Pers.Stigma -> Formal	.004	.007 (.020)	.004	.007 (.020)
MHL2 -> Informal -> Formal	**-.129** **	**-.249 (.066)** **	**-.134** **	**-.249 (.066)** **
MHL2 -> Pers. Stig -> informal -> Formal	.004	.008 (.015)	.004	.008 (.015)
Total: MHL2 -> Formal	**-.122 (.033)** **	-.234 (.067)	**-.125 (.034)** **	-.234 (.067)
Total Effects:	Standardised	Unstandardised	Standardised	Unstandardised
MHL1 -> Informal	**.137 (.064)**	**.065 (.040)**	**.145 (.065)**	**.065 (.040)**
MHL1 -> Formal	**.239 (.059)** *	**.431 (.138)** *	**.237 (.059)** *	**.431 (.138)** *
MHL2 -> Informal	**-.202 (.051)** **	**-.103 (.035)** **	**-.222 (.054)** **	**-.103 (.035)** **
MHL2-> Formal	**-.200 (.051)** **	**-.384 (.106)** **	**-.206 (.055)** **	**-.384 (.106)** **
Low Personal -> Formal	.039 (.058)	.092 (.135)	.040 (.058)	.092 (.135)

*** p <.001; ** p < .01; *p < .05
MHL1 = Knowledge of treatment efficacy; MHL2 = identification of mental health problems

7.4   Chapter Summary

This chapter summarised how the main SEM model, in which personal stigma is proposed to

mediate the relationship between MHL and intended help-seeking, was derived and tested.

Results of this model indicate that personal stigma does not appear to act as a moderator of

intended help-seeking. A number of multigroup SEM models were then assessed to determine the

extent to which perceived stigmas and other demographic variables would moderate any existing relationships in the derived model.

Analyses detailed above show that while perceived stigmas acted as moderators, demographic factors show less variance and did not moderate the model. In reference to perceived stigma, the framework of mental health literacy, stigma and help-seeking detailed in chapter three proposed that perceived stigma from parents and friends constituted subjective norms, and that these would operate to alter the strength of associations in the model. This was supported by the non-invariance of models where perceived stigmas were included as moderating variable. Metric invariance was supported in both models including perceived stigma as a moderator. This indicated that items were conceptualised similarly across high and low stigma groups, however lack of scalar invariance indicates that item intercepts items varied significantly across groups. Latent means indicated that help-seeking intention differed significantly only in the perceived stigma from parents group, suggesting that subjective norms from this referent group are particularly important in predicting help-seeking intention among adolescents.

Given that the initial SEM model found personal stigma to be a poor mediator of the association between mental health literacy and help-seeking, the findings of multigroup-SEM are indicative of subjective norms being more influential on adolescent behaviour than attitudes. The only occasion in which personal stigma was seen to have any indirect effect was in the high perceived stigma from parents group, in which those with higher ability to identify a mental health problem, showed less personal stigma, and in turn, greater intention to seek formal help. This suggests that perceived stigma from parents and perceived stigma from friends, while both moderating associations present in the model, may have differing associations with personal stigma and intended help-seeking. Findings here suggest that low perceived stigma from parents is more conducive to help-seeking, as this sees associations of both high mental health literacy and low personal stigma on help-seeking. The increased number of associations between MHL and help-seeking in high perceived stigma groups may reveal that increased MHL is particularly predictive of help-seeking among those with higher perceived stigma. Therefore, mental health literacy

interventions with young people are potentially likely to have a larger impact among those with high levels of stigma, and particularly high levels of perceived stigma from parents.

Further multigroup-SEM were then conducted to establish moderating effects of demographic variables (gender, age, subjective SES and school neighbourhood deprivation). It was found that when these variables were included in multigroup analyses that these groups did not differ significantly in relation to mean scores of MHL, personal stigma or intended help-seeking. This indicates that these variables do not act as moderators and the model holds well regardless of gender, age or economic status.

Chapter 8: Discussion and conclusions

8.1   Aim of chapter

This final chapter will discuss the key findings of the research and suggest potential implications and recommendations based on the findings. First, a review of the thesis aims will be provided, which will be followed by overview of results from initial analyses. Next, results of substantive analyses, which aimed to answer the study's research questions will be discussed. This will focus on a more in-depth discussion of the results and how these relate to current evidence within the literature. Findings will then be discussed in terms of their implications in a broader context, particularly in relation to the development of novel interventions aiming to increase MHL, reduce stigma, and increase help-seeking. Limitations of the study, as well as potential avenues for future research will also be discussed, and finally, overall conclusions from the research will be drawn and summarised.

8.2   Aims of the thesis

As detailed in previous chapters, the key aims of the thesis were to examine whether personal stigma towards mental health mediates the relationship between mental health literacy and help-seeking intention among adolescents. A secondary aim was to investigate whether perceived stigmas moderate the strength of these relationships, and whether key demographics (age, gender and measures of SES) also moderate these relationships. It was argued, based on key psychological theories of behaviour, that knowledge, in the form of MHL, is necessary but not sufficient in influencing help-seeking, and that stigma may act as a mechanism between knowledge and intended behaviours. More specifically, based on theory and empirical evidence which shows that attitude is a powerful driver of behaviour (e.g. Crano & Prislin, 2006), personal stigma was hypothesised as a mediator of MHL and intended help-seeking, and therefore to explain the link between knowledge and behaviour. It was further hypothesised that perceived stigmas (from friends and parents) would operate as subjective norms, and would influence the strength of associations between MHL, personal stigma and help-seeking intention by acting as a moderator. Finally, this thesis aimed to investigate how socioeconomic status, may affect mental health literacy, stigma, and intended help-seeking. This was done by collecting measures of

subjective, self-reported socioeconomic status, as well as through the use of SIMD data as an objective, school-neighbourhood measure of SES.

8.3 Results of descriptive analyses

An overview is provided here of the findings arising from bivariate analyses. The aim being to provide greater context for any socio-demographic differences in levels of MHL, stigma and help-seeking. Here, results will be discussed in relation to existing literature.

8.3.1 Mental health literacy in adolescence

The research aimed to explore the landscape of mental health literacy among adolescents in the sample population. While more substantive analyses pertaining to gender differences is discussed later, initial bivariate analyses are discussed here to demonstrate how levels of MHL vary depending on participant gender, age, ethnicity and SES.

Overall, MHL was shown to be relatively high, with a mean score of 7.58 of a possible 10 for knowledge of treatment efficacy, and a mean score of 13.40 of a possible 15 for ability to recognise a mental health problem. MHL was higher among female participants. This refers to both ability to identify a mental health problem, and knowledge of treatment efficacy. Indicating that female adolescents have a better knowledge of effective treatments and are more likely to agree that scale items (schizophrenia, bipolar disorder, and depression) are mental health problems. It was anticipated that female participants would show higher levels of MHL given that the majority of the literature indicates that girls typically have higher levels of literacy (Best et al., 2016; Cotton et al, 2006; Lynch et al., 2018; Mackenzie et al., 2006; Rafal et al., 2018). Evidence suggests that girls particularly show high literacy in relation to internalising disorders such as depression and anxiety (Burns & Rapee, 2006). However, work by Cotton et al., (2006) noted that while female compared to male participants were more successful in identifying depression in a vignette, these gender differences did not persist in relation to psychosis. The current finding that females hold higher MHL than boys is therefore supported by the literature which demonstrates that female adolescents typically hold higher MHL in relation to identification of mental health problems, and why female adolescents in the current sample demonstrated increased ability to identify a mental health problem.

Finding relating to age differences in MHL were mixed. There were no significant differences between age groups on knowledge of treatment efficacy. However, age differences were identified in ability to identity a mental health problem, with older participants more likely to score higher on this MHL scale. While research has tended to suggest that MHL improves with age (Reavley, Morgan & Jorm, 2014) there is contending research which has found no association between age and levels of MHL (Coles et al., 2016). The results of descriptive analyses in the current study suggest that any age differences in MHL among adolescents is dependent on the specific aspect of MHL being measured.

Differences in MHL in relation to measures of SES (both subjective and at the school neighbourhood level) are discussed in the context of existing literature in subsequent sections examining the role of MHL in mental health inequalities (section 8.5.1.1), however it was noted that knowledge of treatment efficacy was higher among those providing higher subjective SES ratings. It was also determined that participants attending schools in areas of higher deprivation demonstrated lower ability to identify a mental health problem. Very little work has been conducted in the adolescent literature which directly links measures of SES to MHL, and while the adult literature indicates that low SES is associated with low MHL (e.g. Holman, 2015; von dem Knesebeck et al., 2013), findings in this study represent an important contribution to what is known about interactions between SES and MHL in an adolescent context.

8.3.2   Personal and perceived stigma in the sample population

In response to the research questions outlined early in the thesis relating to the nature of personal and perceived stigma in adolescence, bivariate analysis was undertaken in the initial stages to better understand the nature of these forms of stigma in the sample population. Participants reported higher levels of perceived stigma from friends, followed by perceived stigma from parents, with mean scores for personal stigma below this. Additionally, perceived stigmas received significantly different ratings depending on the referent groups.

In relation to gender differences in personal and perceived stigma, in the current study, greater personal and perceived stigma was reported by males compared to female adolescents. This is

consistent with previous findings in the literature which document higher levels of stigma among male adolescents (Calear et al, 2011; Chandra & Minkovitz, 2006; Dolphin & Hennessey, 2016).

Findings on age differences in stigma indicated that personal stigma was significantly higher among the youngest participants compared to the oldest, and the same was true for perceived stigma from friends. However, there were no significant differences in level of perceived stigma from parents by age. A recent study using the (un-adapted) PMHSS also found that age was negatively correlated with personal stigma, but there was no association found between age perceived stigma (Nearchou et al., 2018). In other words, personal stigma was shown to decrease with age, while perceived stigma from "most people" did not differ significantly depending on age. The current study found that younger participants held greater stigmatising beliefs and perceived more stigma from friends. However, perceived stigma from parents showed no significant differences between age groups, suggesting that this is experienced to a similar degree, regardless of age of participants.

A possible reason for the higher perceived stigma from friends in younger adolescence may be that younger participants are more sensitive to peer rejection and validation. Adolescence is a known transitional period towards independence, with less time spent with parents and more with similarly aged peers. It may be that younger adolescents are in the initial stages of this transition in which peer interactions are especially complex and peer acceptance is vital (e.g. Brown & Larson, 2009; Rubin et al., 2005). However, as participants approach young adulthood peers become less influential (e.g. Steinberg, & Monahan, 2007) and this may account for the decreasing levels of perceived stigma from friends in older age groups.

Additionally, it may be that older adolescents have greater MHL. In the current study, ability to identify a mental health problem was significantly higher in older adolescents. This is consistent with existing literature (e.g. Reavley et al., 2012). Although, the relationship between age and MHL remains an area that requires further investigation, with most studies examining MHL in adolescence focussing on older adolescents such as university students (Aluh et al., 2019; Cheng et al., 2018; Lawlor et al., 2008; McCann et al., 2009). While some studies have involved both younger and older adolescents (e.g Burns & Rapee, 2006; Leighton, 2010; Wright et al., 2005),

very few have focused on MHL among younger adolescents (Burns & Rapee, 2006; Lam, 2014), and therefore more investigation is required into how MHL may change through adolescence.

Findings on differences in stigma based on participant ethnicity indicate that stigma was higher among participants from minority ethnic backgrounds. This was true of personal stigma, and perceived stigma from both friends and parents. There are findings, largely among African American adolescents, which show that stigma is notably high, and has particularly negative consequences for help-seeking among adolescents from ethnic minorities (e.g. Lindsey et al., 2010; Kranke et al., 2012). The literature largely reflects that while mental health service utilisation is low among adolescents in general, it is particularly low for ethnic minority youth who report higher levels of stigma, and also a greater distrust of professional health services. Lindsey et al. (2010) found that African American boys most likely to seek help from family and noted the "pivotal" role of family support over help from peers or professionals.

In general, very little research has explored the intersection between mental health and race, particularly so among adolescents. In a systematic review of child and adolescent stigma literature, Kaushik et al. (2016) reported that there may be a trend towards ethnic minority groups holding more stigmatising views, but that this needs further investigation. It was further stated that too little research has been conducted to make any firm conclusions about mental health stigma across ethnicities. Similarly, Gronholm et al. (2018) noted that the majority of intervention studies included in their systematic review "did not reflect on the role of ethnicity in relation to potential experiences of stigma" (p. 24). This is despite research indicating that stigma is likely to vary depending on cultural or ethnic backgrounds (Yang et al., 2007).

It is possible that due to such a small sample of work examining the role of ethnicity that findings are confounded by other variables. Relative socio-economic status may be one of these variables, as rates of poverty are higher among ethnic minority groups (Kelly, 2016; Murali & Oyebode, 2004). Prior research has explored the interaction between ethnic minority status and health inequality (e.g. Braveman, et al., 2005; Nazroo, 2003; Karlsen & Nazroo, 2001) and concluded that racial discrimination can lead to socioeconomic and health inequality. However, this has

focused on physical health, and little work has examined these interactions in terms of mental health, and again, less so among adolescents.

8.3.3 Demographic differences in help-seeking intention

On average, adolescents rated informal sources of help more highly than formal sources, which is not an unexpected result, as it is well documented in the literature that adolescents prefer to seek help from informal sources (e.g. Gronholm et al., 2016; Wilson et al., 2011). It was unexpected however, that no gender differences were identified in relation to help-seeking, with male and female participants being equally likely to seek informal and formal help. This is despite prior evidence in the literature suggesting evidence of gender differences, with girls being more likely to demonstrate greater help-seeking intention (Chandra & Minkovitz, 2006; Haavik et al., 2017; Kim et al., 2014; MacKenzie et al., 2006). One study, also making use of the General Help Seeking Questionnaire (GHSQ), also found no difference in help-seeking dependent on participant gender. Nearchou et al., (2018) attribute this to using a broader age range (12-18 years) of participants that most other studies investigating help-seeking intention among adolescents. The current study had a similar age-range and may therefore support this assertion. This indicates that gender differences in relation to help-seeking should not be over-simplified or dichotomised, and that the intersections between gender, help-seeking and associated factors such as stigma and knowledge may be more nuanced.

Age differences were found in relation to both formal and informal help-seeking, with the youngest participants showing the greatest intention to seek help. Drawing on what is known in the developmental literature about the transition in adolescence from dependence to independence (e.g. Casey et al., 2010; Eriksson, 1959, 1968), it may be that younger participants are less resistant to showing interdependence that older adolescents, who are in the process of trying to exert autonomy. This may be enforced by social desirability bias, in which older adolescents do not want to be seen to act in a way that necessitates over reliance on others, and social desirability has been demonstrated to increase in adolescence (e.g. Vigil-Colet et al., 2013).

Finally, while no differences in help-seeking were noted in relation to subjective SES, it was found that there were significant differences regarding level of informal help-seeking intention,

depending on level of school neighbourhood deprivation, with those in the most deprived schools being the least likely to seek informal help. Work in an adult population has found similar results, with those from low socioeconomic backgrounds demonstrating less help-seeking intention (Brown et al., 2014), however little empirical work has been carried out in the adolescent literature which investigates associations between SES and help-seeking, whether intended or actual.

8.4 Results of inferential analyses (SEM and multigroup-SEM).

8.4.1 MHL and help-seeking

The links between MHL and help-seeking in the literature are clear, with increased MHL being consistently associated with increased help-seeking intentions and behaviours (Ratnayake, & Hyde, 2019). The current research demonstrates significant associations between MHL and help-seeking, though the direction of this association was not always positive. When examining initial bivariate analyses, knowledge of treatment efficacy showed a positive association with both formal and informal help-seeking suggesting that as knowledge increased, so did intention to seek help. When investigating participants' ability to identify a mental health problem, this showed a negative correlation with both formal and informal help-seeking, therefore suggesting that as adolescents become more able to discern what is and what is not a mental health problem, they become less likely show intention to seek both formal and informal help. These associations persisted in substantive SEM analyses. This association persisted following inferential analyses, and SEM analyses identified negative direct effects of ability to identify a mental health problem on informal help-seeking, and total negative effects on both formal and informal help-seeking. While this will be discussed further below, these findings demonstrate that specific components of MHL have differing effects on help-seeking, and that increasing MHL is not synonymous with increasing help-seeking intention.

8.4.2 MHL and stigma

MHL was associated with reduced stigma, regardless of the form of MHL. This is consistent with findings in the literature, which consistently report associations between increased MHL and lower stigma in adolescence (e.g. Chisholm et al., 2016; Corrigan, River, Lundin, et al., 2001; Hartman et al., 2013; Pinto-Foltz et al., 2011). This also indicates that while increasing mental

health literacy is successful in reducing stigma, it is not always successful in improving intended, or actual, help-seeking behaviour. This is indicative of the conceptual gap between knowledge and behaviour. In the current study MHL (knowledge) had mixed effects on behaviour, though was shown to consistently be associated with reduced personal stigma (attitude). In other words, while both forms of mental health literacy were associated with reduced personal stigma, which was hypothesised to predict increased help-seeking intention; higher ability to recognise a mental health problem was indeed associated with reduced personal stigma, but also with reduced help-seeking intention. Indicating that in the case of the current study, knowledge was a more powerful predictor of behaviour than personal attitude of participants.

8.4.3   Personal stigma as a mediator of the MHL and help-seeking relationship.

The thesis also aimed to explore to what extent the established relationship between mental health literacy and help-seeking was mediated by personal stigma. This was in reference to the hypothesis that personal stigma, conceptualised as attitude, could act as a mechanism between knowledge (MHL) and intended behaviour (help-seeking). To establish whether any mediating effects of personal stigma were present, a structural equation modelling approach was used (as described in chapter five). A model was derived and tested based on both theoretical assumptions and as a result of preceding factor analyses. It was hypothesised that there would be a direct effect of MHL on stigma, and an indirect effect of stigma on help-seeking. On the whole, it was found that personal stigma did not mediate the relationship between mental health literacy and help-seeking. This may mean that there may be other mechanisms linking knowledge and behaviour that were outwith the scope of this study. For example, factors such as low perceived need for help (Vogel et al., 2006), or belief that seeking help would not be effective (O'Connor et al., 2014). These factors as well as use of explicit stigma measures may account for the lack of effect.

Previous research (Nearchou et al., 2018) examining association between stigma and help-seeking also found no association between personal stigma and help-seeking, although associations were found for perceived stigma. The current study, and the study conducted by Nearchou et al., (2018) are the only studies (to the best of the author's knowledge) to link both personal and perceived stigma to help-seeking intention among adolescents, and appear to indicate that personal stigma

is not predictive of help-seeking intention among adolescents. Further discussion relating to the lack of effect of personal stigma will be discussed in subsequent sections (8.6.3), which expands on possible reasons for lack of effect of personal stigma in the model.

8.4.4 Moderating effects of perceived stigma

While personal stigma was posited as a mediator of the relationship between MHL and help-seeking intention (i.e. would explain the relationship between an individual's knowledge and behavioural intention), perceived stigma from both friends and parents were posited as moderators (i.e. would impact on the strength of associations between knowledge and intended behaviour). Multigroup SEM was used to assess differences between participants reporting high and low perceived stigma from friends and from parents. This revealed moderating effects both for perceived stigma from friends, and for perceived stigma from parents.

It was found that those in the high and low perceived stigma from friends group varied significantly in relation to latent means for personal stigma, ability to identify a mental health problem and knowledge of treatment efficacy, with MHL being higher, and personal stigma lower among those who perceived less stigma from friends. There were also no differences between groups in relation to latent means for formal and informal help-seeking. Suggesting that those perceiving high and low levels of stigma from friends are just as likely to seek help from formal and informal sources. Additionally, strength of associations between variables were largely similar for high and low perceived stigma from friends groups

Associations between variables varied between groups, specifically the associations between knowledge of treatment efficacy and formal help-seeking, and ability to identify a mental health problem and formal help-seeking. It was notably among members of the high perceived stigma group that there were more significant effects, which indicates that the model better explained help-seeking intentions when perceived stigma was high. The greater number of significant associations in the high perceived stigma group is interpreted as meaning that when perceived stigma is high, there are significant effects between MHL and help-seeking intention, because when subjective norms (perceived stigma) are unfavourable towards help-seeking, literacy is needed to counteract the effects of high perceived stigma. For instance, when low levels of stigma

are perceived, it may be that MHL is not necessary for help-seeking (hence fewer significant associations), as subjective norms are such that they encourage help-seeking by removing the added barrier of fear of stigmatisation. The greater number of significant associations in the high perceived stigma from friends group, suggests that perceived stigma from friends plays an important role in help-seeking, and that perhaps peer-based interventions (e.g. Hart et al., 2018), may be particularly appropriate. Such approaches would allow for increase of MHL, and while lowering personal stigma would allow adolescents to be aware of stigma reduction among their peers simultaneously, therefore reducing perceived stigma from friends.

In relation to the moderating effects of perceived stigma from parents there were also notable differences in patterns of effect between high and low perceived stigma groups. When examining effects in the low perceived stigma from parents group, there is, for the first time, a direct effect and indirect of personal stigma on formal help-seeking. This means that adolescents with low perceived stigma from parents, show an association between lower personal stigma and greater intentions to seek formal help. It is notable here that the indirect effect of ability to recognise a mental health problem (via low personal stigma) to help-seeking was positive in direction. This was the only occurrence of a positive association between this MHL construct and help-seeking. This implies that when perceived stigma from parents is low, and personal stigma is also low, the positive effects of low stigma on help-seeking intention, are more powerful predictors of help-seeking than MHL. Therefore, it may be of key interest to not reduce only adolescent's personally held stigma, but also to reduce the degree of perceived stigma from their parents.

Key differences between groups related to differing associations between personal stigma and formal help-seeking, as discussed above. Additionally, structural paths between ability to identify a mental health problem and both formal and informal help-seeking varied significantly between groups. Results demonstrated notable differences between high and low perceived stigma from parents groups. with formal and informal help-seeking differently associated with forms of MHL. For example, in the *low perceived stigma* from parent group there were significant associations between MHL and formal help-seeking only; in *the high perceived stigma* from parents group, there were significant effects of MHL on both formal and informal help-seeking. It is proposed

that among participants with high perceived stigma, that there are significant effects of MHL on formal help-seeking because this is where knowledge has the greatest impact. This is because greater perceived stigma means that subjective norms are believed to be unfavourable towards help-seeking, and therefore greater knowledge of effective treatment is necessary for increasing help-seeking intention.

It is likely that there are no significant effects of MHL on informal help-seeking when perceived stigma from parents is low because high levels MHL are not needed when perceived stigma from parents is low, as informal help-seeking (likely from parents in the first instance) is the preferred source of support, and formal sources of support may not be considered necessary. In this case perceived stigma moderated the relationship between MHL and help-seeking by reducing the effect of MHL on informal help-seeking

When determining means values present in the model, it was found that latent means for all variables were significantly different between groups. In the group reporting low perceived stigma from parents, both forms of MHL were significantly higher than those perceiving high levels of stigma from parents, and personal stigma was significantly lower. In relation to help-seeking, *informal* help-seeking was significantly higher in the low perceived stigma group, while *formal* help-seeking intention was lower than in the high perceived stigma group. This demonstrates that those perceiving high stigma from parents are more likely to show greater intention to seek help from sources such as GPs, teachers, and mental health professionals. Those perceiving low stigma from parents are more likely to show greater intention to seek help from parents, friends and other relatives.

The current research supports assertions that parental norms are particularly influential, as only when perceived stigma from parents is low, is there an indirect and direct effect of low personal stigma on help-seeking intention, again suggesting that subjective norms, are more influential than attitude in predicting adolescent behavioural intention. These conclusions are supported by findings in the help-seeking literature. For example, the literature demonstrates that parents are integral for access and utilisation of formal mental health services (Hassett et al., 2018; Langeveld et al., 2010; Logan & King, 2006), and parental beliefs and norms are known to be influential in

188

adolescent decision making and help-seeking intention, while peers are more likely to influence adolescent behaviour through modelling of such behaviours (Biddle, et al., 1980; Cauce et al., 1992).

There are findings which demonstrate that parental norms are particularly influential in adolescent behaviour (e.g. Wood et al., 2004), and that, among university students, parent and family norms are predictive of help-seeking intention (Barksdale & Molock, 2009). However, this related to a young adult population, and parental norms may have a differing degree of influence on adolescent behaviours. To date, no known studies have examined the influence of norms from specific referent groups in adolescent help-seeking. Ultimately findings indicated that perceived stigma is more influential in relation to adolescent help-seeking than personal stigma. Implications of this are discussed later in this chapter.

8.4.5   Moderating effects of demographic characteristics.

The final research questions aimed to explore whether the associations between mental health literacy, stigma and help-seeking differed dependent on demographics. While it was not possible to conduct any robust analyses using ethnicity data due to the sample size limitations, multi-group SEM analyses were conducted on the basis of gender, age, subjective SES, and school SIMD decile.

As noted in chapter seven all models were invariant in all multi-group analyses, indicating that the model held well regardless of gender age and SES. While anticipated that associations may differ in relation to participant gender and measures of SES, these results indicate that despite initial differences in the bivariate analyses, there were no moderating effects present, and the proposed model operated similarly regardless of gender, age and SES.

Gender

It was expected, in line with literature on gender and MHL and stigma, that there would be differences in how theses variables interacted depending in participant gender. It was anticipated due to male adolescents being more likely to have lower MHL than female adolescents (Furnham, et al., 2014); higher stigma than female counterparts (Chandra & Minkovitz, 2006) and lower

help-seeking intention (Best et al., 2016), that differences between key variables would be evident between male and female participants, however following multigroup SEM, no moderating effect of gender was found. Previous research has shown that levels of MHL may be gendered, with girls showing greater MHL than boys (e.g. Cotton et al., 2006; Haavik et al., 2017), it has also been documented that girls and boys show differing preferences in relation to sources of help, and in their level of MHL (Chandra & Minkovitz, 2006).

While this study, and the vast majority of the literature documents that girls are more likely to have higher levels of mental health literacy, there is some research which found mixed or no effect of gender on MHL (Furnham et al., 2014; Nearchou et al., 2018). These findings suggest that gender differences in relation to MHL may be more complicated, and that in future, over simplification of gender differences in adolescent MHL and help-seeking intentions should be avoided. It may be particularly important to investigate gender differences in preferred sources of help, or differences in beliefs about the usefulness of specific help-sources, as this has been a notable difference in the literature (Yap et al., 2011).

The absence of moderating effects in the current study may be due to lack of mediating effect of personal stigma. While initial analyses demonstrated that boys held higher personal stigma than girls, there was no mediating effect of this variable, indicating that this did not influence help-seeking intention directly. Additionally, there were no significant differences identified in help-seeking intention based on gender. Therefore, given that male and female adolescents showed similar level of help-seeking intention, and there was no effect of personal stigma, this may account for the lack of moderation in the current sample. It is acknowledged that lack of differences in help-seeking intention is unexpected, though as noted previously, not entirely without precedent (e.g. Nearchou et al., 2018).

Age

Multigroup SEM demonstrated that the model applied equally well to all age groups, and moderation effects on the basis of age were not established. Lack of moderating effect suggests that the associations between MHL, personal stigma and help-seeking ultimately were similar

regardless of age. As noted previously, the literature is mixed on the association between age and MHL, and there is a general lack of research which investigate age as a predictor of MHL (Nearchou et al., 2018). In relation to stigma and age, findings are again relatively mixed (Kaushick et al., 2016). While there is evidence in the literature which suggests stigma increases with age (e.g. McKeague et al., 2015; Nearchou et al., 2018), there is counter evidence suggesting no difference (O'Driscoll et al., 2015); or that the youngest adolescents are less stigmatising than older adolescents and young adults. For example, are also findings which show that 14-18 years olds had more positive attitudes towards common mental health problems (ADHD and depression) than children under 12 (Swords, Hennessy, & Heary, 2011). While this was younger than participants in the current study, it supports findings that younger adolescents may be more stigmatising than older peers. Given that MHL has been shown to be higher among older adolescents, stigma shows less clear cut and corresponding decreases with age. Similarly to gender, the findings in the current study and elsewhere suggest that the effect of age on MHL, stigma and help-seeking are not necessarily clear cut, less so when examining how these interact and influence each other.

SES

SES was measured both subjectively (via use of an adapted item from the Health Behaviours in School Aged Children [HBSC] study; Currie, et al. 2014), and on the basis of school neighbourhood deprivation (SIMD based on participating school post-code). The decision was made to include a subjective measure rather than a proxy measure of SES, such as asking participants about their parents' income and education, as this is often subject to missingness (Currie et al., 2008; Wardle et al., 2002.), and young people do not always provide sufficient information pertaining to parental employment to give an accurate gauge of SES (Vereecken & Vandegehucthe, 2003). This was also done in order to examine if subjective SES was more or less associated with intentions to seek help than more objective measures, given that subjective measures may be more salient and reflective of adolescents' concept of relative SES (e.g. Martin-Storey et al., 2018). Additionally, it has been suggested that adolescents' subjective assessments

of SES can contribute to better understanding how SES influences adolescent outcomes (Elgar, et al., 2016; Goodman et al., 2007) such as MHL, stigma and help-seeking.

There are findings in the literature which show that low SES is associated with low MHL (von dem Knesebeck et al., 2013). For example, in a study of adults in two German cities von dem Knesebeck et al. (2013) found that those of higher SES were more likely to consider medication as effective treatment for depression and schizophrenia, which is relevant to the measures of MHL used in the current study. It was also found that individuals from low SES background knew less about symptoms and prevalence of mental health problems such as depression, schizophrenia and eating disorders. In a UK cohort, similar results were found in relation to SES and MHL, with the addition that measures of class showed a stronger association with MHL than with stigma (Holman, 2015), suggesting that MHL or knowledge, is more socioeconomically stratified that stigma, or attitude.

However, very little literature has directly investigated SES when examining links between adolescent MHL, stigma and help-seeking. Therefore, no directionality of effect was assumed, and research in relation to the effect of SES was largely exploratory. However, in the current sample it was found that subjective SES demonstrated invariance at all levels of testing during multigroup SEM analyses. This suggests that effects of MHL on stigma and help-seeking are consistent regardless of perceived levels of SES.

There are findings which may suggest why minimal differences were found based on subjective SES. For example, it has been argued that adolescence is a stage of development where there is relative resilience to the effects of social deprivation (and affluence) (Currie, et al., 1997; West et al., 1997), therefore, while there is evidence that subjective SES is reliable, it may also not be truly representative of adolescent SES, and provides a rationale for including objective measures also.

While this study also found no difference in associations between MHL, stigma, and help-seeking based on school neighbourhood deprivation, it should be noted that this was calculated based on school post-code data, so represents whether the school itself is in an area of particular deprivation

or not. It is of course possible, that participants, even if attending a school in the most deprived area, did not live in an area of similar deprivation. This is a relative flaw in the use of SIMD data, and neighbourhood measures of SES more generally, as it may mis-represent SES of individual participants.

8.5 Other findings: Conceptualising stigma in adolescence

Finally, while not an explicit research aim, the current study did find that the tripartite conceptualisation of stigma, proposed by Corrigan and Watson (2002) in which stigma is composed of stereotypes, prejudice, discrimination, was not the best fit for the data. This is despite the PMHSS being explicitly based on the tripartite model of stigma. Empirical evidence from this study following the testing of a three-factor model via use of CFA on constructs present in the PMHSS (McKeague et al., 2015) suggested that stigma items were better represented as a single factor. Therefore, this questions whether the tripartite model of stigma proposed by Corrigan and Watson (2002) is conceptually relevant for adolescents and perhaps other models (e.g. Thornicroft, 2006, 2008) may need to be investigated to assess their significance to an adolescent population.

The tripartite model is a common model of stigma in adulthood, and as argued in the introduction to this thesis, a limitation of the literature examining stigma in adolescence that it is overly reliant on adult models of stigma, and may not be applicable to adolescence. There is a general lack of research examining the conceptualisation of stigma among the adolescents (McKeague et al., 2015). While one subsequent study has tested the validity of this model in adolescence, (Silke et al., 2016), it has been stressed that this needs further assessment when measuring stigma in adolescence.

8.5.1 Conceptualising mental health problems in adolescence

In relation to conceptualisation of mental health more broadly among adolescents, work carried out when piloting the current study provides some insight into what 'mental health' means to adolescents. A range of answers were provided to the question "what does mental health mean to you". These answers were categorised into four main themes, with responses falling under: 'thought and feelings', 'diagnostic labels', and 'slang terms' for mental health problems and

illness. Reponses from participating adolescents were then used to create a definition of mental health problems that was operationalised in the research. Results of this qualitative exercise reflected that cognitive processes, particularly negative thoughts and feelings were core to adolescent conceptualisation of mental health problems. Responses also identified that adolescents in the sample leaned on biomedical conceptualisations of mental health problems, noting that they involved "*something wrong in the brain*". There was also an awareness of the role of environmental factors in the onset of mental health problems, with responses making reference to complex family life. In addition, there was a recognition among the adolescents questioned of the non-discriminatory nature of mental health problems as reflected by responses such as, "*everybody can get them*"

There has been little work which has explored how adolescents conceptualise mental health problems. Research has reviewed how related constructs, such as mental health literacy (Mansfield et al., 2020), and specific mental health diagnoses such as depression (Georgakakou-Koutsonikou & Williams, 2017), but how adolescents conceptualise 'mental health problems' more broadly has been under researched. One paper was identified which investigated adolescent and child understanding of symptoms of mental health problems (MacLean et al., 2013), this, alongside exploration of conceptualisation in the current study provides an initial starting point. MacLean et al., (2013), found that labels such as "weird" and "rare" had the potential to propagate stigma, and reduce help-seeking intention. Greater understanding, and particularly of differences in conceptualisation among specific subgroups of adolescents, has potential to better inform interventions aiming to increase literacy, reduce stigma, and increase help-seeking.

8.6   Findings in light of proposed theoretical framework

As discussed earlier in this thesis, there is a lack of adolescent frameworks in the literature which account for how MHL and stigma may impact on help-seeking among adolescents. A new framework was proposed which was based on the Knowledge, Attitude, Behaviour (KAB) model, and also drew on specific components of the Theory of Planned Behaviour (TPB: Ajzen, 1991; Ajzen, 1988). The proposed framework of adolescent MHL, stigma and help-seeking argued, in line with the KAB model, that MHL alone is not sufficient to influence adolescent behaviour, and

that attitude may be a necessary addition in order to inform behaviour change. In this case, the hypothesis was that increasing MHL, would result in positive attitude change (less personal stigma), and increased help-seeking intention. If supported by the data, this would indicate that for interventions to be successful, they should both aim to improve MHL and reduce personal stigma. However, it was found that while there were direct effects of MHL on both personal stigma and help-seeking, personal stigma had no effect on help-seeking either direct or indirect. Due to moderating effects of perceived stigma discussed later, it is concluded that interventions may be best focused on reducing perceived stigma to best increase help-seeking intention

8.6.1   Effect of knowledge on intended behaviour

The theoretical framework proposed that both MHL and stigma may predict formal and informal help-seeking to a differing degree, as informal and formal help-seeking are distinct behaviours. This was found to be the case following SEM analysis. MHL was consistently predictive of intended help-seeking, albeit with different forms of literacy acting differently on intended help-seeking. As detailed in the results chapter, ***knowledge of treatment efficacy*** predicted greater formal and informal help-seeking intentions. Conversely, ***ability to identify a mental health problem*** showed a negative impact on formal and informal help-seeking intentions. While the framework did not hypothesise a direction of the influence of literacy on help-seeking (merely that it would be predictive), this differentiation of effect was not expected.

In the available literature relating to MHL and help-seeking, no studies have been identified which demonstrate a negative effect of MHL on help-seeking intention, and this represents both a novel and significant finding of this thesis. Increased recognition of medication and talking therapies as effective treatments was universally associated with increased help-seeking in the current study. Participants' ability to identify specific mental health problems such as schizophrenia, depression and bipolar disorder were associated with lower intention to seek help.

This effect could be due to the specific aspect of MHL being investigated. MHL is recognised as being comprised of multiple components (Mansfield, et al, 2020; Riebschleger et al., 2017), and literature suggests that interventions aiming to improve MHL should build on several of these component constructs in order to be most effective (Jorm, 2015; Kutcher et al., 2015). However,

while some studies examining associations between MHL and help-seeking have found no association (Wei et al., 2015), or that MHL does not change attitudes or intentions towards help-seeking (Rickwood et al., 2004), to the best of the researcher's knowledge, a negative association between MHL and help-seeking has not been reported in the literature. Therefore, compared to previous studies, the current study, by validating and studying specific components of MHL identified a unique pattern of effect which has not previously been recognised. It is therefore important to differentiate between components of MHL and their individual effects on adolescent help-seeking intention in order to provide meaningful findings.

No negative effect of MHL on help-seeking could be identified in the literature, this is despite a systematic review (Wei et al., 2015) identifying measures of MHL which capture similar aspects of MHL as the 'ability to identify a mental health problem' factor used in this study. For example, the Knowledge of Mental Disorders scale (KMD; Serra et al., 2013), and the Mental health disorder recognition questionnaire (MDRQ; Swami et al., 2011). However, studies using these measures did not link this aspect of knowledge with help-seeking behaviour, nor did any articles citing these measures. Therefore, it is not possible to determine whether higher levels of this specific component of knowledge is related to decreased help-seeking. The research presented in this thesis is the first to investigate how discrete forms of MHL act on both formal and informal help-seeking intention. Consequently, there is a need for future studies to further investigate specific components of MHL and how these individually impact on adolescent help-seeking. This would allow for identification of components of MHL which are particularly predictive or prohibitive of help-seeking intention and how they interact, thus providing a more detailed understanding of specific forms of knowledge and their association with attitude and behaviour.

A possible explanation of the negative association in this study may be due to the particularly stigmatised nature of the specific items included in the factor (schizophrenia, bipolar disorder and depression). For example, schizophrenia is known to be a highly stigmatised condition among adults (Angermeyer & Matschinger, 2003; Wood et al., 2014) and research with adolescents has shown that this is the case in a younger population. Adolescents are more likely to view schizophrenia as a 'weakness' than an illness (Yoshioka et al., 2014); show an increased desire

for social distance from people with schizophrenia (Faulkner et al., 2010); and are likely to demonstrate more stigma towards those with schizophrenia than those with PTSD or depression (Arbanas et al., 2008). While little work has examined adolescent attitudes towards bipolar disorder (Ellison et al., 2013; Kaushik et al., 2016), a similar desire among adolescents for social distance and negative attitude towards those with bipolar has been reported (DuPont-Reyes et al., 2020). While this was an intersectional study, looking to examine differences in stigma by gender, race, ethnicity and socioeconomic status towards peers with bipolar disorder and social anxiety, it does indicate that bipolar is a highly stigmatised among adolescents.

The identification of a negative effect of ability to recognise a mental health problem on intended help-seeking also suggests that MHL content delivered in schools should not only focus on problem identification, but should also showcase aspects of MHL evidenced to increase help-seeking intention, such as knowledge of effective treatments, or knowledge of successful recovery and management of mental health problems. It has been identified in a systematic review regarding the conceptualisation and operationalisation of MHL that a large proportion of studies conceptualise MHL by focussing on recognition of mental disorders (Mansfield et al., 2020). It was argued that this promotes a psychiatric and biogenetic conceptualisation of mental health problems and illnesses (Read, 2007), which can lead to erroneous beliefs about dangerousness and unpredictability of those with a mental health problem (Kvaale, et al., 2013). It is also argued in the literature that conceptualising MHL based on recognition of diagnostic labels, and words such as 'disorder' can lead to more negative attitudes towards those experiencing mental health problems (Kinderman et al., 2013; Schomerus, et al., 2012). This conceptualisation of MHL therefore has potential to propagate stigma, and by doing so, reduce help-seeking among adolescents.

It may be that greater knowledge of the specific mental health problems retained in the '*ability to recognise a mental health problem*' factor, relates to a greater knowledge of the biogenetic components of mental health problems, as well as the stigmatising nature of these conditions. Therefore, these items could act to disincentivise help-seeking, and ultimately reduces help-seeking among those who are most able to identify these as a mental health problem. This has

significant implications for the content of mental health literacy programmes and interventions, as it suggests that to improve help-seeking intention among adolescents, it is important to emphasise effective treatments and recovery from mental health problems, and not simply provide information about specific conditions, as this form of content knowledge shows a marked association with decreased help-seeking among adolescents in this study.

8.6.2   Attitude and subjective norms

In the proposed model the attitudinal component of the model was represented by personal stigma, while behaviour represented help-seeking. The knowledge component of the model was represented by mental health literacy. The model was also formulated based on evidence that subjective norms may be particularly significant in relation to adolescent behaviour (Tomé et al., 2012; Padilla-Walker & Bean, 2009). Therefore, the model of MHL, stigma and help-seeking in adolescence was designed to incorporate subjective norms in the form of perceived stigma from both parents and friends. This was designed to capture whether subjective norms were indeed influential on adolescents intention to seek help, and whether subjective norms from specific significant others were more powerful predictors of help-seeking intention.

Personal stigma (attitude) had no significant effects on intended help-seeking, indicting in this case, that knowledge was sufficient to influence help-seeking intention, albeit in both positive and negative directions depending on the type of knowledge. When examining moderating effects of perceived stigma from parents and friends, it was found that there were fewer significant effects of knowledge on behaviour in the low stigma groups. This is likely because the effect of MHL on help-seeking is more significant in groups where stigma is already high. In other words, those with low perceived stigma have less barriers to help-seeking, and therefore are more likely to seek help, particularly from informal sources where there are no negative beliefs towards helps-seeking for mental health problems, and therefore, increased knowledge is likely to have less effect on help-seeking.

These findings add to understanding of the complexity of relationships between MHL, stigma and help-seeking, and has both theoretical and practical implications. Findings of the current study demonstrate that knowledge is a powerful predictor of help-seeking behaviour among

adolescents, and that personal stigma has little influence either directly or indirectly on help-seeking intention. This is despite theoretically grounded hypotheses that personal stigma would mediate the known gap between knowledge and behaviour. Specifically findings add nuance to the known associations between MHL, stigma and help-seeking by suggesting that while personal stigma does not mediate these relationships, perceived stigma is influential in determining adolescent help-seeking behaviour, and that this should be a priority area in anti-stigma interventions for young people. Furthermore, findings suggest that MHL is effective in reducing stigma, though has differential effects on help-seeking, and is especially associated with increased help-seeking when perceived stigma is already high. This has further practical implications as it suggests that interventions are most effective in increasing help-seeking when perceived stigma is high. Therefore, MHL programmes could be targeted specifically at those who are likely to perceive more stigma towards mental health problems.

The results of SEM analysis suggest that subjective norms are more influential on intended behaviour (help-seeking) than attitude among adolescents, as personal stigma did not demonstrate a mediating effect in the primary SEM analyses. However, personal stigma did have a direct and indirect effects on help-seeking when perceived stigma from parents was low, indicating that attitude is associated with help-seeking behaviour when subjective norms are perceived to be favourable toward this. Additionally, while personal stigma was shown to have little mediating effect, perceived stigmas were demonstrated to moderate effects present in the model. This is reflective of literature elsewhere which demonstrates that subjective norms are the strongest predictor of adolescent behaviour (Bashirian, et al., 2012; Heirman et al., 2016; Riebl et al., 2016) and serves to further reinforce the notion that adolescent frameworks pertaining to help-seeking behaviour should place emphasis on subjective norms.

8.6.3   Lack of effect of attitude in the model
As noted above (section 8.4.3), personal stigma had a limited mediating effect on help-seeking and was only shown to have an effect when perceived stigma from parents was low. As personal stigma showed no mediating effect, this suggests that personal stigma does not fill the well-evidenced 'gap' between knowledge and behaviour as proposed. This is despite the framework

being grounded in theory and evidence which states that knowledge is a relatively poor predictor of behavioural intention, and that attitude is in fact a more powerful predictor of behaviour (e.g. Baranowski et al., 2003; Bohon et al., 2016; Happel et al., 2014). This may be due to factors, other than stigma confounding associations between MHL, stigma, and help-seeking.

For example, it is known that there are other factors involved in reduction of help-seeking among adolescents. These include low perceived need for help (Vogel et al., 2006); a desire to handle mental health problems on one's own (Andrade et al., 2014); or a perception that any help offered would not be effective (O'Connor et al., 2014). These largely relate to issues of self-efficacy and low MHL. These reflect key barriers to help-seeking identified in the systematic review by Gulliver et al. (2010), who identified "stigma and embarrassment, problems recognising symptoms (poor mental health literacy), and a preference for self-reliance as the most important barriers to help-seeking"(p.1). In future research the model could be adapted to contain measures of self-efficacy, by incorporating an additional component from the Theory of Planned Behaviour (TPB: Ajzen, 1991; Ajzen, 1988), namely Perceived Behavioural Control (PBC). This component of the TPB is related perceived efficacy of performing a specific behaviour.

Future research should incorporate measures of these factors to examine the extent to which they impact on help-seeking or perceived ease or efficacy of help-seeking. A systematic review of MHL measures which evaluated attitudes and help-seeking (Wei et al., 2015) noted that while behaviour may be influenced by 'self-expressed behavioural control', only one study included in their review used a measure of self-efficacy (Costin et al., 2009). This demonstrates a shortfall in the research, and in future, research could be strengthened by inclusion of such measures, as this may allow for a more detailed overview of factors influencing help-seeking intention in adolescence.

A further possible reason for lack of mediating effect of personal stigma between MHL and help-seeking intention is that an explicit measure of attitude was used. Participants in the study may have understated their personal stigma beliefs due to social desirability, and subsequently reported levels of personal stigma may be an underestimate of actual, or implicit levels of perceived stigma. Therefore, if personal stigma was reported at a lower rate than is reflective of participants'

personal stigma, this could explain lack of predicted effect in the model. This suggests that future research should consider implicit stigma as a mediator of MHL and help-seeking, as this may show a differing result which ties in with theoretically grounded hypothesis that personal stigma acts as a mediator of this relationship.

Despite many interventions which aim to reduce stigma or improve help-seeking among adolescents reporting success in attitudinal change, a systematic review of these (Wei et al., 2013) revealed that often changes in attitude were short lived. There is research which suggests that implicit attitudes towards common mental health problems are more negative (O'Driscoll et al., 2012) and more resistant to change following interventions designed to improve MHL (Saporito et al., 2011). O'Driscoll et al., (2012), noted that explicit and implicit attitudes towards adolescents with ADHD and depression varied. Results indicated more negative explicit attitudes towards a peer with ADHD, while implicit attitudes demonstrated the opposite, that among some participants there were more negative attitudes towards the peer with depression. Specifically, male adolescents had more negative implicit attitudes towards peers with depression. This demonstrates that implicit stigma towards specific diagnoses may vary from explicitly reported stigma among a subset of participants. Work by Saporito et al. (2011) found that brief educational intervention changed explicit attitudes of adolescents, but not implicit attitudes, suggesting that knowledge provision may alter explicit attitudes, but not adolescent's implicit attitudes. This provides an indication that knowledge acts differently on implicit and explicit attitudes. While there are benefits of measuring implicit personal stigma, the relative lack of studies investigating implicit stigma in adolescents (Heary et al., 2017) may be due to issues of how to best capture levels of implicit attitude.

Typically, this is done through use of a computer based Implicit Association Test (IAT: Greenwald et al., 1998). While this in and of itself represents a barrier in being more resource intensive than paper and pen style surveys, a further barrier is the lack of IAT to assess attitudes towards those with a mental health problem. Developing a means of assessing implicit mental health stigma represent a challenge, as there is no clear-cut way to provide a visual stimulus to represent a specific mental health problem. Most studies utilising the IAT do so to assess implicit

biases towards gender or race (Fitzgerald et al., 2019) which can be assessed by physical attributes depicted in the stimuli used Additionally, using verbal or written stimuli in the form of specific diagnoses may be problematic as it depends on a degree of pre-existing mental health literacy.

Therefore, while an implicit measure of personal stigma could have been of benefit to the current study, this represented a substantial methodological problem. While it would be beneficial for future research to assess implicit stigma, these methodological issues will need to be resolved, and new implicit measures validated for an adolescent population. While Saporito et al. (2011), made use of a pencil and paper IAT this was a novel instrument which required further validation. Saporito et al. (2011) comment that this lack of validation may have contributed to findings of differences between explicit and implicit attitudes in their study. Therefore, there is a clear need to develop and validate a measure of implicit stigma among adolescents. It may be that implicit personal stigma scores show a mediating effect on the relationship between MHL and help-seeking intention amongst adolescents, however, as noted, further research is needed in order to support the proposed framework of MHL, stigma and help-seeking in adolescence.

8.7   Implications and recommendations arising from the research

In order to place the findings in a broader, and practical context, findings from the research are discussed below in relation to how they may applied in the development of interventions targeting increased help-seeking among adolescents, and in relation to inequalities in adolescent mental health. This will be followed by a discussion of limitations of the current study and suggestions for future research.

8.7.1   Mental health literacy

The results identify that discrete forms of MHL, act differently on help-seeking in adolescence. Specifically, that knowledge of treatment efficacy was associated with increased intention to seek both formal and informal help. Conversely, it was found that ability to identify a mental health problem showed reduced intention to seek help. As previously discussed, this means that adolescents with greater ability to recognise specific diagnoses as being a mental health problem were less likely to seek formal help. Based on the available literature, there was no previous work identified which indicated a negative effect of knowledge on help-seeking intention among

adolescents, this therefore represents a new addition to the know effects of MHL on help-seeking intention.

MHL in adolescence has been conceptualised as being comprised of different components. These include 1) an understanding of risk factors for mental health problems; 2) understanding mental health problems and their treatments; 3) decreasing mental health stigma; 4) building resilience and improving help-seeking efficacy (Riebschleger et al., 2017). As argued earlier in this thesis, these components may capture different forms of knowledge (declarative, procedural, conditional). Knowledge of what is and is not a mental health problem relates to declarative knowledge, and this was seen to reduce help-seeking intention. Therefore, it may be that procedural or conditional knowledge (i.e. knowing when and why or under which circumstances to use declarative or procedural knowledge) be promoted in MHL based interventions. Knowledge of effective treatments and how and where to seek help relate to procedural and conditional knowledge, and based on results in this thesis, these forms of knowledge may be most likely to promote effective help-seeking. In future, there is a need for a clearer reconceptualisation of MHL that draws on these types of knowledge.

The different proposed components of MHL listed above are designed to provide a basis for developmentally appropriate interventions which focus on improving mental health outcomes for adolescents, by including knowledge of antecedents of mental health problems as well as information on how to access suitable support (Ratnayake & Hyde, 2019; Kutcher, et al., 2015; Kutcher et al., 2016). This conceptualisation also responds to criticism that MHL definitions and interventions have focussed on recognition of mental health problems and treatments, leading to an overpromotion of psychiatric and biogenetic conceptualisations of mental health problems and illness (Mansfield et al., 2020; Read, 2007). While the current study, following factor analyses, considered two aspects of MHL, knowledge of treatments, and knowledge of specific mental health problems. The current research suggests that MHL interventions should shift from this narrow focus, and focus on promoting effective treatments.

In real terms, this indicates that any mental health literacy interventions, or mental health promotion in schools should focus more on effective treatments for mental health problems, or

be recovery orientated, rather than taking an educational approach that focusses purely on mental health problems and their recognition in isolation. This feeds into a broader narrative about how mental health is framed and suggests that a shift away from deficit focussed 'problematising' of mental health, towards a mental health promotion model would be particularly effective. This is an approach which has been introduced internationally, with mental health promotion being successfully embedded in the national school curriculum of some countries such as Finland, (Coburn, 2019; Väilmaa et al., 2007), and is of key mental health policy concern in Canada, (Kutcher & Mcluckie, 2010; Mcluckie et al., 2014), Australia (Rowling, 2015), and elsewhere around the globe (Wei & Kutcher, 2012).

Evidence suggests that the most effective mental health promotion in schools includes a focus on positive mental health, that starts early in the schooling process with the youngest children, and is maintained throughout schooling to older adolescence (Weare & Nind, 2011). A focus on positive mental health represents a shift away from a model of MHL promotion which is based on recognition of mental health problems and disorders and take a more holistic approach to mental health education and literacy. By embedding mental health discussions and promotion in the school curriculum from an early age, there is the potential to not only improve MHL, but to decrease stigma.

A key component of stigma (Goffman, 1963) is "othering", whereby the stigmatised group is seen as a variant of the norm, as "other". If young people are actively involved in and educational programme that normalises mental health both positive and problematic, this minimises "othering" of those experiencing mental health problems and reduces stigma. Based on the results in this study which showed direct effects of knowledge of effective treatments on help-seeking, and an effect of perceived stigma on help-seeking, approaches that open up conversations around the spectrum of mental health would very likely also increase help-seeking intention among adolescents.

There is policy recommendations both at an international level, within the UK and in Scotland which are supportive of increased MHL and positive mental health promotion in schools (Departments of Health and Education, 2017; Kieling et al., 2011; Mental Health Foundation,

2018; SAMH, 2017). These propose that mental health promotion be incorporated into the curriculum, and take a whole school approach, meaning that every member of staff (teachers and all support staff), as well as pupils should be involved in mental health discussions and promotion. The findings of the current research support these recommendations and additionally that parents should be incorporated into the whole school approach, as perceived stigma, both from parents and friends shows a moderating effect on the associations between MHL and help-seeking.

Results also suggest that peer-based interventions may be particularly valuable. As perceived stigma from friends was shown to be a key moderator of associations between MHL, personal stigma and help-seeking, it may be that interventions which are peer-led offer an ideal opportunity to reduce not just personal stigma, but the perceived stigma of friends. Given the importance of peer influence (Brown & Larson, 2009) it is sensible that interventions should consider targeting peer groups as a whole, and that adolescents play a key participatory and leadership role in whole school approaches.

Participatory approaches such as these have been shown to both address the key role peers play in adolescence, as well as addressing adolescents' drive for autonomy (Bohleber, et al., 2016). Peer-based interventions can build upon existing knowledge of adolescents, and has been shown to be a successful approach in relation to health promotion such as HIV prevention (Medley et al., 2009) and substance misuse (Georgie et al., 2016). While there is less evidence on classroom based, peer interventions relating to adolescent mental health (Hart et al., 2018, being an exception), this approach is likely to be conceptually relevant and engaging for adolescents (Coleman et al., 2017). The development and efficacy of peer mental health literacy interventions in schools represents a promising opportunity to increase MHL, reduce personal and perceived stigma and increase help-seeking among adolescents.

There is also an opportunity for peer-based support to be delivered online. While a recent systematic review found that peer to peer online support groups had mixed degrees of success (Ali et al., 2018), competing research has identified that social media platforms can provide a sense of connectedness and reduce stigma; Naslund et al., 2016). However, this research was conducted with adults experiencing serious mental illness, and more research is needed into how

adolescents utilise online platforms in order to seek help. While some initial research (e.g. Ho et al., 2016) has evaluated purpose-built peer support platforms, less is known about how adolescents use the internet more broadly as a source of help. This will be discussed further in section 8.8 in relation to online help-seeking.

In the current study, stigma was highest among younger adolescents, and highlights the need to commence programmes aiming to increase literacy early, particularly as this study and others have noted that MHL is strongly associated with reduced stigma in adolescence (Gulliver et al., 2010; Kelly et al., 2007; Xu et al., 2018). In the current study, it was found that there were no significant differences in knowledge of treatment efficacy based on age of participants, while ability to identify a mental health problem was significantly higher in older adolescents. Given that this is associated with decreased help-seeking it may be that interventions targeting older adolescents counter for this by placing greater emphasis on knowledge of effective treatments, and other components of MHL which may be more favourable to increased help-seeking. As specific forms of MHL (i.e. ability to identify a mental health problem) showed significant increases among older age groups, it may be that different constituent parts of MHL are differently impacted by increasing age, and more research is needed to determine levels of various forms of MHL among adolescents, as this may impact on help-seeking intentions. It is argued that for MHL interventions to be particularly effective they need to be developmentally appropriate (Kutcher, Wei & Coniglio, 2016), and therefore should be delivered differently for younger and older adolescents, so as to remain engaging and relevant. Delivery of these interventions should also use strategies that are known to improve educational outcomes and be in line with pedagogical approaches already used in schools in order to maximise efficacy.

8.7.1.1   Mental health literacy and mental health inequalities

There is recognition in the literature which shows that improving the mental health literacy of the adolescent population can increase help-seeking and promote improved mental health at the population level (Kelly et al., 2007; Wright et al., 2007). Increased MHL can increase self-efficacy and help to develop self-management tools in relation to mental health (Kutcher, Wei & Coniglio, 2016), as well as improving ability to manage long term mental health conditions. If

MHL is taught from an early age, this has the potential to equip young people with the knowledge and ability to better recognise and manage mental health problems in future. This, on a societal level has the potential to reduce the burden on mental health and social care services and reduce health inequalities (Public Health England, 2015). As the evidence shows, those in the most deprived areas are known to demonstrate higher prevalence of mental health problems (e.g. Reiss, 2013; Reiss et al., 2019). Therefore, it is particularly important to implement effective MHL interventions among those who are from low-income families, or who attend schools in known areas of deprivation. Again, the indications are that care should be taken to ensure the specific forms of knowledge being delivered in any novel MHL interventions should be evidenced to increase help-seeking intention.

MHL can also tackle disparities in rates of adolescent help-seeking by targeting strategies at those least likely to seek help, or those known to have the lowest levels of MHL. Indeed, targeted strategies have been evidenced to show grater and longer lasting effects on mental health outcomes (Sanchez et al., 2018, Werner-Seidler et al., 2017). While research has indicated that adolescents have comparatively low MHL (and therefore represent a key target group), it may be that particular groups of adolescents have lower MHL than other peers.

Initial results in this study noted lower levels of MHL among male participants. Gender is an acknowledged determinant of health (Phillips, 2005), and therefore gender differences in mental health literacy and help-seeking should be addressed. There is evidence that male adolescents have lower MHL (Burns & Rapee, 2006; Cotton et al., 2006) and are less likely to seek help for mental health problems (Chandra & Minkovitz, 2006; Haavik et al., 2017). This is potentially due to adolescence being a time where adolescent boys develop and assert independence and promote key traits of masculinity. These traits are at odds with help-seeking which relies on recognition of a problem, as well as a need for interdependence. For example, research has highlighted that adolescents endorse masculinity norms relating to autonomy, toughness and 'emotional stoicism' (i.e. not showing weakness, and dealing with problems on one's own) (Addis & Mahlik, 2003; Amin et al., 2018; Kågesten et al., 2016).

Female adolescents model traits which are more receptive to help-seeking, as girls are generally more open to talking about emotions, offering emotional support to others, and are more likely to seek help (Ratnayake & Hyde, 2019; Rickwood et al., 2005). While there has been an increase in the prevalence of mental health problems among both male and female adolescents (Black & Martin, 2015; NHS Digital, 2018), because girls are more likely to have higher MHL (Cotton et al., 2006; Ratnayake & Hyde, 2019) and show greater propensity to seek help than male peers (Chandra, & Minkovitz, 2006; Do et al., 2019; Haavik et al., 2017), interventions targeting female adolescents should aim to encourage maintenance of these behaviours. As female adolescents are more likely to develop internalising disorders, it may be that if a gendered approach is taken, girls are provided information on strategies shown to enhance resilience and protective factors such as mindfulness based interventions (Dias & Cadime 2017; Sapthiang et al., 2019; Windle, 2011; Zenner et al., 2014) or those that are intended to act as preventative interventions (Garber et al., 2009; Merry et al., 2004; Stice et al., 2009; Rice et al. 2015).

High masculinity during adolescence is associated with reduced social mobility into adulthood (Domingue et al., 2019) with poor health outcomes (Shakya, et al., 2019), reduced mental health literacy and poorer mental health outcomes (Milner et al., 2019). To combat this, mental health literacy interventions should address the gendered nature of help-seeking in relation to mental health, and that these should consider challenging typically masculine traits (Milner et al., 2019; Shakya et al., 2019). Lower MHL, and help-seeking among male adolescents requires appropriately tailored policy and service responses which meet the need of male adolescents (Rice et al., 2018). While broadly addressing low MHL in adolescence can act as a form of early intervention to population mental health (Kelly et al., 2007), it is particularly important to tackle the antecedents of reduced help-seeking among young men. This may involve challenging accepted traits and behaviours associated with masculinity, and as per findings in this study, focus on increasing knowledge of effective treatments, as well as how to access formal help.

It is important to take an intersectional approach and target male adolescents, and those who are from low income background where mental health problems are disproportionately higher among adolescents (Reiss, 2013; Reiss et al., 2019). In relation to socioeconomic inequalities in mental

health literacy, bivariate analyses in the current study did identify a significant difference in ability to recognise a mental health problem depending level of school neighbourhood deprivation. The results of which suggested that those attending school in the most affluent areas had greater ability in identifying mental health problems than those attending schools in more deprived areas. Knowledge of treatment efficacy was also found to be significantly different depending on subjective levels of SES, with those indicting that they were in the high SES category showing significantly higher knowledge than those in the low to medium category. As noted previously, there is evidence that being from a low SES background is associated with lower MHL (Holman, 2015; von dem Knesebeck et al., 2013). This indicates a clear inequality of mental health literacy and indicates that interventions aiming to improve MHL should be considerate of socioeconomic differences in knowledge pertaining to mental health.

It is also important to take an intersectional approach by promoting MHL and targeting interventions among those who are from minority ethnic backgrounds, who have also identified as being among the least likely to seek help (Franklin, 2014; Lindsey et al., 2010; Kranke et al., 2012), and who were reported in this study to have significantly higher levels of both personal and perceived stigma.

As mental health problems are more prevalent among those living in deprived areas (Yoshikawa et al., 2012; Reiss, 2013; Reiss et al., 2019; Treanor, 2012), this makes indications of lower MHL among adolescence particularly concerning. Initial analyses in this thesis revealed that informal help-seeking was significantly lower among those attending school in the most deprived areas. And adds further support to assertions in the literature that mental health literacy interventions which aim to increase knowledge and either reduce stigma or increase help-seeking behaviour need to address the socioeconomic differences in MHL. In light of current findings, it may be that informal help-seeking in particular should be promoted among adolescent from low SES-backgrounds, or who perceive themselves to be low SES. While work in the adult population has identified that informal help-seeking is low among those from low SES-backgrounds (Brown et al., 2014), no work could be identified which explored interactions between SES and both formal and informal help-seeking in adolescence. This represents a significant shortfall in the literature,

particularly given that the current research notes a consistent and significant association between informal help-seeking intentions and intention to seek formal help.

8.7.2 Stigma in adolescence: findings and implications

This thesis further highlights some key findings in relation to the roles of personal and perceived stigma, which have broader implications for interventions and service provision. Key findings in relation to stigma suggest that personal and perceived stigma is higher among boys, among younger participants, and among those form minority ethnic backgrounds. In relation to mediating effects of personal stigma on the relationship between MHL and help-seeking, these were minimal, though both perceived stigma from friends and perceived stigma from parents was shown to moderate associations in the model. As noted above, MHL was consistently associated with reduced personal stigma, though stigma had no direct or indirect effects on help-seeking intention.

Results of the current study indicate that it is important for parents to be provided with interventions which aim to increase MHL and decrease stigma. It is important that parents are actively and consistently incorporated into a whole school approach, particularly in relation to components which aim to increase literacy and reduce stigma. While this comes with inherent difficulties in engaging parents (Shucksmith et al., 2010; Wyn et al., 2000), and should be mindful of teacher burden (e.g. Ekorness, 2016), it is likely to be beneficial to adolescent help-seeking if interventions are provided to both parents and adolescents in tandem, allowing adolescents to have explicit conversations around parents' mental health knowledge and attitudes.

Closer involvement of parents and families is something which both the UK government (Department of Health & Department for Education, 2017) and adolescents themselves have outlined as being important for improving support. While there are recommendations that parent engagement be integral to mental health promotion in schools (Department for Education, 2018), it is important to be cognisant of additional barriers faced by parents living in more disadvantaged communities face in accessing services (e.g. Henderson et al., 2016; Mental Health Foundation, 2019) when delivering interventions.

Findings in this thesis also suggest that when perceived stigma from parents is high, MHL has a significant effect on formal help-seeking intention only. This may be due to a high perceived stigma from parents diminishing informal help-seeking intention, and conversely low perceived stigma from parents resulting in increased informal help-seeking. Meaning that, even if MHL, specifically knowledge of treatment efficacy is high, high perceived stigma is likely to inhibit informal help-seeking. Again, this is particularly problematic knowing that informal help-seeking acts as a 'gateway' to formal services (Langeveld et al., 2010; Reardon et al., 2017) and that informal help-seeking was consistently highly associated with formal help-seeking intention in this study.

There has been a recognition that there is a need to involve parents in order to improve outcomes for adolescents. For example, it has been noted that adolescents whose parents have low levels of education are less likely to contact formal services despite not demonstrating lower MHL (Benjet et al., 2016; Haavik et al., 2017). This suggests that parental attitudes or stigma may be a key driver of diminished contact with formal services. Haavik et al. (2017) conclude that, "working with parents' attitudes and providing them with sufficient information to support their adolescents and encourage help-seeking seems necessary" (p. 473). The paper concluded with a statement that the influence of parents on help-seeking warrants further investigation.

The demonstration that perceived stigma is likely inhibiting the effects of knowledge of treatment efficacy on help-seeking intention suggests that tackling perceived stigma from both parents and friends should be achieved prior to, or alongside provision of MHL content which is shown to increase help-seeking intention. In relation to broader implications, this suggests that it should be highlighted to adolescents that rates of personal stigma are lower than perceived. So, in matter of fact, their peers are likely to hold less stigmatising beliefs than they anticipate. This is in line with previous research which found that perceived stigma from 'others' acts as a predictor of help-seeking intention among adolescents (Eisenberg et al., 2009; Nearchou et al., 2018; Yap et al., 2011, 2013). This has clear implications in relation to development of interventions aiming to increase help-seeking.

While results indicate the importance of involving parents in anti-stigma interventions. Results of the study also have implications for accessibility of formal services, as these would need to be easily accessible in a way that reduces risk of stigma from friends and parents. This may involve delivering mental health services that requires only minimal involvement of parents, and in a low stigma environment (e.g. a service which treats both physical and mental health together). This has been operationalised, for example, in the United States (Mount Sinai Adolescent Health Centre, 2016), and aspects of an adolescent-centred approach to mental health could be modelled to reduce perceived stigma, in particular, from parents.

A qualitative study conducted by Hassett et al. (2018), suggested that more consideration should be given to making services accessible to adolescents, and that strategies should be developed to allow adolescents control over parental involvement. This was also reflected by research commissioned by the Mental Health Foundation (2019), whose youth advisory panel recommended that young people's views on what makes services accessible and acceptable should be given high importance in development of services. In fact, most school based mental health interventions are adopted and modelled on interventions in clinical settings (Rapee, 2000). As stigma is one of the largest perceived barriers to help-seeking (Gulliver et al., 2010) it may be that a priority for adolescents would be to access services in a minimally stigmatising way.

Furthermore, research indicates that adolescents are concerned by issues of trust and confidentiality when it comes to disclosing mental health problems (Gronholm et al., 2016; Gulliver et al., 2010; Rickwood et al., 2005). The fear that parents or others may be given information about formal help-seeking or care may prevent adolescents from seeking formal help. Therefore, it is likely that some adolescents will not use formal services, even if these are accessible. Consequently, it is important to promote information around anonymity of services, and ability to self-refer when available.

8.7.2.1 Stigma as a determinant of mental health

There is a small, but growing recognition in the literature that stigma may act as a determinant of health and mental health in its own right (Hatzenbuehler et al.,2013; Link & Hatzenbuehler, 2016) which should be acknowledged. Stigma research, particularly in adolescence is important in

reducing inequalities as it represents an opportunity to reduce the inequalities in mental health going forward into adulthood by reducing stigma and encouraging successful help-seeking. It has been argued that stigma plays an under-recognised role as a determinant of health and mental health (Link & Hatzenbuehler, 2016). This is in light of the fact that stigma may hinder not just help-seeking, but may also go on to affect employment opportunities, ability to socialise and other life course opportunities (e.g. Pescosolido et al., 2008; Rüsch et al., 2005; Thornicroft et al., 2007). It is known that experiencing stigma and discrimination can have a highly detrimental impact on those with mental health problems, creating further and significant barriers to accessing a good quality of life and achieving wellbeing (Thornicroft et al., 2007).

It is likely that the impact of stigma as a source of health inequality may have been underrepresented in the research. This is due to stigma research focussing on one stigmatised identity at a time (e.g. mental health, HIV, physical disability), and one, or few outcomes (e.g. help-seeking, well-being etc). This means that while an effect of stigma is often found on these specific outcomes, it may be seen as just one of many factors influencing those outcomes, rather than as a broader and pervasive factor. Therefore, the role of stigma is overlooked and can be left unchallenged, which can lead to greater inequality. Stigma research broadly does not account for the intersectional nature of stigma (e.g. those who are stigmatised for mental health problems and being in another stigmatised group). This narrow approach may limit findings on how stigma impacts at a societal level and contributes to inequalities in social and health related outcomes (Hatzenbuehler et al., 2013), and more research is needed into how adolescents who experience a mental health problem and are also, poor, or LGBTQI+, or have a physical disability etc., experience and manage these multiple stigmas, and what impacts these may have on help-seeking intention.

It was noted in the current study that perceived stigma from friends was higher in those attending schools in the most deprived neighbourhoods. In relation to subjective measures of SES, levels of personal stigma were lower among those who considered themselves to be low or medium SES. Given that MHL is typically lower among low SES parents (Benjet et al., 2016) and that this study found lower knowledge of treatment efficacy and lower informal help-seeking

intention, it could be expected that those rating themselves as being lower SES would also have higher stigma, though this was not the case.

This could be related to increased contact with people with mental health problems, which has been shown to be effective in reducing stigma of adolescents (e.g. Yamaguchi et al., 2011), particularly among those who have a family member with a mental health problem (Greenblatt et al., 2016). Contact theory (Allport, 1954) dictates that increased contact between different groups can reduce stigma, and given the increased prevalence of mental health problems among those from low-SES backgrounds (e.g. Fryers et al., 2003), it is possible this this may in part, account for reduced stigma among those who perceive themselves to be low-SES.

Foster et al., (2018), conducted research within an adult population and noted that subjective, though not objective SES was associated with lower MHL, and greater prejudice towards "nondescript mental illness". These results indicate that different measure of SES capture different aspects of knowledge and attitude, and reinforce assertions in the literature that more than one measure of SES should be used when examining the effect of SES on outcome measures (Currie et al., 1997; Lien, et al., 2001). This suggests that low subjective SES is associated with lower MHL, In the current study, participants who rated themselves as being low SES showed lower knowledge of treatment efficacy (which was positively associated with help-seeking), and those attending schools in the most deprived areas were significantly less likely to show informal help-seeking intention. This suggests that adolescents from more socioeconomically disadvantaged backgrounds are particularly at risk, and in need of targeted interventions in order to minimise inequalities in mental health.

In the current study, personal stigma was shown to be lower among those who gave lower ratings of subjective SES. Personal stigma also had no mediating effects between MHL and help-seeking, nor did subjective SES or SIMD moderate associations between variables in multigroup SEM analyses. This would suggest limited evidence that personal stigma acts as a social determinant of health, however it may be that other forms of stigma, such a structural stigma, impact on low SES adolescents and their parents' ability to access formal mental health services. However, structural stigma is vastly under researched in relation to mental health (Hatzenbuehler et al.,

2013; Hatzenbuehler, 2016; Link et al., 2004), and particularly so in relation to adolescent mental health. Therefore, less is known about the extent to which broader socio-political structures may discriminate against adolescents and discourage effective help-seeking. Only one paper could be identified which investigated experiences of structural stigma in adolescence (Elkington et al., 2012), and this represents a future research imperative if mental health inequalities are to be tackled at an early age, before contributing to poor mental health in adolescence and on into adulthood.

8.8   Limitations and directions for future research

While there are several significant findings from the research, it is necessary to be cognisant of the study's limitations. First, data was not on whether participants had previously sought help for a mental health problem, or whether they, or someone they know has had experience of a mental health problem, as these can influence levels of stigma and intentions to seek help (Raviv et al., 2009). Therefore, data is inclusive of a cross-section of experience, though it is not possible to evaluate whether those who have experience of formal help-seeking responded differently to service-naïve counterparts. This may be a beneficial avenue for future research.

Second, in relation to adolescent help-seeking there is a growing awareness that young people are turning to the internet and social media for solidarity and support (Pretorius, et al., 2015). This was not measured in the current study, and items in the General Help Seeking Questionnaire (GHSQ, Wilson et al., 2005), which refer to seeking help from "helplines" may be outmoded, and less relevant for adolescents in a contemporary context. In relation to formal and informal help-seeking online, there is some evidence that young people may prefer to use the internet for information-gathering rather than support per se, and prefer support to be face to face. It has been noted that adolescents feel that online content relating to mental health could be exaggerated and un-reassuring (Scottish Youth Parliament, 2016), or that social media platforms exacerbate symptoms of anxiety and depression (Becker et al., 2013; Lin et al., 2016; Royal Society for Public Health, 2017).

There is also potential for the internet and online sources to provide peer-support. As indicated by results in this study, perceived stigma from friends is a moderator of the MHL, stigma, help-

seeking relationship. As previously noted, research in an adult population has found that online, peer to peer support can be useful for those experiencing mental health problems, or mental illness (Naslund et al., 2016). It is likely that online sources of support may be of particular interest to adolescents due to increased anonymity, ease of access and reduced likelihood of stigma (Griffiths & Christensen, 2007; King et al., 2010). Currently, findings on the efficacy of online mental health platforms for young people are mixed (Ali et al., 2018; Kauer et al., 2014), and the need for more research into online mental health support for young people is needed. It would have been a timely addition to the current study to include the internet as a help-seeking resource. This could shed more light on the extent to which the internet and social media is used by adolescents as a source of help for mental health problems.

Future research could also contribute by adding a qualitative component to assess whether young people find online help either informal (e.g. social media) or formal (e.g. legitimate health information from sources such as the NHS, or online counselling services such as Big White Wall) to be useful or desirable. This may be particularly pertinent in terms of the impact of stigma on help-seeking as seeking help online creates anonymity and may by-pass the stigmatising effects of seeking help in person.

Third, a key limitation of the current study is that the research measured intended help-seeking, not actual help-seeking. In other words, intentions were assessed, but not behaviour. While there is well known evidence in literature which states intentions are an accurate predictor of behaviour (Armitage & Conner, 2001; Sheppard et al., 1988; Sheeran et al., 2014), it was noted by Wilson et al., (2005) who designed the help-seeking measure used in the current study, that the General Help-Seeking Questionnaire (GHSQ) which is used to measure help-seeking intentions, did significantly predict help-seeking behaviour in future. It may be useful for future work to take a longitudinal approach and assess the extent to which help-seeking intention is associated with actual help-seeking behaviour, and the assess whether levels of stigma, and any mediating effects of stigma or informal help-seeking change over time. It is likely that with progressing age and exposure to different environments that attitudes towards mental health problems and help-seeking may change.

However, given the timeframe of the research, a longitudinal approach would not have been possible. A cross-sectional approach provides a "snapshot" of attitudes and beliefs at a specific time point, it and provides relevant insight into current attitudes and behaviour (Fink, 2003). As noted in the study methodology the cross-sectional design does carry an inherent limitation in terms of identifying causality, however, it is possible to use cross-sectional data to test hypotheses, as was done in the current study. It is known that statistical methods such as path analysis and SEM can be used to identify and test hypothesis about mediators (Baron & Kenny, 1986; Visser et al., 2000) and support notions about the relationship between variables. Therefore, it was possible here to answer research questions pertaining to current beliefs, and to determine whether stigma, as well as demographics such as SES, gender and age mediated the mental health literacy and help seeking relationship among an adolescent population.

Fourth, in relation to future research, a criticism of the stigma literature, and of attitudinal research in general is that it rarely measures implicit attitudes, and most frequently assess explicit attitudes which are more prone to bias (Silke et al., 2017). While explicit measures are commonly used, in future research should aim to measure implicit attitudes, as this may be more sensitive in discerning stigmatising attitudes that participants may not openly endorse (Stull et al., 2013). Research which measures explicit attitudes only may underestimate the levels of stigma (Hinshaw & Stier, 2008; Hinshaw, 2005). As noted previously, this may also be a key reason as to why personal stigma showed little mediating effect on the relationships between MHL and help-seeking intention. It would therefore be worthwhile replicating the current study using implicit stigma measures to assess whether implicit personal stigma mediates the relationship between MHL and help-seeking intention.

Finally, there is limited research which investigates those experiencing intersectional stigma, or stigma based on more than one identity. Stigma research often looks at one stigma identity (i.e. mental health), and one form of stigma (e.g. self-stigma) on an outcome. This has the potential to undermine the complexity of stigma and its effects. While the stigma process itself may be similar, the degree of specific stigma experienced may depend on identity, for example, someone experiencing stigma related to poverty may experience a greater deal of structural stigma (Hansen

et al., 2014) and public stigma, though limited self-stigma (Mickelson & Williams, 2008). Whereas young people experiencing a mental health problem may experience more self-stigma (Corrigan & Roa, 2013), or perceived and personal stigma (Calear et al., 2011), but less structural stigma.

The experiences of those subject to multiple stigmas is under-researched (Hatzenbuehler et al., 2013), and structural stigma in relation to mental health, particularly in adolescents is vastly under researched (Link et al., 2004; Hatzenbuehler et al., 2013). Structural stigma in relation to mental health, has close ties with policy and service provision, and should be a priority in stigma research going forwards. As should the study of combined stigmas. For example, future work could build on the current study by investigating, for example, poverty stigma and mental health stigma, and investigate if either of these are more predictive of intended help-seeking. While no measure of poverty stigma exists currently (Inglis et al., 2019), development and validation of such a measure would contribute to the stigma literature, and help understand multiple stigmas and the additional effects of health inequalities. Currently, there is next to no research which aims to promote an understanding of the impact of poverty and how this may alter pre-existing stigma, or create additional prejudices towards those already experiencing stigma in relation to their mental health.

8.9   Overall conclusions

The research presented in this thesis is focused on mental health literacy, stigma and help-seeking intentions among adolescents. In particular, personal stigma (attitude) was proposed as a mediator between MHL (knowledge) and intended help-seeking (behaviour). Overall, this research makes several important contributions to the literature by addressing a number of theoretical and methodological shortcomings associated with the literature pertaining to adolescent mental health literacy, stigma and help-seeking. These include findings which demonstrate that specific components of mental health literacy may decrease help-seeking intention and therefore, should not be the key or sole focus of MHL interventions. These should instead focus on components which are associated with increased help-seeking, such as knowledge of effective treatments. Additionally, findings demonstrated that attitude does not mediate the relationship between knowledge and intended behaviour and that knowledge is more commonly associated with help-

seeking intention. It was additionally highlighted that adolescent models of behaviour should account for the role of subjective norms, as these are particularly influential on adolescent behaviour. It is also important to account for the effect of subjective norms from distinct groups of significant others, as these may have differing degrees of impact on adolescent behavioural intent.

While personal stigma showed no mediating effect, moderating effects of perceived stigma were observed and have implications for the development of effective interventions aiming to increase help-seeking by reducing stigma. Results suggested that when perceived stigma is high, increased MHL is important in encouraging help-seeking. Similarly, associations between personal stigma and formal help-seeking; ability to identify a mental health problem and formal help-seeking, and between informal and formal help-seeking were significantly different depending on whether participants perceived high or low levels of stigma from parents. Results indicate that when perceived stigma from parents is low, personal stigma is associated with increased intention to seek formal help, and while ability to identify a mental health problem was typically associated with decreased intention to seek help, it then showed a positive association with help-seeking. Highlighting the importance of low perceived stigma from parents in relation to adolescent help-seeking, as low perceived stigma from parents is particularly important in terms of increased help-seeking intention. It was also noted that perceived stigma from friends moderated relationships in the model, and perceived stigma from friends should be addressed in the development of school-based interventions to increase MHL, reduce stigma and improve help-seeking. It may be particularly useful in this case to develop participatory, peer-based interventions, as this can tackle both personal stigma, and perceived stigma from friends and peers. It may also be useful for parents are involved in mental health promotion, or in dialogue around mental health and well-being in school settings or more broadly.

The current research extends previous work in adolescent metal health literacy, stigma and help-seeking by delineating specific forms of MHL which may increase and decrease help-seeking intention among adolescents. Furthermore, the distinction between forms of perceived stigma, and the finding that perceived stigma from parents is particularly influential on adolescent help-

seeking represents and original contribution to the adolescent stigma and help-seeking literature. This additionally provides information that is particularly valuable to the development of successful interventions hoping to increase help-seeking among adolescents.

Whilst it is clear that MHL reduces stigma, it is only specific domains of MHL which may be directly associated with increased intentions to seek help, and more research is needed into which specific domains of MHL are most effective in improving adolescent help-seeking. Furthermore, more research is needed into the impact of perceived stigma from parents in adolescence, and how this may be reduced to increase help-seeking, and ultimately the well-being of adolescents going forward.

Finally, the current study has made incremental advances in the literature that can be in used to inform and respond to policy in relation to youth mental health. This, and future research can provide findings to inform policy which aims to actively reduce the lifelong burden on mental health problems at an individual, community and socio-political level. This can be achieved by continuing to advance the literature and making recommendations as to the most effective ways to increase beneficial dimensions of mental health literacy, reduce particularly harmful forms of stigma, and improve the rate of successful help-seeking among adolescents, among whom the emergence and prevalence of mental health problems is a substantial public health concern.

References

Aarø, L. E., Flisher, A. J., Kaaya, S., Onya, H., Namisi, F. S., & Wubs, A. (2009). Parental education as an indicator of socioeconomic status: Improving quality of data by requiring consistency across measurement occasions. *Scandinavian Journal of Public Health, 37*(2_suppl), 16–27. https://doi.org/10.1177/1403494808086917

Acri, M., C., Bornheimer, A., O'Brien K., Sezer, S., Little, V., Cleek, A. F., & McKay, M. (2016). A model of integrated health care in a poverty-impacted community in New York City: Importance of early detection and addressing potential barrier to implementation. *Social Work in Health Care, 55*(4), 314-327.

Addis, M.E., & Mahalik, J.R. (2003). Men, masculinity, and the contexts of help seeking. *American Psychologist, 58*, 5–14. https://doi.org/10.1037/0003-066X.58.1.5

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes. 50*(2), 179–211

Ajzen, I. (1988). *Attitudes, personality, and behaviour*. UK: Open University Press.

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, 84*(5), 888–918. https://doi.org/10.1037/0033-2909.84.5.888

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Prentice-Hall.

Ajzen, I., Joyce, N., Sheikh, S., & Cote, N. G. (2011). Knowledge and the prediction of behavior: The role of information accuracy in the theory of planned behavior. *Basic and Applied Social Psychology, 33*(2), 101–117. https://doi.org/10.1080/01973533.2011.568834

Alexander, P. A. (2003). The Development of Expertise: The Journey From Acclimation to Proficiency. *Educational Researcher*, *32*(8), 10–14. https://doi.org/10.3102/0013189X032008010

Ali, K., Farrer, L., Gulliver, A., & Griffiths, K. M. (2015). Online Peer-to-Peer Support for Young People With Mental Health Problems: A Systematic Review. *JMIR mental health, 2*(2), e19. https://doi.org/10.2196/mental.4418

Allen, H., Wright, B. J., Harding, K., & Broffman, L. (2014). The role of stigma in access to health care for the poor. *The Milbank Quarterly*, *92*(2), 289–318. https://doi.org/10.1111/1468-0009.12059

Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley

Allport, G.W. (1967). Attitudes. In M. Fishbein (Ed.) *Readings in attitude theory and measurement* (pp. 1-13).New York: John Wiley & Sons.

Aluh, D. O., Okonta, M. J., & Odili, V. U. (2019). Cross-sectional survey of mental health literacy among undergraduate students of the University of Nigeria. *BMJ open, 9*(9), e028913. https://doi.org/10.1136/bmjopen-2019-028913

Álvarez-Jiménez, M., Gleeson, J. F., Bendall, S., Lederman, R., Wadley, G., Killackey, E., & McGorry, P. D. (2012). Internet-based interventions for psychosis: a sneak-peek into the future. *The Psychiatric Clinics of North America, 35*(3), 735–747. https://doi.org/10.1016/j.psc.2012.06.011

Álvarez-Jiménez, M., Gleeson, J. F., Rice, S., Gonzalez-Blanch, C., & Bendall, S. (2016). Online peer-to-peer support in youth mental health: seizing the opportunity. *Epidemiology and Psychiatric Sciences, 25*(2), 123–126. https://doi.org/10.1017/S2045796015001092

Anderson, J. A., & Gerbing, D. W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. *Psychological Bulletin 103*(3), 411-423. https://doi.org/10.1037/0033-2909.103.3.411

Andersson, H. W., Bjørngaard, J. H., Kaspersen, S. L., Wang, C. E. A., Skre, I., & Dahl, T. (2010). The effects of individual factors and school environment on mental health and prejudiced attitudes among Norwegian adolescents. *Social Psychiatry and Psychiatric Epidemiology, 45*(5), 569-577. doi:10.1007/s00127-009-0099-0

Angold, A., Messer, S.C., Stangl, D., Farmer, E.M.Z., Costello, E.J., & Burns, B.J. (1998). Perceived parental burden and service use for child and adolescent psychiatric disorders. *American Journal of Public Health, 88*,75-80. https://doi.org/10.2105/ajph.88.1.75

American Psychological Association. (2002) *Developing Adolescents: A Reference for Professionals*. http://www.apa.org/pi/families/resources/develop.pdf

Amin, A., Kågesten, A., Adebayo, E., & Chandra-Mouli, V. (2018). Addressing Gender Socialization and Masculinity Norms Among Adolescent Boys: Policy and

Programmatic Implications. *The Journal of Adolescent Health: official publication of the Society for Adolescent Medicine, 62*(3S), S3–S5. https://doi.org/10.1016/j.jadohealth.2017.06.022

Andrade, L. H., Alonso, J., Mneimneh, Z., Wells, J. E., Al-Hamzawi, A., Borges, B., et al. (2014). Barriers to mental health treatment: results from WHO World Mental Health surveys. *Psychological Medicine, 44,* 1303-1317. https://doi.org/10.1017/S0033291713001943

Angermeyer, M. C., Schulze, B., & Dietrich, S. (2003). Courtesy stigma--a focus group study of relatives of schizophrenia patients. *Social Psychiatry and Psychiatric Epidemiology, 38*(10), 593–602. https://doi.org/10.1007/s00127-003-0680-x

Angermeyer, M. C., & Matschinger, H. (2003). Public beliefs about schizophrenia and depression: similarities and differences. Social psychiatry and psychiatric epidemiology, 38(9), 526–534. https://doi.org/10.1007/s00127-003-0676-6

Ansell, D.I., & Insley, S.E. (2013). *Youth peer-to-peer support: A review of the literature.* http://gucchdtacenter.georgetown.edu/resources/Webinar%20and%20Audio%20File s/YouthPeertoPeerLiteratureReviewFINAL.pdf

Arbanas, G. (2008). Adolescents' attitudes toward schizophrenia, depression, and PTSD. *Journal of Psychosocial Nursing and Mental Health Services, 46*(3), 45-51. doi:10.3928/02793695-20080301-01

Armitage, C. J., & Conner, M. (2001). Efficacy of the Theory of Planned Behaviour: a meta-analytic review. *Journal of Social Psychology 40*, 471–499. https://doi.org/10.1348/014466601164939

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469-480. https://doi.org/10.1037/0003-066X.55.5.469

Arnett, J. J. (2007). Emerging adulthood: What is it, and what is it good for? *Child Development Perspectives, 1*(2), 68–73. https://doi.org/10.1111/j.1750-8606.2007.00016.x

Athreya, K.B., Ghosh, M., Low, L. Y., Sen, P.K. (1984). Laws of large numbers for bootstrapped U-statistics. *Journal of Statistical Planning and Inference, 9* (2), 185-194. https://doi.org/10.1016/0378-3758(84)90019-3

Attygalle, U. R., Perera, H., & Jayamanne, B. (2017). Mental health literacy in adolescents: ability to recognise problems, helpful interventions and outcomes. *Child and adolescent psychiatry and mental health, 11*, 38. https://doi.org/10.1186/s13034-017-0176-1.

Audit Scotland. (2018). Children and young people's mental health Audit Scotland. http://www.auditscotland.gov.uk/uploads/docs/report/2018/nr_180913 _mental_health.pdf

Bale, J., Grové, C., & Costello, S. (2018). A narrative literature review of child focused mental health literacy attributes and scales. *Mental Health & Prevention, 12*, 26–35. https://doi.org/10.1016/j.mhp.2018.09.003

Bamberg, S., & Moser, G. (2007). "Twenty Years after Hines, Hungerford and Tomera: A New Meta-Analysis of Psycho-Social Determinants of Pro-Environmental Behavior. *Journal of Environmental Psychology 27*(1),14–25. https://doi.org/10.1016/j.jenvp.2006.12.002

Baranowski, T., Cullen, K. W., Nicklas, T., Thompson, D., & Baranowski, J. (2003). Are current health behavioural change models helpful in guiding prevention of weight gain efforts? *Obesity Research, 11*, 23-43. https://doi.org/10.1038/oby.2003.222

Barksdale, C. L., & Molock, S. D. (2009). Perceived norms and mental health help seeking among African American college students. *The Journal of Behavioral Health Services & Research, 36*(3), 285–299. https://doi.org/10.1007/s11414-008-9138-y

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182. https://doi.org/10.1037/0022-3514.51.6.1173

Barney, L. J., Griffiths, K. M., Jorm, A. F., & Christensen, H. (2006). Stigma about depression and its impact on help-seeking intentions. *Australian and New Zealand Journal of Psychiatry, 40*, 51- 54. https://doi.org/10.1080/j.1440-1614.2006.01741.x

Barraclough, C. (2014). Stigma perceptions of adolescents with emotional and/or behavioral difficulties. *Graduate Student Theses, Dissertations, & Professional Papers*. 4414. https://scholarworks.umt.edu/etd/4414

Barry, C. L., McGinty, E. E., Pescosolido, B. A., & Goldman, H., H. (2014). Stigma, discrimination, treatment effectiveness and policy: public views about drug

addiction and mental illness. *Psychiatric Services, 65*(10), 1269-1272. https://doi.org/10.1176/appi.ps.201400140

Bartlett, M.S. (1954). A note on the multiplying factors for various chi-squared approximations. *Journal for the Royal Statistical Society, 16*(Series B), 296-298. https://doi.org/10.1111/j.2517-6161.1954.tb00174

Bashirian, S., Hidarnia, A., Allahverdipour, H., & Hajizadeh, E. (2012). Application of the theory of planned behavior to predict drug abuse related behaviors among adolescents. *Journal of Research in Health Science. 12*(1), 54-60.

Bawaskar, H. (2006). The many stigmas of metnal illness, *The Lancet*, 367, 1396-7. https://doi.org/10.1016/S0140-6736(06)68187-7

Beatie, B. E., Stewart, D. W., & Walker, J. R. (2016). A moderator analysis of the relationship between mental health help-seeking attitudes and behaviours among young adults. *Canadian Journal of Counselling and Psychotherapy, 50*(3), 290-314.

Becker, M. W., Alzahabi, R., & Hopwood, C. J. (2013). Media multitasking is associated with symptoms of depression and social anxiety. *Cyberpsychology, Behavior And Social Networking, 16*(2), 132–135. https://doi.org/10.1089/cyber.2012.0291

Belfer, M. L. (2008). Child and adolescent mental disorder: the magnitude of the problem across the globe. *Journal of Child Psychology and Psychiatry, 49*(3), 226-236. https://doi.org/10.1111/j.1469-7610.2007.01855

Bem, S., & de Jong, H. L. (2006). *Theoretical issues in psychology: An introduction*. SAGE Publications Ltd.

Benjet, C., Borges, G., Méndez, E., Albor, Y., Casanova, L., Orozco, R., Curiel, T., Fleiz, C., & Medina-Mora, M. E. (2016). Eight-year incidence of psychiatric disorders and service use from adolescence to early adulthood: longitudinal follow-up of the Mexican Adolescent Mental Health Survey. *European Child and Adolescent Psychiatry, 25*, 163–173. https://doi.org/10.1007/s00787-015-0721-5

Best, P., Manktelow, R., & Taylor, B.J. (2016). Social work and social media: Online help-seeking and the mental well-being of adolescent males. *The British Journal of Social Work, 46*, 257–276. https://doi.org/10.1093/bjsw/bcu130

Biddle, B. J., Bank, B. J., Marlin, M. M. (1980). Parental and Peer Influence on Adolescents. *Social Forces, 58*(4), 1057–1079. https://doi.org/10.1093/sf/58.4.1057

Bjørnsen, H. N., Ringdal, R., Espnes, G. A., Moksnes, U. K. (2017). Positive mental health literacy: Development and validation of a measure among Norwegian adolescents. *BMC Public Health, 17,* 71. https://doi.org/10.1186/s12889-017-4733-6

Black, C., & Martin, C. (2015). Mental health and wellbeing among adolescents in Scotland: profile and trends. The Scottish Government. https://www.gov.scot/publications/mental-health-wellbeing-adolescents-scotland-profile-trends/

Blakemore, S. (2018). Avoiding social risk in adolescence. *Current Directions in Psychological Sciences. 27*(2), 116-122. https://doi.org/10.1177%2F0963721417738144

Blakemore, S. & Mills, K. L. (2014). Is adolescence a sensitive period for socio-cultural processing? *Annual Review of Psychology, 65*, 187-207. https://doi.org/10.1146/annurev-psych-010213-115202

Blalock, H. M. (1969). Theory construction: from verbal to mathematical formulations. Englewood Cliffs, N.J.: Prentice-Hall.

Bloom, B.S., Englehart, M.D., Frost, E.J., Hill, W.H., & Krathwol, D.R. (1956). *Taxonomy of educational objectives. Handbook I: Cognitive domain*. David McKay

Bloom, D.E., Cafiero, E.T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L.R., Fathima, S., Feigl, A.B., Gaziano, T., Mowafi, M., Pandya, A., Prettner, K., Rosenberg, L., Seligman, B., Stein, A.Z., & Weinstein, C. (2011). *The Global Economic Burden of Noncommunicable Diseases*. Geneva: World Economic Forum. http://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf

Bohleber, L., Crameri, A., Eich-Stierli, B., Telesko, R., & von Wyl, A. (2016). Can We Foster a Culture of Peer Support and Promote Mental Health in Adolescence Using a Web-Based App? A Control Group Study. *JMIR mental health, 3*(3), e45. https://doi.org/10.2196/mental.5597

Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., Jr, & Fernandez Y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health, 64*(8), 593–603. https://doi.org/10.1080/07448481.2016.1207646

Boldero, J., & Fallon, B. (1995). Adolescent help-seeking: What do they get help for and from whom? Journal of Adolescence, 18(2), 193–209. https://doi.org/10.1006/jado.1995.1013

Bollen, K., A. (1987). 'Outliers and Improper Solutions: A Confirmatory Factor Analysis Example. *Sociological Methods & Research, 15,* 375-84.

Bollen, K.A. & Stine, R.A. (1988, August). *Bootstrapping structural equation models: Variability of indirect effects and goodness-of-fit measures*. Paper presented at the American Sociological Association Annual Meeting, Atlanta, GA.

Bollen, K. A. (1989). *Wiley series in probability and mathematical statistics. Applied probability and statistics section. Structural equations with latent variables*. John Wiley & Sons. https://doi.org/10.1002/9781118619179

Bollen, K. A., & Stine, R., (1990). Direct and indirect effects: Classical and bootstrap estimates of variability. *Sociological Methodology, 20*, 115-40. https://doi.org/10.2307/271084

Bollen, K. A., & Paxton, P. (1998). Detection and determinants of bias in subjective measures. *American Sociological Review, 63,* 465-478. https://doi.org/10.2307/2657559

Bonabi, H., Müller, M., Ajdacic-Gross, V., Eisele, J., Rodgers, S., Seifritz, E., Rössler, W., & Rüsch, N. (2016). Mental health literacy, attitudes to help seeking, and perceived need as predictors of mental health service use: a longitudinal study. *The journal of nervous and mental disease, 204*(4), 321–324. https://doi.org/10.1097/NMD.0000000000000488

Booysen, C., Pavarini, G., Gatera, G., Jimenez, I., Muhia, J., Omar, D., Qureshi, O., Ryan, G., Eaton, J., & Singh, I. (2019). *Young people will transform global mental health: A call to prioritise global action on mental health for young people*. Young Leaders for the Lancet Commission on Global Mental Health. https://globalmentalhealthcommission.org/policy-briefs/.

Boomsma, A., & Hoogland, J., J. (2001). ''The Robustness of LISREL Modeling Revisited.'' Pp. 139-168 in *Structural Equation Modeling: Present and Future*. Scientific Software International.

Bor, W., Dean, A. J., Najman, J., & Hayatbakhsh, R. (2014). Are child and adolescent health problems increasing in the 21st century? A systematic review. *Australian & New*

Zealand Journal of Psychiatry, 48(7), 606-616.
https://doi.org/10.1177%2F0004867414533834

Bors, D. (2018). Multiple Regression, in Bors. D (Ed.), *Data Analysis for the Social Sciences: Integrating Theory and Practice*, (pp. 512-572) Sage Publications Ltd.

Bowen, K., & Guo, S. (2012). *Structural Equation Modeling.* Oxford University Press.

Bowling, A. (2009). Questionnaire Design. In, A. Bowling, *Research Methods in Health: Investigating Health and Health Services* (pp. 299-337). Open University Press

Branje, S., Laninga-Wijnen, L., Yu, R., & Meeus, W. (2014). Associations among school and friendship identity in adolescence and romantic relationships and work in emerging adulthood. *Emerging Adulthood, 2*(1), 6–16. https://doi.org/10.1177/2167696813515851

Braveman, P. A., Cubbin, C., Egerter, S., Chideya, S., Marchi, K. S., Metzler, M., & Posner, S. (2005). Socioeconomic status in health research: one size does not fit all. *JAMA*, *294*(22), 2879–2888. https://doi.org/10.1001/jama.294.22.2879

Breckler, S. J. (1984). Empirical validation of affect, behavior, and cognition as distinct components of attitude. *Journal of Personality and Social Psychology, 47*(6), 1191-1205. doi:10.1037/0022-3514.47.6.1191

Brick, J. M. (2015), "Explorations in Non-Probability Sampling Using the Web," Proceedings of Statistics Canada Symposium 2014, Statistics Canada http://www.statcan.gc.ca/sites/default/files/media/14252-eng.pdf

British Educational Research Association (BERA). (2011). *Ethical Guidelines for Educational Research.* https://www.bera.ac.uk/wp-content/uploads /2014/02/ BERA-Ethical-Guidelines-2011.pdf?noredirect=1

British Psychological Society (BPS). (2010). *Code of Human Research Ethics*. British Psychological Society. https://www.bps.org.uk/sites/default/files/documents/code_of_human_research_ethics.pdf

Brook, U., & Geva, D. (2001). Knowledge and attitudes of high school pupils towards peers' attention deficit and learning disabilities. *Patient Education and Counsselling., 43*, 31-36. https://doi.org/10.1016/s0738-3991(00)00143-9

Brooks, H., Irmansyah, I., Lovell, K. et al. (2019) Improving mental health literacy among young people aged 11–15 years in Java, Indonesia: co-development and feasibility

testing of a culturally-appropriate, user-centred resource (IMPeTUs) – a study protocol. *BMC Health Services Research 19,* 484. https://doi.org/10.1186/s12913-019-4328

Brown, B.B., & Larson, J. (2009). Peer Relationships in Adolescence. In Lerner, R.M. & Steinberg, L. (Eds.) *Handbook of Adolescent Psychology* (pp. 74-103). John Wiley & Sons. doi:10.1002/9780470479193.adlpsy002004

Brown, J.S., Evans-Lacko, S., Aschan, L. Henderson, M. J., Hatch, S. L., & Hotopf, M. (2014). Seeking informal and formal help for mental health problems in the community: a secondary analysis from a psychiatric morbidity survey in South London. *BMC Psychiatry 14*, 275. https://doi.org/10.1186/s12888-014-0275-y

Brown, T.A. (2006). *Confirmatory factor analysis for applied research.* Guilford

Brown, T. A. (2015). *Methodology in the social sciences. Confirmatory factor analysis for applied research (2nd ed.).* The Guilford Press.

Browne, M.W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In Bollen, K.A. & Long, J.S. [Eds.] *Testing structural equation models*. Sage, 136–162.

Buchholz, B., Aylward, S., McKenzie, S., & Corrigan, P. (2015). Should youth disclose their mental health challenges? Perspectives from students, parents, and school professionals. *Journal of Public Mental Health, 14*(3), 159–168. https://doi.org/10.1108/JPMH-03-2015-0008

Burstow, P., Newbigging, K., Tew, J., and Costello, B. (2018). *Investing in a Resilient Generation: Keys to a Mentally Prosperous Nation*. Birmingham: University of Birmingham. https://www.birmingham.ac.uk/Documents/research/ policycommission/Investing-in- a-Resilient-Generation-report.pdf

Burns, J. R., & Rapee, R. M. (2006). Adolescent mental health literacy: Young people's knowledge of depression and help seeking. *Journal of Adolescence, 29*(2), 225–239. https://doi.org/10.1016/j.adolescence.2005.05.004

Busby, G. L., Bruce, C. P., & Batterham, P. I. (2016). Predictors of personal, perceived and self-stigma towards anxiety and depression. *Epidemiology and Psychiatric Services, 25*, 247-254, https://doi.org/10.1017/S2045796015000220

Busemeyer, J. R., & Jones, L. E. (1983). Analysis of multiplicative combination rules when the causal variables are measured with error. *Psychological Bulletin, 93*(3), 549–562. https://doi.org/10.1037/0033-2909.93.3.549

Byrne, B. M. (2016). *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming, Third Edition*, Routledge.

Calear, A. L., Griffiths, K. M., & Christensen, H. (2011). Personal and perceived depression stigma in Australian adolescents: Magnitude and predictors. *Journal of Affective Disorders, 129*(1-3), 104-108. https://doi.org/10.1016/j.jad.2010.08.019

Calear, A. L., Batterham, P. J., Griffiths, K. M., & Christensen, H. (2017). Generalized anxiety disorder stigma in adolescents: Personal and perceived stigma levels and predictors. *Stigma and Health, 2*(3), 208–215. https://doi.org/10.1037/sah0000046

Campbell, D. T. (1955). The informant in quantitative research. *American Journal of Sociology, 60*, 339–342. https://doi.org/10.1086/221565

Campbell, K., Millard, A., McCartney, G., & McCullough, S. (2015). *Who is least likely to attend? An analysis of outpatient appointment 'Did Not Attend' (DNA) data in Scotland.* NHS Health Scotland. http://www.healthscotland.scot/publications/who-is-least-likely-to-attend-an-analysis-of-outpatient-appointment-did-not-attend-dna-data-in-scotland

Cakar, F. S. & Savi. S. (2014). An exploratory study of adolescent's help-seeking sources. *Procedia - Social and Behavioral Sciences 159*, 610 – 614. https://doi.org/10.1016/j.sbspro.2014.12.434

Carlton, P., & Deane, F. (2000). Impact of attitudes and suicidal ideation on adolescent's intentions to seek professional psychological help. *Journal of Adolescence, 23*(1), 35-45. https://doi.org/10.1006/jado.1999.0299

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment*. Sage Publications.

Cauce, A.M., Hannan, K. and Sargeant, M. (1992), Life stress, social support, and locus of control during early adolescence: Interactive effects. *American Journal of Community Psychology, 20*, 787-798. https://doi.org/10.1007/BF01312608

Cauce, A. M., Domenech-Rodríguez, M., Paradise, M., Cochran, B. N., Shea, J. M., Srebnik, D., & Baydar, N. (2002). Cultural and contextual influences in mental health help seeking: a focus on ethnic minority youth. *Journal of consulting and clinical psychology, 70*(1), 44–55. https://doi.org/10.1037//0022-006x.70.1.44

Chandra A. (2011) Mental Health Stigma. In Levesque, R. J. R. (Eds.) *Encyclopedia of Adolescence* (pp. 1714-1722). Springer. https://doi.org/10.1007/978-1-4419-1695-2

Chandra, A., & Minkovitz, C. S. (2006). Factors that influence mental health stigma among 8th grade adolescents. *Journal of Youth and Adolescence, 36*(6), 763-774. https://doi.org/10.1007/s10964-006-9091-0

Chen, E., & Paterson, L. Q. (2006). Neighborhood, family, and subjective socioeconomic status: How do they relate to adolescent health? *Health Psychology, 25*(6),704–715. https://doi.org/10.1037/0278-6133.25.6.704

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modelling. 14*, 464–504. https://doi.org/10.1080/10705510701301834

Chen, H., Fang, X., Liu, C., Hu, W., Lan, J., & Deng, L. (2014). Associations among the number of mental health problems, stigma, and seeking help from psychological services: A path analysis model among Chinese adolescents. *Children and Youth Services Review, 44*, 356-362. https://doi.org/10.1016/j.childyouth.2014.07.003

Chen, S., Wu, Q., Qi, C., Deng, H., Wang, X., He, H., Long, J., Xiong, Y., & Liu, T. (2017). Mental health literacy about schizophrenia and depression: a survey among Chinese caregivers of patients with mental disorder. *BMC Psychiatry, 17*(1), 89. https://doi.org/10.1186/s12888-017-1245-y

Cheng, H.-L., Wang, C., McDermott, R. C., Kridel, M., & Rislin, J. L. (2018). Self-stigma, mental health literacy, and attitudes toward seeking psychological help. *Journal of Counseling & Development, 96*(1), 64–74. https://doi.org/10.1002/jcad.12178

Cheung, G. W., & Lau, R. S. (2008). Testing Mediation and Suppression Effects of Latent Variables: Bootstrapping With Structural Equation Models. *Organizational Research Methods, 11*(2), 296–325. https://doi.org/10.1177/1094428107300343

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modelling, 9*, 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Chevance, G., Bernard, P., Chamberland, P. E., & mnkRebar A. (2019) The association between implicit attitudes toward physical activity and physical activity behaviour: a systematic review and correlational meta-analysis. *Health Psychology Review, 13*(3), 248-276, https://doi.org/10.1080/17437199.2019.1618726

Chirkov, V., Ryan, R., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalisation of cultural orientation and well-being. *Journal of Personality and Social Psychology, 84*, 97-110. https://doi.org/10.1037/0022-3514.84.1.97

Chisholm, K., Patterson, P., Greenfield, S., Turner, E., & Birchwood, M. (2018). Adolescent construction of mental illness: implication for engagement and treatment. *Early Intervention in Psychiatry, 12*(4), 626–636. https://doi.org/10.1111/eip.12347

Chisholm, K., Patterson, P., Torgerson, C., Turner, E., & Birchwood, M. (2012). A randomised controlled feasibility trial for an educational school-based mental health intervention: study protocol. *BMC Psychiatry 12*(23). https://doi.org/10.1186/1471-244X-12-23

Chisholm, K., Patterson, P., Torgerson, C., Turner, E., Jenkinson, D., & Birchwood, M. (2015). The impact of contact on adolescent's mental health literacy and stigma: the SchoolSpace cluster randomised controlled trial. *BMJ Open*, 6, e009435. https://doi.org/ 10.1136/bmjopen-2015-009435

Chisholm, K., Patterson, P., Torgerson, C., Turner, E., Jenkinson, D., & Birchwood, M. (2016). Impact of contact on adolescents' mental health literacy and stigma: The schoolspace cluster randomised controlled trial. *BMJ Open, 6*(2). doi:10.1136/bmjopen-2015-009435

Christiani, A., Hudson, A. L., Nyamathi, A., Mutere, M., & Sweat, J. (2008). Attitudes of homeless and drug-using youth regarding barriers and facilitators in delivery of quality and culturally sensitive health care. *Journal of Child and Adolescent Psychiatric Nursing: Official Publication of the Association of Child and Adolescent Psychiatric Nurses*, *21*(3), 154–163. https://doi.org/10.1111/j.1744-6171 .2008 .00139.x

Clark, L. H., Hudson, J. L., Dunstan, D. A., & Clark, G.I. (2018). Barriers and facilitating factors to help-seeking for symptoms of clinical anxiety in adolescent males. *Australian Journal of Psychology, 70*, 225-234. https://doi.org/10.1111/ajpy.12191

Clarke, A., Friede, T., Putz, R., Ashdown, J., Marton, S., Blake, A., Adi, Y. Parkinson, J., Flynn, P., Platt, S., & Stewart-Brown, S. (2011). Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Validated for teenage school students in England and Scotland. A mixed methods assessment. *BMC Public Health, 11*, 487. https://doi.org/10.1186/1471-2458-11-487

Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine, 45*(1), 11-27. doi:10.1017/S0033291714000129

Coburn, C. (2019). Mental health in Finnish schools: So close to perfection. *The Lancet Child and Adolescent Health, 3*(12), 848-849. https://doi.org/10.1016/S2352-4642(19)30274-3

Coleman, N., Sykes, W., & Groom, C. (2017). *Peer support and children and young people's mental health: Research review*. Department for Education. https://assets. publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/ 603107/Children_and_young_people_s_mental_health_peer_support.pdf

Coles, M. E., Ravid, A., Gibb, B., George-Denn, D., Bronstien, L. R., & MacLeod, S. (2016). Adolescent mental health literacy: Young people's knowledge of depression and social anxiety disorder. *Journal of Adolescent Health. 58*(1), 57-62

https://doi.org/10.1016/j.jadohealth.2015.09.017

Collishaw, S. (2015). Annual Research Review: Secular trends in child and adolescent mental health. *Journal of Child Psychology and Psychiatry*, 56, 370-393. https://doi.org/10.1111/jcpp.12372

Collishaw, S., Furzer, E., Thapar, A.K. et al. (2019). Brief report: a comparison of child mental health inequalities in three UK population cohorts. European Child and Adolescent Psychiatry 28, 1547–1549. https://doi.org/10.1007/s00787-019-01305-9

Cooke, R., Dahdah, M., Norman, P., & French, D. P. (2016) How well does the theory of planned behaviour predict alcohol consumption? A systematic review and meta-analysis, *Health Psychology Review,10*(2), 148-167. https://doi.org/10.1080/17437199.2014.947547

Coolican, H. (2009). Comparison Studies: cross-sectional, longitudinal and cross-cultural studies. In, H. Coolican, *Research Methods and Statistics in Psychology*, 5th Edition. Hodder Education

Cole, D. A., & Maxwell, S. E. (1985). Multitrait–multimethod comparisons across populations: A confirmatory factor analytic approach. *Multivariate Behavioral Research, 20*, 389–417. https://doi.org/10.1207/s15327906mbr2004_3

Cole D. A. (1987). Utility of confirmatory factor analysis in test validation research. *Journal of consulting and clinical psychology*, *55*(4), 584–594. https://doi.org/10.1037/0022-006X.55.4.584

Coles, M. E., Ravid, A., Gibb, B., George-Denn, D., Bronstein, R., & McLeod, S. (2016). Adolescent mental health literacy: young people's knowledge of depression and social anxiety disorder. *Journal of Adolescent Health 58*(1), 57-62. https://doi.org/10.1016/j.jadohealth.2015.09.017

Collins, K. A., Westra, H. A., Dozois, D. J. A., & Burns, D. D. (2004). Gaps in accessing treatment for anxiety and depression: Challenges for the delivery of care. *Clinical Psychology Review, 24*, 583-616. https://doi.org/10.1016/j.cpr.2004.06.001

Coreil, J. (2008). *Behavioural and social science theory*. Oxford University Press

Corrigan, P. W., Green, A., Lundin, R., Kubiak, M. A., & David, L. (2001). Familiarity with and social distance from people who have serious mental illness. *Penn Psychiatric Services, 52*(7), 953-958

Corrigan, P. W., Lurie, B. D., Goldman, H. H., Slopen, N., Medasani, K., & Phelan, S. (2005). How Adolescents Perceive the Stigma of Mental Illness and Alcohol Abuse. *Psychiatric Services, 56*(5), 544-550. https://doi.org/10.1176/appi.ps.56.5.544

Corrigan, P., Markowitz, F. E., Watson, A., Rowan, D., & Kubiak, M. A. (2003). An attribution model of public discrimination towards persons with mental illness. *Journal of Health and Social Behavior, 44*, 162-179

Corrigan, P. W., Markowitz, F. E., & Watson A. C. (2004). Structural levels of mental illness stigma and discrimination. *Schizophrenia bulletin, 30*(3), 481-492. https://doi.org/10.1093/oxfordjournals.schbul.a007096

Corrigan, P. W., & Rao, D. (2012). On the self-stigma of mental illness: stages, disclosure, and strategies for change. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie, 57*(8), 464–469. https://doi.org/10.1177/070674371205700804

Corrigan, P. W., River, L. P., Lundin, R. K., Penn, D. L., Uphoff-Wasowski, K., Campion, J., Mathisen, J., Gagnon, C., Bergman, M., Goldstein, H., & Kubiak, M. A. (2001). Three strategies for changing attributions about severe mental illness. *Schizophrenia bulletin*, *27*(2), 187–195. https://doi.org/10.1093/oxfordjournals.schbul.a006865

Corrigan, P. W., River, L. P., Lundin, R. K., Uphoff Wasowski, K., Campion, J., Mathisen, J., Goldstein, H., Bergman, M., Gagnon, C., & Kubiak, M. A. (2000). Stigmatizing

attributions about mental illness. *Journal of Community Psychology, 28*(1), 91–102. https://doi.org/10.1002/(SICI)1520-6629(200001)28:1<91::AID-JCOP9>3.0.CO;2-M

Corrigan, P.W., & Rao, D. (2013). On the self-stigma of mental illness: Stages, disclosures, and strategies for change. *Canadian Journal of Psychiatry, 57*(8), 464-469. https://doi.org/10.1177/070674371205700804

Corrigan, P. W., Rowan, D., Green, A., Lundin, R., River, P., Uphoff-Wasowski, K., White, K., & Kubiak, M. A. (2002). Challenging two mental illness stigmas: Personal responsibility and dangerousness. *Schizophrenia Bulletin, 28*(2), 293–309. https://doi.org/10.1093/oxfordjournals.schbul.a006939

Corrigan, P.W., & Shapiro, J.R. (2010). Measuring the impact of programs that challenge the public stigma of mental illness. *Clinical Psychology Review, 30*, 907–922. https://doi.org/10.1016/j.cpr.2010.06.004

Corrigan, P.W., & Watson, A.C. (2002). Understanding the impact of stigma on people with mental illness. *World Psychiatry: Official Journal of the World Psychiatric Association 1*(1), 16–20.

Corrigan, P. W., & Watson, A. C. (2007). How children stigmatize people with mental illness. *International Journal of Social Psychiatry, 53*(6), 526–546. https://doi.org/10.1177/0020764007078359

Corry, D. A., & Leavey, G. (2017). Adolescent trust and primary care: Help-seeking for emotional and psychological difficulties. *Journal of Adolescence, 54*, 1–8. https://doi.org/10.1016/j.adolescence.2016.11.003

Costello, E. J., Egger, H., & Angold, A. (2005). 10-year research update review: The epidemiology of child and adolescent psychiatric disorders: I. Methods and public health burden. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*(10), 972–986. https://doi.org/10.1097/01.chi.0000172552.41596.6f

Costello, E. J., Pescosolido, B. A., Angold, A., & Burns, B. J. (1998). A family network-based model of access to child mental health services. *Research in Community and Mental Health: Social Networks and Mental Illness, 9*, 165–190

Costin, D. L., Mackinnon, A. J., Griffiths, K. M., Batterham, P. J., Bennett, A. J., Bennett, K., & Christensen, H. (2009). Health e-cards as a means of encouraging help seeking for depression among young adults: randomized controlled trial. *Journal of Medical Internet Research, 11*(4), e42. https://doi.org/10.2196/jmir.1294

Cotton, S. M., Wright, A., Harris, M. G., Jorm, A. F., & Mcgorry, P. D. (2006). Influence of Gender on Mental Health Literacy in Young Australians. *Australian & New Zealand Journal of Psychiatry, 40*(9), 790–796. https://doi.org/10.1080/j.1440-1614.2006.01885.x

Crain, W. (2005). Theories of development: Concepts and applications (5th ed.). Pearson Prentice Hall

Crano, W.D., & Prislin, R. (2006). Attitudes and Persuasion. *Annual Review of Psychology*, 57, 345-374. https://doi.org/10.1146/annurev.psych.57.102904.190034

Crenna-Jennings, W., & Hutchison, J. (2018). Access to children and young people's mental health services – 2018. Education Policy Institute. https://epi.org.uk/wp-content/uploads/2018/10/EPI_Access-to-CAMHS- 2018.pdf

Creswell, J. (2012). *Educational research: Planning, conducting, evaluating*. Pearson. http://basu.nahad.ir/uploads/creswell.pdf

Crockett, S. A. (2012). A five-step guide to conducting SEM analysis in counselling research. *Counselling and Outcome Research and Evaluation, 3*(1), 30-47. https:// /doi.org/10.1177/2150137811434142

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*(4), 281-302. https://doi/org/10.1037/h0040957

Currie, C. E., Elton, R. A., Todd, J., & Platt, S. (1997). Indicators of socioeconomic status for adolescents: The WHO health behaviour in school-aged children survey. *Health Education Research, 12*(3), 385-397. https://doi.org/10.1093/her/12.3.385

Currie C, Inchley J, Molcho M, Lenzi M, Veselska Z & Wild F (eds.) (2014). *Health Behaviour in School-aged Children (HBSC) Study Protocol: Background, Methodology and Mandatory items for the 2013/14 Survey*. St Andrews: CAHRU.

Currie, C., Molcho, M., Boyce, W., Holstein, B., Torsheim, T., & Richter, M. (2008). Researching health inequalities in adolescents: the development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale. *Social Science & Medicine* (1982), 66(6), 1429–1436. https://doi.org/10.1016/j.socscimed.2007.11.024

Dahl, R. E. (2004). *Adolescent brain development: a period of vulnerabilities and opportunities.* Keynote address. Annals of the New York Academy of Sciences. 2004 June, 1021, 1-22. https://doi.org/10.1196/annals.1308.001.

Damghanian, M., & Alijanzadeh, M. (2018). Theory of planned behaviour, self-stigma, and perceived barriers explains the behaviour of seeking mental health services for people at risk of affective disorders. *Social Health and Behaviour, 1*, 54-61. https://doi.org/10.4103/SHB.SHB_27_18

Dardas, L. A., Silva, S., Noonan, D., & Simmons, L. A. (2016). A pilot study of depression, stigma, and attitudes towards seeking professional psychological help among Arab adolescents. *International Journal of Adolescent Medicine & Health, 04,* 04. http://doi.org/10.1515/ijamh-2016-0070

D'Avanzo, B., Barbato, A., Erzegovesi, S., Lampertico, L., Rapisarda, F., & Valsecchi, L. (2012). Formal and informal help-seeking for mental health problems. A survey of preferences of italian students. Clinical practice and epidemiology in mental health: *Clinical Practice & Epidemiology in Mental Health, 8*, 47–51. https://doi.org/10.2174/1745017901208010047

Davis, J., A. (1985). *The Logic of Causal Order*. Sage University Paper Series on Quantitative Applications in the Social Sciences, Series No. 07–055. Sage

Davidov, E. (2008). A cross-country and cross-time comparison of the human values measurements with the second round of the European Social Survey. *Survey Research Methods, 2*(1), 33-46

Deacon, H. (2006). Towards a sustainable theory of health-related stigma: lessons from the HIV/AIDS literature. *Journal of Community & Applied Social Psychology, 16*(6), 418-425. https://doi.org/10.1002/casp.900

Deane, F. P., & Todd, D. M. (1996). Attitudes and intentions to seek professional psychological help for personal problems or suicidal thinking. *Journal of College Student Psychotherapy, 10*, 45–59. https://doi.org/10.1300/J035v10n04_06

Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies, 9*, 1-11. https://doi.org/10.1037/a0012801

Degner, J. & Dalege, J. (2013). The apple does not fall far from the tree, or does it? A meta-analysis of parent–child similarity in intergroup attitudes. *Psychological Bulletin, 139*(6), 1270–1304. https://doi.org/10.1037/a0031436

Dell'Osso, B., Glick, I. D., Baldwin, D. S., & Altamura, A. C. (2013). Can long-term outcomes be improved by shortening the duration of untreated illness in psychiatric

disorders? A conceptual framework. *Psychopathology, 46*(1), 14–21. https://doi.org/10.1159/000338608

Del Mauro, J. M., & Jackson Williams, D. (2013). Children and adolescents' attitudes toward seeking help from professional mental health providers. *international journal for the advancement of counselling, 35*(2), 120-138. https://doi.org/10.1007/s10447-012-9172-6

Deng, L., & Yuan K. (2015). Multiple-Group Analysis for Structural Equation Modeling With Dependent Samples, *Structural Equation Modeling: A Multidisciplinary Journal, 22*(4), 552-567, https://doi.org/10.1080/10705511.2014.950534

Department for Education. (2018). *Mental health and behaviour in schools*. Department for Education. https://assets.publishing.service.gov.uk/government/uploads /system/uploads/attachment_data/file/755135/Mental_health_and_behaviour_in_sch ools__.pdf

Department of Health and Department for Education. (2017). *Transforming children and young people's mental health provision: a green paper*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6648 55/Transforming_children_and_young_people_s_mental_health_provision.pdf.

Dias, P.C., & Cadime, I. (2017). Protective factors and resilience in adolescents: The mediating role of self-regulation. *Psicología Educativa, 23*, 37-43. https://doi.org/10.1016/j.pse.2016.09.003

DiClemente R. J. (1989). Prevention of human immunodeficiency virus infection among adolescents: the interplay of health education and public policy in the development and implementation of school-based AIDS education programs. *AIDS Education and Prevention: Official Publication of the International Society for AIDS Education*, 1(1), 70–78.

DiStefano, C., & Hess, B. (2005). Using Confirmatory Factor Analysis for Construct Validation: An Empirical Review. *Journal of Psychoeducational Assessment, 23*(3), 225–241. https://doi.org/10.1177/073428290502300303

Divin, N., Harper, P., Curran, E., Corry, D., & Leavey, G. (2018). Help-Seeking Measures and Their Use in Adolescents: A Systematic Review. *Adolescent Research Review*, *0*. https://doi.org/10.1007/s40894-017-0078-8

Dixon, C., Murray, C., Daiches, A., (2013). A qualitative exploration into young children's perspectives and understandings of emotional difficulties in other children.

Clinical Child Psychology and Psychiatry 18(1), 72–90.
https://doi.org/10.1177/1359104511433194

Do, R., Park, J. R., Lee, S. Y., Cho, M. J., Kim, J. S., & Shin, M. S. (2019). Adolescents'
Attitudes and Intentions toward Help-Seeking and Computer-Based Treatment for
Depression. *Psychiatry investigation, 16*(10), 728–736.
https://doi.org/10.30773/pi.2019.07.17.4

Dodge, Y. (2003) *The Oxford Dictionary of Statistical Terms.* Oxford University Press

Doll, J. and Ajzen, I. (1992). Accessibility and stability of predictors in the theory of
planned behaviour. *Journal of Personality and Social Psychology, 63*, 754–765.
https://doi.org/10.1037/0022-3514.63.5.754

Dolphin, L., & Hennessy, E. (2014). Adolescents' perceptions of peers with depression: An
attributional analysis. *Psychiatry research, 218*(3), 295-302.
https://doi.org/10.1016/j.psychres.2014.04.051

Dolphin, L., & Hennessy, E. (2016). Depression stigma among adolescents in Ireland.
Stigma and Health, 1(3), 185-200. https://doi.org/10.1037/sah0000025

Domingue, B. W., Cislaghi, B., Nagata, J. M., Shakya, H. B., Weber, A. M., Boardman, J.
D., Darmstadt, G. L., & Harris, K. M. (2019). Implications of gendered behaviour
and contexts for social mobility in the USA: a nationally representative
observational study. *The Lancet Planetary Health, 3*(10), E420-E428.
https://doi.org/10.1016/S2542-5196(19)30191-3

Draucker, C.B. (2005) Interaction patterns of adolescents with depression and the important
adults in their lives, *Qualitative Health Research, 15*, 7, 942–63.
https://doi.org/10.1177/1049732305277859

DuPont-Reyes, M. J., Villatoro, A. P., Phelan, J. C., Painter, K., & Link, B. G. (2020).
Adolescent views of mental illness stigma: An intersectional lens. *American Journal
of Orthopsychiatry, 90*(2), 201–211. https://doi.org/10.1037/ort0000425

Earnshaw, V. A., & Quinn, D. M. (2012). The impact of stigma in healthcare on people
living with chronic illnesses. *Journal of Health Psychology, 17*(2), 157-168.
https://doi.org/10.1177/1359105311414952

Ecob, R., & Cuttance, P. (1987). An overview of structural equation modeling. In P.
Cuttance & R. Ecob (Eds.), *Structural equation modeling by example: Applications*

in educational, sociological, and behavioral research (pp. 9–23). Cambridge University Press

Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: a general analytical framework using moderated path analysis. *Psychological Methods, 12(*1), 1–22. http://doi.org/10.1037/1082-989X.12.1.1

Efremova, M., Panyusheva, T., Schmidt, P., & Zercher. (2017). Mixed methods in value research: An analysis of the validity of the Russian version of the Schwartz Value Survey (SVS) using cognitive interviews, multidimensional scaling (MDS), and confirmatory factor analysis (CFA). *Research and Methods, 26*(1), 3-30.

Efron, B. (1979). Bootstrap methods: Another look at the jackknife. *Annals of Statistics*, 7, 1– 26.

Efron, B. (1982). *The jackknife, the bootstrap and other resampling plans*. SIAM.

Efron, B. & Tibshirani, R.J. (1993). *An introduction to the bootstrap*. Chapman & Hall.

Eisenberg, D., Downs, M.F., Golberstein, E., & Zivin, K. (2009). Stigma and help seeking for mental health among college students. *Medical Care Research & Review, 66*, 522–541. https://doi.org/10.1177/1077558709335173

Ekornes, S. (2016). Teacher stress related to student mental health promotion: the match between perceived demands and competence to help students with mental health problems. *Scandinavian Journal of Educational Research, 61*(3), 333-353. https://doi.org/10.1080/00313831.2016.1147068

Elgar, F. J., McKinnon, B., Torsheim, T., Schnohr, C. W., Mazur, J., Cavallo, F., et al. (2016). Patterns of socioeconomic inequality in adolescent health differ according to the measure of socioeconomic position. Social Indicators Research, 127(3), 1169–1180. https://doi.org/10.1007/s11205-015-0994-6

Elgar, F., J., Pförtner, T., Moor, I., De Clercq, B., Stevens, G. W. J. M., & Currie, C. (2015). Socioeconomic inequalities in adolescent health 2002–2010: a time-series analysis of 34 countries participating in the Health Behaviour in School-aged Children study. *The Lancet. 385*(9982), 2088-2095. https://doi.org/10.1016/S0140-6736(14)61460-4

Elkington, K. S., Hackler, D., McKinnon, K., Borges, C., Wright, E. R., & Wainberg, M. L. (2012). Perceived mental illness stigma among youth in psychiatric outpatient treatment. *Journal of Adolescent Research, 27*(2), 290-317. doi:10.1177/0743558411409931.

Ellison, N., Mason, O., & Scior, K. (2013). Bipolar disorder and stigma: a systematic review of the literature. *Journal of Affective Disorders, 151*(3), 805-820. https://doi.org/10.1016/j.jad.2013.08.014

Erikson, E. H. (1950). *Childhood and Society.* Norton.

Erikson, E. H. (1959). Identity and the life cycle. *Psychological Issues, 1,* 18-164.

Erikson, E. H. (1968). *Identity, youth, and crisis.* Norton.

Essau, C.A. (2005), Frequency and patterns of mental health services utilization among adolescents with anxiety and depressive disorders. *Depress. Anxiety, 22*, 130-137. https://doi/org/10.1002/da.20115

Euteneuer F. (2014). Subjective social status and health. *Current Opinion in Psychiatry, 27*(5), 337–343. https://doi.org/10.1097/YCO.0000000000000083

Evans-Lacko, S., Brohan, E., Mojtabi, R & Thornicroft, G. (2012). Associations between public views of mental illness and self-stigma among individuals with mental illness in 14 European Countries. *Psychological Medicine, 42*(8), 1741-1452. https://doi.org/10.1017/S0033291711002558

Evans-Lacko, S., Corker, E., Williams, P., Henderson, C., & Thornicroft, G. (2014). Effect of the Time to Change anti-stigma campaign on trends in mental-illness-related public stigma among the English population in 2003-13: an analysis of survey data. *The Lancet. Psychiatry, 1*(2), 121–128. https://doi.org/10.1016/S2215-0366(14)70243-3

Evans-Lacko, S., Little, K., Meltzer, H., Rose, D., Rhydderch, D., Henderson, C., & Thornicroft, G. (2010). Development and psychometric properties of the Mental Health Knowledge Schedule. *Canadian Journal Of Psychiatry. Revue Canadienne de Psychiatrie, 55*(7), 440–448. https://doi.org/10.1177/070674371005500707

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*(3), 272-299. https://doi.org/10.1037/1082-989X.4.3.272

Fairchild, A. J., & MacKinnon, D. P. (2009). A general model for testing mediation and moderation effects. *Prevention Science: The Official Journal of the Society for Prevention Research, 10*(2), 87–99. https://doi.org/10.1007/s11121-008-0109-6

Fairchild, G. (2019) Mind the gap: evidence that child mental health inequalities are increasing in the UK. *European Child & Adolescent Psychiatry 28*, 1415–1416. https://doi.org/10.1007/s00787-019-01418-1

Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes. *Structural Equation Modeling, 6*(1), 56–83. https://doi.org/10.1080/10705519909540119

Farrand, P., Parker, M. & Lee, C. (2007), Intention of adolescents to seek professional help for emotional and behavioural difficulties. *Health & Social Care in the Community*, *15*, 464-473. https://doi.org/10.1111/j.1365-2524.2007.00705.x

Farrer, L., Leach, L., Griffiths, K. M., Christensen, H., & Jorm, A. F. (2008). Age differences in mental health literacy. *BMC Public Health, 8*, 125. https://doi.org/10.1186/1471-2458-8-125

Faulkner, G., Irving, H., Paglia-Boak, A., & Adlaf, E. (2010). Adolescent knowledge of schizophrenia and social distancing: A province-wide survey. *Journal of Community Psychology, 38*(8), 933-942. https://doi.oeg/10.1002/jcop.20406

Field, A. (2009). *Discovering Statistics using SPSS* (3rd ed.). Sage Publications Ltd.

Fink, A. (2003). *The survey handbook*. Sage Publications

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior.* Addison-Wesley.

Fisher, J. D., & Fisher, W. A. (1992). Changing AIDS-risk behavior. *Psychological Bulletin*, 111, 455–474. https://doi.org/10.1037/0033-2909.111.3.455

Fiske, S. T. (2000). Stereotyping, prejudice, and discrimination at the seam between the centuries: Evolution, culture, mind, and brain. *European Journal of Social Psychology, 30*(3), 299-322. https://doi.org/10.1002/(SICI)1099-0992 (200005/06)30:3%3C299::AID-EJSP2%3E3.0.CO;2-F

FitzGerald, C., Martin, A., Berner, D. & Hurst, S. (2019). Interventions designed to reduce implicit prejudices and implicit stereotypes in real world contexts: a systematic review. *BMC Psychology 7,* 29. https://doi.org/10.1186/s40359-019-0299-7

Fortune, S., Sinclair, J., & Hawton, K. (2008). Help-seeking before and after episodes of self-harm: a descriptive study in school pupils in England. *BMC Public Health, 8,* 369. https://doi.org/10.1186/1471-2458-8-369

Foster, S. D., Elischberger, H. B., & Hill, E. D. (2018). Examining the link between socioeconomic status and mental illness prejudice: The roles of knowledge about

mental illness and empathy. *Stigma and Health, 3*(2), 139–151. https://doi.org/10.1037/sah0000084

Franklin, M. (2014). *Mental Health Service Utilization Among African-American Adolescents.* Wayne State University. https://core.ac.uk/download/pdf/56686543.pdf

Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing Moderator and Mediator Effects in Counseling Psychology Research. *Journal of Counseling Psychology, 51*(1), 115–134. https://doi.org/10.1037/0022-0167.51.1.115

Friedli, L. (2009). *Mental Health, Resilience and Inequalities.* Copenhagen: World Health Organization. http://www.euro.who.int/__data/assets /pdf_file /0012/ 100821/ E92227.pdf

Frith, E. (2016). *Children and Young People's Mental Health: State of the Nation. Social Mobility and Vulnerable Learners: Report.* Education Policy Institute. https://epi.org.uk/publications-and-research/children-young-peoples-mental-health-state-nation/

Fryers, T., Melzer, D., & Jenkins, R. (2003). Social inequalities and the common mental disorders: a systematic review of the evidence. *Social Psychiatry and Psychiatric Epidemiology, 38*(5), 229-237. https://doi.org/10.1007/s00127-003-0627-2

Furnham, A., Annis, J., & Cleridou, K. (2014). Gender differences in the mental health literacy of young people. *International journal of adolescent medicine and health, 26*(2), 283–292. https://doi.org/10.1515/ijamh-2013-0301

Furnham, A., & Sjokvist, P. (2017). Empathy and Mental Health Literacy. *Health literacy research and practice*, *1*(2), e31–e40. https://doi.org/10.3928/24748307-20170328-01

Furnham, A., & Swami, V. (2018). Mental health literacy: A review of what it is and why it matters. *International Perspectives in Psychology: Research, Practice, Consultation, 7*(4), 240–257. https://doi.org/10.1037/ipp0000094

Furr, R. M., & Bacharach, V. R. (2013). *Psychometrics: An introduction.* United States: Sage Publications

Galderisi, S., Heinz, A., Kastrup, M., Beezhold, J., & Sartorius, N. (2015). Toward a new definition of mental health. *World psychiatry: official journal of the World Psychiatric Association (WPA)*, *14*(2), 231–233. https://doi.org/10.1002/wps.20231

Gale, F. (2007). Tackling the stigma of mental health in vulnerable children and young people. P. Vostanis (Ed.), *Mental Health Interventions and Services for Vulnerable Children and Young People*., Jessica Kingsley Publishers, London (2007), pp. 58-82

Garber, J., Clarke, G.N., Weersing, V.R., Beardslee, W.R., Brent, D.A., Gladstone, T.R.G., DeBar, L.L., Lynch, F.L., D'Angelo, E., Hollon, S.D., Shamseddeen, W., Iyengar, S. (2009). Prevention of Depression in At-Risk Adolescents: A Randomized Controlled Trial. *JAMA, 301*(21), 2215–2224. doi:10.1001/jama.2009.788

Garcia, C., Golay, P., Favrod, J., & Bonsack, C. (2017). French Translation and Validation of Three Scales Evaluating Stigma in Mental Health. *Frontiers in Psychiatry, 8,* 290. https://doi.org/10.3389/fpsyt.2017.00290

Gaziel, M., Hasson-Ohayon, I., Morag-Yaffe, M., Schapir, L., Zalsman, G., & Shoval, G. (2015). Insight and satisfaction with life among adolescents with mental disorders: Assessing associations with self-stigma and parental insight. *European Psychiatry, 30*(2), 329-333. https://doi.org/10.1016/j.eurpsy.2014.08.003

Georgakakou-Koutsonikou, N., & Williams, J. M. (2017). Children and young people's conceptualizations of depression: a systematic review and narrative meta-synthesis. *Child: Care, Health and Development, 43*(2), 161–181. https://doi.org/10.1111/cch.12439

Georgie J, M., Sean, H., Deborah M, C., Matthew, H., & Rona, C. (2016). Peer-led interventions to prevent tobacco, alcohol and/or drug use among young people aged 11-21 years: a systematic review and meta-analysis. Addiction (Abingdon, England), 111(3), 391–407. https://doi.org/10.1111/add.13224

Giedd, J. N., Blumenthal, J., Jeffries, N. O., Castellanos, F. X., Liu, H., Zijdenbos, A., Paus, T., Evans, A. C., & Rapoport, J. L. (1999). Brain development during childhood and adolescence: a longitudinal MRI study. *Nature neuroscience, 2*(10), 861–863. https://doi.org/10.1038/13158

Glanz, K., & Bishop, D. B. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annual Review of Public Health*, 31, 399-418. https://doi.org/10.1146/annurev.publhealth.012809.103604

Goçalves, M., Moleiro, C., & Cook, B. (2015). The use of a video to reduce mental health stigma among adolescents. Adolescent Psychiatry, 5(3), 204-211. https://doi.org/10.2174/2210676605666150521232049

Godin, G., & Kok, G. (1996). The Theory of Planned Behavior: A Review of its Applications to Health-Related Behaviors. American Journal of Health Promotion, 11(2), 87–98. https://doi.org/10.4278/0890-1171-11.2.87

Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity.* New York, NY: Simon & Schuster.

Gonçalves, M., Molerio, C., & Cook, B. (2015). The Use of a Video to Reduce Mental Health Stigma Among Adolescents. *Adolescent psychiatry, 5*, 204. doi.org/10.2174/2210676605666150521232049

Gonzalez, J. M., Alegria, M., & Prihoda, T. J. (2005). How Do Attitudes toward Mental Health Treatment Vary by Age, Gender, and Ethnicity/Race in Young Adults? *Journal of Community Psychology, 33*(5), 611–629. https://doi.org/10.1002/jcop.20071

Goodman, E., Huang, B., Schafer-Kalkhoff, T., & Adler, N. E. (2007). Perceived socioeconomic status: A new type of identity that influences adolescents' self-rated health. *Journal of Adolescent Health, 41*(5), 479–487. https://doi.org/10.1016/j.jadohealth.2007.05.020

Goodman, E., Maxwell, S., Malspeis, S., & Adler, N. (2015). Developmental trajectories subjective social status. *Pediatrics, 136*(3), e633–e640. https://doi.org/10.1542/peds.2015-1300

Gould, M. S., Marrocco, F. A., Hoagwood, K., Kleinman, M., Amakawa, L., & Altschuler, E. (2009). Service use by at-risk youths after school-based suicide screening. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*(12), 1193–1201. https://doi.org/10.1097/CHI.0b013e3181bef6d5

Graham, J. M., Guthrie, A. C., & Thompson, B. (2003). Consequences of not interpreting structure coefficients in published CFA research: A reminder. *Structural Equation Modeling,10*(1), 142–153. https://doi.org/10.1207/S15328007SEM1001_7

Graham, J. W. (2009). Missing data analysis: making it work in the real world. *Annual Review of Psychology*, 60, 549-576. https://doi.org/10.1207/S15328007SEM1001_7

Greenblatt, A. M., Pinto, M. D., Higgins, M. K., & Berg, C. J. (2016). Exploring the relationships among level of contact, nature of contact, and mental illness stigma in adolescent girls. *Issues in Mental Health Nursing, 37*(1), 10-18. doi:10.3109/01612840.2015.1087604

Greenspoon, P. J., & Saklofske, D. H. (2001). Toward an integration of subjective wellbeing and psychopathology. *Social Indicators Research, 54*, 81-108. https://doi.org/10.1023/A:1007219227883

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: the implicit association test. Journal of personality and social psychology, 74(6), 1464–1480. https://doi.org/10.1037//0022-3514.74.6.1464

Gregson, R. A. M. & Stacey, B. G. (1981). Attitudes and self-reported alcohol consumption in New Zealand. *New Zealand Psychologist, 10*, 15–23

Griffiths, K. M., & Christensen, H. (2007). Internet-based mental health programs: a powerful tool in the rural medical kit. The Australian Journal of Rural Health, 15(2), 81–87. https://doi.org/10.1111/j.1440-1584.2007.00859.x

Griffiths, K.M., Christensen, H., Jorm, A.F., Evans, K., Groves, C., (2004). Effect of web-based depression literacy and cognitive-behavioural therapy interventions on stigmatising attitudes to depression. *British. Journal of. Psychiatry 185*, 342–349. https://doi.org/10.1192/bjp.185.4.342

Griffiths, K. M., Crisp, D. A., Jorm, A. F., & Christensen, H. (2011). Does stigma predict a belief in dealing with depression alone?. *Journal of Affective Disorders*, *132*(3), 413–417. https://doi.org/10.1016/j.jad.2011.03.012

Gronholm, P., Thornicroft, G., Laurens, K. R., & Evans-Lacko, S. (2016). Conditional Disclosure on Pathways to Care : Coping Preferences of Young People at Risk of Psychosis. *Qualitative Health Research,* 1-14. https://doi.org/10.1177/1049732316680337

Gronholm, P. C., Nye, E., & Michelson, D. (2018). Stigma related to targeted school-based mental health interventions: A systematic review of qualitative evidence. *Journal of Affective Disorders, 240*, 17–26. https://doi.org/10.1016/j.jad.2018.07.023

Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: A systematic review. *BMC Psychiatry*, 10. https://doi.org/10.1186/1471-244X-10-113

Gulliver, A., Griffiths, K. M., & Christensen, H. (2012). Barriers and facilitators to mental health help-seeking for young elite athletes: a qualitative study. *BMC Psychiatry*, 12, 157. https://doi.org/10.1186/1471-244X-12-157

Guyer, A. E., Caouette, J. D., Lee, C. C., & Ruiz, S. K. (2014). Will they like me? Adolescents' emotional responses to peer evaluation. *International Journal of Behavioral Development*, *38*(2), 155–163. https://doi.org/10.1177/0165025413515627

Hadjimina, E., & Furnham, A. (2017). Influence of age and gender on mental health literacy of anxiety disorders. *Psychiatry Research, 251,* 8-13. https://doi.org/10.1016/j.psychres.2017.01.089

Haavik, L., Joa, I., Hatloy, K., Stain, H. J. & Langeveld J. (2017). Help seeking for mental health problems in an adolescent population: the effect of gender, *Journal of Mental Health*, https://doi.org/10.1080/09638237.2017.1340630

Hancock, G. R., & Mueller, R. O. (Eds.). (2013). *Quantitative methods in education and the behavioral sciences: Issues, research, and teaching. Structural equation modeling: A second course* (2nd ed.). IAP Information Age Publishing.

Hansen, H., Bourgois, P., & Drucker, E. (2014). Pathologizing poverty: new forms of diagnosis, disability, and structural stigma under welfare reform. *Social Science & Medicine (1982)*, *103*, 76–83. https://doi.org/10.1016/j.socscimed.2013.06.033

Happell, B., Stanton, R., Hoey, W., & Scott, D. (2014). Knowing is not doing: The relationship between health behaviour knowledge and actual health behaviours in people with serious mental illness. *Mental Health and Physical Activity, 7*(3), 198-204. https://doi.org/10.1016/j.mhpa.2014.03.001

Hart, L. M., Morgan, A. J., Rossetto, A., Kelly, C. M., Mackinnon, A., & Jorm, A. F. (2018). Helping adolescents to better support their peers with a mental health problem: A cluster-randomised crossover trial of teen Mental Health First Aid. *Australian & New Zealand Journal of Psychiatry, 52*(7), 638–651. https://doi.org/10.1177/0004867417753552

Hartman, L. I., Michel, N. M., Winter, A., Young, R. E., Flett, G. L., & Goldberg, J. O. (2013). Self-stigma of mental illness in high school youth. *Canadian Journal of School Psychology, 28*(1), 28-42. https://doi.org/10.1177/0829573512468846

Haslam, N., & Kvaale, E. P. (2015). Biogenetic Explanations of Mental Disorder: The Mixed-Blessings Model. *Current Directions in Psychological Science, 24*(5) 399-404. https://doi.org/10.1177/0963721415588082

Hassett, A., Green, C., & Zundel, T. (2018). Parental Involvement: A Grounded Theory of the Role of Parents in Adolescent Help Seeking for Mental Health Problems. *SAGE Open.* https://doi.org/10.1177/2158244018807786

Hattersly (2015). *Promoting equity in child and adolescent mental wellbeing. Victorian Health Promotion Foundation.* Victoria: Australia. https://www.vichealth.vic.gov.au/-media/ResourceCentre/ PublicationsandResources/Health-Inequalities/Fair-Foundations/Summary/Health-Equity-Summary-report_MentalWellbeing.pdf?la=en&hash= B00E9F033F8A6834FE7BADC5D6F6A638CB40C85D

Hatzenbuehler, M. L. (2016). Structural stigma: Research evidence and implications for psychological science. *American psychologist, 71*(8), 742-751. https:///doi.org/10.1037/amp0000068

Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a fundamental cause of population health inequalities. American Journal of Public Health, 103(5), 813-821. https://doi.org/10.2105/AJPH.2012.301069

Hazell, P. (2007). Does the treatment of mental disorders in childhood lead to a healthier adulthood? *Current. Opinion in. Psychiatry, 20*, 315-318. https://doi.org/10.1097/YCO.0b013e3281a7368d

Heary, C., Hennessy, E., Swords, L., & Corrigan, P. (2017). Stigma towards Mental Health Problems during Childhood and Adolescence: Theory, Research and Intervention Approaches. *Journal of Child and Family Studies*. https://doi.org/10.1007/s10826-017-0829-y

Heerde, J. A., & Hemphill, S. A. (2018). Examination of associations between informal help-seeking behavior, social support, and adolescent psychosocial outcomes: A meta-analysis. *Developmental Review. 47*, 44-62. https://doi.org/10.1016/j.dr.2017.10.001

Heflinger, C. A., & Hinshaw, S. P. (2010). Stigma in child and adolescent mental health services research: Understanding professional and institutional stigmatization of youth with mental health problems and their families. *Administration and Policy in Mental Health and Mental Health Services Research, 37*(1-2), 61-70. https://doi.org/10.1007/s10488-010-0294-z

Heights, R., Chimonides, K. M., and Frank, D. I. (1998). Rural and urban adolescents' perceptions of mental health. *Adolescence 33*,823–832. https://doi.org/ 10.1016/j.tele.2016.01.002

Heirman, M. Walrave, A. Vermeulen, K. Ponnet, H.,Vandebosch, K. Hardies. (2016). Applying the theory of planned behavior to adolescents' acceptance of online friendship requests sent by strangers. *Telematics and Informatics, 33* (4), 1119-1129

Henderson, C., Evans-Lacko, S., & Thornicroft, G. (2013). Mental illness stigma, help seeking, and public health programs. *American journal of public health, 103*(5), 777–780. https://doi.org/10.2105/AJPH.2012.301056

Henderson, C., Thornicroft, G., & Glover, G. (1998). Inequalities in mental health. *British Journal of Psychiatry, 173*(2), 105-109. https://doi.org/10.1192/bjp.173.2.105

Henderson, D. X., DeCuir-Gunby, J., & Gill, V. (2016). "It Really Takes a Village": A Socio-Ecological Model of Resilience for Prevention Among Economically Disadvantaged Ethnic Minority Youth. *The Journal of Primary Prevention, 37*(5), 469–485. https://doi.org/10.1007/s10935-016-0446-3

Herzog, W., Boomsma, A., & Reinecke, S. (2007). The model-size effect on traditional and modified tests of covariance structures. *Structural Equation Modeling, 14*(3), 361– 390. https://doi.org/10.1080/10705510701301602

Hill, R. (1998). What sample size is "enough" in internet survey research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century,* 6(3-4).

Hinshaw, S. P. (2005). The stigmatization of mental illness in children and parents: Developmental issues, family concerns, and research needs. Journal of Child Psychology and Psychiatry and Allied Disciplines, 46(7), 714-734. https://10.1111/j.1469-7610.2005.01456.x

Hinshaw, S. P. & Stier, A. (2008). Stigma as related to mental disorders. *Annual Review of Clinical Psychology, 4,* 367-393. https://doi.org/10.1146/annurev.clinpsy. 4.022007.141245

Ho, J., Corden, M., Caccamo, L., Tomasino, K. N., Duffecy, J., Beagle, M., & Mohr, D. C. (2017). Design and evaluation of a peer network to support adherence to a web-based intervention for adolescents. *Internet Interventions, 6,* 50-56. https://doi.org/10.1016/j.invent.2016.09.005

Hogg, C. (2011). Your good days and your bad days' An exploration and consideration of how lay people conceptualize depression. *Journal of psychiatric and mental health nursing,* 18, 851-861. https://doi.org/10.1111/j.1365-2850.2011.01734.x

Hogg, M., & Vaughan, G. (2005). Social Psychology (4th edition). London: Prentice-Hall.

Holmes-Smith P (2001). *Introduction to Structural Equation Modelling using LISREAL.* ACSPRI-Winter training Program.

Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural Equation Modelling: Guidelines for   Determining Model Fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60. https://doi.org/10.21427/D7CF7R

Holman D. (2015). Exploring the relationship between social class, mental illness stigma and mental health literacy using British national survey data. *Health (London, England : 1997), 19*(4), 413–429. https://doi.org/10.1177/1363459314554316

Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology, 65*, 599–610. https://doi.org/10.1037/0022-006X.65.4.599

Howitt, D. & Cramer, D. (2014). *Introduction to statistics in psychology*. (6th Ed). Pearson

Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 1–15). Sage.

Hoyle, R. H., & Panter, A. T. (1993). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 158–176). Sage.

Hu, L-T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1– 55. https://doi.org/10.1080/10705519909540118

Huggins, A., Weist, M. D., McCall, M., Kloos, B., Miller, E., & George, M. W. (2016). Qualitative analysis of key informant interviews about adolescent stigma surrounding use of school mental health services. *International Journal of Mental Health Promotion, 18*(1), 21-32. doi:10.1080/14623730.2015.1079424

Inglis, G., McHardy, F., Sosu, E., McAteer, J., & Biggs, H. (2019). Health inequality implications from a qualitative study of experiences of poverty stigma in

Scotland. *Social Science & Medicine (1982), 232*, 43–49.
https://doi.org/10.1016/j.socscimed.2019.04.033

Isaac, S., & Michael, W. B. (1995). *Handbook in research and evaluation.* Educational and
Industrial Testing Services.

ISD (Information Services Division) Scotland. (2019). *Child and Adolescent Mental Health
Services in Scotland: Waiting Times and Inpatient Activity Quarter ending 31
March 2019*. https://www.isdscotland.org/Health-Topics/Mental-
Health/Publications/2019-06-04/2019-06-04-CAMHS-WaitingTimes-Report.pdf

Jaccard, J., Jaccard, J., & Wan, C. K. (1996). *LISREL approaches to interaction effects in
multiple regression*. Sage

Johnson, S. B., Blum, R. W., & Giedd, J. N. (2009). Adolescent maturity and the brain: the
promise and pitfalls of neuroscience research in adolescent health policy. *The
Journal of adolescent health: official publication of the Society for Adolescent
Medicine, 45*(3), 216–221. https://doi.org/10.1016/j.jadohealth.2009.05.016

Joreskog, K. G. (1993). Testing structural equation models. In K. A. Bollen, & J. S. Long
(Eds.), *Testing structural equation models* (pp. 294–316). Sage

Jorm, A. (2015). Why do we need the concept of "Mental Health Literacy". *Health
Communication, 30,* 1166-1168. https://doi.org/10.1080/10410236.2015.1037423

Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997).
"Mental health literacy": a survey of the public's ability to recognise mental
disorders and their belief about the effectiveness of treatment. The *Medical Journal
of Australia, 166*(4), 182–186

Jorm, A.F., Barney, L.J., Christensen, H., Highet, N.J., Kelly, C.M., & Kitchener, B.A.
(2006). Research on mental health literacy: what we know and what we still need to
know. *The Australian and New Zealand Journal of Psychiatry, 40*(1), 3-5.
https://doi.org/10.1080/j.1440-1614.2006.01734.x

Jorm, A. F., Reavley, N. J., & Ross, A. N. (2012) Belief in the dangerousness of people with
mental disorders: a review. *Australian and New Zealand Journal of Psychiatry,
46*(11), 1029–1045. https://doi.org/10.1177/0004867412442406

Jorm, A. F., & Wright, A. (2008). Influences on young people's stigmatising attitudes
towards peers with mental disorders: National survey of young Australians and their

parents. *The British Journal of Psychiatry, 192*(2), 144-149.
https://doi.org/10.1192/bjp.bp.107.039404

Jorm, A. F., Wright A, Morgan, A. J. (2007a). Beliefs about appropriate first aid for young
people with mental disorders: Findings from an Australian national survey of youth
and parents. *Early Intervention in Psychiatry, 1*(1), 61–70.
https://doi.org/10.1111/j.1751-7893.2007.00012.x

Jorm, A. F., Wright A, Morgan, A. J. (2007b). Where to seek help for a mental disorder?
National survey of the beliefs of Australian youth and their parents. *The Medical
Journal of Australia*, *187*(10), 556–560.

Jung, E., & Yoon, M. (2016). Comparisons of three empirical methods for partial factorial
invariance: Forward, backward, and factor-ratio tests. *Structural Equation Modeling,
23*(4), 567–584. https://doi.org/10.1080/10705511.2015.1138092

Kågesten, A., Gibbs, S., Blum, R. W., Moreau, C., Chandra-Mouli, V., Herbert, A., & Amin,
A. (2016). Understanding Factors that Shape Gender Attitudes in Early Adolescence
Globally: *A Mixed-Methods Systematic Review. PloS one, 11*(6), e0157805.
https://doi.org/10.1371/journal.pone.0157805

Kaiser, H. (1970). A second generation little jiffy. *Psychometrika*, 35, 401-415.
https://doi.org/10.1007/BF02291817

Kaiser, H. (1974). An index of factorial simplicity. *Psychometrika*, 39, 31-36.
https://doi.org/10.1007/BF02291575

Kaneko, Y., & Motohashi, Y. (2007). Male gender and low education with poor mental
health literacy: a population-based study. *Journal of Epidemiology, 17*(4), 114–119.
https://doi.org/10.2188/jea.17.114

Kang, H. (2013). The prevention and handling of missing data. *Korean Journal of
Anesthesiology 64*(5), 402-406. https://doi.org/10.4097/kjae.2013.64.5.402

Kaplan, D. (2007). Structural Equation Modeling. In M. S. Lewis-Beck, *The SAGE
Encyclopaedia of Social Science Research*. Sage. pp. 1089–1093.
https://doi.org/10.4135/9781412950589

Karlsen, S. & Nazroo, J. Y. (2001). Relation between racial discrimination, social class, and
health among ethnic minority groups. *American journal of public health, 92*(4),
624-631. https://doi.org/10.2105/ajph.92.4.624

Karmel, T., & Jain, M. (1987). Comparison of purposive and random sampling schemes for estimating capital expenditure. *Journal of the American statistical association, 82*(397), 52-57. https://doi.org/10.2307/2289124

Karp, D. (2006). *Is It Me or My Meds?.* Harvard University Press.

Kauer, S. D., Mangan, C., & Sanci, L. (2014). Do online mental health services improve help-seeking for young people? A systematic review. *Journal of Medical Internet Research, 16*(3), e66. https://doi.org/10.2196/jmir.3103

Kaushik, A., Kostaki, E., & Kyriakopoulos, M. (2016). The stigma of mental illness in children and adolescents: A systematic review. *Psychiatry Research, 243*, 469-494. https://doi.org/10.1016/j.psychres.2016.04.042

Kavanagh, J., Oliver, S., Caird, J., Tucker, H., Greaves, A., Harden, A., Oakley, A., Lorenc, T., & Thomas, J. (2009). *Inequalities and the mental health of young people: a systematic review of secondary school-based cognitive behavioural interventions.* London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Keating, D. P. (2004). Cognitive and brain development. In R.J.Lerner & L. D. Steinberg (Eds.), *Handbook of Adolescent Psychology* (2 ed., pp. 45-84). Wiley.

Kellison, I., Bussing, R., Bell, L., & Garvan, C. (2010). Assessment of stigma associated with attention-deficit hyperactivity disorder: psychometric evaluation of the ADHD stigma questionnaire. *Psychiatry Research, 178*(2), 363–369. https://doi.org/10.1016/j.psychres.2009.04.022

Kelloway, E. K. (1998). *Using liseral for structural equation modeling: A researcher's guide*. Sage.

Kelly, A. E., & Achter, J. A. (1995). Self-concealment and attitudes toward counseling in university students. *Journal of Counseling Psychology*, 42, 40–46. https://psycnet.apa.org/doi/10.1037/0022-0167.42.1.40

Kelly, C.M., Jorm, A. F., Wright, A. (2007). Improving mental health literacy as a strategy to facilitate early intervention for mental disorders. *The Medical Journal of Australia, 187(S7), S26–S30.*

Kemm, J., & Close, A., (1995). *Health Promotion: Theory and Practice*. Palgrave

Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2015). The Performance of RMSEA in Models With Small Degrees of Freedom. *Sociological Methods & Research, 44*(3), 486–507. https://doi.org/10.1177/0049124114543236

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry, 62*(6), 593-602.

Kessler, R. C., Angermeyer, M., Anthony, J. C., DE Graaf, R., Demyttenaere, K., Gasquet, I., DE Girolamo, G., Gluzman, S., Gureje, O., Haro, J. M., Kawakami, N., Karam, A., Levinson, D., Medina Mora, M. E., Oakley Browne, M. A., Posada-Villa, J., Stein, D. J., Adley Tsang, C. H., Aguilar-Gaxiola, S., Alonso, J., … Ustün, T. B. (2007). Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental Health Survey Initiative. *World Psychiatry: official journal of the World Psychiatric Association* (WPA), 6(3), 168–176.

Keyes, C. L. M. (2002). The mental health continuum: languishing to flourishing in life. *Journal of Health and Social Behavior, 43*, 207–222. https://doi.org/10.2307/3090197

Kieling, C., Baker-Henningham, H., Belfer, M., Conti, G., Ertem, I., Omigbodun, O., Rohde, L. A., Srinath, S., Ulkuer, N., & Rahman, A. (2011). Child and adolescent mental health worldwide: evidence for action. *Lancet* (London, England), 378(9801), 1515–1525. https://doi.org/10.1016/S0140-6736(11)60827-1

Kim, N. H., Lim, K. Y., Chung, Y. K., Noh, J. S., & Shin, Y. M. (2014). Gender differences in factors associated with perceived need and use of Korean adolescents mental health services. *Child Psychiatry and Human Development, 45*, 746–752. https://doi.org/10.1007/s10578-014-0443-9

Kim-Cohen, J., Caspi, A., Moffitt, T. E., Harrington, H., Milne, B. J., & Poulton, R. (2003). Prior juvenile diagnoses in adults with mental disorder: Developmental follow-back of a prospective-longitudinal cohort. *Archives of General Psychiatry, 60*(7), 709–717. https://doi.org/10.1001/archpsyc.60.7.709

Kinderman, P., Read, J., Moncrieff, J., & Bentall, R. P. (2013). Drop the language of disorder. *Evidence-based Mental Health, 16*(1), 2–3. https://doi.org/10.1136/eb-2012-100987

King, R., Bickman, L., Shochet, I., McDermott, B., & Bor, B. (2010). Use of the internet for provision of better counselling and psychotherapy services to young people, their families and carers. *Psychotherapy in Australia, 17*(1), 66-74.

Kline, R. (2011). *Principles and Practice of Structural Equation Modeling* (3rd ed.). Guilford Publications.

Kolenikov, S., & Bollen, K. A. (2012). Testing Negative Error Variances: Is a Heywood Case a Symptom of Misspecification? *Sociological Methods & Research, 41*(1), 124–167. https://doi.org/10.1177/0049124112442138

Kotz, S., & Johnson, N.I. (1992). *Breakthrough in statistics* (Vols. 1 and 2). Springer-Verlag.

Kovandžić, M., Chew-Graham, C., Reeve, J., Edwards, S., Peters, S., Edge, D., Aseem, S., Gask, L., Dowrick D (2011). Access to primary mental health care for hard-to-reach groups: from 'silent suffering' to 'making it work'. *Social Science and Medicine 72*, 763–772. https://doi.org/10.1016/j.socscimed.2010.11.027

Kranke, D. A., Floersch, J., Kranke, B. O., & Munson, M. R. (2012). A qualitative investigation of self-stigma among adolescents taking psychiatric medication. *Psychiatric Services, 62*(8), 893-899. https://doi.org/10.1176/ps.62.8.pss6208_0893

Kranke, D., Guada, J., Kranke, B., & Floersch, J. (2012). What do African American youth with a mental illness think about help-seeking and psychiatric medication? Origins of stigmatizing attitudes. *Social work in mental health, 10*(1), 53-71. https://10.1080/15332985.2011.618076

Kutcher, S., & McLuckie, A. (2010). *Evergreen: A Child and Youth Mental Health Framework for Canada*, Mental Health Commission of Canada, Calgary, AB. https://www.mentalhealthcommission.ca/sites/default/files/C%252526Y _Evergreen_Framework_ENG_1.pdf

Kutcher, S., Bagnell, A., & Wei, Y. (2015) Mental health literacy in secondary schools: a Canadian approach. *Child Adolesc Psychiatr Clin N Am 24*(2), 233–244. https://doi.org/10.1016/j.chc.2014.11.007

Kutcher, S., Wei, Y., & Coniglio, C. (2016). Mental Health Literacy: Past, Present, and Future. *The Canadian Journal of Psychiatry, 61*(3), 154–158 https://doi.org/10.1177/0706743715616609

Kuther, T. L. (2002). "Rational Decision Perspectives on Alcohol Consumption by Youth: Revising the Theory of Planned Behaviour." Addictive Behaviors 27, 35–47. https://doi.org/10.1016/s0306-4603(00)00161-1

Kvaale, E. P., Haslam, N., & Gottdiener, W. H. (2013). The 'side effects' of medicalization: a meta-analytic review of how biogenetic explanations affect stigma. *Clinical Psychology Review, 33(*6), 782–794. https://doi.org/10.1016/j.cpr.2013.06.002

Lally, J., Conghaile, A., Quigley, S., Bainbridge, E., & McDonald, C. (2013). Stigma of mental illness and help-seeking intention in university students. *BJPsych Bulletin, 37*(8), 253-260. https://doi.org/10.1192/pb.bp.112.041483

Lam, L.T. (2014). Mental health literacy and mental health status in adolescents: a population-based survey. *Child and Adolescent Psychiatry and Mental Health 8, 26.* https://doi.org/10.1186/1753-2000-8-26

Langton, E. G., Collishaw, S., Goodman, R., Pickles, A., & Maughan, B. (2011). An emerging income differential for adolescent emotional problems. *Journal of child psychology and psychiatry, and allied disciplines*, *52*(10), 1081–1088. https://doi.org/10.1111/j.1469-7610.2011.02447.x

Langeveld, J. H., Israel, P., & Thomsen, P. H. (2010). Parental relations and referral of adolescents to Norwegian mental health clinics. *Nordic Journal of Psychiatry, 64*(5), 327–333. https://doi.org/10.3109/08039481003675068

LaPiere, R. T. (1934). Attitudes vs. Actions. *Social Forces, 13*, 230-237.

Lawlor, E., Breslin, J. G., Renwick, L., Foley, S., Mulkerrin, U., Kinsella, A., Turner, N., & O'Callaghan, E. (2008). Mental health literacy among Internet users. *Early intervention in psychiatry, 2*(4), 247–255. https://doi.org/10.1111/j.1751-7893.2008.00085.x

Lederman, N.G., Lederman, J.S. (2015). What Is A Theoretical Framework? A Practical Answer. *Journal of Science Teacher Education* 26, 593–597 https://doi.org/10.1007/s10972-015-9443-2

Lei, P. (2009). Evaluating estimation methods for ordinal data in structural equation modeling. *Quality and quantity 43*, 495. https://doi.org/10.1007/s11135-007-9133-z

Leighton, S. (2010). Using a vignette-based questionnaire to explore adolescents' understanding of mental health issues. *Clinical Child Psychology and Psychiatry, 15*(2), 231–250. https://doi.org/10.1177/1359104509340234

Lien, N., Friestad, C., & Klepp, K.-I. (2001). Adolescents' proxy reports of parents' socioeconomic status: How valid are they? *Journal of Epidemiology and Community Health, 55*(10), 731–737. https://doi.org/10.1136/jech.55.10.731

Lien, N., Lytle, L. A., & Komro, K. A. (2002). Applying Theory of Planned Behavior to Fruit and Vegetable Consumption of Young Adolescents. *American Journal of Health Promotion, 16*(4), 189–197. https://doi.org/10.4278/0890-1171-16.4.189

Lin, L. Y., Sidani, J. E., Shensa, A., Radovic, A., Miller, E., Colditz, J. B., Hoffman, B. L., Giles, L. M., & Primack, B. A. (2016). Association between social media use and depression among U.S. young adults. *Depression and Anxiety*, *33*(4), 323–331. https://doi.org/10.1002/da.22466

Lindsey, M. A., Joe, S., & Nebbitt, V. (2010). Family matters: The role of mental health stigma and social support on depressive symptoms and subsequent help seeking among African American boys. *Journal of Black Psychology, 36*(4), 458-482. https://doi.org/10.1177/0095798409355796

Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology,* 27, 363–385. https://doi.org/10.1146/annurev.soc.27.1.363

Link, B. G., Yang, L. H., Phelan, J. C., & Collins, P. Y. (2004). Measuring mental illness stigma. *Schizophrenia bulletin*, *30*(3), 511–541. https://doi.org/10.1093/oxfordjournals.schbul.a007098

Link, B. G, & Hatzenbuehler, M. L. (2016). Stigma as an Unrecognized Determinant of Population Health: Research and Policy Implications. *Journal of Health Politics, Policy and Law,41*(4), 653–673. https://doi.org/10.1215/03616878-3620869

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*(404), 118-1202. https://doi.org/ https://doi.org/10.1080/01621459.1988.10478722

Little, R. J. A., & Rubin, D. B. (2002). Missing data adjustments in large surveys (2nd ed). Wiley.

Lo, K., Gupta, T., & Keating, J. L. (2018). Interventions to Promote Mental Health Literacy in University Students and Their Clinical Educators. A Systematic Review of Randomised Control Trials. *Health Professions Education, 4*(3), 161-175. https://doi.org/10.1016/j.hpe.2017.08.001

Logan, D. E., King, C. A. (2001). Parental facilitation of adolescent mental health service utilisation: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 8*, 319-333. https://doi.org/10.1093/clipsy.8.3.319

Long, E., Gardani, M., McCann, M., Sweeting, H., Tranmer, M., & Moore, L. (2020). Mental health disorders and adolescent peer relationships. *Social Science & Medicine (1982), 253*, 112973. https://doi.org/10.1016/j.socscimed.2020.112973

Lynch, L., Long, M., & Moorhead, A. (2018). Young Men, Help-Seeking, and Mental Health Services: Exploring Barriers and Solutions. *American Journal of Men's Health*, 138–149. https://doi.org/10.1177/1557988315619469

Mackenzie, C.S., Gekoski, W.L., & Knox, V.J. (2006). Age, gender, and the underutilization of mental health services: The influence of help-seeking attitudes. *Aging and Mental Health, 10*, 574–582. https://doi.org/10.1080/13607860600641200

MacKinnon, D. P., Krull, J. L., & Lockwood CM. (2000). Equivalence of the mediation, confounding, and suppression effect. P*revention Science: The Official Journal of the Society for Prevention Research, 1*(4), 173–181. https://doi.org/10.1023/a:1026595011371

MacKinnon, D. P., Fairchild, A. J., & Fritz, M. J. (2007). Mediation Analysis. *Annual Review of Psychology*, 58, 593-614. https://doi.org/10.1146/annurev.psych.58.110405.085542

MacLean, A., Hunt, K. and Sweeting, H. (2013) symptoms of mental health problems: children's and adolescents' understandings and implications for gender differences in help seeking. *Children and Society, 27*, 161–173. https://doi/10.1111/j.1099-0860.2011.00406.x

Manderscheid, R. W., Ryff, C. D., Freeman, E. J., McKnight-Eily, L. R., Dhingra, S., & Strine, T. W. (2010). Evolving definitions of mental illness and wellness. *Preventing Chronic Disease, 7*(1), A19.

Mansfield, R., Patalay, P., & Humphrey, N. (2020). A systematic literature review of existing conceptualisation and measurement of mental health literacy in adolescent research: current challenges and inconsistencies. *BMC Public Health, 20*(1), 607. https://doi.org/10.1186/s12889-020-08734-1

Marcell, A. V., & Halpern-Felsher, B. L. (2007). Adolescents' beliefs about preferred resources for help vary depending on the health issue. *The Journal of Adolescent*

Health: Official Publication of The Society For Adolescent Medicine, 41(1), 61–68. https://doi.org/10.1016/j.jadohealth.2007.02.006

Marcinkowski, T., & Reid, A. (2019) Reviews of research on the attitude–behavior relationship and their implications for future environmental education research, *Environmental EducationResearch*,25:4,459-471, https://doi.org/10.1080/13504622.2019.1634237

Marcus, R.F. (1996). The friendships of delinquents. *Adolescence*, 31, 145-158

Marmot, M., Allen, J., & Goldblatt, P. (2010) Fair society, healthy lives: strategic review of health inequalities in England post 2010. London: Marmot Review Team. http://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review

Marmot, M., Allen, J., Boyce, T., Goldblatt, P., & Morrison, J. (2020). *Health Equity In England: The Marmot Review 10 Years On.*: Marmot Review Team. http://www.instituteofhealthequity.org/resources-reports/marmot-review-10-years-on/the-marmot-review-10-years-on-full-report.pdf

Martens, M. P. (2005). The use of structural equation modeling in counseling psychology research. *The Counseling Psychologist,* 33, 269–298. https://doi.org/101177/0011000004272260

Martin, J. K., Pescosolido, B. A., Olafsdottir, S., & McLeod, J. D. (2007). The construction of fear: Americans' preferences for social distance from children and adolescents with mental health problems. *Journal of Health and Social Behavior, 48*(1), 50-67. https://doi.org/10.1177/002214650704800104

Martin-Storey, A., Marcellin, S., Purtell, K. M., Tougas, A., Lessard, A. (2018). "It's about having money, but also happiness:" A qualitative investigation of how adolescents understand subjective status in themselves and others. *Journal of Adolescence*, 68, 198-206. https://doi.org/10.1016/j.adolescence.2018.08.004

McCann, T. V., Lu, S., & Berryman, C. (2009). Mental health literacy of Australian Bachelor of Nursing students: a longitudinal study. *Journal of Psychiatric and Mental Health Nursing, 16*(1), 61–67. https://doi.org/10.1111/j.1365-2850.2008.01330.x

McDaid D. (2016) *Investing in health literacy: What do we know about the co-benefits to the education sector of actions targeted at children and young people?* European Observatory on Health Systems and Policies.

McDonagh, J. E. (2018). The age of adolescence…and young adulthood. *The Lancet Child and Adolescent Health, 2*(4), https://doi.org/10.1016/S2352-4642(18)30079-8

McDonald, R. P., & Ho, M. H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods, 7*(1), 64–82. https://doi.org/10.1037//1082-989X.7.1.64

McEachan, R. R. C., Conner, M., Taylor, N. J., & Lawton, R. J. (2011). Prospective prediction of health-related behaviourswith the theory of planned behaviour: A meta-analysis. *Health Psychology Review,5*(2), 97–144. https://doi.org/10.1080/17437199.2010.521684

McKeague, L., Hennessy, E., O'Driscoll, C., & Heary, C. (2015). Peer Mental Health Stigmatization Scale: Psychometric properties of a questionnaire for children and adolescents. *Child and Adolescent Mental Health, 20*(3), 163-170. https://doi.org/10.1111/camh.12088

Mcluckie, A., Kutcher, S., Wei, Y., & Weaver, C. (2014). Sustained improvements in students' mental health literacy with use of a mental health curriculum in Canadian schools. *BMC Psychiatry 14*, 379. https://doi.org/10.1186/s12888-014-0379-4

Medley, A., Kennedy, C., O'Reilly, K., & Sweat, M. (2009). Effectiveness of peer education interventions for HIV prevention in developing countries: a systematic review and meta-analysis. AIDS education and prevention: official publication of the International *Society for AIDS Education, 21*(3), 181–206. https://doi.org/10.1521/aeap.2009.21.3.181

Menna, R. & Ruck, M. (2004). Adolescent help-seeking: how do we encourage it?.*Guidance & Counseling, 19*(4), 175-183.

Mental Health and Wellbeing EU Joint Action. (2017a). *Mental health in all policies: Situation analysis and recommendations for action.* European Commission. https://ec.europa.eu/health/sites/health/files/mental_health/docs/2017_mh_allpolicies_en.pdf

Mental Health and Wellbeing EU Joint Action. (2017b). Mental Health and Schools: Situation Analysis and Recommendations For Action. European Commission. https://ec.europa.eu/health/sites/health/files/mental_health/docs/2017_mh_schools_en.pdf

Mental Health Foundation. (2019). *State of a Generation: Preventing Mental Health Problems in Children and Young People*. Mental Health Foundation.

https://www.mentalhealth.org.uk/sites/default/files/MHF_State-Of-A-Generation_Report_Scotland_0.pdf

Mental Health Foundation Scotland. (2018). *Make it Count. Let's put health and well-being at the heart of Scotland's schools.* https://www.mentalhealth.org.uk/sites/default /files/make-it-count- policy-briefing-scotland.pdf

Meredith, W. (1993). Measurement invariance, factor analysis and factorial invariance. *Psychometrika, 58*(4), 525–543. https://doi.org/10.1007/BF02294825

Meredith, W., & Teresi, J. A. (2006). An Essay on Measurement and Factorial Invariance. *Medical Care, 44*(11, Suppl 3), S69–S77. https://doi.org/10.1097/01.mlr. 0000245438.73837.89

Merikangas, K. R., He, J. P., Burstein, M., Swendsen, J., Avenevoli, S., Case, B., Georgiades, K., Heaton, L., Swanson, S., & Olfson, M. (2011). Service utilization for lifetime mental disorders in U.S. adolescents: results of the National Comorbidity Survey-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry, 50*(1), 32–45. https://doi.org/10.1016/j.jaac.2010.10.006

Merritt, C., Tharp, I., & Furnham, A. (2014). Trauma type affects recognition of post-traumatic stress disorder among the general public in the UK and Ireland. *Journal of Affective Disorders, 164*. 123-129. https://doi.org/10.1016/j.jad.2014.04.013

Merry, S., McDowell, H., Hetrick, S., Bir, J., & Muller, N. (2004). Psychological and/or educational interventions for the prevention of depression in children and adolescents. *Cochrane Database of Systematic Reviews*, p. CD003380

Meyers, L., Gamst, G., & Guarino, A. (2013). Applied multivariate research: Design and interpretation. Sage Publications.

Mickelson, K. D., Williams, S. L. (2008). Perceived stigma of poverty and depression: examination of interpersonal and intrapersonal mediators. *Journal of Social and Clinical Psychology, 27*(9), 903–930. https://doi.org/10.1521/jscp.2008.27.9.903

Miller, K. (2014). Introduction: Cognitive Interviewing Methodology. In K. Miller, S. Willson, V. Chepp, & J. Padilla (Eds.) Cognitive Interviewing *Methodology* (pp. 1-7). Wiley

Miller, T.E., Booraem, C., Flowers, J.V., & Iversen, A.E. (1990). Changes in knowledge, attitudes, and behavior as aresult of a community-based AIDS prevention program.*AIDS Education and Prevention, 2*(1), 12-23.

Milner, A., Shields, M., & King, T. (2019). The Influence of Masculine Norms and Mental Health on Health Literacy Among Men: Evidence from the Ten to Men Study. American journal of men's health, 13(5), 1557988319873532. https://doi.org/10.1177/1557988319873532

Mitchell, C., McMillan, B., & Hagan, T. (2017). Mental health help-seeking behaviours in young adults. *Journal of General Practice, 67*(654), 8-9. https://doi.org/10.3399/bjgp17X688453

Mo, P., & Mak, W. (2009). Help-seeking for mental health problems among Chinese: The application and extension of the theory of planned behavior. *Social Psychiatry and Psychiatric Epidemiology, 44*(8), 675–684. https://doi.org/10.1007/s00127-008-0484-0

Moan, I. S., & Rise, J. (2006) Predicting smoking reduction among adolescents using an extended version of the theory of planned behaviour, *Psychology & Health, 21*(6), 717-738. https://doi.org/10.1080/14768320600603448

Moses, T. (2009a). Self-labelling and its effects among adolescents diagnosed with mental disorders. *Social science & medicine, 68*(3), 570-578. https://doi.org/10.1016/j.socscimed.2008.11.003

Moses, T. (2009b). Stigma and self-concept among adolescents receiving mental health treatment. *American journal of orthopsychiatry, 79*(2), 261-274. https://doi.org/10.1037/a0015696

Moses, T. (2010). Being treated differently: Stigma experiences with family, peers, and school staff among adolescents with mental health disorders. Social Science and Medicine, 70(7), 985-993. https://doi/org/10.1016/j.socscimed.2009.12.022

Mojtabi, R., Evans-Lacko, S., Schomerus, G., & Thornicroft, G. (2016). Attitudes towards mental health help seeking as predictors of future help-seeking behaviour and use of mental health treatments.*PsychiatricServices,67*(6),650-657. https://doi.org/10.1176/appi.ps.201500164

Morgan, M. S., & Morrison, M. (1999). *Models as mediators: Perspectives on natural and social science*. Cambridge University Press

Mount Sinai Adolescent Health Centre (2016). Blueprint for adolescent and young adult health care. https://www.teenhealthcare.org/wp-content/uploads/2018/05/MSAHC-Blueprint-Guide.pdf

Mueller, R. O., & Hancock, G. R. (2004). *Evaluating structural equation modeling studies: Some practical suggestions to manuscript reviewers*. Paper presented at the meeting of the American Educational Research Association.

Mukolo, A., Heflinger, C. A., & Wallston, K. A. (2010). The Stigma of Childhood Mental Disorders: A Conceptual Framework. *Journal of the American Academy of Child and Adolescent Psychiatry, 49*(2), 92-103. https://doi.org/10.1097/00004583-201002000-00003

Mukolo, A., & Heflinger, C. A. (2011). Factors associated with attributions about child health conditions and social distance preference. *Community mental health journal*, *47*(3), 286–299. https://doi.org/10.1007/s10597-010-9325-1

Murali., V., Oyebode, F. (2004). Poverty, social inequality and mental health. *Advances in Psychiatric Treatment,* 10, 216-224. https://doi.org/10.1192/apt.10.3.216

Murphy, R. (2016). *SPICe Briefing: Child and Adolescent Mental Health – Trends and Key Issues*. Scottish Parliament Information Centre: Edinburgh, UK. http://www.parliament.scot/ResearchBriefingsAndFactsheets/S5/SB_16-76_Child_and_Adolescent_Mental_Health_Trends_and_Key_Issues.pdf

Musairah, S. K. (2015). Mediation and Moderation Analysis from the Perspective of Behavioral Science. *Jurnal Intelek, 10*(1), 1-11.

Muthén, B. O. (2002). "Beyond SEM: General Latent Variable Modeling.*" Behaviormetrika 29*(1), 81–117. https://doi.org/10.2333/bhmk.29.81.

Myers, F., Woodhouse, A., Whitehead, A., McCollam, A., McBryde, L., Pinfold, V. et al. (2009). *Evaluation of 'see me' - the National Scottish Campaign Against the Stigma and Discrimination Associated with Mental Ill-Health*. See Me. http://www.scotland.gov.uk/Publications/2009/02/02104334/0

Naslund, J. A., Aschbrenner, K. A., Marsch, L. A., & Bartels, S. J. (2016). The future of mental health care: peer-to-peer support and social media. *Epidemiology and Psychiatric Sciences, 25*(2), 113–122. https://doi.org/10.1017/S2045796015001067

Nazroo, J. Y. (2003). The structuring of ethnic inequalities in health: economic positions, racial discrimination, and racism. *American journal of public health, 93*(2), 277-284. https://doi.org/10.2105/ajph.93.2.277

Nearchou, F., Bird, N., Costello, A., Duggan, S., Gilroy, J., Long, R., McHugh. L., & Hennessy, E. (2018). Personal and perceived stigma as predictors of help-seeking intention in adolescents. *Journal of Adolescence, 66*, 83-90. https://doi.org/10.1016/j.adolescence.2018.05.003

Nearchou, F, O'Driscoll, C, McKeague, L, Heary, C., & Hennessy, E. (2020). Psychometric properties of the Peer Mental Health Stigmatization Scale-Revised in adolescents and young adults. *Early Intervention in Psychiatry*, 1– 5. https://doi.org/10.1111/eip.12933

Nelson, T. D., & Nelson, J. M. (2010). Evidence based practice and the culture of adolescence. *Professional Psychology: Research and Practice, 41,* 305-311. https://doi.org/10.1037/a0020328

Neufeld, S. A. S., Dunn, V. J., Jones, P. B., Croudance, T. J., & Goodyear, I. M. (2017). Reduction in adolescent depression after contact with mental health services. *Lancet Psychiatry, 4,* 120-127. https://doi.org/10.1016/S2215-0366(17)30002-0

NHS Digital (2018*). Mental Health of Children and Young People in England, 2017* [PAS]. https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-of-children-and-young-people-in-england/2017/2017

Noar, S. M. (2003). The role of structural equation modeling in scale development. *Structural Equation Modeling, 10*(4), 622–647. https://doi.org/10.1207/S15328007SEM1004_8

Nowell, R. (2014). *SPICE Briefing: Mental health in Scotland*. Scottish Parliament Information Centre: Edinburgh, UK. http://www.parliament.scot/ResearchBriefingsAndFactsheets/S4/SB_14-36.pdf

Nunnally, J. C. (1978). *Psychometric theory*. McGraw-Hill.

O'Connor, M., Casey, L., & Clough, B. (2014). Measuring mental health literacy--a review of scale-based measures. *Journal of Mental Health (Abingdon, England)*, *23*(4), 197–204. https://doi.org/10.3109/09638237.2014.910646

O'Driscoll, C., Heary, C., Hennessy, E., & McKeague, L. (2012). Explicit and implicit stigma towards peers with mental health problems in childhood and adolescence.

Journal of Child Psychology and Psychiatry, 53(10), 1054-1062.
https://doi.org/10.1111/j.1469-7610.2012.02580.x

O'Driscoll, C., Heary, C., Hennessy, E., & McKeague, L. (2015). Adolescents' beliefs about
the fairness of exclusion of peers with mental health problems. *Journal of
Adolescence*, *42*, 59–67. https://doi.org/10.1016/j.adolescence.2015.03.008

Olsson, D. P., & Kennedy, M. G. (2010). Mental health literacy among young people in a
small US town: recognition of disorders and hypothetical helping responses. *Early
Intervention in Psychiatry, 4*(4), 291–298. https://doi.org/10.1111/j.1751-7893.
2010.00196.x

Osborne, J. W., & Overbay, A. (2004). The power of outliers (and why researchers should
always check for them). *Practical Assessment, Research & Evaluation, 9*(6), 1-8.
https://doi.org/10.7275/qf69-7k43

Ostman, M., & Kjellin, L. (2002). Stigma by association: psychological factors in relatives
of people with mental illness. *The British Journal of Psychiatry: The Journal of
Mental Science, 181*, 494–498. https://doi.org/10.1192/bjp.181.6.494

Padilla-Walker L. M, & Bean R. A. (2009) Negative and positive peer influence: Relations
to positive and negative behaviors of African American, European American, and
Hispanic adolescents. *Journal of Adolescence, 32,* 323–337.
https:///doi.org/10.1016/j.adolescence.2008.02.003

Pallant, J. (2010). *SPSS survival manual* (4th edn.). Open University Press

Paris, S. G., Lipson, M. Y., & Wixson, K. K. (1983). Becoming a strategic reader.
Contemporary Educational Psychology, 8(3), 293-316.

Parkin, E., Long, R., & Powell, T. (2019). *Children and young people's mental health –
policy, CAMHS services, funding and education.* House of Commons Library,
London HC 07196. https://commonslibrary.parliament.uk/research-briefings/cbp
7196/

Pattyn, E., Verhaeghe, M., Sercu, C., & Bracke, B. (2014). Public stigma and self-stigma:
differential association with attitudes toward formal and informal help seeking.
Psychiatric Services (*65*)2, 232-238. https://doi.org/10.1176/appi.ps.201200561

Peake, S. J., Dishion, T. J., Stormshak, E. A., Moore, W. E., & Pfeifer, J. H. (2013). Risk-
taking and social exclusion in adolescence: Neural mechanisms underlying peer

influences on decision-making. *NeuroImage, 82*, 23–34.
https://doi.org/10.1016/j.neuroimage.2013.05.061

Pederson, E. R., & Paves, A. P. (2014). Comparing perceived public stigma and personal
stigma of mental health treatment seeking in a young adult sample. *Psychiatry
Research, 219*(1), 143-150. https://doi.org/10.1016/j.psychres.2014.05.017

Perry, Y., Petrie, K., Buckley, H., Cavanagh, L., Clarke, D., Winslade, M., Hadzi-Pavlovic,
D., Manicavasagar, V., & Christensen, H. (2014). Effects of a classroom-based
educational resource on adolescent mental health literacy: a cluster randomized
controlled trial. *Journal of Adolescence, 37*(7), 1143–1151.
https://doi.org/10.1016/j.adolescence.2014.08.001

Pescosolido, B. A. (1992). Beyond rational choice: The social dynamics of how people seek
help. *The American Journal of Sociology, 97*, 1096-1138.

Pescosolido, B. A., Fettes, D. L., Martin, J. K., Monahan, J., & McLeod, J. D. (2007).
Perceived dangerousness of children with mental health problems and support for
coerced treatment *Psychiatr. Serv., 58*, 619-625.
https://doi.org/10.1176/ps.2007.58.5.619

Pescosolido, B. A., & Martin, J. K. (2015). The Stigma Complex. *Annual review of
Sociology*, *41*, 87–116. https://doi.org/10.1146/annurev-soc-071312-145702

Pescosolido, B. A., Martin, J. K., Lang, A., & Olafsdottir, S. (2008). Rethinking theoretical
approaches to stigma: A Framework Integrating Normative Influences on Stigma
(FINIS). *Social Science and Medicine, 67*(3), 431-440.
https://doi.org/10.1016/j.socscimed.2008.03.018

Phillips S. P. (2005). Defining and measuring gender: a social determinant of health whose
time has *come. International Journal for Equity In Health, 4*, 11.
https://doi.org/10.1186/1475-9276-4-11

Pingani, L., Sampogna, G., Evans-Lacko, S., Gozzi, B., Giallonardo, V., Luciano, M.,
Galeazzi, G. M., & Fiorillo, A. (2019). How to Measure Knowledge About Mental
Disorders? Validation of the Italian Version of the MAKS. *Community mental
health journal*, *55*(8), 1354–1361. https://doi.org/10.1007/s10597-019-00416-6

Pinto-Foltz, M. D. (2010). School-based intervention to reduce stigma toward mental
disorders and improve mental health literacy in female adolescents. (70), ProQuest
Information & Learning, US. http://search.ebscohost.com/login.aspx?
direct=true&db= psyh&AN=2010-99080-218&site=ehost-live

Pinto-Foltz, M. D., Logsdon, M. C., & Myers, J. A. (2011). Feasibility, acceptability, and initial efficacy of a knowledge-contact program to reduce mental illness stigma and improve mental health literacy in adolescents. *Social Science & Medicine, 72*(12), 2011-2019. https://doi.org/10.1016/j.socscimed.2011.04.006

Polanczyk, G. V., Salum, G. A., Sugaya, L. S., Caye, A., & Rohde, L. A. (2015). Annual research review: a meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Chid Psychology and Psychiatry and Allied Disciplines, 56,* 345-365. https://doi.org/10.1111/jcpp.12381

Polaha, J., Williams, S. L., Heflinger, C. A., & Studts, C. R. (2015). The Perceived Stigma of Mental Health Services Among Rural Parents of Children with Psychosocial Concerns. *Journal of Pediatric Psychology*, *40*(10), 1095–1104. https://doi.org/10.1093/jpepsy/jsv054

Popham, F., & Boyle, P. (2011). *Assessing Socio-Economic Inequalities in Mortality and OtherHealth Outcomes at the Scottish National Level: Final Report*. Scottish Collaboration for Public Health Research and Policy. Edinburgh. http://www.scphrp.ac.uk/wp-content/uploads/2014/05/Assessing-socio-economic-inequalities-in-mortality-and-other-health-outcomes.pdf,

Pople, L. (2008). *The good childhood inquiry: Family—A summary of themes emerging from children and young people's evidence*. London: The Children's Society.

Poster, E. (1992). Children's Concept of the Mentally ill Journal of *Child and Adolescent. Psychiatric Nursing*, *5*(2), 28-36, https://doi.org/10.1111/j.1744–6171.1992.tb00119.x

Pretorius, C., Chambers, D., Coyle, D. (2015). Young People's Online Help-Seeking and Mental Health Difficulties: Systematic Narrative Review. *Journal of Medical Internet Research, 21*(11), e13873. https://doi.org/10.2196/13873

Prior, S. (2012). Overcoming stigma: How young people position themselves as counselling service users. *Sociology of Health & Illness, 34*(5), 697-713. https://doi.org/10.1111/j.1467-   9566.2011.01430.x

Public Health England. (2015). *Local action on health inequalities: Improving health literacy to reduce health inequalities.* https://www.gov.uk/government/publications/local-action-on-health-inequalities-improving-health-literacy

Putnick, D. L., & Bornstein, M. H. (2016). Measurement Invariance Conventions and Reporting: The State of the Art and Future Directions for Psychological Research. *Developmental Review: DR*, *41*, 71–90. https://doi.org/10.1016/j.dr.2016.06.004

Quon, E. C., & McGrath, J. J. (2014). Subjective socioeconomic status and adolescent health: A meta- analysis. *Health Psychology, 33*(5), 433-447 https://doi.org/10.1037/a0033716

Radez, J., Reardon, T., Creswell, C., Lawrence, P. H., Evdoka-Burton, G., & Waite, P. (2020). Why do children and adolescents (not) seek and access professional help for their mental health problems? A systematic review of quantitative and qualitative studies. *European Child & Adolescent Psychiatry*. https://doi.org/10.1007/s00787-019-01469-4

Rafal, G., Gatto, A., & DeBate, R. (2018) Mental health literacy, stigma, and help-seeking behaviors among male college students, *Journal of American College Health, 66*(4), 284-291. https://doi.org/10.1080/07448481.2018.1434780

Ragelienė, T. (2016). Links of Adolescents Identity Development and Relationships with Peers: A Systematic Literature Review. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 25*(2), 97-105

Rappaport, N., & Chubinsky, P. (2000) The meaning of psychotropic medications for children, adolescents and their families. *Journal of the American Academy of Child and Adolescent Psychiatry. 39*, 1198–1200. https://doi.org/10.1097/00004583-200009000-00021

Rässler, S., Rubin, D. B., & Schenker, N. (2008). Incomplete data: diagnosis, imputation and estimation. In, Leeuw, Hox, & Dillman (Eds.) *International Handbook of Survey Methodology* (p.370-386). Taylor & Francis.

Ratnayake, P., & Hyde, C. (2019). Mental Health Literacy, Help-Seeking Behaviour and Wellbeing in Young People: Implications for Practice. *The Educational and Developmental Psychologist, 36*(1), 16-21. https://doi.org/10.1017/edp.2019.1

Raviv, A., Sills, R., Raviv, A., & Wilansky, P. (2000). Adolescents' help-seeking behaviour: the difference between self- and other-referral. *Journal of adolescence*, *23*(6), 721–740. https://doi.org/10.1006/jado.2000.0355

Read, J. (2007), Why promoting biological ideology increases prejudice against people labelled "schizophrenic". *Australian Psychologist*, 42, 118-128. doi:10.1080/00050060701280607

Reardon, T., Harvey, K., Baranowska, M., O'Brien, D., Smith, L., & Creswell, C. (2017). What do parents perceive are the barriers and facilitators to accessing psychological treatment for mental health problems in children and adolescents? A systematic review of qualitative and quantitative studies. *European Child & Adolescent Psychiatry, 26*(6), 623–647. https://doi.org/10.1007/s00787-016-0930-6

Reavley, N. J., & Jorm, A. F. (2011). Recognition of mental disorders and beliefs about treatment and outcome: Findings from an Australian National Survey of Mental Health Literacy and Stigma. *Australian and New Zealand journal of psychiatry*, *45*(11), 947-956. doi:10.3109/00048674.2011.621060

Reavley, N. J., McCann, T.V., & Jorm, A. F. (2012) Mental health literacy in higher education students. *Early Intervention in Psychiatry*. *6*(1), 45–52. https://doi.org/10.1111/j.1751-7893.2011.00314.x

Reavley, N. J., Morgan, A. J., & Jorm, A. F. (2014). Development of scales to assess mental health literacy relating to recognition of and interventions for depression, anxiety disorders and schizophrenia/psychosis. *Australian & New Zealand Journal of Psychiatry, 48*(1), 61–69. https://doi.org/10.1177/0004867413491157

Reiss, F. (2013). Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review. *Social Science and Medicine, 90,* 24-31. https://doi.org/10.1016/j.socscimed.2013.04.026

Reiss, F., Meyrose. A-K., Otto, C., Lampert, T., Klasen, F., & Ravens-Sieberer, U. (2019). Socioeconomic status, stressful life situations and mental health problems in children and adolescents: Results of the German BELLA cohort-study. PLoS ONE 14(3), e0213700. https://doi.org/10.1371/journal.pone.0213700

Rickwood, D. J., & Braithwaite, V. A. (1994). Social-psychological factors affecting help-seeking for emotional problems. *Social Science & Medicine, 39*(4), 563–572. https://doi.org/10.1016/0277-9536(94)90099-X

Rickwood, D., Cavanagh, S., Curtis, L. & Sakrouge, R. (2004) Educating young people about mental health and mental illness: evaluating a school - based programme. *International journal of mental health promotion, 6*(4), 23-32. https://doi.org/ 10.1080/14623730.2004.9721941

Rickwood, D., Deane, F., Wilson, C., Ciarrochi, J. (2005): Young people's help-seeking for mental health problems. AeJAMH (Australian e-Journal for the Advancement of Mental Health)., 4(3), 218-251. https://doi.org/10.5172/jamh.4.3.218

Rickwood, D., Deane, F., & Wilson, C. (2007). When and how do young people seek professional help for mental health problems?. Med J Aust. 187(7 Suppl), S35-39.

Rickwood, D. J., Mazzer, K. R., & Telford, N. R. (2015). Social influences on seeking help from mental health services, in person and online, during adolescence and young adulthood. *BMC Psychiatry, 15*, Article 40.https://doi.org/10.1186/s12888-015-0429-6

Rickwood, D., & Thomas, K. (2012). Conceptual measurement framework for help-seeking for mental health problems. *Psychology Research and Behavior Management, 5,* 173–183. https://doi.org/10.2147/PRBM.S38707

Rickwood, D., Thomas, K., & Bradford, S. (2012). *Review of help-seeking measures in mental health: An Evidence Check rapid review brokered by the Sax Institute.* https://www.saxinstitute.org.au/wp-content/uploads/02_Help-seeking-measures-in-mental-health.pdf

Rice, S. M., Purcell, R., & McGorry, P. D. (2018). Adolescent and Young Adult Male Mental Health: Transforming System Failures Into Proactive Models of Engagement. *The Journal of adolescent health: official publication of the Society for Adolescent Medicine, 62*(3S), S9–S17. https://doi.org/10.1016/j.jadohealth.2017.07.024

Rice, F., Rawal, A., Riglin, L., Lewis, G., Lewis, G., & Dunsmuir, S. (2015). Examining reward-seeking, negative self-beliefs and over-general autobiographical memory as mechanisms of change in classroom prevention programs for adolescent depression. *Journal of Affective Disorders, 186*, 320–327. https://doi.org/10.1016/j.jad.2015.07.019

Riebl, S. K., MacDougal, C., Hill, C., Estabrooks, P. A., Dunsmore, J. C., Savla, J., Frisard, M. I., Dietrich, A. M., & Davy, B. M. (2016). Beverage Choices of Adolescents and Their Parents Using the Theory of Planned Behavior: A Mixed Methods Analysis. *Journal of the Academy of Nutrition and Dietetics, 116*(2), 226–39.e1. https://doi.org/10.1016/j.jand.2015.10.019

Riebschleger, J., Grove, C.J., Cavanaugh, D., & Costello, S.C. (2017). Mental health literacy content for children of parents with a mental illness: Thematic analysis of a literature review. *Brain Sciences, 7*, 141. https://doi.org/10.3390/brainsci7110141

Rimal, R. N. (2001). Longitudinal Influences of Knowledge and Self-efficacy on Exercise Behavior: Tests of a Mutual Reinforcement Model. *Journal of Health Psychology, 6*(1), 31–46. https://doi.org/10.1177/135910530100600103

Roberts, M. C., Johnson, A. Q., & Beidleman, W. B. (1984). The role of socioeconomic status on children's perceptions of medical and psychological disorders. *Journal of Clinical Child Psychology, 13*(3), 243-249. https://doi.org/10.1080/15374418409533197

Roberts, M.. C., Beidleman, W. B., & Wurtele, S. K. (1981) Children's perceptions of medical and psychological disorders in their peers, *Journal of Clinical Child Psychology, 10*(2), 76-78, https://doi.org/10.1080/15374418109533018

Robles, C. C., & Bronstein, J. (2020). Easing the path for improving help-seeking behaviour in youth. *EClinicalMedicine 18*(100256), 102. https://doi.org/ 10.1016/ j.eclinm. 2019.100256

Rose, D., Thornicroft, G, Pinfold, V., & Kassam A. (2007). 250 labels used to stigmatise people with mental illness. *BMC Health Services Research, 7*(97). https://doi.org/10.1186/1472-6963-7-97

Rossow, I., & Wichstrøm, L. (2010). Receipt of help after deliberate self-harm among adolescents: changes over an eight-year period. *Psychiatric Services* (Washington, D.C.), 61(8), 783–787. https://doi.org/10.1176/ps.2010.61.8.783

Rowling, L. (2015). Developing and sustaining mental health and wellbeing in Australian schools. In S. Kutcher, Y. Wei, & M. Weist (Eds.), *School Mental Health: Global Challenges and Opportunities* (pp. 6-20). Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781107284241.002

Royal Society for Public Health (2017). *#Status of mind: Social media and young people's mental health and wellbeing*. https://www.rsph.org.uk/uploads/assets/uploaded/ d125b27c-0b62-41c5-a2c0155a8887cd01.pdf

Ruane, J. (2005). *Essential of research methods: a guide to social science research*. Blackwell.

Rubin, D. B. (1976). Inference and missing data. *Biometrika*, *63*, 581-592. https://doi.org/10.1093/biomet/63.3.581

Rubin, K. H., Coplan, R., Chen, X., Buskirk, A. A., & Wojslawowicz, J. C. (2005). Peer Relationships in Childhood. In M. H. Bornstein & M. E. Lamb (Eds.),

Developmental science: An advanced textbook (p. 469–512). Lawrence Erlbaum Associates Publishers.

Rughani, J., Deane, F. P., & Wilson, C. J. (2011). Rural adolescents' help-seeking intentions for emotional problems: the influence of perceived benefits and stoicism. *The Australian journal of rural health*, *19*(2), 64–69. https://doi.org/10.1111/j.1440-1584.2011.01185.x

Ryan, A. M., Jorm, A. F., Toumbourou, J. W., Lubman, D. I. (2015). Parent and family factors associated with service use by young people with mental health problems: A systematic review. *Early Intervention in Psychiatry, 9,* 433-446. https://doi.org/10.1111/eip.12211

Rüsch, N., Angermeyer, M. C., & Corrigan, P. W. (2005). Mental illness stigma: concepts, consequences, and initiatives to reduce stigma. *European psychiatry: the journal of the Association of European Psychiatrists, 20*(8), 529–539. https://doi.org/10.1016/j.eurpsy.2005.04.004

Rutkowski, L., & Svetina, D. (2014). Assessing the Hypothesis of Measurement Invariance in the Context of Large-Scale International Surveys. *Educational and Psychological Measurement, 74*(1), 31–57. https://doi.org/10.1177/0013164413498257

SAMH: Scottish Association for Mental Health (2017). *Going To Be…All Right? – A Report On The Mental Health Of Young People In Scotland.* SAMH. https://www.samh.org.uk/documents/Going_to_Be_All_Right_Jacki_Gordon_Report_2017.pdf

SAMH: Scottish Association for Mental Health (2018). *Going to be… Well Trained. SAMH Survey on School Staff Training In Mental Health.* https://www.samh.org.uk/documents/welltrained.pdf

Sakellari, E., Leino-Kilpi, H., & Kalokerinou-Anagnostopoulou, A. (2011). Educational interventions in secondary education aiming to affect pupils' attitudes towards mental illness: a review of the literature. *Journal of psychiatric and mental health nursing, 18*(2), 166–176. https://doi.org/10.1111/j.1365-2850.2010.01644.x

Sanchez, A. L., Cornacchio, D., Poznanski, B., Golik, A. M., Chou, T., & Comer, J. S. (2018). The Effectiveness of School-Based Mental Health Services for Elementary-Aged Children: A Meta-Analysis. *Journal of the American Academy of Child and Adolescent Psychiatry, 57*(3), 153–165. https://doi.org/10.1016/j.jaac.2017.11.022

Saporito, J. M., Ryan, C., & Teachman, B. A. (2011). Reducing stigma toward seeking mental health treatment among adolescents. *Stigma Research and Action, 1*(2), 9-21

Sapthiang, S., Van Gordon, W., & Shonin, E. (2019). Health School-based Mindfulness Interventions for Improving Mental Health: A Systematic Review and Thematic Synthesis of Qualitative Studies. *Journal of Child and Family Studies, 28*, 2650–2658. https://doi.org/10.1007/s10826-019-01482-w

Sarbornie, E.J. & Kauffman, J.M. (1985). Regular classroom sociometric status of behaviourally disordered adolescents. *Behavioural Disorders, 12*, 268-274.

Scambler, G. (2009). Health-related stigma. *Sociology of Health & Illness, 31*(3), 441-455. https://doi.org/10.1111/j.1467-9566.2009.01161.x

Shechtman, Z., Vogel, D. L., Strass, H. A., & Heath, P. J. (2016). Stigma in help-seeking: the case of adolescents. *British Journal of Guidance & Counselling*, 1-16. https://doi.org/10.1080/03069885.2016.1255717

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-Fit Measures. *Methods of Psychological Research, 8*(2), 23–74.

Schmitt, N. (1982). The use of analysis of covariance structures to assess beta and gamma change. *Multivariate Behavioral Research,* 17, 343–358. https:// doi.org/10.1207 /s15327906mbr1703_3

Schnyder, N., Panczak, R., Groth, N., & Schultze-Lutter, F. (2017). Association between mental health-related stigma and active help-seeking: systematic review and meta-analysis. *The British Journal of Psychiatry: The Journal Of Mental Science*, *210*(4), 261–268. https://doi.org/10.1192/bjp.bp.116.189464

Schomerus, G., & Angermeyer, M. (2008). Stigma and its impact on help-seeking for mental disorders: What do we know? *Epidemiologia E Psichiatria Sociale, 17*(1), 31-37. https://doi.org/10.1017/S1121189X00002669

Schomerus G, Matschinger H, Angermeyer M. (2009) Attitudes that determine willingness to seek psychiatric help for depression: A representative population survey applying the Theory of Planned Behaviour. *Psychological Medicine*, *39*(11), 1855–1865. https://doi.org/10.1017/S0033291709005832

Schomerus, G., Schwahn, C., Holzinger, A., Corrigan, P. W., Grabe, H. J., Carta, M. G., & Angermeyer, M. C. (2012). Evolution of public attitudes about mental illness: a

systematic review and meta-analysis. *Acta psychiatrica Scandinavica, 125*(6), 440–452. https://doi.org/10.1111/j.1600-0447.2012.01826.x

Schrader, P. G. & Lawless, K. A. (2004), The knowledge, attitudes, & behaviors approach how to evaluate performance and learning in complex environments. Perf. Improv., 43: 8-15. https://doi.org/10.1002/pfi.4140430905

Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). Lawrence Erlbaum Associates Publishers

Scott, W. A. (1958). Research definitions of mental health and mental illness. *Psychological Bulletin, 55*(1), 29-45.

Scottish Government (2016). Introducing the Scottish Index of Multiple Deprivation 2016. https://www.gov.scot/Resource/0050/00504809.pdf

Scottish Government (2017a). *Mental Health Strategy 2017-27.* Scottish Government. https://www.gov.scot/publications/mental-health-strategy-2017-2027/

Scottish Government (2017b). *Scottish health survey 2017: volume one - main report*. https://www.gov.scot/publications/scottish-health-survey-2017-volume-1-main-report/pages/28/

Scottish Government (2017c). Summary statistics for schools in Scotland No. 8: 2017 Edition. A National Statistics Publication for Scotland. https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2017/12/summary-statistics-schools-scotland-8-2017-edition/documents/summary-statistics-schools-scotland/summary-statistics-schools-scotland/govscot%3Adocument/00528868.pdf

Scottish Government (2018). Child and adolescent health and wellbeing: evidence review. Scottish Government. https://www.gov.scot/publications/child-adolescent-health-wellbeing-scotland-evidence-review/pages/10/

Scottish Government. (2019). *Mental Health Strategy 2017-27: Second Annual Progress Report.* Scottish Government. https://www.gov.scot/publications/mental-health-strategy-second-annual-progress-report/pages/13/

Scottish Youth Parliament (SYP). (2016). *Our generation's epidemic: Young people's awareness and experience of mental health information, support and services.* Scottish Youth Parliament: https://www.syp.org.uk/our_generation_s_epidemic

Sebastian, C., Viding, E., Williams, K., & Blakemore, S.-J. (2010). Social brain development and the affective consequences of ostracism in adolescence. *Brain and Cognition, 72*, 134–145. https://doi.org/10.1016/j.bandc.2009.06.008

Seiffge-Krenke, I. (1995). *Stress, coping, and relationships in adolescence*. Lawrence Erlbaum.

Serra, M., Lai, A., Buizza, C., Pioli, R., Preti, A., Masala, C., & Petretto, D. R. (2013). Beliefs and attitudes among Italian high school students toward people with severe mental disorders. *The Journal of Nervous and Mental Disease, 201*(4), 311–318. https://doi.org/10.1097/NMD.0b013e318288e27f

Shakya, H. B., Domingue, B., Nagata, J. M., Cislaghi, B., Weber A., & Darmstadt, G. L. (2019). Adolescent gender norms and adult health outcomes in the USA: a prospective cohort study. *The Lancet Child and Adolescent Health. 3*(8), P529-538. https://doi.org/10.1016/S2352-4642(19)30160-9

Shechtman, Z., Vogel, D. L., Strass, H. A., & Heath, P. J. (2016). Stigma in help-seeking: the case of adolescents. *British Journal of Guidance & Counselling*, 1-16. https://doi.org/10.1080/03069885.2016.1255717

Sheeran, P. (2002) Intention—Behavior relations: a conceptual and empirical review. *European Review of Social Psychology, 12*(1), 1-36. https://doi/org 10.1080/14792772143000003

Sheeran, P., Harris, P. R., & Epton, T. (2014). Does heightening risk appraisals change people's intentions and behavior? A meta-analysis of experimental studies. *Psychological Bulletin, 140*(2), 511–543. https://doi.org/10.1037/a0033065

Sheffield, J. K., Fiorenza, E., & Sofronoff, K. (2004), Adolescents' willingness to seek psychological help: promoting and preventing factors. *Journal of Youth & Adolescence, 33*, 495–507. https://doi.org/10.1023/B:JOYO.0000048064.31128.c6

Shi, D., Maydeu-Olivares, A., & Rosseel, Y. (2020) Assessing Fit in Ordinal Factor Analysis Models: SRMR vs. RMSEA, *Structural Equation Modeling: A Multidisciplinary Journal, 27*(1), 1-15, https://doi.org/10.1080/10705511.2019.1611434

Sheppard, B. H., Jon, H., & Warshaw, P. R. (1988). The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research. *The Journal of Consumer Research, 15*(3), 325-343. https://doi.org/10.1086/209170

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7*(4), 422–445. https://doi.org/10.1037/1082-989X.7.4.422

Shavers V. L. (2007). Measurement of socioeconomic status in health disparities research. *Journal of the National Medical Association, 99*(9), 1013–1023.

Shucksmith, J., Jones, S., & Summerbell, C. (2010) The role of parental involvement in school-based mental health interventions at primary (elementary) school level. *Advances in School Mental Health Promotion, 3*(1), 18-29. https://doi.org/10.1080/1754730X.2010.9715671

Silke, C., Swords, L., & Heary, C. (2016). The development of an empirical model of mental health stigma in adolescents. *Psychiatry Research, 242*, 262-270. https://doi.org/10.1016/j.psychres.2016.05.033

Silke, C., Swords, L., & Heary, C. (2017). The predictive effect of empathy and social norms on adolescents' implicit and explicit stigma responses. *Psychiatry Research, 257*, 118-125. https://doi.org/10.1016/j.psychres.2017.07.033

Silverman, A., Cassata, J. C., Gottfredson, G., & Rosenfield, S. (2009). Choosing measures for school-based research: scientific and practical considerations. In L.M. Dinella, *Conducting Science-Based Research in Schools*. (pp 107-128). American Psychological Association

Simpson, E. (1972). *Educational objectives in the psychomotor domain*. Gryphon House.

Singh S.P., & Winsper C. (2017) Adolescent Mental Health: The Public Health Response. In: Cherry A., Baltag V., Dillon M. (eds) *International Handbook on Adolescent Health and Development*. Springer.

Sirey, J. A., Bruce, M. L., Alexopoulos, G. S., Perlick, D. A., Raue, P., Friedman, S. J., & Meyers, B. S. (2001). Perceived stigma as a predictor of treatment discontinuation in young and older outpatients with depression. *The American Journal of Psychiatry, 158*(3), 479–481. https://doi.org/10.1176/appi.ajp.158.3.479

Smith, B. N. & Stasson, M. F. (2000). A comparison of health behaviour constructs: Social psychological predictors of AIDS-preventive behavioural intentions. *Journal of Applied Social Psychology*, 30, 443–462. https://doi.org/10.1111/j.1559-1816.2000.tb02490.x

Sosu, E. M., & Schmidt, P. (2017). Economic Deprivation and Its Effects on Childhood Conduct Problems: The Mediating Role of Family Stress and Investment Factors. *Frontiers in Psychology*, *8*, 1580. https://doi.org/10.3389/fpsyg.2017.01580

Sowell, E. R., Thompson, P. M., Holmes, C. J., Jernigan, T. L., & Toga, A. W. (1999). In vivo evidence for post-adolescent brain maturation in frontal and striatal regions. *Nature neuroscience, 2*(10), 859–861. https://doi.org/10.1038/13154

Sowell, E. R., Thompson, P. M., Tessner, K. D., & Toga, A. W. (2001). Mapping continued brain growth and gray matter density reduction in dorsal frontal cortex: Inverse relationships during postadolescent brain maturation. *The Journal of Neuroscience: the official journal of the Society for Neuroscience, 21*(22), 8819–8829. https://doi.org/10.1523/JNEUROSCI.21-22-08819.2001

Spiker, D. A. & Hammer, J. H. (2019). Mental health literacy as theory: current challenges and future directions, *Journal of Mental Health, 28*(3), 238-242. https://doi.org/10.1080/09638237.2018.1437613

Spitzer, A., & Cameron, C. (1995). School-age children's perceptions of mental illness. *Western. Journal of Nursing Research, 17*, 398-415

Stage, F. K., Carter, H. C., & Nora, A. (2004). Path Analysis: An Introduction and Analysis of a Decade of Research. *The Journal of Educational Research, 98*(1), 5–12. https://doi.org/10.3200/JOER.98.1.5-13

Steg, L., and Vlek, C. A. J. (2009). "Encouraging Pro-Environmental Behaviour: An Integrative Review and Research Agenda." *Journal of Environmental Psychology 29*(3), 309–317. https://doi.org/10.1016/j.jenvp.2008.10.004

Steiger, J.H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, 25, 173– 180, https://doi.org/10.1207/s15327906mbr2502_4

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences, 9,* 69-74. https://doi.org/10.1016/j.tics.2004.12.005

Steinberg, L. (2014). *Age of opportunity: Lessons from the new science of adolescence*. Houghton Mifflin Harcourt.

Steinberg, L., & Monahan, K. C. (2007). Age differences in resistance to peer influence. *Developmental psychology*, *43*(6), 1531–1543. https://doi.org/10.1037/0012-1649.43.6.1531

Stice, E., Shaw, H., Bohon, C., Marti, C. N., & Rohde, P. (2009). A meta-analytic review of depression prevention programs for children and adolescents: Factors that predict magnitude of intervention effects. *Journal of Consulting and Clinical Psychology, 77*(3), 486–503. https://doi.org/10.1037/a0015168

Stine, R.A. (1989). An introduction to bootstrap methods: Examples and ideas. *Sociological Methods and Research, 8,* 243– 291. https://doi.org/10.1177%2F0049124189018002003

Stuart, H. (2006). Mental illness and employment discrimination. *Current Opinion in Psychiatry, 19*(5), 522–526. https://doi.org/10.1097/01.yco.0000238482.27270.5d.

Stuart, H., Patten, S. B., Koller, M., Modgill, G., & Liinamaa, T. (2014). Stigma in Canada: results from a rapid response survey. *Canadian Journal of Psychiatry, 59*(10 suppl 1), S27-S33. https://doi.org/10.1177/070674371405901s07

Stuckler, D., Reeves, A., Loopstra, R., Karanikolos, M., & McKee, M. (2017). Austerity and health: the impact in the UK and Europe. *European Journal of Public Health*, *27*(4), 18–21, https://doi.org/10.1093/eurpub/ckx167

Stull, L. G., McGrew, J. H., Salyers, M. P., & Ashburn-Nardo, L. (2013). Implicit and explicit stigma of mental illness: attitudes in an evidence based practice. *The Journal of nervous and mental disease, 201*(12), 1072–1079. https://doi.org/10.1097/NMD.0000000000000056

Suchman, L., & Jordan, B. (1992). Validity and the collaborative construction of meaning in face-to- face surveys, in J. M. Tanur (Ed.), *Questions about Questions: Inquiries into the Cognitive Bases of Surveys*. Russell Sage Foundation

Sutradhar B.C. (2011) Longitudinal Models for Binary Data. In: *Dynamic Mixed Models for Familial Longitudinal Data*. Springer Series in Statistics. Springer.

Svedberg, P., Nygren, J. M., Staland-Nyman, C., & Nyholm, M. (2016). The validity of socioeconomic status measures among adolescent based on self-reported information about parents occupation, FAS and perceived SES; implication for health related quality of life studies. *BMC Medical Research Methodology, 16*(48), https://doi.org/10.1186/s12874-016-0148-9

Swami, V., Persaud, R. & Furnham, A. (2011). The recognition of mental health disorders and its association with psychiatric scepticism, knowledge of psychiatry, and the Big Five personality factors: an investigation using the overclaiming technique. *Social*

Psychiatry and Psychiatric Epidemiology 46, 181–189. https://doi.org/10.1007/s00127- 010-0193-

Swords, L., Heary, C., & Hennessy, E. (2011). Factors associated with acceptance of peers with mental health problems in childhood and adolescence. *journal of child psychology and psychiatry and allied disciplines, 52*(9), 933-941. https://doi.org/10.1111/j.1469-7610.2010.02351.x

Swords, L., Hennessy, E., & Heary, C. (2011). Adolescents' beliefs about sources of help for ADHD and depression. *Journal of Adolescence*,34, 485–492. https://doi.org/10.1016/j.adolescence.2010.06.002

Tabachnick, B.G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.) Boston: Pearson Education

Tajfel, H., Turner, J. C., Austin, W. G., & Worchel, S. (1979). An integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel (Eds.), *The Social Psychology of Intergroup Relations* (pp. 33-*47).* Brooks.

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Hiller, L., Joseph, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *Health Quality of Life Outcomes, 5,* 63. https://doi.org/10.1186/1477-7525-5-63

Teo, T., Tsai, L. T., & Yang, C. (2013). Applying structural equation modelling (SEM) in Educational research: an introduction. In, Khine, M. S., (Ed.). *Application of Structural Equation Modeling in Educational Research and Practice*. (pp.3-23). Sense Publishers.

Thomas S. J., Caputi P., Wilson C. J. (2014). Specific attitudes which predict psychology students' intentions to seek help for psychological distress. *Journal of Clinical Psychology, 70*(3), 273–282. https://doi.org/10.1002/jclp.2202

Thorisdottir, I. E., Asgeirsdottir, B. B., Sigurvinsdottir, R., Allegrante, J. P., & Sigfusdottir, I. D. (2017). The increase in symptoms of anxiety and depressed mood among Icelandic adolescents: time trend between 2006 and 2016. *European Journal of Public Health, 27*(5),856-861. https://doi.org/10.1093/eurpub/ckx111

Thornicroft, C., Wyllie, A., Thornicroft, G., & Mehta, N. (2014). Impact of the "Like Minds, Like Mine" anti-stigma and discrimination campaign in New Zealand on anticipated and experienced discrimination. *The Australian and New Zealand Journal of Psychiatry, 48*(4), 360–370. https://doi.org/10.1177/0004867413512687

Thornicroft, G. (2008). Stigma and discrimination limit access to mental health care. *Epidemiologia e psichiatria sociale, 17*, 14–19. https://doi.org/10.1017/s1121189 x00002621

Thornicroft, G. (2006) *Actions speak louder ... Tackling discrimination against people with mental illness.* London: Mental Health Foundation. https://www.mentalhealth.org.uk/sites/default/files/actions_speak__louder.pdf

Thornicroft, G., Rose, D., Kassam, A., & Sartorius, N. (2007). Stigma: ignorance, prejudice or discrimination?. *The British Journal of Psychiatry: The Journal of Mental Science*, *190*, 192–193. https://doi.org/10.1192/bjp.bp.106.025791.

Thurstone, L.L. (1947). *Multiple Factor Analysis.* University of Chicago Press

Time to Change (2014). Students missing out on education because of mental illness. Time to Change. https://www.time-to-change.org.uk/news/students-missing-out-education-because-mental-illness

Tinsley, H.E.A., & Tinsley, D.J. (1987). Uses of factor analysis in counseling in psychology research. *Journal of Counseling Psychology, 34* (4), 414-424. https://doi.org/10.1037/0022-0167.34.4.414

Tolvanen, M., Lahti, S., Miettunen, J., & Hausen, H. (2012). Relationship between oral health-related knowledge, attitudes and behavior among 15-16-year-old adolescents: a structural equation modeling approach. *Acta odontologica Scandinavica, 70*(2), 169–176. https://doi.org/10.3109/00016357.2011.600722

Tomé, G., Matos, M., Simões, C., Diniz, J. A., & Camacho, I. (2012). How can peer group influence the behavior of adolescents: explanatory model. *Global journal of health science, 4*(2), 26–35. https://doi.org/10.5539/gjhs.v4n2p26

Topp, L., Barker, B., & Degenhardt, L. (2004). The external validity of results derived from ecstasy users recruited using purposive sampling strategies. *Drug and alcohol dependence*, *73*(1), 33–40. https://doi.org/10.1016/j.drugalcdep.2003.09.001

Treanor, M. C. (2012). Impacts of poverty on children and young people. *Scottish Childcare and Protection Network, Briefing,* Stirling: University of Stirling

Tuliao, A. P. & Velasquez, P. (2014). Revisiting the General Help Seeking Questionnaire: Adaptation, Exploratory Factor Analysis, and Further Validation in a Filipino College Student Sample. *Philippine Journal of Psychology, 47*(1). http://ejournals.ph/form/cite.php?id=3884

United Nations. (1989*). United Nations General Assembly. Convention on the rights of the child*, Treaty Series, 1577, 3. New York, United Nations.

Väilmaa, R., Kannas, L., Lahtinen, E., Peltonen, H., Tynjälä, J., & Villberg,J. (2007). *Finland: Innovative health education curriculum and other investments for promoting mental health and social cohesion among children and young people*, World Health Organisation, Europe. http://www.euro.who.int/__data/assets/ pdf_file/0007/74761/Hbsc_Forum_2007_Finland.pdf

van Wel, F., Linssen, H., & Abma, R. (2000). The parental bond and the well-being of adolescents and young adults. *Journal of Youth and Adolescence, 29*(3), 307–318. https://doi.org/10.1007/BF02293865

Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods, 3.* https://doi.org/10.1177/109442810031002

Verbeke, G., Fieuws, S., Molenberghs, G., & Davidian, M. (2014). The analysis of multivariate longitudinal data: A review. *Statistical Methods in Medical Research*, *23*(1), 42–59 https://doi.org/10.1177/0962280212445834

Vereecken, C., & Vandegehuchte, A. (2003). Measurement of parental occupation: agreement between parents and their children. *Archive of Public Health, 61*, 141–149.

Vigil-Colet, A., Morales-Vives, F., & Lorenzo-Seva, U. (2013). How social desirability and acquiescence affect the age-personality relationship. *Psicothema, 25*(3), 342–348. https://doi.org/10.7334/psicothema2012.297

Visser, P. S., Krosnick, J. A., & Lavrakas, P. J. (2000). Survey research. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 223-252). Cambridge University Press

Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counseling Psychology, 53*(3), 325–337. https://doi.org/10.1037/0022-0167.53.3.325

Vogel, D. L., Wade, N. G., Wester, S. R., Larson, L., & Hackler, A. H. (2007). Seeking help from a mental health professional: the influence of one's social network. *Journal of clinical psychology*, *63*(3), 233–245. https://doi.org/10.1002/jclp.20345

von dem Knesebeck, O., Mnich, E., Daubmann, A., Wegscheider, K., Angermeyer, C., Lambert, M., Karow, A, Härter, & M., Kofahl, C. (2012). Socioeconomic status and beliefs about depression, schizophrenia and eating disorders. Soc Psychiatry Psychiatr Epidemiol 48, 775–782 (2013). https://doi.org/10.1007/s00127-012-0599-

Wahl, O. F., Harman, C. R., & Charles, R. (1989). Family views of stigma. *Schizophrenia Bulletin 15*(1), 131-139. https://doi.org/10.1093/schbul/15.1.131

Wahl, O., Hanrahan, E., Karl, K., Lasher, E., & Swaye, J. (2007). The depiction of mental illnesses in children's television programs. *Journal of Community Psychology, 35,* 121-133. https://doi.org/10.1002/jcop.20138

Wallace, D. S., Paulson, R. M Lord, C. G and Bond, C. F. (2005). "Which Behaviors Do Attitudes Predict? Meta-Analyzing the Effects of Social Pressure and Perceived Difficulty." *Review of General Psychology 9*(3), 214–227. https://doi.org/ 10.1037/1089-2680.9.3.214

Wardle, J., Robb, K., & Johnson, F. (2002) Assessing socioeconomic status in adolescents: the validity of a home affluence scale. *Journal of Epidemiology & Community Health, 56*, 595-599. https://doi.org/10.1136/jech.56.8.595

Wasserman, D., Carli, V., Wasserman, C. et al. (2010). Saving and Empowering Young Lives in Europe (SEYLE): a randomized controlled trial. *BMC Public Health* 10, 192. https://doi.org/10.1186/1471-2458-10-192

Weare, K., & Nind, M. (2011) Mental health promotion and problem prevention in schools: what does the evidence say?, *Health Promotion International, 26*(1) i29– i69. https://doi.org/10.1093/heapro/dar075

Wei, Y., Hayden, J. A., Kutcher, S., Zygmunt, A., & McGrath, P. (2013). The effectiveness of school mental health literacy programs to address knowledge, attitudes and help seeking among youth. *Early Intervention in Psychiatry, 7*(2), 109-121. https://doi.org/10.1111/eip.12010

Wei, Y., & Kutcher, S. (2012). International school mental health: global approaches, global challenges, and global opportunities. Child and adolescent psychiatric clinics of North America, 21(1), 11–vii. https://doi.org/10.1016/j.chc.2011.09.005

Wei, Y., McGrath, P. J., Hayden, J., Kutcher, S. (2016). Measurement properties of tools measuring mental health knowledge: A systematic review. *BMC Psychiatry, 16*, 297. https://doi.org/10.1186/s12888-016-1012-5

Wei, Y., McGrath, P. J., Hayden, J., & Kutcher, S. (2015). Mental health literacy measures evaluating knowledge, attitudes and help-seeking: a scoping review. *BMC Psychiatry, 15*, 291. https://doi.org/10.1186/s12888-015-0681-9

Weiss, M. G., Jadhav, S., Raguram, R., Vounatsou, P., & Littlewood, R. (2001). Psychiatric stigma across cultures: Local validation in Bangalore and London. *Anthropology and Medicine, 8*(1), 71 – 87. https://doi.org/ 10.1080/13648470120063906

Weiss, M. G., & Ramakrishna, J. (2006). Stigma interventions and research for international health. *The Lancet, 367*(9509), 536 – 538. https://doi.org/10.1016/S0140-6736(06)68189-0

Werner-Seidler, A., Perry, Y., Calear, A. L., Newby, J. M., & Christensen, H. (2017). School-based depression and anxiety prevention programs for young people: A systematic review and meta-analysis. Clinical Psychology Review, 51, 30–47. https://doi.org/10.1016/j.cpr.2016.10.005

West, P. (1997) Health inequalities in the early years: is there equalisation in youth? *Social Science and Medicine*, 44, 833-858. https://doi.org/10.1016/s0277-9536(96)00188-8

Weston, R., & Gore Jr., P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist, 34*(5), 719–751. https://doi.org/10.1177/0011000006286345

Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues, 25*, 41–78. https://doi.org/10.1111/j.1540-4560.1969.tb00619.x

Wilks, J. (1986). The relative importance of friends and parents in adolescent decision making. *Journal of Youth and Adolescence, 15*(4), 323-334. https://doi.org/10.1007/BF02145729

Williams, B., & Pow, J. (2007). Gender differences and mental health: An exploratory study of knowledge and attitudes to mental health among Scottish teenagers. *Child and Adolescent Mental Health, 12*(1), 8-12. https://doi.org/10.1111/j.1475-3588.2006.00413.x

Wilson, C. J., & Deane, F. P. (2012). Brief report: Need for autonomy and other perceived barriers relating to adolescents' intentions to seek professional mental health care. *Journal of Adolescence, 35*(1), 233–237. https://doi.org/10.1016/j.adolescence.2010.06.011

Wilson, C. J., & Deane, F. P. (2001). Adolescent opinions about reducing help-seeking barriers and increasing appropriate help engagement. *Journal of Educational & Psychological Consultation, 12*(4), 345–364. https://doi.org/10.1207/S1532768XJEPC1204_03

Wilson, C. J., Deane, F. P., Ciarrochi, J., & Rickwood, D. (2005). Measuring help-seeking intentions: Properties of General HelpSeeking Questionnaire. *Canadian Journal of Counselling, 39*(1), 15-28.

Wilson, C. J., Rickwood, D.J., Bushnell, J. A., Caputi, P., & Thomas, S. J. (2011) The effects of need for autonomy and preference for seeking help from informal sources on emerging adults' intentions to access mental health services for common mental disorders and suicidal thoughts. *Advances in Mental Health, 10*(1), 29-38. https://doi.org/10.5172/jamh.2011.10.1.29

Wilson, S., & Miller K. (2014). Data Collection. In K. Miller, S. Willson, V. Chepp, & J. Padilla (Eds.) *Cognitive Interviewing Methodology* (pp. 1-7). Wiley.

Windle, G. (2011). What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology, 21*(2), 152-169. https://doi.org/10.1017/S0959259810000420

Wisdom, J. P., Clarke, G. N., & Green, C. A. (2006). What teens want: barriers to seeking care for depression. *Administration and Policy in Mental Health*, 33, 133-145. https://doi.org/10.1007/s10488-006-0036-4

Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample Size Requirements for Structural Equation Models: An Evaluation of Power, Bias, and Solution Propriety. *Educational and Psychological Measurement, 76*(6), 913–934. https://doi.org/10.1177/0013164413495237

Wong, C., Davidson, L., Anglin, D., Link, B., Gerson, R., Malaspina, D., McGlashan, T., Corcoran, C. (2009). Stigma in families of individuals in early stages of psychotic illness: Family stigma and early psychosis. *Early Intervention in Psychiatry, 3*(2), 108-115. doi:10.1111/j.1751-7893.2009.00116.x

Wood, L., Birtel, M., Alsawy, S., Pyle, M., & Morrison, A. (2014). Public perceptions of stigma towards people with schizophrenia, depression, and anxiety. *Psychiatry Research, 220*(1-2), 604–608. https://doi.org/10.1016/j.psychres.2014.07.012

Wood, M. D., Read, J. P., Mitchell, R. E., & Brand, N. H. (2004). Do parents still matter? Parent and peer influences on alcohol involvement among recent high school graduates. *Psychology of Addictive Behaviors: Journal of The Society Of*

Psychologists in Addictive Behaviors, *18*(1), 19–30. https://doi.org/10.1037/0893-164X.18.1.19

World Health Organisation. (2001). Mental Health – New Understanding, New Hope. http://www.who.int/whr/2001/en/

World Health Organisation. (2003). *Caring for children and adolescent with mental disorders: Setting WHO directions*. World Health Organisation: Geneva. http://www.who.int/mental_health/media/en/785.pdf

World Health Organization. (2004) *Promoting mental health: concepts, emerging evidence, practice (Summary Report).* Geneva: World Health Organization. http://www.who.int/mental_health/evidence/en/promoting_mhh.pdf

World Health Organisation. (2005). Mental Health Policy and Service Guidance Package: Child and adolescent mental health policies and plans. http://www.who.int/mental_health/policy/Childado_mh_module.pdf

World Health Organisation. (2007). *Adolescents, social support and help-seeking behaviour: an international literature review and programme consultation with recommendations for action / Gary Barker*. https://www.who.int/iris/handle/10665/43778

World Health Organisation. (2013). *The European mental health action plan*. WHO. http://www. euro.who.int/en/health-topics/noncommunicable-diseases/mental-health/publications/2013/the-european-mental-health-action-plan).

World Health Organisation. (2014). *Health for the world's adolescents: A second chance in the second decade* Geneva, World Health Organization. https://apps.who.int/adolescent/second-decade/

Woolfolk, A.E. (1998). *Educational Psychology* (7th ed.). Allyn and Bacon.

Wright, A., Harris, M. G., Wiggers, J. H., Jorm, A. F., Cotton, S. M., Harrigan, S. M., Hurworth, R. E., & McGorry, P. D. (2005). Recognition of depression and psychosis by young Australians and their beliefs about treatment. *The Medical Journal of Australia, 183*(1), 18–23.

Wright, A. & Jorm, A. F. (2009). Labels used by young people to describe mental disorders: factors associated with their development. *Australian and New Zealand Journal of Psychiatry, 43,* 946-955. https://doi.org/10.1080/00048670903179129

Wright, A., Jorm, A. F., Harris, M. G., & McGorry, P. D. (2007). What's in a name? Is accurate recognition and labelling of mental disorders by young people associated with better help-seeking and treatment preferences? *Social Psychiatry and Psychiatric Epidemiology, 42*(3), 244-250. https://doi.org/10.1007/s00127-006-0156-x

Wright, A., Jorm, A. F., & Mackinnon, A. J. (2012). Labels used by young people to describe mental disorders: Which ones predict effective help-seeking choices? *Social Psychiatry and Psychiatric Epidemiology, 47*(6), 917-926. https://doi.org/10.1007/s00127-011-0399-z

Wyn, J., Cahill, H., Holdsworth, R., Rowling, L., & Carson, S. (2000). MindMatters, a Whole-School Approach Promoting Mental Health and Wellbeing. *Australian & New Zealand Journal of Psychiatry, 34*(4), 594–601. https://doi.org/10.1080/j.1440-1614.2000.00748.x

Xu, Z., Huang, F., Kösters, M., Staiger, T., Becker, T., Thornicroft, G., & Rüsch, N. (2018). Effectiveness of interventions to promote help-seeking for mental health problems: Systematic review and meta-analysis. *Psychological Medicine, 48*(16), 2658-2667. doi:10.1017/S0033291718001265

Xu, W., Sun, G., Lin, Z., Chen, M., Yang, B., Chen, H., & Cao, K. (2010). Knowledge, attitude, and behavior in patients with atrial fibrillation undergoing radiofrequency catheter ablation. *Journal of Interventional Cardiac Electrophysiology: An International Journal of Arrhythmias and Pacing, 28*(3), 199–207. https://doi.org/10.1007/s10840-010-9496-2

Yamaguchi, S., Mino, Y., & Uddin, S. (2011). Strategies and future attempts to reduce stigmatization and increase awareness of mental health problems among young people: A narrative review of educational interventions. *Psychiatry and Clinical Neurosciences, 65*(5), 405-415. https://10.1111/j.1440-1819.2011.02239.x

Yang, L. H., Kleinman, A., Link, B. G., Phelan, J. C., Lee, S., & Good, B. (2007). Culture and stigma: adding moral experience to stigma theory. *Social Science & Medicine*, 64(7), 1524–1535. https://doi.org/10.1016/j.socscimed.2006.11.013

Yap, M. B., & Jorm, A. F. (2011). The influence of stigma on first aid actions taken by young people for mental health problems in a close friend or family member: findings from an Australian national survey of youth. *Journal of affective disorders*, *134*(1-3), 473–477. https://doi.org/10.1016/j.jad.2011.05.039

Yap, M. B. H., Wright, A., & Jorm, A. F. (2011). The influence of stigma on young people's help-seeking intentions and beliefs about the helpfulness of various sources of help. *Social Psychiatry and Psychiatric Epidemiology, 46*(12), 1257-1265. https://doi.org/10.1007/s00127-010-0300-5

Yap, M. B., Reavley, N., & Jorm, A. F. (2013). Where would young people seek help for mental disorders and what stops them? Findings from an Australian national survey. *Journal of affective disorders*, *147*(1-3), 255–261. https://doi.org/10.1016/j.jad.2012.11.014

Yoshikawa, H., Aber, J. L., Beardslee, W. R (2012). The effects of poverty on the mental, emotional and behavioural health of children and youth. *American Psychologist, 67*, (4), 272-284. https://doi.org/10.1037/a0028015

Yoshioka, K., Reavley, N. J., MacKinnon, A. J., & Jorm, A. F. (2014). Stigmatising attitudes towards people with mental disorders: Results from a survey of Japanese high school students. *Psychiatry Research, 215*(1), 229-236. https://doi.org/10.1016/j.psychres.2013.10.034

Young Minds. (2018). *Fighting for young people's mental health*. https://youngminds.org.uk/media/2258/youngminds-fightingfor-report.pdf

Young Scot Observatory (2019). *Youth Commission on Mental Health Services Report*. Young Scot Observatory. https://youngscot.net/s/YS_Youth_Commission _Mental_Health_FINAL.pdf

YMCA, (2016). *I Am Whole: A Report Investigating the Stigma Faced By Young People Experiencing Mental Health Difficulties*. YMCA: London, UK. https://www.ymca.org.uk/wp-content/uploads/2016/10/IAMWHOLE-v1.1.pdf

Yung, Y-F. & Bentler, P.M. (1996). Bootstrapping techniques in analysis of mean and covariance structures. In G.A. Marcoulides & R.E. Schumacker (Eds.*), Advanced structural equation modeling: Issues and techniques* (pp. 195– 226). Erlbaum.

Zachrisson, H.D., Rödje, K. & Mykletun, A. (2006). Utilization of health services in relation to mental health problems in adolescents: A population based survey. *BMC Public Health 6*(34) https://doi.org/10.1186/1471-2458-6-34

Zenner, C., Herrnleben-Kurz, S., & Walach, H. (2014). Mindfulness-based interventions in schools-a systematic review and meta-analysis. Frontiers in psychology, 5, 603. https://doi.org/10.3389/fpsyg.2014.00603

Zimmerman, D. W. (1995). Increasing the power of nonparametric tests by detecting and downweighting outliers. *Journal of Experimental Education, 64*(1), 71-78. https://doi.org/10.1080/00220973.1995.9943796

Zimmerman, D. W. (1998). Invalidation of parametric and nonparametric statistical tests by concurrent violation of two assumptions. *Journal of Experimental Education, 67*(1), 55-68. https://doi.org/10.1080/00220979809598344

Appendix A1: Materials – letter to headteacher

Dear [Name of head teacher]

PhD Research Project: How does mental health stigma influence formal and informal help-seeking in adolescents?

I am a PhD student at the University of Strathclyde, and am writing to seek your permission to carry out the above named research project in your school. In my research project I aim to explore young people's knowledge and stigma perceptions in relation to common mental health problems.

The study is questionnaire based, and will require just one questionnaire to be completed on one occasion by participating pupils. I am interested in factors that may influence young people's willingness to seek help for common mental health problems. We know from the literature that stigma is one of the main barriers affecting young people's willingness to seek help. We also know that the prevalence of mental health problems in adolescents is increasing, and that those who do seek help fare better in terms of psychological outcomes and well-being.

This study is aiming to better understand what young people know about mental health problems, how much stigma they perceive around mental health problems, and what factors might be important in improving help-seeking. By participating, your school will be contributing to a project that will deepen our understanding of what facilitates or hinders successful help-seeking for mental health problems in young people, and help to shape mental health awareness and stigma reduction strategies aimed towards young people.

The commitment from the school would be to allow me to distribute questionnaires to pupils aged 12-18 years. It is hoped that this will have minimal impact on teacher workload and pupils' class time and will not deviate from usual school activities. I am happy for you to have input into the best way to select classes for participation in a way which would be most convenient for staff and pupils at your school. I have included copies of information sheets and consent forms that will be used during the study. Parental information sheets and opt-out forms would need to be sent to parents / guardians of participating pupils in advance of pupil's participation in the study.

If you would like your school to participate in the research, please feel free to contact myself or my primary supervisor, Dr Edward Sosu (tel: 0141 444 8063, email: edward.sosu@strath.ac.uk). Please also contact us if you have any questions or would like further information. Thank you for your time, and I look forward to hearing from you.

Yours sincerely,

Claire Goodfellow
PhD Candidate
claire.goodfellow@strath.ac.uk

Parent Information Sheet

Name of department: School of Education

Title of the study: How does mental health stigma influence formal and informal help-seeking among adolescents?

Introduction

My name is Claire Goodfellow, and I'm a PhD student at the University of Strathclyde. I'm undertaking my research under the supervision of Dr Edward Sosu (School of Education). I would like to invite your to participate in our research project.

This sheet includes information on why the research is being done and what it would involve. It is hoped that this will help you decide whether you would like your child to be part of this research. If you would like to know more, please feel free to contact me or Dr Edward Sosu using the details provided at the end of this information sheet.

What is the purpose of this investigation?

More and more children and young people are reporting symptoms of common mental health problems, but a percentage of young people do not seek help or support for these problems. Mental health problems are defined as any condition, temporary or otherwise, which may affect a person's mental wellbeing. One of the reasons for this may be the stigma around having mental health difficulties.

The Scottish Government, and the World Health Organisation, both recognise the need to reduce stigma and improve help-seeking among young people, as teenagers who seek help fare better in the long-term. This study is aiming to better understand what young people know about mental health problems, and what factors might be important in improving help-seeking for common mental health difficulties.

Does my child have to take part?

No, it is up to you to decide if you would like your child to take part or not. The study has been described on this information sheet, which you can keep to help you make your decision. If you **do not** want your child to take part, we will ask you to sign the enclosed form and return this to your child's school. This means that your child will not be asked if they would like to take part. If you are happy for your child to take part, you don't need to do anything. Your child's head teacher has given permission to carry out this research and your child will be asked to sign a form to say that they consent to taking part too. You are free to withdraw your child from the study at any time, without giving a reason. Your child will also be able to decide for themselves if they want to withdraw from the study at any time.

What will your child do in the project?

Your child will be asked to complete a questionnaire during class time. The questionnaire will ask about their beliefs about mental health problems, and their beliefs around seeking help for these. Questions

being asked have been used in research with young people before in a previous studies and are designed to be simple to answer.

Why has you child been invited to take part?

We're interested in asking young people, aged 12-18 about their thought and beliefs about common mental health problems, and their awareness of mental health stigma. To do this we're asking schools to give out our questionnaires to their pupils. Your child is in a school which has elected to take part in our study and is therefore eligible to take part in the research.

What are the potential risks to your child in taking part?

It is not anticipated that completing the questionnaire will post any significant risk, however, the study does ask about mental health and stigma. It is unlikely that questions will cause any distress, but should this happen, children will be directed towards their teacher or guidance teacher who will be able to offer appropriate information and support.

What happens to the information in the project?

All information provided by your child will remain confidential and questionnaires are completely anonymous. Completed questionnaires will be kept in a locked cabinet at the University of Strathclyde, to which only the researchers will have access. Consent forms will be kept separately from these questionnaires, so it will be impossible to identify the information your child has given.

The University of Strathclyde is registered with the Information Commissioner's Office who implements the Data Protection Act 1998. All personal data on participants will be processed in accordance with the provisions of the Data Protection Act 1998. Thank you for reading this information – please ask any questions if you are unsure about what is written here.

What happens next?

If you are happy for your child to take part you don't need to do anything. Your child will be given an information sheet similar to this, and asked if they would like to take part.

If you would prefer that your child did **not** take part, please complete the **opt-out** form which we've enclosed and return it to your child's school. We will then ensure that your child is not asked to complete the questionnaire or take part in the research.

Results will be used to contribute to a PhD thesis. We may publish some findings in academic journals. No written reports will contain any personal information, and will only report a summary of the findings from the research. Thank you for your attention in reading about this study.

Researcher contact details:

Claire Goodfellow

PhD Researcher

School of Education

University of Strathclyde

Lord Hope Building

Email: claire.goodfellow@strath.ac.uk

Chief Investigator details:

Dr Edward Sosu

Lecturer

School of Education

University of Strathclyde

Lord Hope Building

Email: edward.sosu@strath.ac.uk

Telephone: 0141 444 8063

This investigation was granted ethical approval by the University of Strathclyde and School of Education Ethics Committee. If you have any questions/concerns, during or after the investigation, or wish to contact an independent person to whom any questions may be directed or further information may be sought from, please contact:

Dr Eugenie Samier
Chair of the School of Education Ethics Committee
University of Strathclyde
141 St James Road
Glasgow G4 0LT
Email: eugenie.samier@strath.ac.uk

Consent and Opt-Out Form for Parents

Name of department: School of Education

Title of the study: How does mental health stigma influence formal and informal help-seeking among adolescents?

If you are happy for your child to take part you agree to the following:

- I confirm that I have read and understood the information sheet for the above project.

- I understand that my child's participation is voluntary and that I am free to withdraw my child from the project at any time, up to the point of completion, without having to give a reason and without any consequences. If I exercise my right to withdraw my child and I don't want my data to be used, any data which have been collected from my child will be destroyed.

- I understand that anonymised data (i.e. data which do not identify my child personally) cannot be withdrawn once they have been included in the study.

- I understand that any information recorded in the investigation will remain confidential and no information that identifies my child will be made publicly available.

- I consent to my child being a participant in the project

Opt-Out Form

If you are **NOT** happy for your child to take part, please complete this section and return to your child's school:

Your child's name (print): _____

Class / Class Teacher: _____

Your name (print): _____

Please sign: _____

Date: _____

Thank you for your help!

Participant Information Sheet for Young People

Name of department: School of Education
Title of the study: How does mental health stigma influence formal and informal help-seeking among adolescents?

Introduction

My name is Claire Goodfellow, and I'm a PhD student at the University of Strathclyde. I'm doing my research under the supervision of Dr Edward Sosu (School of Education). We'd like to invite you to take part in our research project.

This sheet includes information on why the research is being done and what it would involve. We hope that this will help you decide whether you would like to be part of the research. If you would like to know more, please feel free to contact me or Dr Edward Sosu, using the details provided at the end of this information sheet.

What is the purpose of this investigation?

We know that a lot of young people can experience difficulties with their mental health from time to time. Mental health difficulties can be any condition, temporary or otherwise, which may affect a person's mental wellbeing. We also know that sometimes young people don't ask for help when they're struggling with this, and that this might be down to the stigma around mental health problems. We want to understand a bit more about this. We hope that by answering our questions you'll help us to better understand why young people might not want to ask for help when they're having a tough time with their mental health.

Do you have to take part?

No, you do not have to take part. It is your decision. If you're happy to take part you'll be asked to sign a consent form agreeing to this. You're free to change your mind at any point, without giving a reason. Just let your teachers or one of the researchers know. Our contact details are listed at the end of this form.

What will you do in the project?

You'll be asked to fill in a questionnaire. This will be completed during class time. The questionnaire will ask about what you or other people might think about people who have a mental health problem. Most of these questions have been used with people your age before and

shouldn't be too stressful for you to complete. You're free to skip any questions you'd prefer not to answer.

Why have you been invited to take part?

We're asking young people (aged 12-18) for their opinions and thoughts. To do this we've asked schools around Scotland if they'd like to take part. Your school said yes, so you're eligible to take part. We've also checked in advance with your parents if they're happy for you to help us with our research. If you're reading this form, it means they're okay with you participating.

What are the potential risks to you in taking part?

It might be that some of the questions make you think of some problems you might have had or be having with your own mental health. If you feel at all upset after taking part it's important for you to talk to someone you feel comfortable with. This could be your guidance teacher, your parents or your GP.

What happens to the information in the project?

We'll keep all the information you give us as safe and secure as we can. Your completed questionnaires will be taken back to the University of Strathclyde where they'll be kept in a locked cabinet. Only the researchers named on this form will have access to them. The consent forms you sign, which will have your name on them, will be kept separately so no one will be able to tell which questionnaire is the one you filled out. All the information you give us will be put into a spreadsheet so we can analyse everyone's information together. Your name will not be stored in these files, and you will not be identifiable. Even so, these files will be password protected so no one other than the researchers will be able to see them.

The University of Strathclyde is registered with the Information Commissioner's Office who implements the Data Protection Act 1998. All personal data on participants will be processed in accordance with the provisions of the Data Protection Act 1998.

Thank you for reading this information – please ask any questions if you are unsure about what is written here.

What happens next?

If you're happy to take part we'll ask you to sign a consent form for us. Remember, you're free to change your mind about taking part at any time.

Thank you for taking the time to read this information sheet.

Once we've collected all the information from everyone taking part, the findings will be used to write up a PhD thesis. We might decide to publish some of the findings in academic journals, but no one will be able to tell that you took part in the research. No identifiable information will be shared, just a general summary of what we've found from having you all take part.

Researcher contact details:

Claire Goodfellow

PhD Researcher

School of Education

University of Strathclyde

Email: claire.goodfellow@strath.ac.uk

Chief Investigator details:

Dr Edward Sosu

Lecturer

School of Education

University of Strathclyde

Email: edward.sosu@strath.ac.uk

Telephone: 0141 444 8063

This investigation was granted ethical approval by the University of Strathclyde School of Education Ethics Committee.

If you have any questions/concerns, during or after the investigation, or wish to contact an independent person to whom any questions may be directed or further information may be sought from, please contact:

Dr Eugenie Samier

Chair of the School of Education Ethics Committee

University of Strathclyde

141 St James Road

Glasgow G4 0LT

Email: eugenie.samier@strath.ac.uk

Consent Form for Young People

Name of department: School of Education
Title of the study: How does mental health literacy and stigma influence formal and informal help-seeking among adolescents?

- I confirm that I have read and understood the information sheet for the above project and the researcher has answered any queries to my satisfaction.

- I understand that my participation is voluntary and that I am free to withdraw from the project at any time, up to the point of completion, without having to give a reason and without any consequences. If I exercise my right to withdraw and I don't want my data to be used, any data which have been collected from me will be destroyed.

- I understand that I can withdraw from the study any personal data (i.e. data which identify me personally) at any time.

- I understand that anonymised data (i.e. .data which do not identify me personally) cannot be withdrawn once they have been included in the study.

- I understand that any information recorded in the investigation will remain confidential and no information that identifies me will be made publicly available.

- I consent to being a participant in the project

If you agree to ALL of the statements above and wish to take part please complete the information below

(PRINT NAME)_____

Signature of

Participant:_____   Date:_____

Research project:

How does mental health stigma influence formal and informal help-seeking among adolescents?

Questionnaire for young people

We're going to ask you some questions over the next few pages. Remember, there are no right or wrong answers, and you don't have to answer any questions you don't feel comfortable answering. If there's anything you don't understand, you can ask a teacher or the researcher. First of all we have some questions about you:

About me:

1. I am (please tick):

Male	
Female	
Other	

2. I am _____ years old.

3. What is your ethnic group?

White / Caucasian	
Mixed / multiple ethnic groups	
Asian / Asian British / Asian Scottish	
Black / African / Caribbean / Black British	
Other ethnic group (please state)	

The next few statements are about what your **friends** might think about who have mental health problems

	What are mental health problems?

What are mental health problems?

Mental health problems can influence how someone thinks, feels and behaves, and there are many different types of mental health problems. Mental health problems may mean people feel worried or unhappy or have difficulties with their thoughts, feelings and behaviour in ways that affect their everyday life.

Again, these statements are about what your **friends** believe. When you are ready, please read each sentence carefully and decide your answer. There are five possible answers for each question. Choose your answer to a sentence and tick the box for the answer you choose.

You may only choose one answer.

	Disagree completely	Disagree	Neither agree nor disagree	Agree	Agree completely
1. My friends would be happy to be friends with somebody who has mental health problems.					
2. My friends believe that teenagers with mental health problems do not behave as well as other teenagers in class					
3. My friends believe that teenagers with mental health problems are just as intelligent as other teenagers					
4. My friends believe that teenagers with mental health problems will get better someday.					
5. My friends believe that teenagers with mental health problems can get good grades in school.					
6. My friends are afraid of teenagers who visit a counsellor because they have mental health problems.					
7. My friends believe that teenagers with mental health problems are dangerous.					
8. My friends believe that it is a bad idea to give a part-time job to a teenager with mental health problems.					
9. My friends believe that teenagers with mental health problems are not as trustworthy as other teenagers					
10. My friends look down on teenagers who visit a counsellor because they have mental health problems.					
11. My friends believe that teenagers with mental health problems are to blame for their problems.					
12. My friends believe that teenagers with mental health problems are not as good as other teenagers at taking care of themselves.					

The next few statements are about what **you** think.

	Disagree completely	Disagree	Neither agree nor disagree	Agree	Agree completely
13. I believe that teenagers with mental health problems are just as intelligent as other teenagers.					
14. I look down on teenagers who visit a counsellor because they have mental health problems.					
15. I believe it is good to be friends with someone who has mental health problems.					
16. I believe that teenagers with mental health problems are dangerous					
17. I believe that teenagers with mental health problems are not as trustworthy as other teens.					
18. I believe that teenagers with mental health problems are to blame for their problems.					
19. I believe that teenagers with mental health problems can get better					
20. I believe that it is not a good idea for employers to give part-time jobs to teenagers with mental health problems.					
21. I believe that teenagers with mental health problems can get good grades in school					
22. I believe that teenagers with mental health problems do not behave as well as other teenagers in class.					
23. I believe that teenagers with mental health problems are not as good as other teenagers at taking care of themselves					
24. I would be afraid of someone if I knew that they had mental health problems.					

The next set of statements are about what your **parents** may think.

If you do not live with your parents, please just select what you think your guardian(s) would think.

	Disagree completely	Disagree	Neither agree nor disagree	Agree	Agree completely
25. My parents would be happy for me to be friends with somebody who has mental health problems.					
26. My parents believe that teenagers with mental health problems do not behave as well as other teenagers in class.					
27. My parents believe that teenagers with mental health problems are just as intelligent as other teenagers.					
28. My parents believe that teenagers with mental health problems will get better someday.					
29. My parents believe that teenagers with mental health problems can get good grades in school.					
30. My parents would be afraid of teenagers who visit a counsellor because they have mental health problems.					
31. My parents believe that teenagers with mental health problems are dangerous.					
32. My parents believe it is a bad idea to give a part-time job to a teenager with mental health problems.					
33. My parents believe that teenagers with mental health problems are not as trustworthy as other teenagers.					
34. My parents would look down on teenagers who visit a counsellor because they have mental health problems					
35. My parents believe that teenagers with mental health problems are to blame for their problems.					
36. My parents believe that teenagers with mental health problems are not as good as other teenagers at taking care of themselves.					

Thanks! The next set of questions will ask you about how likely you might be to seek help for problems you may have. Please answer as honestly as you can. Remember, there are no wrong answers.

Please indicate your response by circling the number that best describes your intention to seek help from each help source that is listed.

1 = Extremely Unlikely   3 = Unlikely   5 = Likely   7 = Extremely Likely

If you were having a mental health problem, how likely is it that you would seek help from the following people?

	1	2	3	4	5	6	7
a. Friend (not related to you)							
b. Parent							
c. Other relative/family member							
d. Mental health professional (e.g. psychologist, social worker or counsellor)							
e. Phone helpline (e.g. Samaritans, Childline)							
f. Teacher / other adult at school							
g. Doctor / GP							
h. Minister or religious leader (e.g. priest, chaplain, rabbi etc.)							
i. I would not seek help from anyone							
j. I would seek help from another not listed above (please list who this night be. If no one leave blank) _____							

Thank you!

Now we'd like to ask you about what you know about mental health problems.

> For each of statements 1– 6 below, respond by ticking one box only.

	Agree strongly	Agree Slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
1. Most people with mental health problems want to have paid employment					
2. If a friend had a mental health problem, I know what advice to give them to get professional help.					
3. Medication can be an effective treatment for people with mental health problems.					
4. Psychotherapy (e.g. talking therapy or counselling) can be an effective treatment for people with mental health problems.					
5. People with severe mental health problems can fully recover.					
6. Most people with mental health problems go to a healthcare professional to get help.					

Now please state whether you think each of these conditions is a type of mental health problem by ticking one box only.

	Agree strongly	Agree Slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
7. Depression					
8. Stress					
9. Schizophrenia					
10. Bipolar disorder (manic-depression)					
11. Drug addiction					
12. Grief					

Thank you!

Finally, we'd like to ask you about your home situation. Put a cross in the box that applies best to you.

How well off do you think your family is financially?

(put a cross in one box)

Very well off	
Quite well off	
Average	
Not so well off	
Not at all well off	

That's it! Thank you for taking the time to answer our questions. If you'd like to discuss anything after taking part in this survey please speak with your teacher. Or you can contact any of the people listed on the information sheet we gave you earlier.

Appendix B1: Original materials - MAKS

Mental Health Knowledge Schedule : MAKS (Evans-Lacko et al., 2010)

Mental health knowledge schedule — MAKS

Instructions: For each of statements 1–6 below, respond by ticking one box only. Mental health problems here refer, for example, to conditions for which an individual would be seen by healthcare staff.

		Agree strongly	Agree slightly	Neither agree nor disagree	Disagree strongly	Disagree slightly	Don't know
1	Most people with mental health problems want to have paid employment.						
2	If a friend had a mental health problem, I know what advice to give them to get professional help.						
3	Medication can be an effective treatment for people with mental health problems.						
4	Psychotherapy (eg talking therapy or counselling) can be an effective treatment for people with mental health problems.						
5	People with severe mental health problems can fully recover.						
6	Most people with mental health problems go to a healthcare professional to get help.						

Instructions: Say whether you think each condition is a type of mental illness by ticking one box only.

7	Depression						
8	Stress						
9	Schizophrenia						
10	Bipolar disorder (manic-depression)						
11	Drug addiction						
12	Grief						

Thank you very much for your help.

Appendix B2: Original materials – PMHSS

Peer Mental Health Stigma Scale (McKeague et al., 2015).

When you are ready, please read each sentence and decide your answer (you may read quietly to yourself). There are five possible answers for each statement - 'Disagree completely', 'Disagree', 'Neither agree nor disagree', 'Agree', 'Agree completely'. Choose your answer to a sentence and tick the box for the answer you choose. You may only choose one answer.

What are emotional and behavioural problems?

You may have heard of attention deficit hyperactivity disorder (ADHD). Teenagers who have ADHD often have trouble concentrating in class, are sometimes hyperactive and can't sit still in school. This would be an example of a behavioural problem. You may have also heard about depression, or teenagers who are depressed. Teenagers who have depression often feel sad, worry a lot, don't seem interested in anything and can have trouble sleeping at night. ADHD and depression are examples of emotional and behavioural problems.

The following statements are about what most people believe:

	Disagree Completely (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Agree Completely (5)
1. My friends would be happy to be friends with somebody who has emotional or behavioural problems. [Positive]					
2. My parents believe that teenagers with emotional or behavioural problems do not behave as well as other teenagers in class. [Stigma awareness]					
3. My parents believe that teenagers with emotional or behavioural problems are just as intelligent as other teenagers. [Positive]					
4. My friends believe that teenagers with emotional or behavioural problems will get better someday. [Positive]					
5. My parents believe that teenagers with emotional or behavioural problems can get good grades in school. [Positive]					
6. My friends are afraid of teenagers who visit a counsellor because they have emotional or behavioural problems. [Stigma awareness]					

7. My friends believe that teenagers with emotional or behavioural problems are dangerous. [Stigma awareness]					
8. My parents believe it is a bad idea to give a part-time job to a teenager with emotional or behavioural problems. [Stigma awareness]					
	Disagree Completely	Disagree	Neither Agree nor Disagree	Agree	Agree Completely
9. My parents believe that teenagers with emotional or behavioural problems are not as trustworthy as other teenagers. [Stigma awareness]					
10. My friends look down on teenagers who visit a counsellor because they have emotional or behavioural problems. [Stigma awareness]					
11. My friends believe that teenagers with emotional or behavioural problems are to blame for their problems. [Stigma awareness]					
12. My parents believe that teenagers with emotional or behavioural problems are not as good as other teenagers at taking care of themselves. [Stigma awareness]					

The next statements are about what you believe:

13. I believe it is good to be friends with someone who has emotional or behavioural problems. [Positive]					
14. I believe that teenagers with emotional or behavioural problems are not as trustworthy as other teenagers. [Stigma agreement]					
15. I believe that teenagers with emotional or behavioural problems are just as intelligent as other teenagers. [Positive]					
16. I believe that teenagers with emotional or behavioural problems can get better. [Positive]					
17. I look down on teenagers who visit a counsellor because they have emotional or behavioural problems. [Stigma agreement]					

	Disagree Completely	Disagree	Neither Agree nor Disagree	Agree	Agree Completely
18. I believe that teenagers with emotional or behavioural problems do not behave as well as other teenagers in class. [Stigma agreement]					
19. I believe that teenagers with emotional or behavioural problems are dangerous. [Stigma agreement]					
20. I believe that teenagers with emotional or behavioural problems are not as good as other teenagers at taking care of themselves. [Stigma agreement]					
21. I believe that teenagers with emotional or behavioural problems can get good grades in school. [Positive]					
	Disagree Completely	Disagree	Neither Agree nor Disagree	Agree	Agree Completely
22. I believe that teenagers with emotional or behavioural problems are to blame for their problems. [Stigma agreement]					
23. I believe that it is not a good idea for employers to give part-time jobs to teenagers with emotional or behavioural problems. [Stigma agreement]					
24. I would be afraid of someone if I knew that they had emotional or behavioural problems. [Stigma agreement]					

Scoring:

The PMHSS produces 4 possible total scores:

1. Total score for stigma awareness (sum of items 2, 6, 7, 8, 9, 10, 11, 12)
2. Total score for stigma agreement (sum of items 14,17, 18, 19, 20, 22, 23, 24)
3. Overall stigma score (sum of items: 2, 6, 7, 8, 9, 10, 11, 12, 14,17, 18, 19, 20, 22, 23, 24)
4. Positive reactions (sum of items: 1, 3, 4, 5, 13, 15, 16, 21)

Both test-retest and internal reliability for each of these scales is presented in:

McKeague, L., Hennessy, E., O'Driscoll, C. & Heary, C. (2015). Peer Mental Health Stigmatization Scale: Psychometric properties of a questionnaire for children and adolescents. *Child and Adolescent Mental Health*, 20(3), 163-170.

Appendix B3: Original Materials – GHSQ

General help-seeking questionnaire (Wilson et al., 2005)

1. If you were having a personal or emotional problem, how likely is it that you would seek help from the following people?

Please indicate your response by putting a line through the number that best describes your intention to seek help from each help source that is listed.

1 = Extremely Unlikely   3 = Unlikely   5 = Likely   7 = Extremely Likely

a. Intimate partner (e.g., girlfriend, boyfriend, husband, wife, de' facto)	1	2	3	4	5	6	7
b. Friend (not related to you)	1	2	3	4	5	6	7
c. Parent	1	2	3	4	5	6	7
d. Other relative/family member	1	2	3	4	5	6	7
e. Mental health professional (e.g. psychologist, social worker, counsellor)	1	2	3	4	5	6	7
f. Phone helpline (e.g. Lifeline)	1	2	3	4	5	6	7
g. Doctor/GP	1	2	3	4	5	6	7
h. Minister or religious leader (e.g. Priest, Rabbi, Chaplain)	1	2	3	4	5	6	7
i. I would not seek help from anyone	1	2	3	4	5	6	7
j. I would seek help from another not listed above (please list in the space provided, (e.g., work colleague. If no, leave blank)_____	1	2	3	4	5	6	7

Reproduced from:

https://smah.uow.edu.au/content/groups/public/@web/@gsm/documents/doc/uow090184.pdf

Appendix B4: Original Materials – Subjective SES.

Perceived family wealth item (Health Behaviour in School aged Children Study [HBSC]; Currie et al., 2014)

Item box 9

MQ70	How well off do you think your family is?
○	Very well off
○	Quite well off
○	Average
○	Not so well off
○	Not at all well off

Source: *HBSC surveys 1993/94, 1997/98, 2001/02, 2005/06.*

Appendix C: Supplementary output

Table C1: Model fit for alternative model

Model fit index	Alternative model	Counterfactual model
CFI	.928	.928
RMSEA	.046 (.041, 051)	.046 (.041, .051)
TLI	.915	.915
SRMR	.0503	.0503
X^2 (df), p.	456.065 (179), .000	456.065 (179), .000

NB: Alternative specifies no direct effect between informal and formal help-seeking, but rather a covariance; counterfactual specifies direct effect from formal to informal.

Table C2: Direct, indirect and total effects of alternative model

Direct Effects	Standardised Est (SE)	Unstandardised Est (SE)
MHL1 -> Low Stigma	**.239 (.064) ****	**.163 (.051)**
MHL1 -> Informal	**.149 (.074) ***	**.071 (.045)**
MHL1-> Formal	**.243 (.063) ****	**.457 (.43)**
MHL2 -> Low Stigma	**.215 (.061) ****	**.245 (.078)**
MHL2 -> Informal	**-.221(.056) ***	**-.177 (.062)**
MHL2 -> Formal	**-.223 (.054)***	-.702 (.149)
Low Stigma -> Informal	.037 (.065)	.026 (.045)
Low Stigma ->Formal	.027 (.056)	.074 (.156)
Indirect Effects	Standardised	Unstandardised
Total: MHL1 -> Stigma -> Informal	.009 (.016)	.004 (.008)
Total: MHL1 -> Formal	.006 (.014)	.012 (.089) *
Total: MHL2 -> Stigma -> Informal	.008 (.015)	.006 (.012)
Total: MHL2 -> Formal	.006 (.012)	.018 (.040) **
Total Effects	Standardised	Unstandardised
MHL1 -> Informal	**.158 (.068) ***	**.076 (.044)** [*]
MHL1 -> Formal	**.249 (.058) ****	**.469 (.134)** [**]
MHL2 -> Informal	**-.213 (.054) ***	**-.171 (.059)** [**]
MHL2-> Formal	**-.217 (.053) ****	**-.684 (.162)** [**]
Low Personal -> Formal	.027 (.056)	.074 (.156)

*** p <.001; ** p < .01; *p < .05 MHL1 = Knowledge of treatment efficacy; MHL2 = Ability to identify mental health problems

Table C3: Direct, indirect and total effects of counterfactual model

Direct Effects	Standardised Est (SE)	Unstandardised Est (SE)
MHL1 -> Low Stigma	.100 (.099)	.081 (.087)
MHL1 -> Informal	-.037 (.082)	-.018 (.045)
MHL1-> Formal	**.248 (.096) ****	**.436 (.238) ****
MHL2 -> Low Stigma	**.302 (.094) ****	**.245 (.084) ****
MHL2 -> Informal	**-.171 (.071)***	**-.081 (.045)***
MHL2 -> Formal	**-.169 (.089) ***	**-.298 (.161) ***
Low Stigma -> Informal	.014 (.075)	.008 (.050)
Low Stigma ->Formal	-.060 (.075)	-.129 (.166)
Formal -> informal	**.614 (.058) ****	**.165 (.050) ****
Indirect Effects	Standardised	Unstandardised
Total: MHL1 -> Stigma -> Informal	**.150 (.063) ****	**.071 (.047) ****
MHL1 -> Stigma -> Formal	-.006	-.010 (.025)
MHL1 -> Formal -> informal	**.152 ***	**.072 (.047) ****
MHL1->Stigma -> Informal -> Formal	.001	.001 (.004)
Total: MHL1 -> Formal	-.006 (.013)	-.011 (.025)
Total: MHL2 -> Stigma -> Informal	-.111 (.056)	-.052 (.032)
MHL2 -> Stigma -> Formal	-.018	-.032 (.042)
MHL2 -> Formal -> informal	**-.104****	**.049 (.010) ****
MHL2 -> Stigma -> Formal -> Informal	-.011	-.005 (.003)
Total: MHL2 -> Formal	-.018 (.024)	-.032 (.042)
Total Effects	Standardised	Unstandardised
MHL1 -> Informal	.113 (.086)	.053 (.059)
MHL1 -> Formal	**.242 (.093) ****	**.426 (.231) ****
MHL2 -> Informal	**-.282 (.070) ****	**-.133 (.055) ****
MHL2-> Formal	**-.187 (.086) ***	**-.329 (.155) ***
Low Personal -> Formal	-.060 (.075)	-.129 (.166)

*** p <.001; ** p < .01; *p < .05 MHL1 = Knowledge of treatment efficacy; MHL2 = Ability to identify mental health problems

Table C4: Measures of invariance for each invariant intercept: perceived stigma form friends moderation.

Item No. (item label)	χ^2 Diff	CFI	RMSEA	SRMR	ΔCFI	ΔRMSEA	ΔSRMR
GHSQ2 (Parent)	$\chi 2\ (1) = .014,\ p = .907$	.915	.031	.0578	.001	--	--
GHSQ 3. (Other relative)	$\chi 2\ (1) = .097,\ p = .755$	.915	.031	.0578	.001	--	--
GHSQ4. (Mental Health Professional)	$\chi 2\ (1) = .102,\ p = .749$	.915	.031	.0578	.001	--	--
GHSQ5. (Phone Helpline)	$\chi 2\ (1) = 2.632,\ p = .105$	.914	.031	.0578	--	--	--
GHSQ 6. (Teacher)	$\chi 2\ (1) = 2.183,\ p = .140$	.914	.031	.0578	--	--	--
GHSQ 7. (Doctor / GP)	$\chi 2\ (1) = .189,\ p = .664$	.915	.031	.0578	.001	--	--

Change in fit indices, and model comparison, is in comparison to metric model (CFI = .914, RMSEA = .031, SRMR = .0578). For scalar invariance to be accepted change should not exceed: CFI > .01; RMSEA > .015; SRMR . > .015

Table C5: Measures of invariance for each invariant intercept: perceived stigma from parents moderation

Item No. (item label)	χ^2 Diff	CFI	RMSEA	SRMR	ΔCFI	ΔRMSEA	ΔSRMR
GHSQ 1 (Friend)	$\chi 2\ (1) = 2.494,\ p = .114$	.897	.035	.0639	--	--	--
GHSQ 3. (Other relative)	$\chi 2\ (1) = 2.730,\ p = .098$	.897	.035	.0639	--	--	--
GHSQ 4. (Mental Health Professional)	$\chi 2\ (1) = .901,\ p = .343$	.897	.035	.0639	--	--	--
GHSQ 5. (Phone Helpline)	$\chi 2\ (1) = .980,\ p = .322$	.897	.035	.0639	--	--	--
GHSQ 7. (Doctor / GP)	$\chi 2\ (1) = 1.721,\ p = .190$	.897	.035	.0639	--	--	--
GHSQ 8. (Minister / Religious leader)	$\chi 2\ (1) = .665,\ p = .418$	.898	.035	.0639	--	--	--

Change in fit indices, and model comparison, is in comparison to metric invariance model (CFI = .897, RMSEA = .035, SRMR = .0639). For scalar invariance to be accepted change should not exceed: CFI > .01; RMSEA > .015; SRMR . > .015