

Mental Health Literacy: Conceptualisation, Measurement, and the Relationship within wider student mental health.

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By

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Abstract

This thesis proposes a new measure of mental health literacy specifically for use among university students by developing items relevant to university experiences and testing the usefulness of this measure within wider student mental health research. To do this, four studies were conducted using various methods such as longitudinal and experimental design. Participants included university students who completed measures of mental health literacy, help-seeking intentions, internal stigma, personality, and mental health. The first study was split into two parts; the first part sought to develop the Student Mental Health Literacy Scale items. The second part tested the factor structure and confirmed that mental health literacy is multidimensional comprised of six unique factors. Using the new Student Mental Health Literacy Scale, study Two explored the relationship between mental health literacy and help-seeking intentions. Study Three was a longitudinal study that assessed whether mental health literacy predicted mental health outcomes (depression and anxiety) over time. The final study evaluated whether individual differences such as personality accounted for unique variance in mental health literacy levels in university students. Overall, the results suggest that the concept and new measurement of mental health literacy are useful in furthering our understanding of mental health outcomes and help to increase the specificity of existing relationships, specifically within university students.

Declaration

I hereby declare that this thesis has been composed by myself and that the research reported herein has been conducted by myself.

Radhika Joshi

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Chapter One

General Introduction

Abstract

Using a wide range of methods and recruiting participants from the university, this thesis outlines the concept of mental health literacy, develops a Student Mental Health Literacy Scale, and explores the relationship of mental health literacy within broader student mental health research. This chapter provides an introduction to mental health literacy, an overview of the relevant research within this area, and outlines mental health research in university students. Additionally, this chapter elaborates on the purpose of this thesis. It outlines its structure by detailing how each specific chapter examines the concept of mental health literacy and the relationships with key variables in the field of student mental health.

Defining Mental Health Literacy

The concept of mental health literacy first evolved through the extension of health literacy, which is a multidimensional concept that relates to the cognitive, personal, and social skills which influence a persons' ability to access, comprehend and apply information to their health and engage with the healthcare system (Francis et al., 2002). Jorm et al. (1997) argued that health literacy research did not fully address the knowledge and skills required to achieve mental health. Jorm introduced the concept of mental health literacy in 1997, and since being introduced, it has become the focus of an increasing number of studies (Jorm, 2012).

Originally, mental health literacy was conceptualised and defined as the "knowledge and beliefs about mental disorders which aid their recognition, management, or prevention" (Jorm et al., 1997; p.182). Subsequent research revealed mental health literacy to be multi-faceted (Jorm, 2012), comprised of six components: (1) recognition of mental disorders (ability to identify symptoms and features of a disorder correctly), (2) knowledge of how to seek mental health information (having the knowledge of where to access mental health information), (3)

knowledge of mental health risk factors and causes (knowledge of factors that increase the risk of developing a mental illness), (4) knowledge of self-treatment (knowledge of treatments recommended by professionals and activities an individual can take part in), (5) knowledge of professional help available (knowledge of mental health professionals and the services they offer), and (6) attitudes that promote recognition of appropriate help-seeking (attitudes that impact on the recognition of disorders and willingness to engage in help-seeking) (Jorm, 2012, 2015). The two concepts of health literacy and mental health literacy are not completely the same. The concept of health literacy focuses on more traditional literacy elements such as reading and writing, whereas mental health literacy focuses upon knowledge, attitudes, and behaviour (Ganasen et al., 2008; O'Connor et al., 2014). However, there have been calls for an expansion on the definition of mental health literacy (Kutcher et al., 2016; Wei et al., 2015, 2016, 2017). To keep in line with the expansion of health literacy, researchers have argued that mental health literacy should include components of attitudes, stigma, positive mental health, and help-seeking efficacy related to help-seeking and mental illness (Bjørnsen et al., 2017; Kutcher et al., 2016; Kusan, 2013; Wei et al., 2017), rather than just factors of knowledge. Although these factors could be relevant additions to mental health literacy, many researchers would prefer to operationalize mental health literacy strictly as mental health knowledge construct (Chen et al., 2017; Coles et al., 2016; Furnham & Sjøkvist, 2017). The variations in definitions of mental health literacy can often lead to confusion regarding how and what to measure when assessing the concept and making it difficult to compare across studies (Spiker & Hammer, 2018). The original mental health literacy definition by Jorm et al., (1997) is most often considered the "gold standard," with the majority of previous researchers using this within their studies (Gorczynski et al., 2017, 2020; O'Connor & Casey, 2014; Lam, 2014; Reavely & Jorm, 2011).

The role of Mental Health Literacy

Understanding mental health disorders are important given the high lifetime prevalence of developing a mental health difficulty. The World Health Organisation suggests that one in four people will be affected by a mental health disorder at some point in their lives (WHO, 2001). This high prevalence is a concern among health care professionals due to its consequences on an individual, their family members, and the socio-economic burden (Cuijpers et al., 2007; Sobocki et al., 2007; White & Casey, 2017). Moreover, research has shown that within the wider community, there is a low level of knowledge surrounding mental health (Jorm et al., 2005; Bartlett et al., 2006; Farrer et al., 2008), with many people being unable to identify symptoms of common disorders, such as depression and anxiety (Jorm et al., 2005). The poor recognition of mental health disorders can lead to disorders remaining untreated, with nearly 2/3 of those with a known mental disorder never seeking help from a health professional (WHO, 2001). By delaying treatment, individuals increase the risk of experiencing more severe symptoms of mental health disorders, which can negatively affect the individuals' overall quality of life. The recognition and knowledge of symptoms of disorders is an important factor of mental health literacy as it significantly relates to the early detection of a mental health disorder (Wright, Jorm, Harris, & McGorry, 2007) and can improve help-seeking intentions (Altweck et al., 2015; Amarasuriya et al., 2015; Mason et al., 2015).

However, identifying mental health disorders is not the only crucial factor within mental health literacy. Knowing the causes and treatments for mental health conditions is just as important. Without having the relevant knowledge regarding the causes and treatments of mental health, it can significantly impact the recognition, maintenance, and prevention of mental health disorders. Low levels of mental health literacy within the population lead to high numbers of undiagnosed mental health conditions. Undiagnosed mental health

conditions can be disastrous, with there being severe consequences on a person's life, including unemployment, morbidity, mortality, increased stress faced by caregivers, and even the loss of life through suicide. Therefore, mental health literacy is important within the field of mental health, specifically in terms of seeking treatment for symptoms.

It is increasingly important for us to understand the concept of mental health literacy in order for us to assess levels among the population and to inform interventions to increase mental health literacy levels across the community. The concept of mental health literacy has been well-applied, aiding the development of interventions surrounding help-seeking (Altweck et al., 2015; Amarasuriya et al., 2015; Mason et al., 2015), understanding attitudes towards interventions (Xu et al., 2018; Angermeyer et al., 2009; Reavley et al., 2012), and specific mental health disorders (Bullivant et al., 2020; Hadjimina & Furnham, 2017; McIntosh & Paulson, 2019). Despite the importance of mental health literacy across wider mental health research, there are many concerns regarding its conceptualisation and measurement (Kutcher et al., 2016; O'Connor et al., 2014; Wei et al., 2015, 2016, 2017).

Measuring Mental Health Literacy

Exploring and measuring mental health literacy can be difficult as it consists of several factors requiring measurement, leading to uncertainty in how to and what to measure. As the literature on mental health literacy expands, there is increasing variation in how mental health literacy is measured. Although development work specifies the multi-faceted nature of mental health literacy, it has typically been assessed as a unidimensional construct (Jorm et al., 1997; Kutcher et al., 2016), and there are discussions in regard to its conceptualisation and measurement (Kutcher et al., 2016; O'Connor et al., 2014; Wei et al., 2013, 2015, 2016). Jorm et al. (1997) developed the first measure of mental health literacy, and since then, a number of measures have been developed. The original measure of mental health literacy was an interview schedule "Vignette Interview." This measurement method presented scenarios to

participants, which would describe individuals suffering from a mental health difficulty and would ask participants a series of questions relating to the participants' understanding of what is "wrong" with the individual described (Jorm et al., 1997, 2005). This has been the most widely used measure within the study of mental health literacy. However, there are limitations to this method. Firstly, it is considered to be a time-consuming assessment and leads to participant boredom (Ganong & Coleman, 2006, Kim, 2012; Wallander, 2009) therefore reducing the internal reliability. Secondly, the original measure did not allow for the generation of a score, making it difficult to compare participants. However, revised measures have addressed this, allowing for the generation of a total score.

Scale and score-based measures are considered more beneficial for measuring mental health literacy, due to their ability to be easily administrated and allow for measuring the six key factors of mental health literacy. O'Connor et al. (2014) undertook an extensive review of the current mental health literacy measures to examine the extent to which these measures assess the factors of mental health literacy as defined by theory. The study identified thirteen scale-based assessments (O'Connor et al., 2014). The evaluation showed that these measures varied in the psychometric measures employed and the theory and definitions of mental health literacy used.

Firstly, it was found that a range of psychometric methods were used, such as multiple-choice questions, dichotomous-response questions, as well as using a combination of all of these methods. Therefore, there were a lot of inconsistencies in terms of the methods used.

Secondly, after examining how well the measures assessed the six key factors of mental health literacy, it was found that none of the thirteen scale-based measures assessed all six factors of mental health literacy, as outlined by the theory. Out of the six factors, the most consistent factor measured was recognition of disorders which was reported by eight of the

thirteen studies (Compton et al., 2011; Evans-Lacko et al., 2010; Furnham et al., 2011; Jorm et al., 2010; Kitchener & Jorm., 2002; Lauber et al., 2005; Swami et al., 2010; Yap et al., 2012).

Two mental health literacy attributes were not measured by any measures identified:

knowledge of how to seek mental health information and knowledge of self-treatments. From those studies reviewed, the Multiple-Choice Knowledge of Mental Illness Test by Compton et al., (2011) was the closest measure to have addressed the attributes of mental health literacy, with four of the attributes corresponding with those of Jorm (1997). The other measures reviewed assessed only one or two attributes corresponding with the original definition.

Furthermore, most studies included additional attributes that were not reported in the definition, for example, the beliefs about cures (Furnham et al., 2011) and knowledge about the helplessness of interventions (Smith & Schochet, 2011). From their review, O'Connor et al. (2014) argued that there had been no attempt to systematically measure all six attributes of mental health literacy as proposed by Jorm (2012). Due to the lack of measures that assess all mental health literacy factors, it is difficult to conclude that the current measurement tools provide a holistic assessment of mental health literacy, with studies assessing only a select few aspects of mental health literacy. The different variations in measurement of mental health literacy across studies question the validity and reliability of the concept of mental health literacy (O'Connor et al., 2014). Therefore, there is some inconsistency in the conceptualisation and measurement of mental health literacy, making it difficult to compare studies assessing this umbrella term of mental health literacy (Compton et al., 2011; Evans-Lacko et al., 2010; Furnham et al., 2011).

To overcome these shortfalls, O'Connor & Casey (2015) developed a scale to assess the six factors of mental health literacy proposed by Jorm (2012). After starting with 51 items comprised of between 3 and 9 factors, the study resulted in a 35-item unidimensional scale

(Mental Health Literacy Scale) with a Cronbach's alpha of .87. This 35- item self-report measure addresses the gaps of previous mental health literacy measures by assessing all six factors outlined by definition. Since being introduced, it has been widely used within the literature of mental health literacy. However, they fail to accurately assess the facets of mental health literacy by developing specific subscales for each factor and only allowing for the generation of an overall total score. The lack of subscales is a particular issue, especially within a specifically designed measure to assess several attributes. Without sub-scales, comparisons cannot be made between attributes to determine which of these attributes might be the most important to target to improve mental health literacy. Despite this, their approach provides evidence of a valid psychometric structure and some theoretical virtue in recognizing the multi-faceted nature of mental health literacy.

Measuring Mental Health Literacy in Young People

More recently, research has looked more specifically at measuring mental health literacy in specific populations such as young people to assess the multidimensionality of the construct, with their being calls for more domain-specific assessments of mental health literacy (Jorm, 2015). Compos et al. (2016) developed and tested a new mental health literacy questionnaire for assessing mental health literacy in young people. The development of this measure occurred in several stages: generation of item pool through literature searches and tailored to target-group, assessment of content validity through assessment with the support of experts think-aloud procedure reducing item number and assessing factor structure through factor analysis. Among their sample of adolescents, a pool of 48 items was generated and then reduced to 33. From their factor analysis, they concluded a three-factor structure of mental health literacy (1) Help-seeking and First Aid Skills (2) Knowledge/ Stereotypes of Mental Health Disorders (3) Self-Help Strategies. Dias et al. (2018) then adapted this by developing and testing a 29-item scale (The Mental Health Literacy questionnaire-young adults). The

adapted version was divided into four key factors: (1) Knowledge of mental health problems, (2) Erroneous beliefs and stereotypes, (3) First aid skills and help-seeking behaviour (4) Self-help strategies. From their assessments of the Mental Health Literacy Questionnaire- young adults supported the argument that mental health literacy is multidimensional. Although this is a valid and reliable measure for young adults, it does not fully measure the original six key factors outlined by Jorm (1997). For example, the measure focuses more on knowledge, beliefs, and help-seeking and does not include the key element of recognition of disorders.

More recently, Chao et al., (2020) expanded on the Mental Health Literacy Questionnaire (Campos et al., 2016) and the MHLQ for young adults (Dias et al., 2018) to develop and test a mental health literacy scale for health care students. They argue that previous mental health literacy scales are designed for the general public and are not appropriate to measure and assess the mental health literacy of health care students and do not measure the stigma of mental illness. They addressed these issues by constructing and evaluating a scale to assess health professionals' and students' mental health literacy. This was a 26 item mental health literacy scale comprised of five subscales aimed to correspond with the critical components of mental health literacy:

- (1) Maintenance of positive mental health
- (2) Recognition of mental illness
- (3) Attitudes to mental health illness
- (4) Help-seeking efficacy
- (5) Help-Seeking attitude

Chao et al.'s (2020) research is the closest to have operationalized mental health literacy in line with Jorm et al. (1997), with at least four of the factors corresponding to the original factors set out by definition. However, a criticism to this study is that the factor outlining

maintenance of positive mental health could be considered a measure of positive psychology rather than a measure of mental health literacy; therefore, the scale does not fully operationalize the concept of mental health literacy. Although Chao et al. (2020) are the closest to having developed a multidimensional measure of mental health literacy, no study has operationalized the construct using all six- key factors as proposed by Jorm et al., (1997).

Mental Health Literacy and University Students

Research has highlighted several reasons why it is increasingly important to understand mental health literacy in young people, particularly university students. Firstly, there is a great concern that university students have a high prevalence of mental health disorders such as depression and anxiety, with students often showing signs of co-morbidity (Auerbach et al., 2016; McLafferty et al., 2017; Steel et al., 2014) as well as signs of suicidal thoughts and behaviours (McLafferty et al., 2017; Mortier et al., 2018). Approximately one-third of university students suffer from symptoms of a diagnosable mental health disorder, with 64% of individuals who drop out of university doing so because of a mental health problem (Farrer et al., 2008; Burns & Rapee, 2006; Gruttadaro & Crudo, 2012). Secondly, the university years are a distinct developmental period, with the transition to university leading to dramatic changes in a students' everyday life and responsibilities. During this time, students are suddenly faced with a number of stressors: financial (debts), workload (combination of education and occupation), and social changes (friends, new relationships). University students are a high risk and vulnerable group, due to the university experience being associated with many unique stressors that impact mental health. Thirdly, university students cannot recognise symptoms of mental health disorders and the need to seek help (Furnham et al., 2011; Hunt & Eisenberg, 2010; Reavley et al., 2012; Wei et al., 2013) and lack the knowledge and understanding of mental health problems, suggesting that students are not literate around mental health issues. It has been argued that individuals with limited

knowledge of mental health disorders or evidenced-based treatments are perceived as being 'mental health illiterate' (Ganasen et al., 2008). To intervene early and prevent the negative impact of mental health disorders on university life, students need to have a good level of mental health literacy. Mental health literacy is a key factor in preventing the effects of mental health disorders as it relates to an individuals' knowledge surrounding mental health that can enable them to take possible action to protect their mental health. To date, there are no mental health literacy scales that specifically measure mental health literacy in university students. Current measures such as the Mental Health Literacy Scale (O'Connor & Casey, 2015) use general item wording to assess the construct. For example, when measuring attitudes, the scale uses items such as "How willing would you be to employ someone if you knew they had a mental illness?" This is not something that would be relatable to all university students; therefore, there is a need for measures to acknowledge the specific experiences of university students.

Mental Health Literacy and Help- Seeking

Mental health help-seeking can be considered an adaptive coping process whereby an individual attempts to obtain support to treat a mental health issue. The process framework model of help-seeking (Rickwood et al., 2005) reveals that help-seeking is a four-step process starting with (1) Recognition of symptoms, (2) Expressing the need for help, (3) knowledge regarding the availability of sources of help (4) Attitudes towards seeking help/beliefs about the treatment. In this model of help-seeking, knowledge and recognition of the symptoms of mental health disorders (mental health literacy) are critical. Previous research has highlighted that low levels of mental health literacy are considered the main barrier to seeking support (Gulliver et al., 2010). Mental health literacy plays a significant role in help-seeking because greater levels of mental health literacy can contribute to early recognition in a young person themselves or within their friends, therefore, facilitating support through their knowledge of

available help and how to access help (Kelly et al., 2007). Furthermore, low levels of mental health literacy are associated with lower rates of service utilization and help-seeking (Evans-Lacko et al., 2012) due to the inability to recognise symptoms and the limited knowledge regarding the support available (Burns & Rapee, 2006; Jorm, 2000). In terms of university students' mental health literacy is a key determiner in helping students access appropriate mental health support as it aids the recognition, management, and prevention of mental health. Mental health literacy can aid help-seeking intentions (Altweck et al., 2015; Amarasuriya et al., 2015; Mason et al., 2015) and can guide interventions to improve attitudes towards seeking treatments and attitudes towards individuals suffering from mental health symptoms (Anderson & Pierce, 2012; Angermeyer et al., 2009; Eack et al., 2012; Griffiths et al., 2008; Martensson et al., 2014; Reavley et al., 2012). Previous research examining mental health literacy in university students has demonstrated that greater knowledge of mental health problems is significantly positively correlated with help-seeking intentions (Smith & Shochet, 2011; Gorczynski et al., 2017). Furthermore, mental health literacy has been found to influence informal and formal help-seeking intentions (Suka et al., 2015). More positive attitudes regarding help-seeking are associated with increased service utilization (ten Have et al., 2010). O'Connor and Casey. (2015), found that scores on the mental health literacy scale were significantly correlated with help-seeking intentions. Therefore, research highlights that mental health literacy is a key determiner of help-seeking.

Stigma and Help-Seeking

In addition to low levels of mental health literacy, high levels of stigma are another barrier affecting mental health help-seeking. The stigma of mental illnesses has been defined as a sign that an individual has characteristics that reduce them from being a "whole" person to a tainted one (Pescosolido, 2013). Corrigan. (2004) highlighted that the concept of stigma is a combination of stereotypes, prejudices, and discrimination. Stereotypes are attitudes and

beliefs held by society regarding individuals with a mental illness, e.g., those who are mentally ill are dangerous, psychopaths, or strange. Prejudice is the agreement between these stereotypes resulting in a negative emotional reaction such as fear and disgust towards that person. Discrimination is the behaviour that results from the emotional reaction, e.g., avoiding the individual due to fear of them being dangerous. There are two main types of stigma; public which is the attitudes and beliefs held by the general public and society about mental illness (Corrigan & Watson 2002; Pescosolido, 2013) and self stigma, which is where an individual with a mental health concern stigmatizes themselves due to internalized negative attitudes from society which results to low self-esteem and low self-worth (Corrigan, 2004). Stigma is important to research because it has many damaging consequences for those experiencing it (Corrigan, Druss & Perlick, 2014). Outcomes of mental illness stigma include negative attitudes towards treatment (Conner et al., 2010), reduced treatment compliance (Fung & Tsang, 2010), and the reduced willingness to continue treatment (Wade et al., 2011). Research assessing barriers to help-seeking has highlighted that young people report that stigma is a major barrier to seeking help (Gulliver et al., 2010; Gulliver et al., 2012; Eisenberg et al., 2009; Vogel et al., 2007). Clement et al. (2015), in their meta-analysis using 144 studies, found that stigma had a small to moderate negative effect on help-seeking attitudes. However, there is some inconsistency in this relationship, Sheffield et al. (2004) found that adolescents' attitudes towards mental illness were not related to an individual's willingness to seek help. Yap et al. (2011) outlined that one's belief that an individual with a mental illness is dangerous and unpredictable is associated with greater intention to seek help in the event of developing a mental illness. It is argued that the inconsistency that is associated with the relationship between stigma and help-seeking is that only certain types of stigma may influence help-seeking (Barney et al., 2006). For example, research has highlighted that self stigma, in particular, is important in predicting mental

health help-seeking from a range of sources, including psychiatrists, GPs, psychologists, counsellors (Barney et al., 2006). Schomerus et al. (2009) revealed in their systematic review that self stigma is important for intentions to seek help in an individual who develops a mental health disorder because negative attitudes can be internalized therefore influencing the likelihood of them seeking help. Additionally, evidence has found that public stigma does not influence help-seeking amongst university students (Eisenberg et al., 2009; Golberstein et al., 2008). Therefore, research is mixed in regarding the relationship between stigma and help-seeking. It could be argued that the role of stigma is changing, and other factors may be emerging as factors that influence this relationship.

Mental Health Literacy and Stigma

Research into the relationship between mental health literacy and stigma seems inconsistent as the relationship between the two is unclear, and the evidence is conflicting. Early research has highlighted that interventions aimed at increasing mental health literacy have demonstrated a reduction in mental health stigma. In addition, studies have demonstrated that those with higher levels of knowledge of mental illness have lower stigmatizing attitudes and are less likely to hold negative views (Kitchener & Jorm, 2006; Thornton & Wahl, 1996). More recent research has highlighted a strong, negative correlation between mental health literacy and stigma (Busby et al., 2015; Millin et al., 2016). In a recent randomized control study by Milin et al. (2016) on high school students, it was found that in the mental health literacy intervention group, there were significant changes in stigma scores from the pre-test to the post-test, with increases in positive attitudes towards mental illness alongside an increase in the level of knowledge. Therefore, no changes were found in the control group, highlighting a relationship between mental health literacy and stigma. Furthermore, in Furnham & Swami. (2018) literature review examining mental health literacy, they found evidence suggesting that increasing mental health literacy may decrease stigmatized attitudes

towards those with a mental health diagnosis. Therefore, there seems to be a meaningful relationship between mental health literacy and reducing stigma.

On the other hand, some studies have concluded that having higher mental health literacy provides individuals with the knowledge to be able to label an individual as mentally ill therefore being associated with increased stigma (Angermeyer & Matschinger, 2004; Hengartner et al., 2013; Martin et al., 2000; Peluso & Blay, 2009). Therefore, findings in this area are debatable.

Mental Health Literacy, Stigma and Help-Seeking

There is limited research assessing the relationship between mental health literacy, stigma, and help-seeking. One known study is by D'cunha (2014) surveyed rural American adults on their levels of mental health stigma (public and self), mental health literacy, and help-seeking attitudes and intentions for a mental health concern. The results revealed that those with the lowest levels of self stigma and high levels of mental health literacy had more positive views towards help-seeking. The study lacks generalizability as the sample studied was white, educated adults in America, making it harder to generalize to wider populations and young people such as students. We consider this in our studies among university students by using a wider sample. Despite this limitation, the findings are useful in providing initial evidence for this relationship. A more recent study by Cheng et al. (2018) provides further evidence for this relationship. Among a sample of college undergraduate students, self stigma and mental health literacy predicted help-seeking beyond demographic and psychological symptom factors. Currently available research and evidence demonstrate an important connection between mental health literacy, stigma, and help-seeking. The findings can be used to form interventions to improve the way people perceive help-seeking. Some studies have assessed educational interventions effectiveness to improve mental health literacy, stigma, and

help-seeking. Rickwood et al. (2004) used a school-based mental health education program and found that there was a significant improvement in mental health literacy and a moderate effect on reducing stigma among high school students. However, this intervention had a weak effect on improving students' help-seeking.

More recently, a study was conducted in the UK assessing a previously demonstrated effective mental health literacy resource from a Canadian sample and was replicated on UK students (Hunt et al., 2019). The study was a pre-post-test where mental health literacy was measured using O'Connor's mental health literacy scale at two-time points. An intervention was introduced called transitions that provided mental health literacy information and other information regarding university. The study found that the students who engaged in the transitions intervention reported improved knowledge, attitudes (decrease in stigma), and increased help-seeking intention, all of which are components of mental health literacy. These findings are consistent with other studies, such as those conducted on a Canadian sample (Kutcher et al., 2016; Potvin-Boucher et al., 2010). However, this study is limited in sample size. Overall, research highlights that mental health literacy improves attitudes such as stigma and helps increase help-seeking intentions amongst students. It is essential that we study all three constructs together to understand how to increase help-seeking.

Factors Affecting/Predictors of Mental Health Literacy

Gender

Research has highlighted important gender differences in levels of mental health literacy. Females generally have higher mental health literacy levels than males (Wright et al., 2006; Burns & Rapee., 2006; Jorm et al., 2006; Wang et al., 2007). For example, females tend to better recognise symptoms of mental health disorders compared to males (Coles et al., 2016; Dahlberg et al., 2008; Furnham & Lousley, 2013) and endorse psychological explanations regarding the causes of mental health. In terms of help strategies, females tend to recommend

and endorse psychological interventions compared to males (Coles et al., 2016; Wright et al., 2006; Swami et al., 2010; Wang et al., 2007) and are more likely to seek support from both informal (family and friends) and formal help (Psychologist) (Furnham et al., 2014). On the other hand, males are less aware of the risks and causes associated with mental health disorders and are unable to correctly identify symptoms of a mental illness from a vignette scenario (Wong et al., 2017). In terms of seeking help, males are more likely to suggest self-help strategies such as the internet or coping alone (Jorm et al., 2005; Wang et al., 2007). To summarise, research suggests that females have better mental health literacy compared to males.

Age

Differences in mental health literacy levels across age groups have been well compared. Research has highlighted that mental health literacy is higher in younger people (15-24 years old) compared to older people (65–74 years). Younger people are more likely to correctly identify a disorder and suggest professional help compared to older people (Fisher & Goldney, 2003). More specifically, amongst their sample of 162 adults aged 18-70 years, Hajimina & Furnham. (2017) assessed the recognition of anxiety-related disorders through the use of vignettes. They found that younger participants aged 20-34 years had higher recognition rates and could correctly identify a number of anxiety disorders such as Social phobia, Generalised anxiety disorders, and Obsessive-compulsive disorders compared to older participants aged 30-44 and 45-70 years old. Similarly, research into depression literacy has found that older participants aged 70 have a lower ability to recognise symptoms of depression compared to participants from all other age groups 18–24 years; 25–39 years; 40–54 years; 55–69 years (Farrer et al., 2008). However, within the same study, it was found that younger participants (18–24 years) were more likely than older participants (70+ years) to identify schizophrenia as depression. Some researchers have challenged the argument that

age is related to mental health literacy. Marcus and Westra. (2012) in their sample of Canadian young adults, they found no age difference between younger (18-24 years) and older participants (25–64 years) in terms of general mental health knowledge. Overall, research suggests that there is an association between age and mental health literacy.

Personality Traits

The five-factor personality model (Extraversion, Agreeableness, Neuroticism, Conscientiousness, Openness to new experiences) is the most widely used and supported method for demonstrating the main ways individuals vary across a population (Costa & McCrae 1995; Widiger & Crego, 2019). Research has shown that all five personality traits predict many health-related behaviours (Friedman & Kern, 2014; Strickhouser et al., 2017). For example, personality factors have been found to be associated with treatment-seeking behaviours (Goodman et al., 2002; Kakhnovets, 2011). Goodman et al. (2002) suggested that Neuroticism was associated with increased mental health service utilisation while conscientiousness was associated with decreased mental health utilisation. Research has demonstrated that the Big 5 personality framework has a good predictive ability with a range of real-world outcomes (Chamorro –Premuzic, 2007). Despite this, only a small body of research has assessed the predictive ability of personality traits on mental health literacy. It has been suggested that openness to new experiences can be considered most likely to be associated with greater mental health literacy as this factor is associated with creativity, higher general knowledge and intelligence (Chamorro-Premuzic, 2007). However, research in this area is also mixed. Swami et al. (2011) conducted a study to explore the general public's ability to recognise mental health disorders and whether this ability is related to psychiatric scepticism, knowledge of psychiatry, and the Big Five personality factors. In their sample of 477 participants of the British general public, they found that agreeableness positively predicted better mental health literacy, whereas openness negatively predicted better mental

health literacy. They explained the relationship between agreeableness and mental health literacy by suggesting that agreeable individuals may have increased mental health literacy because they are empathetic and are concerned with others' wellbeing. They found it difficult to explain the association between mental health literacy and openness because it would be expected that open individuals are more intellectually curious and attentive to inner feelings. However, in a replication of this study, the relationship between openness and mental health literacy was found to be the opposite; instead of being a negative relationship, it was found that there was a positive relationship. This is in line with Pahlus and Bruce (1990) who also found a positive relationship between openness and mental health literacy. It can be argued that a positive relationship between openness and mental health literacy was more likely because of the positive relationship between openness and greater cognitive ability (Chamorro-Premuzic, 2007). However, the research into the relationship between personality and mental health literacy tends to only have a weak to moderate relationship (Swami et al., 2011); therefore, further work is needed. In general, research into the relationship between personality and mental health literacy is scarce, with there being a need to further explore these relationships.

Psychological symptoms

Research has explored whether the experience of psychological symptoms is associated with mental health literacy, with findings in this area being mixed. For example, one study explored the recognition of depression and schizophrenia and found that previous personal experience of mental health was associated with a higher level of recognition of disorders (Lauber et al., 2005). More recently, Kim et al. (2015) examined variations in mental health literacy levels among college students currently experiencing psychological symptoms. Their study, addressed students' mental health literacy levels alongside whether they had low or high levels of depression symptoms and low or high levels of anxiety symptoms. Their study

demonstrated a significant negative relationship between mental health literacy and depression symptoms, which suggests that depression symptoms predict mental health literacy. However, no relationship was found between mental health literacy and symptoms of anxiety. They found that recognition of anxiety was low among students generally regardless of anxiety symptoms. Kim et al. (2015) explained the relationship between depression symptoms and mental health literacy by suggesting that specific symptoms of depression interfere with problem recognition, resulting in lower mental health literacy levels. Research suggests that a major cognitive symptom of depression includes difficulty concentrating and decision-making problems (American Psychiatric Association, 2013). Furthermore, cognitive deficits associated with depression and its symptoms can interfere with problem recognition as they can be cognitively distracting; therefore, individuals are unable to attend to relevant information (Bredemeier et al., 2012). Another study found that the number of psychological diagnoses experienced by an individual across their life was linked to an increase in their levels of mental health literacy of mood disorders (Mendenhall et al., 2015). Furthermore, when looking at the influence of a current diagnosis of a mental health disorder, it was found that knowledge of disorders decreased, suggesting that the presence of a current mental health disorder can negatively impact mental health literacy. There seems to be some strong evidence suggesting a relationship between experiencing symptoms of mental health disorders and mental health literacy.

On the other hand, Goldney et al. (2001) conducted a study on a non-college student sample, suggesting that mental health literacy did not vary depending on psychological symptoms of depression. Similarly, Naal et al. (2020) explored the mental health literacy of a sample of university students in Lebanon to investigate whether socio-demographic variables and psychological symptoms predict mental health literacy. The results found no association between psychological symptoms and mental health literacy. Therefore, participants

experiencing symptoms of depression and generalised anxiety did not recognise or know more about the disorder. They argue that symptoms of psychological disorders do not predict levels of mental health literacy. Recognition of disorders is generally low in university students regardless of whether they are experiencing psychological symptoms. Findings into whether mental health literacy varies as a result of psychological symptoms are mixed and also limited. However, it is important to research this area to provide researchers with an insight into whether experiences of psychological symptoms are associated with mental health literacy. Therefore, whether individuals with psychological symptoms have higher levels of mental health literacy remains a question. As a result of the inconsistent findings within the literature, there is a need to further examine personal experiences of psychological symptoms on mental health literacy.

Thesis Outline

Chapter One's central focus has been to provide a literature review into the definition of mental health literacy, its role, the measurement and conceptualisation of the construct, mental health literacy in university students, and mental health literacy within wider psychology. After reviewing this literature, it has been identified that there is a need to conceptualise mental health literacy as defined by theory. Furthermore, this chapter has introduced the need to develop a mental health literacy scale specifically for university students to assess mental health literacy levels among this population reliably. Therefore, the current thesis aims to develop a student-specific mental health literacy measure and examine its importance within wider student mental health research. The aims of the present thesis are thus as follows (1) To use our knowledge of the multidimensionality of mental health literacy to develop a student-specific mental health literacy scale and to address the issues surrounding the conceptualisation, (2) To examine the relationship between mental health literacy and help-seeking intentions in a sample of UK university students. (3). To explore the

relationship of mental health literacy with depression and anxiety (4). To explore mental health literacy within wider psychology in terms of factors influencing mental health literacy levels from an individual differences perspective (personality).

Regarding the first aim, we sought to develop a new scale Student Mental Health Literacy Scale to capture the multidimensionality by using the six factors proposed by the theory and being specific to university students' unique experiences. In line with this purpose, the development of the scale and the findings from the structural validity are detailed throughout Chapter Two.

Chapter Two reported a two-fold study that sought to develop and examine the Student Mental Health Literacy Scale's structural validity. The first half of the study aimed to develop items specific to university students through literature and internet searches, which best represented the six factors of mental health literacy. The items were then tested for how well they represented the six factors. Three samples of university students were used. The first sample was used to conduct exploratory factor analysis to examine the underlying six factor structure and to see which items mapped best onto these six factors. The second and third samples were used to explore the structural validity of the resulting model using confirmatory factor analysis. The resulting scale is the Student Mental Health Literacy Scale, a valid and reliable self-report instrument for assessing mental health literacy in university students. The findings from this study represent the first known attempt to validate a six factor measure of mental health literacy using the underlying theory specifically among university students. The resulting scale includes a unique combination of items specific to university students which are not currently used by any existing mental health literacy measures. Overall, the findings from this study will significantly contribute to research in mental health literacy.

As for the second aim, the focus was given to understanding the relationship between mental health literacy and help-seeking intentions. Studies relating to the second aim are reported in Chapter Three. In Chapter Three, one study is presented that sought to explore the relationship between mental health literacy and help-seeking intentions in university students using correlational and multiple regression analysis. To do this, the Student Mental Health Literacy Scale developed and tested in Chapter two was used to test whether a multidimensional rather than a unidimensional model of mental health literacy would improve the specificity of the relationship between mental health literacy and help-seeking. This study is the first known attempt to explore all mental health literacy components in relation to help-seeking. Using the Student Mental Health Literacy Scale, this study aims to further the specificity of these relationships by identifying key mental health literacy factors as predictors of help-seeking intentions in university students. This study's results will help provide recommendations for universities and interventions to focus on increasing help-seeking and access to support.

The third aim focused on assessing the relationship of mental health literacy with depression and anxiety. In Chapter four, a longitudinal study was presented to explore whether mental health literacy was associated with improved mental health outcomes (depression and anxiety) over two-time points. The results highlighted that mental health literacy is a key factor that could impact mental health outcomes in university students. The study aims to increase the specificity of the relationship by using the new multidimensional Student Mental Health Literacy Scale to explore whether specific mental health literacy factors impact mental health outcomes in university students. The findings will allow for strategies designed as preventive measures of mental health disorders to consider enhancing specific mental health literacy factors in university students.

The fourth aim focused on exploring factors that influence mental health literacy levels through an individual differences perspective. In Chapter Five, we presented one study examining the unique variance of individual differences factors (personality) on mental health literacy levels in university students. The findings from this study significantly contribute to research into mental health literacy in university students. This is the first attempt to explore the influence of personality on university students' levels of specific mental health literacy factors. The findings from this study are important as it is essential for universities to be able to facilitate better mental health literacy in university students to increase health outcomes such as help-seeking. The findings from the study will enable this by identifying specific individual factors related to better mental health literacy.

Finally, in Chapter Six, we discuss the findings of the current thesis alongside the theoretical and practical applications within the research area of mental health literacy. Furthermore, the limitations of this thesis are highlighted here.

Chapter Two

The Development and Testing of the Student Mental Health Literacy Scale

Abstract

Mental health literacy (knowledge and beliefs about mental health) is a significant determinant of mental health and may be particularly important for university students who are experiencing a substantial life transition and are required to take greater responsibility for their own wellbeing. However, how best to conceptualise and measure mental health literacy is unclear, with debate over whether it is best viewed as a single or multidimensional domain. Furthermore, there are no multidimensional scales targeted at understanding mental health literacy specifically for students at university. Through the use of literature and internet searches, we report the development of a 35-item Student Mental Health Literacy Scale for use among university students. Factor analysis of data collected from 794 university students revealed a six factor multidimensional structure comprising: (1) Recognition of disorders, (2) Knowledge of where to seek mental health information, (3) Knowledge of risks factors and causes, (4) Knowledge of self-treatments, (5) Knowledge of professional help available, and (6) Attitudes that promote recognition and help-seeking. The findings suggest that this six factor Student Mental Health Literacy Scale may offer a useful tool to reliably assess mental health literacy in university students and predict specific student outcomes.

Introduction

University is a critical point at which young people experience mental health issues. Studying, financial difficulties, and living independently (Wakeford, 2017; YouthSight, 2017), along with physical separation from family and established friendship groups (Friedlander et al., 2007; Swenson et al., 2008), are key stressors. A concern is that university students consistently show low help-seeking behaviours (Auerbach et al., 2016; Eisenberg et al., 2012; McLafferty et al., 2017; Gorczynski et al., 2020). Two-thirds of students with a mental health disorder do not seek professional help, including those at risk of suicide (Czyz et al., 2013). A fundamental barrier to help-seeking is the inability to recognise mental health disorders, often conceptualised as mental health literacy.

Mental health literacy was first defined by Jorm et al. (1997) as “knowledge and beliefs about mental disorders which aid their recognition, management, or prevention” (p.182). Subsequent research revealed mental health literacy to be multi-faceted (Jorm, 2012), comprised of six factors: (1) recognition of mental disorders, (2) knowledge of how to seek mental health information, (3) knowledge of mental health risk factors and causes, (4) knowledge of self-treatment, (5) knowledge of professional help available, and (6) attitudes that promote recognition of appropriate help-seeking (Jorm, 2012, 2015). The concept has been well-applied; aiding the development of interventions surrounding help-seeking (Altweck et al., 2015; Amarasuriya et al., 2015; Mason et al., 2015), understanding attitudes towards interventions (Xu et al., 2018; Reavley et al., 2012), and specific mental health disorders (Bullivant et al., 2020; McIntosh & Paulson, 2019).

Although development work specifies the multi-faceted nature of mental health literacy, it has typically been assessed unidimensionally (Jorm et al., 1997; Kutcher et al., 2016) with discussions in regards to its conceptualisation and measurement (Kutcher et al., 2016; O'Connor et al., 2014; Wei et al., 2013, 2015, 2016). The most popular measure of

mental health literacy is the Vignette Interview, which uses a series of vignettes rather than scores, creating a time-consuming assessment (Ganong & Coleman, 2006; Kim, 2012; Wallander, 2009). A review of mental health literacy measures identified thirteen scale-based assessments (O'Connor et al., 2014), which considerably varied in their underlying theory and definitions of mental health literacy and have limited information on their psychometric properties. To address these issues, O'Connor & Casey (2015) developed the Mental Health Literacy Scale among Australian residents and a community sample of psychology students (>18 years old) to assess the six factors proposed by Jorm (2012). From 51 items, comprised of 3 to 9 factors, items were removed based on internal reliability statistics and item-to-total correlations, achieving a 35-item unidimensional scale with a Cronbach's alpha of .87. Their approach has considerable merit for the development of a university-student-specific mental health literacy scale. They provide evidence for a valid psychometric structure and some theoretical virtue in terms of recognizing the multidimensional nature of mental health literacy, albeit failing to assess the separate facets through specific scale factors.

Establishing a multidimensional model of mental health literacy is beneficial for increasing specificity between mental health literacy and student outcomes. Two pieces of research have explored the multidimensionality of mental health literacy among young adults. Dias et al. (2018) developed and tested a 29-item, four-factor scale (The Mental Health Literacy questionnaire-young adults), supporting the multidimensional nature of mental health literacy. Whilst the measure encompasses knowledge, beliefs and help-seeking, it fails to include the critical element of "recognition of disorders".

Chao et al. (2020) developed the Mental Health Literacy Scale for Healthcare Students comprised of five subscales: (1) maintenance of positive mental health, (2) recognition of mental illness, (3) attitudes to mental health illness, (4) help-seeking efficacy, and (5) help-seeking attitude. They came closest to operationalizing MHL in line with Jorm.

(2012). However, “risks and causes of mental illness” were not acknowledged, which are crucial in facilitating early recognition.

Although scale-based measures exist, they fail to provide a comprehensive assessment of mental health literacy because the original six factor structure has not been conceptualised. Studies have developed mental health literacy scales and conducted factor analysis allowing any potential structure to emerge without consideration of theory. O’Connor and Casey. (2015) used principle factor analysis, finding the least number of factors accounting for the common variance between the items. A more appropriate method to use is maximum likelihood analysis; this method is theoretically driven, allowing for the extraction of factors consistent with theory. Additionally, when using confirmatory factor analysis (CFA) to explore the structural validity of their scale, Chao et al. (2020) removed items with low loadings until most of the model fit indices met the acceptable criteria. As such, many useful items may have been removed until the desired fit was achieved.

Additionally, existing scales are designed for the general public; currently, no appropriate measures exist to assess mental health literacy in university students. Developing a university-specific mental health literacy scale is important for at least three reasons. Firstly, there is a high prevalence of mental health disorders, such as depression and anxiety, among university students with signs of co-morbidity (Auerbach et al., 2016; McLafferty et al., 2017), thus negatively impacting university performance (Thorley, 2017). Secondly, university students show low mental health literacy because they lack the ability to recognise symptoms of mental health disorders and the need to seek help (Furnham et al., 2011; Reavley et al., 2012; Wei et al., 2013). Finally, the university years represent a distinct developmental period with the transition to university leading to dramatic changes in a students’ everyday life and responsibilities. Mental health literacy is key to preventing the effects of mental health disorders as it relates to an individual’s knowledge surrounding

mental health, which enables early preventative action. Currently, no mental health literacy measures account for the unique stressors experienced by university students; therefore, they cannot reliably assess mental health literacy among the student population.

To address the issues with assessing student mental health literacy, we constructed and evaluated a Student Mental Health Literacy Scale using our understanding of the multidimensional nature of the construct. We aimed to develop a university-student-specific scale that included items that best represented each of the six factors (Jorm, 2012); (1) recognition of mental disorders (2) knowledge of how to seek mental health information (3) knowledge of risks and causes (4) knowledge of self-treatments (5) knowledge of professional help available (6) attitudes that promote recognition of appropriate help-seeking.

Method

Initial item development

To develop items for the Student Mental Health Literacy Scale literature and information searches were conducted. Key themes and explanations from the factors contained in the Mental Health Literacy Scale (O'Connor & Casey., 2015) were used to aid the searches. The search strategies employed were designed to maximise the return of relevant information for each mental health literacy factor. Internet searches were used alongside literature searches because this is the main source of information for young people. Searches were restricted to articles and resources from within the last five years (2015-2020) to ensure recent information was used. A more detailed account of the item development stage can be found in Table 2.1.

Recognition of Disorders

To identify articles related to mental health disorders experienced by university students, we searched the following databases: Web of Science, Psych INFO, and Scopus. Using keywords such as “most common” and “prevalent”, “mental health disorders”, and “university or

college students”, we restricted our search to the most common disorders experienced by students. Seven mental health problems were identified and considered as items: generalised anxiety disorders, social phobia or anxiety, depression, bipolar disorder, substance use disorders, drugs and substance use disorder alcohol.

Knowledge of how to seek information

Internet searches were conducted to identify resources for how students can access information. Search terms included: “access to mental health information” and “university or college students”. A list of five places where students could access information was identified: student counselling services, internet, personal tutor/ academic staff, helplines.

Knowledge of Risks and Causes

Internet searches for available information on risks factors were conducted using the search terms: “Risks” and “Causes”, “Mental Health” and “university or college students”. Seven risk factors for student mental health were identified: moving away from home for the first time, difficulty making friends and feeling a sense of belonging, finances, exams, deadlines, relationships.

Knowledge of Self-treatments

Internet searches using the terms: “self-help for mental health” or “self–treatments for mental health” or “activities to improve mental health” and “university or college students” were conducted to find self-treatments appropriate to university students. Eight strategies to manage stress and maintain good mental health were identified: increasing sleep, eating healthy and engaging in physical activities (healthy lifestyle), breathing exercises (relaxation), talking to someone they trust, engaging in leisure activities, spending time socializing, setting small goals and to take part in workshops.

Knowledge of professional help available

To explore information regarding professional help internet searches were conducted using the terms: “mental health services available for university students” and “where can university students seek mental health support?” We identified services within the university, including: counselling services, student unions, wellbeing services and services available externally, including: mental health professionals and GP’s. These were grouped into services available within the university and those available externally.

Attitudes that promote recognition of appropriate help-seeking

To explore attitudes that promote the recognition of appropriate help-seeking internet searches were conducted using the phrase “attitudes towards mental health help seeking”. From this, the article “Student Voices” was identified. This reported on a study by the charity Student Minds, which gathered information on students’ thoughts on mental health and university life. Seven areas where students felt the need to promote mental health were extracted: for students to recognise risk factors, for universities to introduce education programs, that universities clearly advertise mental health services, to promote mental health conversations across university campuses, to teach students the skills to allow them to understand their thoughts and feelings and to tailor mental health support to specific populations.

Overall, the searches resulted in 36 candidate items representing the six factors of mental health literacy.

Table 2.1: *Development of items for the Student Mental Health Literacy Scale.*

Dimension	Search Terms	Sites Visited	Outcomes
Recognition of mental disorders: (ability to identify symptoms and features of a disorder correctly)	Most common Prevalent Mental Health Disorders University or college students	Scopus Web of Science	Pederelli (2015)- identifies seven key mental health problems experienced by students: • Generalised anxiety disorder • Social phobia/anxiety • Depression • Bipolar disorder • Eating disorders • Substance use disorder (drugs) • Substance use disorder (alcohol)
Knowledge of where to seek mental health information: (having the knowledge of where to access mental health information)	Access to mental health information University and/or college students	Mind website (2018) NHS website (2016)	• Student counselling services • Internet • Personal tutor/academic staff • Helplines • Access information about signs and symptoms
Knowledge of risk factors and causes: (knowledge of factors that increase the risk of developing a mental illness)	Risks and causes of mental health University and/or college students	Guardian Article-Wakeford , (2017) YouthSight- Annual Student Experience Survey (2017) Mind website (2018)	• Moving away from home for the first time • Difficulty making new friends • Difficulty feeling a sense of belonging • Finances • Exams • Deadlines • Relationships
Knowledge of self –treatments: (knowledge of treatments recommended by professionals and activities an individual can take part in)	Self-help for mental health Self-treatments for mental health Activities to improve mental health University students and college students	Save the Student website- Murray, (2019) NHS website (2016)	• Increasing sleep • Eating healthily • Engaging in physical activity • Breathing exercises (relaxation) • Talking to someone you trust • Spending time socialising • Setting yourself small goals • Taking part in workshops

Knowledge of professional help available: (knowledge of mental health professionals and the services they offer)	Mental health services available for university or college students	NHS website (2019) Mind website (2018)	• university counselling service can refer to specialist mental health services • services available within the university • professionals and services • services available outside the university, • GPs are able to refer patients to specialist mental health services
Attitudes that promote recognition of appropriate help-seeking: (attitudes that impact on the recognition of disorders and willingness to engage in help-seeking)	Attitudes towards mental health help-seeking	Student Minds: Piper & Byrom (2017): Student Voices	• For students to recognise the risk factors • For universities to introduce education programmes • That universities clearly advertise mental health services available to students • To start conversations regarding mental health across university campuses • To teach students the skills to allow them to understand their thoughts and feelings • To tailor mental health to specific populations

Expert evaluation

The 36 items were presented to a group of wellbeing researchers and students ($n=5$). The group were asked to comment on item suitability and meaning.

Sample

The 36 items were administered to three samples of university students. Sample 1 was used for exploratory factor analysis, and Sample 2 and 3 for confirmatory factor analysis. Sample 1 consisted of 363 psychology students (311 females) aged 18-36 years ($M=19.39$ years, $SD=2.14$ years). One hundred and sixty-four participants reported that they were of white ethnicity, 83 as Asian, 61 as black, 24 as mixed ethnicity, and 31 fell into an “other” category. Sample 2 included 237 students; however, 18 responses were removed as participants were from the same subject discipline (psychology) as participants from the first sample, therefore could have been included in Sample 1. Sample 2 consisted of 142 females, 75 males (2 participants preferred not to reveal their gender) aged 18-38 years ($M=20.98$ years, $SD=2.57$ years), including both undergraduate and postgraduate students. Eighty-eight participants reported themselves as white, 81 as Asian, 24 as black, eight as mixed race, and 18 selected an “other” category. Sample 3 consisted of 212 psychology students aged 18-45 ($M=19.66$ years, $SD=2.68$), 180 females and 29 males (3 participants preferred not to reveal their gender). Eighty-four participants reported that they were from white ethnicity, 65 as Asian, 26 as Black, 19 as mixed and 18 selected an “other” category.

Measures

The 36 items were scored on a four-point scale, similar to O'Connor & Casey (2015) recognition of disorders ($n=7$; items 1-7, scored 1=“Very Unlikely”, to 4=“Very Likely”); knowledge of where to seek mental health information ($n=5$; items 8-12; scored 1=“Strongly Disagree”, to 4=“Strongly Agree”); knowledge of risks and causes ($n=6$; items 13-18, scored

1= “Very Unlikely”, to 4= “Very Likely”); knowledge of self-treatments ($n=6$; items 19-24, scored “1=Very Unhelpful”, to “4=Very Helpful”); knowledge of professional help available ($n=$; items 25-29; scored 1= “Strongly Disagree”, to 4= “Strongly Agree”); attitudes that promote recognition of appropriate help-seeking ($n=7$; items 30-36; scored 1= “Strongly Disagree”, 4=“Strongly Agree”). A short demographic survey, measuring age, gender and ethnicity was also included.

Data collection

The data for Samples 1 and 2 were collected six months apart, and Sample 3 was collected two years later. Data was collected through online surveys, with a completion time of between four to five minutes. Respondents were required to answer all questions. Data for Samples 1 and 3 were collected from undergraduate psychology students enrolled on the University of Leicester School of Psychology Experimental Participation Requirement system (EPR), whereby students participate in experiments in return for course credit. A separate recruitment process was used for Sample 2. Participants in Sample 2 were recruited by approaching students in the library, sending out emails, and sharing the survey link (allowing for snowball sampling). Ethical approval was obtained from the University of Leicester Ethics Board. Consent was gained after participants were provided with details of the nature of the study, withdrawal during and after participation, confidentiality, anonymity, and intended use of the data.

Statistical analysis

Firstly, descriptive statistics were computed for the items developed. The Skewness and Kurtosis statistics were examined to assess the uni-variate normality of the items. Exploratory factor analysis was then conducted to explore any underlying factor structure alongside using maximum likelihood extraction to theoretically drive the analysis; items were

removed at this stage based on loadings. Confirmatory factor analysis was used to test the structural validity and confirm the findings from the exploratory factor analysis

Exploratory factor analysis was conducted among data collected from Sample 1 to allow for any underlying factor structure to emerge. To determine the number of factors to retain Parallel Analysis method was used, which compares two sets of eigenvalues (indices of variances accounted for by possible underlying dimensions), the first calculated from the dataset and the second from a Monte Carlo simulation which calculates eigenvalues generated from random data. Parallel analysis is considered to be the most accurate way of determining the number of factors (Fabrigar et al., 1999; Ledesma & Valero-Mora, 2007; Zwick & Velicer, 1986). In addition, we explored which of the 36 candidate items mapped best onto the six factors of mental health literacy proposed by theory. Given the multidimensional nature of mental health literacy, exploratory factor analysis was also employed using maximum likelihood extraction method with a six factor solution proposed to be consistent with the theoretical model.

Promax rotation was used to identify which items loaded best onto which factor. The position of the item on each dimension was assessed against the criteria of $0.32 \leq x < 0.45$ ("poor"), $0.45 \leq x < 0.55$ ("fair"), $0.55 \leq x < 0.63$ ("good"), $0.63 \leq x < 0.71$ ("very good"), and ≥ 0.71 ("excellent") (Tabachnick & Fidell, 2014), with acceptable loadings set at 0.32 or above (Kline, 1986). Kline. (1986) argued that one should not ignore any items that load $.32 <$; this was used to ensure we retained as many items as possible, allowing for maximum coverage of all factors.

Confirmatory factor analysis explored the structural validity of the model proposed from the exploratory factor analysis using data from Samples 2 and 3. The best items from the exploratory factor analysis were taken forward to assess how well these items were structured and assess the model fit criteria. The goodness-of-fit of the model was evaluated

using relative chi-square (CMIN/DF). The following recommended indices were also examined: comparative fit index (CFI), non-normed fit index (NNFI), root mean square error of approximation (RMSEA) and standardised root mean square residual (SRMR) (Hu & Bentler, 1999; Kline, 2005). The criteria used for an “acceptable fit” were a CMIN/DF of below .3, CFI and NNFI of greater than .90, and RMSEA and SRMR of below .08 (Browne & Cudeck, 1992; Hu & Bentler, 1999).

Results

Preliminary Analysis

Prior to the main analyses descriptive statistics were explored to assess the suitability of the data for the purpose of the main analysis. Table 2.2 presents the minimums, maximums, means, standard deviations, skewness and kurtosis statistics for each of the items developed. As shown in table 2.2 skewness and kurtosis statistics for all the items developed fell well within criteria specified across a range of statistical analyses, of values of +/-2 representing "acceptable" symmetry of a normal univariate distribution, with skewness > 2 and kurtosis > 7 representing a concern around symmetry for a normal univariate distribution (Curran et al., 1996; George & Mallery, 2010; West et al., 1995).

Table 2.2: *Descriptive Statistics including Skewness and Kurtosis for items developed*

Items	Min	Max	Mean	SD	Skewness	Kurtosis
<i>Recognition of Disorders</i>						
1. Generalised anxiety disorder	1.00	4.00	2.98	.64	-.61	1.31
2. Social anxiety	1.00	4.00	3.16	.64	-.53	.98
3. Major depressive disorder	1.00	4.00	3.17	.78	-.76	.27
4. Bipolar disorder	1.00	4.00	2.90	.75	-.35	-.11
5. Eating disorder	1.00	4.00	3.34	.78	-1.09	.86
6. Drug dependence	1.00	4.00	3.09	.81	-.74	.24
7. Alcohol disorder	1.00	4.00	3.16	.80	-.88	.56
<i>Knowledge of where to seek mental health information</i>						
8. I could seek information about the signs, symptoms and risk factors	1.00	4.00	3.26	.58	-.35	.92
9. I could discuss and get advice on mental health from counselling	1.00	4.00	2.96	.69	-.24	-.14
10. Use the internet to find information on where to seek help	1.00	4.00	3.21	.64	-.47	.50
11. I could go to speak to someone (personal tutor, supervisor, counsellor	1.00	4.00	2.99	.75	-.46	.07
12. I could use helplines to ask for help or seek information	1.00	4.00	3.01	.67	-.34	.23
<i>Knowledge of risks and causes</i>						
13. The transition to university	1.00	4.00	3.25	.63	-.53	.62
14. Difficulty making friends and feeling a sense of belonging	1.00	4.00	3.46	.61	-.81	.43
15. Finances, e.g. debts/student finance	1.00	4.00	3.32	.68	-.66	.02
16. Academic demands	1.00	4.00	3.38	.68	-.74	-.14
17. Lifestyle changes	1.00	4.00	3.01	.66	-.29	.19
18. Personal factors	1.00	4.00	3.30	.64	-.43	-.36
<i>Knowledge of self-treatments</i>						
19. To try a healthier lifestyle	1.00	4.00	3.38	.63	-.84	1.19
20. To engage in relaxation techniques	1.00	4.00	3.27	.62	-.47	.41
21. To talk to someone they trust	1.00	4.00	3.58	.60	-1.33	1.86
22. To engage in leisure activities	1.00	4.00	3.28	.59	-.30	.38
23. To set themselves small goals?	1.00	4.00	3.44	.58	-.55	-.15
24. To take part in workshops to learn practical ways cope?	1.00	4.00	3.13	.67	-.54	.68
<i>Knowledge of professional help available</i>						
25. Services available within the university, that I can turn to	1.00	4.00	2.87	.78	-.45	.00
26. The services available outside the university, that I can turn	1.00	4.00	2.91	.74	-.28	-.19
27. There are professionals and services that I can approach to talk to	1.00	4.00	3.12	.61	-.51	1.36

28. That GPs are able to refer patients to specialist mental health services	1.00	4.00	3.13	.65	-.37	.31
29. University counselling service can refer me to specialist mental health services	1.00	4.00	2.88	.72	-.44	.27
<i>Attitudes that promote the recognition of appropriate help-seeking</i>						
30. For students to recognise the risk factors to mental health	1.00	4.00	3.41	.62	-.82	1.08
31. For universities to introduce education programmes to highlight the benefits of treatment	1.00	4.00	3.39	.61	-.61	.20
32. That universities clearly advertise mental health services	1.00	4.00	3.48	.62	-.92	.52
33. To start conversations regarding mental health across university campuses	1.00	4.00	3.46	.61	-.81	.43
34. To teach students the skills to allow them to understand their thoughts and feelings	1.00	4.00	3.40	.63	-.71	.15
35. To tailor mental health support to specific populations.	1.00	4.00	3.27	.74	-.82	.39
36. For there to be better communication between different departments	1.00	4.00	3.43	.63	-.92	1.03

Note. SD = standard deviation

Exploratory Factor Analysis

Parallel analysis was employed to determine the number of factors to extract. The parallel analysis (calculated from 1000 randomly generated databases with 363 participants and 36 variables) suggested a five-factor solution. The sixth eigenvalue (9.03, 3.62, 2.82, 1.73, 1.52 and 1.23) did not exceed the eigenvalues from the randomly generated dataset (1.65, 1.57, 1.51, 1.43, 1.41 and 1.37). Based on these findings, we explored mental health literacy through five-factors. One item was removed as it loaded below .32. This resulted in a 35-item scale based on five-factors: attitudes that promote the recognition of appropriate help-seeking, recognition of disorders, knowledge of how to seek help and information, knowledge of self-treatments, knowledge of risks and causes.

We also proposed a six factor solution to explore the theory of mental health literacy. No cross-loading items were identified. However, one item which loaded below .32, was

removed. This resulted in a 35-item scale comprised of the six factors consistent with those named by the underlying theory.

Both models showed clear factors, with four of the factors outlined being the same. Within the five-factor structure two factors show clear convergence (knowledge of how to seek mental health information and knowledge of professional help available) which we have named together knowledge of how to seek help and information.

However, when looking at the factor loadings in the six factor structure, we can clearly see that these factors load highly separately, which is in line with the underlying theory. Therefore, we went on to test the structural validity of both proposed models. A more detailed account of this can be found in Table 2.3.

Table 2.3. Maximum Likelihood extraction of the original 36 mental health literacy items for a five factor and six factor solution using promax

Five Factor						
Item no.		1	2	3	4	5
<i>To what extent do you agree with the statements below? It is important...</i>		Attitudes that promote recognition of appropriate help-seeking				
31	for universities to introduce education programmes to highlight the benefits of treatment	.75	.01	-.05	.05	.01
33	to start conversations regarding mental health across university campuses	.74	-.01	.01	-.03	.03
30	for students to recognise the risk factors to mental health	.70	-.13	.07	-.01	.04
34	to teach students the skills to allow them to understand their thoughts and feelings	.69	.01	.01	.07	.09
36	for there to be better communication between different departments	.64	-.09	.03	.12	.06
32	that universities clearly advertise mental health services	.61	.02	.02	.11	.01
35	to tailor mental health support to specific populations	.55	.02	-.03	-.03	.14
<i>To what extent do you think that a student experiencing...</i>		Recognition of mental disorders				
7	heavy alcohol use causing loss of control over behaviour, withdrawal symptoms, and a negative influence on day-to-day life has an alcohol disorder?	.07	-.82	.05	-.13	.01
6	an increased tolerance to substances, e.g. needs more of a drug to get the same effects, blackouts and withdrawal symptoms, has a drug dependence?	.03	-.79	-.01	-.04	.09
5	an extreme fear of gaining weight, restrictive eating habits or binge eating alongside self-induced vomiting has an eating disorder?	.02	-.69	-.07	.17	-.08
3	feelings of sadness, being overwhelmed, a lack of appetite, and is showing signs of self-harm has major depressive disorder?	.07	-.67	-.09	.07	-.08
4	unusual mood shifts ranging from the lows of depression, e.g. reduced drive and motivation, to the highs of mania, e.g. increased energy, has bipolar disorder?	-.12	-.66	.06	.03	-.07
2	excessive fear of feeling embarrassed within social situations alongside panic or is refusing to get involved in group activities has social anxiety?	-.02	-.58	-.02	.15	.02
1	intense feelings of worry or fear regarding life situations and is having difficulty sleeping or concentrating, has a generalised anxiety disorder	.02	-.52	.02	-.10	.11
<i>To what extent do you agree with the statements below?</i>		Knowledge of how to seek help and information				
11	I am confident that I could go to speak to someone (personal tutor, supervisor, counsellor)...	-.07	.01	.74	.01	.08

12	I am confident that I could use helplines to ask for help or seek information	.01	.02	.68	-.02	.01
9	I am confident that I could discuss and get advice on mental health from counselling	-.11	-.09	.67	.01	.13
25	I am aware of the services available within the university, that I can turn to	-.11	.02	.64	.03	.09
29	I am aware that the university counselling service can refer me to specialist mental health services	-.02	.07	.62	.03	-.03
27	I am aware that there are professionals and services that I can approach to talk to	.11	.04	.60	.06	-.13
26	I am aware of the services available outside the university, that I can turn to	.18	.03	.56	-.29	-.10
28	I am aware that GPs are able to refer patients to specialist mental health services	.15	-.04	.44	.13	-.15
8	I am confident that I could seek information about the signs, symptoms and risk factors..	.27	-.17	.43	-.06	.11
*10	I am confident about using the internet to find information on where to seek help..	.14	-.11	.26	.13	.07
<i>To what extent do you think it would be helpful for a student experiencing difficulties with their mental health at university</i>		Knowledge of self-treatments				
22	to engage in leisure activities?	-.08	-.02	-.01	.70	.05
21	to talk to someone they trust?	-.09	-.06	.09	.64	.06
23	to set themselves small goals?	.07	-.02	.01	.55	.15
24	to take part in workshops to learn practical ways of coping?	.13	.02	.09	.52	-.02
20	to engage in relaxation techniques?	.15	.01	.04	.51	-.04
19	to try a healthier lifestyle?	.08	-.06	.02	.50	.09
To what extent do you think the statements below are likely to be risk factors to a student's mental health?		Knowledge of risk factors and causes				
13	The transition to university	-.01	-.05	.01	.01	.68
17	Lifestyle changes	.05	.06	.07	.01	.64
18	Personal factors	.05	.03	.01	.05	.57
14	Difficulty making friends and feeling a sense of belonging	.03	-.13	.01	.16	.51
16	Academic demands	.17	.01	-.05	.17	.38
15	Finances, e.g. debts/student finance	.14	-.02	-.01	.05	.37

Six Factor							
Item no.		1	2	3	4	5	6
<i>To what extent do you agree with the statements below? It is important...</i>		Attitudes that promote recognition of appropriate help-seeking					
31	for universities to introduce education programmes to highlight the benefits of treatment	.75	.05	.01	.04	.01	.01
33	to start conversations regarding mental health across university campuses	.74	.02	.01	-.04	-.01	.03
30	for students to recognise the risk factors to mental health	.71	.05	.13	-.02	.04	.04
34	to teach students the skills to allow them to understand their thoughts and feelings	.70	.05	-.01	.06	-.04	.09
36	for there to be better communication between different departments	.63	.01	.09	.11	.04	.06
32	that universities clearly advertise mental health services	.60	-.02	-.02	.11	.03	.01
35	to tailor mental health support to specific populations	.54	-.05	-.03	-.03	.03	.13
<i>To what extent do you agree with the statements below? I am aware</i>		Knowledge of professional help available					
29	that the university counselling service can refer me to specialist mental health services	.04	.89	.01	.01	-.10	.02
25	of the services available within the university, that I can turn to	-.08	.70	.03	.02	.09	.14
27	that there are professionals and services that I can approach to talk to	.14	.41	-.03	.08	.24	-.13
26	of the services available outside the university, that I can turn to	.21	.33	-.03	.01	.27	-.11
*28	that GPs are able to refer patients to specialist mental health services	.17	.23	.03	.16	.23	-.16
<i>To what extent do you think that a student experiencing</i>		Recognition of mental disorders					
7	heavy alcohol use causing loss of control over behaviour, withdrawal symptoms, and a negative influence on day-to-day life has an alcohol disorder?	.07	.01	.82	-.13	.05	.01
6	an increased tolerance to substances, e.g. needs more of a drug to get the same effects, blackouts and withdrawal symptoms, has a drug dependence?	.03	.01	.79	-.04	.01	.10
5	an extreme fear of gaining weight, restrictive eating habits or binge eating alongside self-induced vomiting has an eating disorder?	.03	-.01	.69	.16	-.06	-.07
3	feelings of sadness, being overwhelmed, a lack of appetite, and is showing signs of self-harm has major depressive disorder?	.07	-.02	.67	.06	-.08	-.08
4	unusual mood shifts ranging from the lows of depression, e.g. reduced drive and motivation, to the highs of mania, e.g. increased energy, has bipolar disorder?	-.13	-.03	.65	.05	.10	-.08
2	excessive fear of feeling embarrassed within social situations alongside panic or is refusing to get involved in group activities has social anxiety?	-.02	.03	.59	.14	-.05	.02

1	intense feelings of worry or fear regarding life situations and is having difficulty sleeping or concentrating, has a generalised anxiety disorder?	.15	.03	.52	-.10	.02	.12
<i>To what extent do you think it would be helpful for a student experiencing difficulties with their mental health at university</i>		Knowledge of self-treatments					
22	to engage in leisure activities?	-.08	-.01	.02	.70	.01	.05
21	to talk to someone they trust?	-.09	.01	.05	.66	.07	.05
23	to set themselves small goals?	.07	.02	.03	.54	-.06	.17
24	to take part in workshops to learn practical ways cope?	.13	.05	-.02	.53	.05	-.02
20	to engage in relaxation techniques?	.16	.03	.01	.51	.01	-.04
19	to try a healthier lifestyle?	.08	.02	.06	.49	.01	.10
<i>To what extent do you agree with the statements below?</i>		Knowledge of how to seek mental health information					
12	I am confident that I could use helplines to ask for help or seek information	-.03	.05	-.08	.02	.73	-.04
8	I am confident that I could seek information about the signs, symptoms and risk factors	.23	-.15	.11	-.04	.65	.07
11	I am confident that I could go to speak to someone (personal tutor, supervisor, counsellor)...	-.08	.22	-.04	.04	.63	.06
9	I am confident that I could discuss and get advice on mental health from counselling	-.12	.21	.06	.04	.58	.16
10	I am confident in using the internet to find information on where to seek help	.12	-.10	.07	.15	.40	.04
<i>To what extent do you think the statements below are likely to be risk factors to a student's mental health?</i>		Knowledge of Risk factors and Causes					
13	The transition to university	-.01	.04	.06	.01	-.01	.70
17	Lifestyle changes	.05	.07	-.06	.01	.04	.65
18	Personal factors	.05	.02	-.02	.05	.01	.56
14	Difficulty making friends and feeling a sense of belonging	.02	-.06	.13	.16	.05	.50
15	Finances e.g. debts/student finance	.13	-.03	.03	.05	.03	.40
16	Academic demands	.16	-.07	-.01	.17	.02	.37

*Items removed from analysis

Confirmatory factor analysis: Sample 2 and 3

Confirmatory factor analysis was performed using AMOS software among data collected from Sample 2 and 3 to examine the extent to which the proposed models represented a good fit to the data. One focus of a confirmatory factor analysis is to demonstrate the incremental value of proposed models (Barrett, 2007). Six possible models were tested for goodness-of-fit. The five-factor model representing the theoretical structure of mental health literacy was tested first. This was followed by two higher-order solutions. This was repeated for the six factor model alongside its higher-order solutions. Higher-order solutions examine the factor structure through alternative theoretical approaches by focusing on the presence of a general factor to inform our understanding of the constructs. Typically, two solutions for higher-order models are considered: second-order factor and bi-factor model (Chen et al., 2006).

The second-order factor model suggested that general mental health literacy formed the top level of the hierarchy, with the proposed factors considered as group factors. This model presented the relationship between the factors and items using a hierarchical structure. The variance of all items at the bottom of the hierarchy was explained by the group factors, and the group factor variance was explained by a general latent factor of mental health literacy.

The higher-order bi-factor model proposed a single common construct while recognizing the multidimensionality of the construct. With this model, the variance explained between the items is considered alongside the general and group factors. Firstly, a single common factor (general mental health literacy) is suggested to explain the structure of items. Secondly, to assess the multidimensionality of the construct, group factors are suggested to also explain some of the variance and structure between the items. The goodness-of-fit statistics for the six models are presented in Table 2.4.

Table 2.4. *Confirmative factor analysis fit statistics for the models proposed for mental health literacy for Sample 2 and 3.*

<i>Sample 2 (General Student Population)</i>								
Model	2	df	<i>P</i><	CMIN/DF	CFI	NNFI	RMSEA	SRMR
Five Factor	916.97	550	.000	1.67	.840	.827	.055	.067
Second-Order	946.22	555	.000	1.71	.829	.817	.057	.076
Bi-factor	821.70	515	.000	1.59	.866	.845	.052	.061
Six factor	834.64	535	.000	1.53	.870	.859	.49	.064
Second-order	930.45	554	.000	1.68	.832	.819	.056	.103
Bi-factor	705.75	510	.000	1.38	.912	.898	.042	.056
<i>Sample 3 (Psychology students 2 years later)</i>								
Five Factor	954.78	550	.000	1.73	.863	.852	.059	.069
Second-Order	978.11	555	.000	1.76	.857	.847	.060	.077
Bi-factor	859.15	515	.000	1.63	.887	.872	.055	.066
Six factor	958.25	545	.000	1.75	.862	.850	.060	.071
Second-order	1058.01	554	.000	1.91	.832	.820	.066	.109
Bi-factor	780.77	510	.000	1.53	.910	.895	.050	.052

Note. * CMIN/DF = relative chi-square; CFI = comparative fit index; NNFI = non-normed fit index; RMSEA = root mean square error of approximation; SRMR = standardised root mean residual.

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

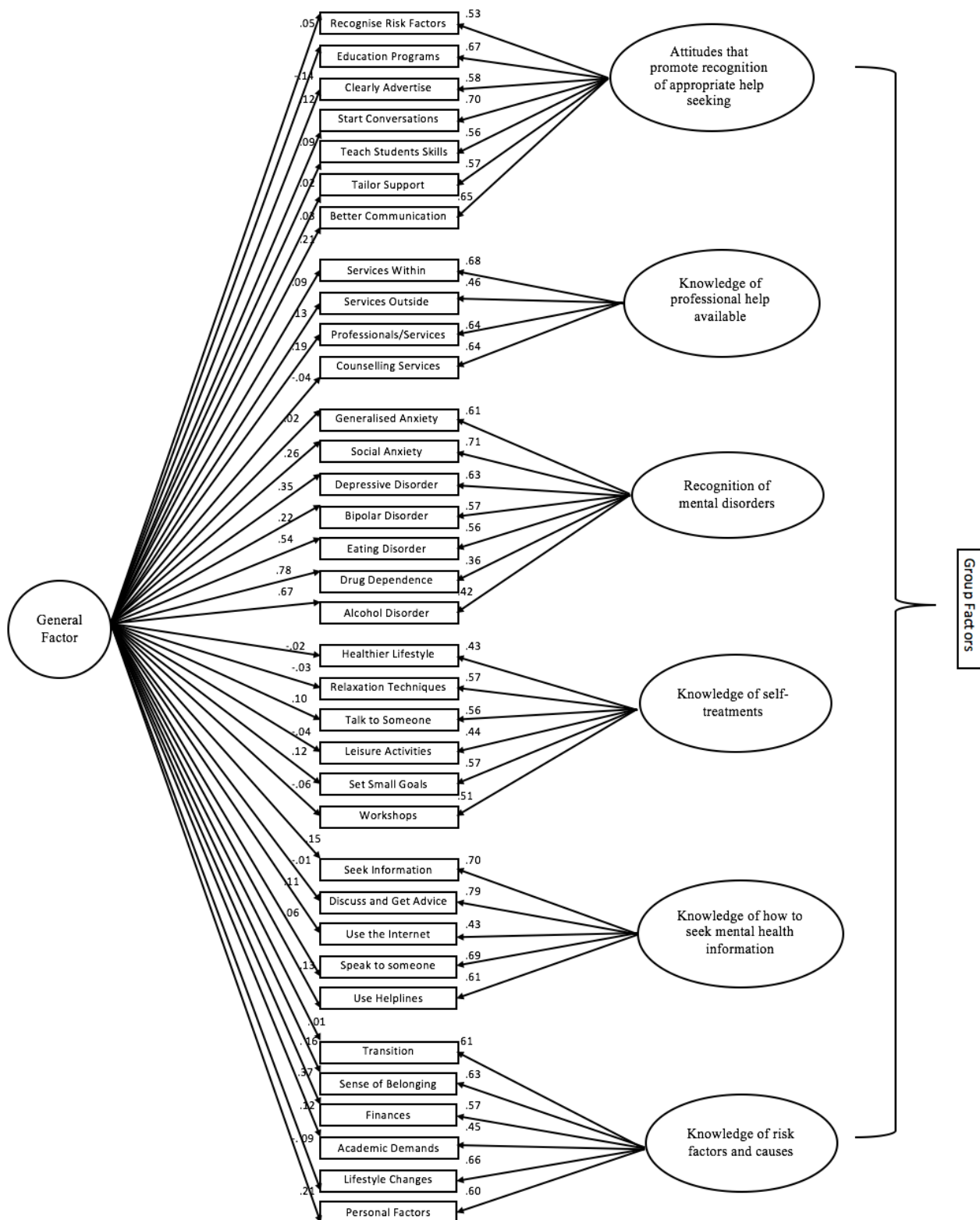
The goodness-of-fit statistics for the five factor model and its hierarchical models did not meet all the aforementioned criteria for acceptability, therefore they do not adequately explain the structure of the data. Furthermore, for the six factor and its second-order model the goodness-of-fit statistics did not meet all the criteria for acceptability, therefore do not adequately explain the structure of the data. The bi-factor model presented relative chi-square, RMSEA, CFI, NNFI, and SRMR goodness-of-fit statistics all at or above the

“acceptable fit” criteria. The bi-factor model also demonstrated improved CFI statistics over the other models, as indicated by a CFI of .912. However, the general factor accounted for only 14.4% of the variance whereas the group factors explained higher levels of variance: attitudes that increase the recognition of appropriate help-seeking (18.4%), knowledge of how to seek information (15.1%), recognition of disorders (15.8%), knowledge of risks and causes (14.6%), knowledge of self-treatments (11.2%) and knowledge of professional help available (10.5%). As such, the model fit was weighted towards the six factors highlighting that the most statistically appropriate way to explain the structure of mental health literacy is the six factor model (see Figure 2.1).

The same process of analysis occurred for Sample 3 two years later. The results were consistent with the previous sample. The bi-factor model presented demonstrated a better fit for the data than the other models, as indicated by a CFI of .910. The general factor for this model accounted for only 14.7% of the variance, whereas the group factors explained higher levels of variance: attitudes that increase the recognition of appropriate help-seeking (14.7%), knowledge of professional help available (12.1%), recognition of disorders (19.4%), knowledge of self-treatments (10.8%), knowledge of how to seek information (12.9%), knowledge of risks and causes (11.6%). As such, the model fit was weighted towards the six factors highlighting that the most statistically appropriate way to explain the structure of mental health literacy is the six factor model, which replicates the findings from the previous sample. Based on the findings, we present a 35-item six factor scale named the Student Mental Health Literacy Scale.

Figure 2.1: Standardised loadings for the Bi-Factor Model (six factors) of Mental Health

Literacy for Sample



Discussion

This study aimed to develop and evaluate a Student Mental Health Literacy Scale, relevant to university students and comprised of the six factors of mental health literacy proposed by Jorm. (2012). The factor analysis highlighted that the scale is a replicable six factor model of mental health literacy.

Previous research has discussed the conceptualisation and measurement of mental health literacy in terms of unidimensional (Kutcher et al., 2016) and multidimensional models (O'Connor & Casey, 2015; Dias et al., 2018; Chao et al., 2020). Our findings support the argument that mental health literacy is best described as a six factor multidimensional model. The six factors are consistent with those proposed by theory:

1. Recognition of mental disorders.
2. Knowledge of how to seek mental health information.
3. Knowledge of risk factors and causes.
4. Knowledge of self-treatments.
5. Knowledge of professional help.
6. Attitudes that promote recognition of appropriate help-seeking.

The six factors should be measured and scored separately rather than a total score.

This study represents the first known attempt to validate a measure of mental health literacy using the six factors. Previous assessments of mental health literacy considerably vary in the number of factors used within their measures (O'Connor et al., 2014). For example, The Mental Health Literacy questionnaire-young adults is comprised of four factors (Dias et al., 2018). In contrast, the Mental Health Literacy Scale for Healthcare Students comprises five factors (Chao et al., 2020). Previous studies' item development and factor extraction techniques, such as principle factor analysis, may have limited the likelihood of

extracting the six factors because this method finds the least number of factors accounting for the common variance between items. Using the theory of mental health literacy to drive the analysis, we identified the theoretically proposed six factors through maximum likelihood analysis.

Using theory and clearly defined six factors is essential; it allows for interventions and policymakers to make informed, intentional choices regarding which variables to target with mental health literacy education strategies (e.g. recognition versus knowledge of self-help). More specifically, mental health literacy is found to predict specific health outcomes, such as help-seeking (Altweck et al., 2015; Amarasuriya et al., 2015; Mason et al., 2015). By having a multidimensional assessment of mental health literacy, we can further the specificity of this relationship. Researchers will assess which of the six factors account for the unique variance in help-seeking outcomes, therefore enabling the identification of vital help-seeking-related constructs and the development of tailored support strategies.

This is the first study to use the six factor model of mental health literacy, specifically among university students. Existing measures have often employed general item wording and content, which do not readily apply to student experiences (O'Connor & Casey, 2015), despite calls for domain-specific assessments of mental health literacy to be considered (Jorm, 2015). The current study developed items that represented the unique experiences of university students. University students are at a high risk and are a vulnerable group, with the university experience being associated with several unique stressors that impact their mental health. To prevent the negative impact of mental health on university life, students need to have a good level of mental health literacy. With research highlighting that mental health literacy among university students is low (Furnham et al., 2011; Reavley et al., 2012; Wei et al., 2013), it has become increasingly important to have a mental health literacy scale that specifically assesses the construct using items relevant to students. The Student Mental

Health Literacy Scale development is crucial for researchers to reliably understand mental health literacy levels among university students and allow for tailored education strategies.

The study implications should be considered in light of its limitations. Firstly, convenience sampling was used. We acknowledge the bias within the sample of psychology students because we might expect mental health literacy to be higher in this group than other samples, which may influence the generalizability of the findings. Secondly, due to the sample comprising only a few males, we could not compare mental health literacy levels across gender reliably. Previous research has reported that males have poorer mental health literacy than females (Burns & Rapee, 2006). This represents an important area for future research. Thirdly, the sample all attended one UK-based university. As such, the items may not be relevant to university students outside of the UK, who may have different cultural-based experiences. Cross-cultural studies have revealed that, compared to non-western populations, western populations show a greater knowledge of mental health disorders and less stigma towards mental illness (Jorm, 2000; Angermeyer & Dietrich, 2006). Further research should explore the stability of the six factors among different cultural populations of university students. Additionally, the findings may not have been free from social desirability bias, especially in measuring attitudes. Participants may have responded in a manner that they deemed favourable. To control for this, we assured participants that their responses would remain anonymous and they would not be identifiable from their survey responses.

Overall, the Student Mental Health Literacy Scale is a valid and reliable self-report instrument for assessing mental health literacy in university students. The measure represents the first assessment of mental health literacy to use the underlying six factor structure of mental health literacy, specifically among university students. The resulting tool includes a unique combination of items specific to university students and not currently used by existing

mental health literacy measures. The Student Mental Health Literacy Scale can be applied to predict particular outcomes, such as help-seeking among a student cohort. Further research concerning university students' mental health literacy may benefit from using this measure to inform the design and development of targeted interventions.

Chapter Three

Does the multidimensional model of mental health literacy increase the specificity of the relationship between mental health literacy and help-seeking intentions.

Abstract

This study aimed to examine the relationship between mental health literacy and help-seeking intentions in a sample of UK university students. To do this, we used the Student Mental Health Literacy Scale developed and tested in Chapter Two to test whether a multidimensional rather than a unidimensional model of mental health literacy would improve the specificity of the relationship between mental health literacy and help-seeking. Data was collected from a sample of university students consisting of 101 participants ages 19-35 years. The findings support the argument that better mental health literacy is related to increased help-seeking. The study is the first known study to compare both a unidimensional and multidimensional model of mental health literacy regarding help-seeking. This chapter will discuss the strengths and limitations of this study.

Introduction

Addressing mental health-related concerns across university students has been a recent global interest. In the United Kingdom, university students experience a great deal of mental health problems, including symptoms of depression, anxiety, stress and showing high co-morbidity (Auerbach et al., 2016; McLafferty et al., 2017; Steel et al., 2014) as well as showing signs of suicidal thoughts and behaviours (Reavley & Jorm, 2010; McLafferty et al., 2017; Mortier et al., 2018).

Despite the high prevalence of mental health disorders, mental health service utilisation is very low among university students. For example, one study found that only half of the university students with past suicide experiences sought and received help (Downs &

Eisenberg., 2012). Half of those with depression were not using any mental health services (Lipson et al., 2019). Delaying help-seeking and service use can significantly impact a student's life, academic achievements, and socio-economic impact (Kessler, 2012; Jung et al., 2017). Universities have developed an understanding of the importance of mental health support for students, with many universities offering counselling services (Eisenberg, Golberstien, & Gullust, 2007). Although there is an availability of counselling services on university campuses, many students do not seek help (Yorgason, Linville, & Zitzman, 2008; Gorczynski et al., 2017). Help-seeking for mental health disorders is necessary to communicate one's need for personal and psychological help and obtain advice and support. Rickwood and Thomas'. (2012) defined mental health help-seeking as an "adaptive coping process that is the attempt to obtain external assistance to deal with mental health outcomes" (p.180). This assistance includes formal (professional help services) and informal (e.g. friends and family) sources of help. A significant challenge in student mental health is ensuring that students recognise their mental health and know the appropriate support available. Recognising symptoms of a mental health disorder is key to seeking professional advice and support. Failing to recognise the signs and symptoms can cause a delay in help-seeking and result in poor health outcomes. Therefore, a fundamental barrier to help-seeking is the inability to recognise symptoms of mental health disorders, which is conceptualised in the literature as mental health literacy.

Mental health literacy is a key factor that plays an essential role in predicting help-seeking. Mental health literacy is defined as an individual's knowledge and beliefs regarding mental health, which help to aid his or her recognition, management, and prevention of mental disorders (Jorm et al., 1997). Mental health literacy is comprised of six unique factors:

- Recognition of disorders

- Knowledge of how to find mental health information
- Knowledge of risks and causes
- Knowledge of self-treatments
- Knowledge of professional help available
- Attitudes that promote the recognition of appropriate help-seeking

Research has shown that university students have low levels of mental health literacy, suggesting that students may have poor symptom recognition and little knowledge of who and where to turn to for support (Furnham et al., 2011; Hunt & Eisenberg, 2010; Reavley et al., 2012; Wei et al., 2013). As individuals, we make reasoned decisions to engage in certain behaviours by assessing and evaluating available information (Jung et al., 2017). Therefore, it can be assumed that improving mental health literacy by providing accurate information regarding mental health concerns and appropriate resources can influence university students' willingness and intention to seek support for their mental health concerns.

Previous research examining mental health literacy in UK university students has demonstrated that greater knowledge of mental health problems is significantly positively correlated with help-seeking intentions (Smith & Shochet, 2011; O'Connor & Casey, 2015; Gorczyński et al., 2017). Furthermore, mental health literacy has influenced informal and formal help-seeking intentions (Suka et al., 2015). More positive attitudes regarding help-seeking are associated with increased service utilisation (ten Have et al., 2010).

Research into the barriers and facilitators of help-seeking has found that poor levels of mental health literacy are a significant barrier to help-seeking in young people (Gulliver et al., 2010). In particular, knowledge regarding mental health services was a significant barrier; having an awareness of the availability of mental health services is essential to establish access to support (Gulliver et al., 2010). Researchers have argued that poor mental health literacy

amongst young people is a significant barrier to professional help-seeking (Rickwood et al., 2007).

On the other hand, good levels of mental health literacy among young people can facilitate individuals' help-seeking behaviours and recommendations of help-seeking to others (Velasco et al., 2020; Gulliver et al., 2010; Kelly et al., 2007). Therefore, increasing mental health literacy among university students may improve help-seeking in this population. Overall, there does seem to be a significant relationship between mental health literacy and help-seeking

Although the findings from prior research indicate a relationship between mental health literacy levels and help-seeking, it is not clear where this relationship lies. Previous studies assessing the relationship between mental health literacy and help-seeking has often used unidimensional measures whereby participants' mental health literacy is measured as an overall total score (O'Connor & Casey, 2015; Gorczynski et al., 2017; Gorczynski et al., 2020). However, as found in Chapter Two, mental health literacy in university students is best conceptualised as a multidimensional model comprising six unique factors that can be measured separately instead of an overall total score.

Using multidimensional mental health literacy measures is beneficial as it increases the specificity when identifying which particular aspects of mental health literacy are related to help-seeking behaviours or intentions. This is important as it can allow for more targeted strategies for improving help-seeking, allowing institutions and professionals to focus on increasing the aspects of mental health literacy that specifically increase help-seeking. However, to date, previous studies have not explored all components of mental health literacy. Therefore, it remains unclear which components strategies should concentrate on when improving help-seeking. Thus, the current study aimed to use the Student Mental Health Literacy Scale from Chapter Two to assess whether a multidimensional rather than a

unidimensional model of mental health literacy would improve the specificity of the relationship between mental health literacy help-seeking intentions in university students.

Method

Participants

Data were obtained from a sample of UK university students. The sample comprised of 101 participants (90 females and ten males, 1 participant fell into the 'other' category) aged 19-35 years (Mean = 19.83, SD=2.29) who were undergraduate students enrolled on the School of Psychology experiment participation scheme whereby students were given the opportunity to take part in experiments in return for course credit. Ninety participants reported as white ethnicity, 19 declared themselves Asian, 15 as Black, five as mixed ethnicity, and 15 participants fell into an 'other' category.

Measures

Student Mental Health Literacy Scale. This new scale developed in Chapter Two was used to assess mental health literacy levels. The scale consists of 35 items divided into six key subscales reflecting mental health literacy factors:

- Recognition of Disorders
- Knowledge of where to seek mental health information
- Knowledge of Risk factors and causes
- Knowledge of Self-treatments
- Knowledge of where to seek professional help
- Attitudes that promote the recognition of appropriate help-seeking.

The items on each subscale were rated on a 4-point Likert Scale. Items 1-7 measure recognition of disorders on a 4 point Likert scale (1 = "Very Unlikely" to 4= "Very Likely"); items 8-12 measure knowledge of where to seek mental health information (1= "Strongly Disagree", 4= "Strongly Agree"); items 13-18 measure Knowledge of risks and causes (1=

"Very Unlikely" to 4= "Very Likely"); items 19-24 measure Knowledge of self treatments ("1=Very Unhelpful", "4=Very Helpful"); items 25-28 measure Knowledge of Professional help available (1= "Strongly Disagree" to 4= "Strongly Agree"); items 30-35 measure attitudes that promote the recognition of appropriate help-seeking (1 = "Strongly Disagree" to 4="Strongly Agree"). For the multidimensional model each subscale is given an individual total score, higher scores indicate a higher level of mental health literacy on each subscale. To examine a unidimensional model we totalled scores on each item to create an overall mental health literacy score. The overall scale has good internal reliability with a Cronbach alpha of .90.

The General Help-Seeking Questionnaire (GHSQ) (Wilson et al.,2005). The GHSQ was used to measure participants intentions to seek help for a mental health issue. Participants were asked to respond to whether they would intend to seek help from a list of help sources. Responses were rated on a 7-point Likert-scale ranging from 1 (Extremely unlikely) to 7 (Extremely Likely) for each help source option. Higher scores indicated higher intentions to seek help. The GHSQ has good psychometric properties with a Cronbach's alpha of .70 and test-retest of .86.

Covariates and Confounds

We included several variables to account for covariate and confounding effects within the study. These variables included age, gender, public stigma and self stigma. We included these two types of stigmas because research assessing barriers to help-seeking has highlighted that stigma is another significant barrier to seeking help (Gulliver et al., 2010; Gulliver et al., 2012; Eisenberg et al., 2009; Vogel et al., 2007). Therefore, we decided to control for stigma to reduce its effects on the relationship between mental health literacy and help-seeking. The measures we used were:

The Beliefs towards Mental Illness Scale (Hirai and Clum 2000) evaluated the participant's beliefs about mental illness. The questionnaire includes 21 items and has a 6-point Likert-type response format. Each item is scored as follows: Completely disagree = 0; Largely disagree = 1; Partly disagree = 2; Partly agree = 3; Largely agree = 4 and Completely agree = 5. High scores on the scale indicated high levels of stigma. The measure has good evidence of validity and reliability with a Cronbach alpha of .82.

The Self stigma of seeking help scale (SSOSH) (Vogel et al., 2006). The scale assesses self stigma towards seeking help regardless of whether the individual had already been diagnosed with a mental illness or not. The scale consists of 10 items measured on a 5-point Likert scale rated from "strongly disagree" to "strongly agree". The SSOSH has good reliability ($\alpha = 0.90$) and test-retest reliability ($\alpha = 0.72$) (Vogel et al., 2006). High scores on the scale represented high levels of self stigma on seeking help. The scale had a good reliability and construct validity with a Cronbach alpha of .91.

Procedure

Alongside demographic information (age, gender and ethnicity), the measures were distributed as an online questionnaire through the University of Leicester School of Psychology Experimental Participation Requirement system (EPR). This system allowed for the recruitment of participants. Students could sign-up to participate in the research in return for course credits. The study gained ethical approval from the University of Leicester Ethics Board. Before the questionnaire, participants were provided with a consent form on the first page of the online survey. The consent form included details about the nature of the study, the ability to withdraw during and after participation, confidentiality, anonymity, and intended use of the data. All participants completed the questionnaires in the same order. The survey was designed so that all respondents had to answer all questions.

Data Analysis

To examine whether our multidimensional model of mental health literacy would increase the specificity of the relationship between mental health literacy and help-seeking intentions, we ran several correlational and multiple regression analyses alongside descriptive statistics. The correlational analysis was used to examine (1) whether the unidimensional model of mental health literacy (characterised by an overall total score) was related to help-seeking and (2) which mental health literacy factors (multidimensional model) were related to help-seeking intentions. We tested the statistical significance and effect size of the associations between the variables by running a Pearson Product Moment Correlation. We assessed the size of the correlation using McGrath and Meyer's (2006) criteria. This criterion suggests that coefficients of $r \geq .37$ represent a large effect size, $.24 \leq r < .37$ a moderate effect size, and $.1 \leq r < .24$ a small effect size. According to Cohen (1992), associations are significant if moderate effect size (above .24), this is deemed to be the minimum at which the findings can be considered to be of practical significance.

We then ran two multiple regression analyses to examine whether the unidimensional model or the multidimensional model predicted unique variance in help-seeking intentions after controlling for the covariate and confounding variables (age, gender, public stigma and self stigma).

Results

Descriptives

Descriptive statistics were conducted for mental health literacy factors and total mental health literacy and help-seeking intentions. Table 3.1 presents the means and standard deviations for each variable.

Student Mental Health Literacy Scores:

The mean score for mental health literacy as an overall score was 112.04 ($SD=12.17$, Range = 76.00- 140.00). Females had higher levels of overall mental health literacy ($M=112.64$,

$SD=11.68$), compared to males ($M=105.70$, $SD= 15.48$). Across the six factors of mental health literacy, students had a good level of recognition, knowledge surrounding information, knowledge of risks, help services and attitudes.

General Help-Seeking Scores:

Across the sample the mean help-seeking intention score was 34.18 ($SD=8.05$, Range: 10.00–52.00). Again females had higher levels of help-seeking ($M=34.34$, $SD=7.94$) compared to males ($M=32.50$, $SD=9.59$). From the sources of support, participants highlighted that they would be more likely to seek help for a mental health concern from an intimate partner ($M=5.38$, $SD=1.74$), friend ($M=5.42$, $SD=1.47$) or parent ($M=4.69$, $SD=2.09$) compared to a help-line ($M=2.53$, $SD=1.43$) or doctor ($M=3.57$, $SD=1.60$).

Table 3.1: *Minimums, maximums, means, standard deviations for each variable.*

Variables	Min	Max	Mean	SD
Mental health literacy total score	76.00	140.00	112.04	12.17
Recognition of mental health disorders	7.00	28.00	21.40	3.66
Knowledge of how to seek mental health information	7.00	20.00	15.23	2.63
Knowledge of risks and causes	12.00	24.00	19.85	2.84
Knowledge of self-treatments	10.00	24.00	19.79	2.56
Knowledge of professional help available	6.00	16.00	11.93	2.45
Attitudes that promote the recognition of appropriate help-seeking	9.00	28.00	23.84	3.54
Help-seeking intentions total score	10.00	52.00	34.18	8.04
Help seeking from intimate partner	1.00	7.00	5.38	1.74
Help-seeking from friend	1.00	7.00	5.42	1.47
Help-seeking from parent	1.00	7.00	4.69	2.01
Help-seeking from other relative	1.00	7.00	3.43	1.76
Help-seeking from mental health professional	1.00	7.00	4.09	1.66

Help-seeking from phone line	1.00	6.00	2.53	1.43
Help-seeking from doctor	1.00	7.00	3.57	1.60
Stigma	6.00	69.00	32.78	13.79
Self Stigma	10.00	39.00	22.91	7.03

Note. SD = standard deviation

Assessing the relationship between mental health literacy and help-seeking

Correlations.

Firstly, we examined the relationship between the unidimensional model of mental health literacy and help-seeking intentions and found a significant positive relationship $r(101) = .301, p = .002$. We then assessed the relationship using the multidimensional model to assess which of the six -factors of mental health literacy were related to help-seeking intentions. The results revealed that knowledge of how to seek mental health information ($r(101) = .250, p = .012$), knowledge of self-treatments ($r(101) = .308, p = .002$) knowledge of professional help available ($r(101) = .371, p = .001$) and attitudes that promote the recognition of appropriate help-seeking ($r(101) = .259, p = .009$) were all significantly related to help-seeking intentions. Table 3.2 presents the Pearson correlation coefficients between the six factors of Mental Health Literacy and help-seeking intentions.

Table 3.2: *Pearson product-moment correlations between total mental health literacy, the six factors of mental health literacy and help-seeking intentions*

	1	2	3	4	5	6	7
1. Total MHL	-	-	-	-	-	-	-
2. Recognition of Disorder	.56**	-	-	-	-	-	-
3. Knowledge of how to seek mental health information	.72**	.24*	-	-	-	-	-
4. Knowledge of risks and causes	.59**	.17	.19	-	-	-	-
5. Knowledge of self treatments	.84**	.26*	.61**	.45**	-	-	-
6. Knowledge of professional help available	.61**	.11	.65**	.12	-	-	-
7. Attitudes that promote the recognition of appropriate help seeking	.83**	.31**	.45**	.52**	.74**	.35**	-
8 . Help-seeking intention	.30**	.03	.25*	.09	.31**	.37**	.26**

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

Multiple Regression

The analysis was comprised of two sets of regressions. We ran a two-step multiple regression analysis for the first regression where help-seeking intentions were the outcome variable. In this analysis, we examined whether the unidimensional model of mental health literacy (total mental health literacy score) was a significant predictor of help-seeking intentions after controlling for demographics and the covariates (two types of stigma). The findings from this analysis are as followed. Age , gender , public and self stigma were placed in Step 1 and were found to have a statistical significance in predicting help-seeking intentions ($F(4,96) = 5.14$, $R^2 = .420$, $R^2_{adj} = .176$, $p = .001$, with self stigma being the significant predictor. After entry of the unidimensional model (total mental health literacy scores) in Step 2, there was a

significant change in R^2 ($\Delta R^2=2.19$, $p=.024$). Higher levels of mental health literacy as a total score were related to increased help-seeking intentions.

For the second set of analyses, we ran a two-step multiple regression to examine the whether the multidimensional six factor model of mental health literacy predicted help-seeking intentions after controlling for demographics and covariates. Again, age, gender, public and self stigma were placed in Step 1 and were found to have a statistical significance in predicting help-seeking intentions $F(4,96)=5.14$, $R=.420$, $R^2=.176$ adj $R^2=.142$, $p=.001$. The six factors of mental health literacy factors were then placed in Step 2, and there was no significant change in R^2 ($\Delta R^2=.254$, $p=.164$). Therefore, the multidimensional model did not increase the specificity in the relationship between mental health literacy and help-seeking intentions. The results of the multiple regression analysis are showed in Table 3.3.

Table 3.3 *Multiple regression analysis (unstandardised and standardised betas, t values, probabilities, and confidence intervals) with help-seeking intentions used as a dependent variable, and demographic variables (Step 1), mental health literacy factors (Step 2), Self Stigma (Step 3) and Knowledge of professional help * Self stigma (Step 4).*

	B	β	t	p=	Lower bound (95%)	Upper bound CI (95%)
Unidimensional model						
<i>Step 1</i>						
Age	.53	.15	1.59	.12	-.13	1.18
Gender	-1.78	-.08	-.84	.41	-.60	2.45
Public Stigma	.09	.02	.16	.88	-.10	.12
Self Stigma	-.44	-.38	-3.95	.00	-.66	-.22
<i>Step 2</i>						
Total MHL	.16	.24	2.29	.02	.02	.29
Multidimensional : Six factors						
<i>Step 1</i>						

Age	.64	.181	1.79	.08	-.06	1.33
Gender	-1.70	-.08	-.75	.46	-6.23	2.82
Public Stigma	.01	.02	.16	.88	-.10	.12
Self Stigma	-.43	-.38	-3.95	.00	-.66	-.22
<i>Step 2</i>						
Recognition of disorders	-.10	-.05	-.45	.65	-.56	.35
Knowledge of how to seek information	-.11	-.03	-.25	.80	-.93	.72
Knowledge of risks and causes	-.06	-.02	-.21	.84	-.68	.56
Knowledge of self-treatments	.38	.12	.78	.44	-.59	1.36
Knowledge of professional help available	.73	.22	1.72	.09	-.11	1.56
Attitudes that promote the recognition of appropriate help-seeking	.16	.07	.47	.64	-.51	.82

Discussion

The purpose of this study was to examine the relationship between mental health literacy and help-seeking intentions in a sample of UK university students. We used the Student Mental Health Literacy Scale developed and tested in Chapter Two to test whether a multidimensional, rather than a unidimensional, model of mental health literacy would improve the specificity of the relationship between mental health literacy help-seeking intentions.

Research into student mental health literacy has consistently found that university students lack sufficient mental health literacy skills to recognise mental health problems and to seek and access professional help when necessary (Furnham et al., 2011; Hunt and Eisenberg, Reavley et al., 2012; Wei et al., 2013). University students have difficulties in recognising and understanding symptoms of mental health disorders (Furnham et al., 2011;

Furnham et al., 2013; Youssef et al., 2014), as well as having limited knowledge of help services and where to turn to for support (Chew-Graham et al., 2003; Eisenberg et al., 2007). The current study found a good level of mental health literacy across the six factors among the sample surveyed.

The study explored this through both the unidimensional and multidimensional model of mental health literacy in terms of the relationship between mental health literacy and help-seeking intentions. The study found that the unidimensional model of mental health literacy characterised by an overall total score was a significant predictor of help-seeking intentions, whereby greater levels of mental health literacy were associated with higher intentions to seek help. The findings are consistent with previous research, which has found a positive correlation between mental health literacy and help-seeking, with higher mental health literacy levels increasing help-seeking (Smith & Shochet, 2011; Gorczynski et al., 2017; Gorczynski et al., 2020).

However, as we know from the previous chapter, mental health literacy is best conceptualised as multidimensional, therefore, the study assessed whether the six factors independently predicted help-seeking. Although the correlational analysis revealed that higher levels of "knowledge of how to seek mental health information", "knowledge of self-treatments", "knowledge of professional help" and "attitudes that promote the recognition of appropriate help-seeking" were positively correlated with help-seeking intentions, the multiple regression analysis was unable to support this. Therefore, the multidimensional model did not increase the specificity of the relationship between mental health literacy and help-seeking intentions in university students.

Additionally, the study found that university students are more likely to seek support from someone close to them, such as a partner or parent rather than a professional, which is in line with previous research (Curtis, 2010; Cyyz et al., 2013; Leach et al., 2007). Females

were found to have better mental health literacy and help-seeking intentions than males, which has been consistently shown across the literature (Kelly et al., 2007; Payne et al., 2008; Burns & Rapee, 2006). Given that participants are less likely to seek support from a professional and that females have higher scores on mental health literacy, it may be helpful for universities to develop strategies to educate students about the benefits of seeking and accessing professional help services and tailor information to specific groups to improve help-seeking across the university.

Finally, the results supported previous research into the relationship between stigma and help-seeking. The results revealed that self stigma was negatively related to help-seeking intentions, suggesting that those who internalise stigma surrounding mental health are less likely to seek support for their mental health concern (Nam et al., 2013; Vogel et al., 2007). Both mental health literacy and self stigma are considered critical factors in help-seeking; therefore, future research should consider assessing the relationship between stigma, mental health literacy and help-seeking.

There are several strengths and limitations of this study. The findings from this study represent a unique and new contribution to the existing knowledge in this area. To the best of our knowledge, this is the first known attempt to examine both a multidimensional and unidimensional model of mental health literacy related to help-seeking intentions. Existing research in the UK has not addressed all mental health literacy factors in regards to help-seeking. Studies have often assessed the relationship using only unidimensional measures, which reduces the specificity of the findings. Research has failed to provide a holistic approach to the implications of mental health literacy on help-seeking. There are benefits to using the Student Mental Health Literacy Scale because it allows for interventions and policymakers to make more intentional choices about which variables to target with their mental health literacy interventions. Despite the benefits of using a multidimensional model

of mental health literacy, we found that the unidimensional model was a better predictor of help-seeking intentions than the six factors individually. Previous research has highlighted that to improve help-seeking in students, mental health interventions and strategies must help to increase the mental health literacy of students by helping to increase recognition of symptoms, knowledge relating to sources of help, self-help strategies, and improving students' attitudes towards mental health and help-seeking (Gulliver et al., 2010). Although mental health literacy was a significant predictor of help-seeking, no specific factor was identified as a unique predictor. Therefore, we argue it is essential for all aspects of mental health literacy to be considered when focusing on strategies to increase help-seeking intentions. Secondly, the study uses a new student-specific mental health literacy scale tailored to university students' experiences, allowing for a more specific representation of mental health literacy in students. Previous studies have used measures of mental health literacy which are for use among the general public. University students have unique experiences; therefore, using the Student Mental Health Literacy Scale has increased the reliability of the findings by being student-specific.

In regards to the limitations, three main limitations are suggested. Firstly, participants were recruited from one UK university, which reduces the findings' generalizability. To develop a more holistic view of mental health literacy and help-seeking further research is needed across more UK universities. Secondly, the general help-seeking questionnaire used in this study measured help-seeking intentions rather than actual help-seeking behaviours. It could be argued that intentions do not necessarily transfer to actual behaviour. However, the Theory of Planned Behaviour suggests that intention is a reasonable predictor of behaviour, whereby one's attitudes regarding help-seeking, subjective norms, and perceived behavioural control (motivation to seek help) determine intentions, which predict actual behaviour (Ajzen, 1985). As a result of this theory, we felt that measuring intentions was appropriate.

Finally, the study did not collect data on participants' mental health levels; therefore, we could not identify those with negative mental health. Research has found that those with mental health disorders are less likely to seek help. It may have been more beneficial to measure mental health levels to precisely assess the relationship between mental health literacy and help-seeking among a more clinical sample, which may increase the reliability of the findings. Further research should examine the influence of mental health on mental health literacy.

Although the multidimensional model of mental health literacy did not increase the specificity of the relationship between mental health literacy and help-seeking, the study demonstrated that improved mental health literacy overall increased help-seeking intentions. Low help-seeking and access to support are essential areas of student mental health research. It is crucial for research to explore factors that influence help-seeking in university students. Although most universities offer on-campus services such as well-being and counselling free of charge, most university students do not seek professional help despite experiencing psychological symptoms, such as depression, anxiety, and suicidal thoughts. The finding suggests that it would be helpful for universities to develop strategies to increase mental health literacy, educate students about the benefits of seeking and accessing help services, and tailor information to specific groups to improve help-seeking in university students.

Chapter Four

Understanding the role of Mental Health Literacy in determining mental health outcomes.

Abstract

Research has highlighted a high prevalence of common mental health disorders such as depression and anxiety in university students. Mental health literacy (knowledge and beliefs about mental health) can be considered a significant determinant of mental health and is particularly important for university students experiencing substantial life changes. The current study explored whether mental health literacy was associated with improved mental health outcomes (depression and anxiety) over two-time points. Data were collected at Time 1 with 123 participants taking part (110 females, 13 males; $M = 19.06$, $SD=2.13$) and 80 of the participants (74 females, six males; $M= 19.77$, $SD =2.07$) participating in both time points. Participants completed measures assessing mental health literacy, depression and anxiety. The results revealed that at Time 1, the mental health literacy factor “knowledge of professional help available” was a direct predictor of depression scores. Higher knowledge of professional help available was associated with lower depression scores.

Regarding anxiety, the mental health literacy factor “knowledge of risks and causes” was directly associated with higher anxiety levels. At Time 2 no mental health literacy factor was found to be related to depression and anxiety score. The findings from this study have important implications in increasing the specificity of the relationship between mental health literacy and mental health outcomes and having a direct impact on education strategies. The implications and limitations of this study are discussed in this chapter.

Introduction

Mental health disorders are one of the largest contributors to the disease burden worldwide (WHO, 2001; Baranne & Falissard, 2018; Kessler et al., 2009). The risk of experiencing a common mental health problem such as depression and anxiety increases during adolescence and becomes more prominent in early adulthood, around 25 years old (Kessler et al., 2007). University students fall within this category, making them a highly vulnerable population. The university years represent a distinct developmental period, with the transition to university leading to dramatic changes in a students’ everyday life and responsibilities. During this time, students are highly vulnerable to developing mental health disorders since students, for the first time, are responsible for themselves (financially) as well as dealing with academic demands (Cuijpers et al., 2019). These new life challenges can significantly affect the mental health and wellbeing of university students. Poor mental health among university students has been found to have short and long-term consequences such as poor attendance and poor performance (Antaramian, 2015) as well as reoccurring mental health problems, dropping out of university and low employment rate (Fergusson et al., 2007; Thorley, 2017).

Diagnosing mental health disorders alongside early interventions can lead to better mental health outcomes and positive attitudes towards help-seeking (Milin et al., 2016).

Lacking awareness and knowledge of mental health disorders can significantly impact early diagnosis and treatment. University students have poor mental health symptom recognition and little understanding of who and where to turn for support (Furnham et al., 2011; Hunt & Eisenberg, 2010; Reavley et al., 2012; We et al., 2013). This is known as having poor mental health literacy. Mental health literacy has been considered an important determinant of mental health outcomes (Bjørnsen et al., 2019; Milin et al., 2016). The concept refers to knowledge and beliefs about mental disorders that lead to their recognition, management, or prevention. Since the introduction of mental health literacy, the concept has been well-applied to several research areas. For example, aiding the development of interventions surrounding help-seeking (Altweck et al., 2015; Amarasuriya et al., 2015; Mason et al., 2015), understanding attitudes towards interventions (Xu et al., 2018; Reavley et al., 2012), and specific mental health disorders (Bullivant et al., 2020; McIntosh & Paulson, 2019). More recently, mental health literacy has been receiving a great deal of attention as part of potential strategies and interventions to improve mental health outcomes (Kutcher et al., 2015). Research has suggested that those with adequate levels of mental health literacy are better able to recognise symptoms of mental health disorders from an early age (Essau et al., 2013), are more likely to seek professional help (Burns & Rapee, 2006) and have better attitudes towards mental health (Yap et al., 2013; Reavley & Jorm, 2012). All of these factors listed are associated with more positive mental health outcomes.

Despite being well applied within psychology, there is limited research in understanding the role of mental health literacy in determining mental health outcomes, especially in the case of depression and anxiety. Depression and anxiety are common mental health difficulties experienced by university students (American College Health Association, 2019). Therefore, there is an urgent need to explore whether good levels of mental health literacy can improve depression and anxiety outcomes. One known study comes from Lam

(2014), who conducted a survey-based study on a sample of adolescents. The study assessed the association between mental health literacy levels and mental health status, particularly depression. Their study found that inadequate mental health literacy levels were associated with higher depression symptoms, which is that low mental health literacy is associated with increased depression. The results from their study have significant implications for early interventions of mental health problems. However, mental health literacy was conceptualised in this study as two components (1). Awareness of problems reflected through the correct identification of the mental health problems (2). Attitudes towards seeking appropriate help. They suggest that adequate levels of mental health literacy are represented through only these factors.

A more recent study was conducted on adolescents in Malaysia (Singh et al., 2020). The study assessed the association between mental health literacy and depression using the mental health literacy and stigma questionnaire to examine multiple components of mental health literacy. The findings from their study did indicate that low mental health literacy increased the odds of depression; however, the effect was not statistically significant.

Despite these findings, previous research assessing the relationship between mental health literacy and mental health outcomes has used measures that do not consider all six components defined by theory or use unidimensional measures. As found in Chapter Two, mental health literacy in university students is best conceptualised as a multidimensional model comprising six unique factors that can be measured separately. Using a multidimensional mental health literacy measure is beneficial as it increases the specificity when identifying which particular aspects of mental health literacy are related to depression and anxiety levels. This is important as it can allow for more targeted education strategies for improving mental health outcomes in university students and allow institutions and professionals to focus on increasing the aspects of mental health literacy specifically related

to improving mental health outcomes. Previous studies have not explored all components of mental health literacy. Therefore, it remains unclear which components interventions should concentrate on when improving mental health outcomes within university students.

As a result of this, the primary aim of this study is to use the evidence of the multidimensional conceptualisation of mental health literacy found in Chapter Two to explore which of the six factors of mental health literacy:

- Recognition of Disorder,
- Knowledge of how to seek information,
- Knowledge of risks and causes,
- Knowledge of self-treatments,
- Knowledge of professional help available and
- Attitudes that promote the recognition of appropriate help-seeking

help to improve depression and anxiety outcomes in university students. This will be conducted across two-time points. Doing so will allow for recommendations for mental health interventions (Lam, 2014). Overall, this study aims to investigate the factors of mental health literacy that influence depression and anxiety in a sample of university students.

Method

Participants

The sample comprised of undergraduate psychology students enrolled on the School of Psychology experiment participation scheme. Students were given the opportunity to participate in experiments in return for course credit. With this sample, there were two data collection time points six months apart. At Time 1 123 participants took part (110 females, 13 males; Mean age = 19.06, $SD=2.13$) with 80 of them (74 females, 6 males; Mean age = 19.77, $SD =2.07$) participating in both time points.

Measures

Student Mental Health Literacy scale

Mental health literacy was measured at Time 1 using the Student Mental Health Literacy Scale developed in Chapter Two. The scale consists of 35 items divided into six key subscales reflecting the factors of mental health literacy:

1. Recognition of Disorders
2. Knowledge of where to seek mental health information
3. Knowledge of Risk factors and causes
4. Knowledge of Self-treatments
5. Knowledge of where to seek professional help
6. Attitudes that promote the recognition of appropriate help seeking.

The items on each subscale were rated on a 4-point Likert Scale. Items 1-7 measure recognition of disorders on a 4 point Likert scale (1 = "Very Unlikely" to 4= "Very Likely"); items 8-12 measure knowledge of where to seek mental health information (1= "Strongly Disagree", 4= "Strongly Agree"); items 13-18 measure Knowledge of risks and causes (1= "Very Unlikely" to 4= "Very Likely"); items 19-24 measure Knowledge of self treatments ("1=Very Unhelpful", "4=Very Helpful"); Items 25-28 measure Knowledge of Professional help available (1= "Strongly Disagree" to 4= "Strongly Agree"); Items 30-35 measure attitudes that promote the recognition of appropriate help-seeking (1 = "Strongly Disagree" to 4="Strongly Agree"). For the multidimensional model each subscale is given an individual total score, higher scores indicate a higher level of mental health literacy on each subscale. To examine a unidimensional model we totalled scores on each item to create an overall mental health literacy score. The overall scale has good internal reliability with a Cronbach alpha of .90.

The Hospital Anxiety and Depression scale (Zigmond and Snaith., 1983) was used to measure anxiety and depression levels across the two time points. This is a valid and reliable self-rating scale that allows for measuring both anxiety and depression in both hospital and

community settings. The questionnaire consists of fourteen questions divided into seven questions measuring depression and seven questions measuring anxiety. Participants had to rate each item on a 4 point Likert scale which differed for each question. Total anxiety and depression were scored separately, for both the scales 8–10 Mild, 11–14 Moderate, 15–21 Severe, and scores of less than 7 are classed as non cases. The Cronbach's alpha is found between .78 - .93 for the anxiety subscale and .82 –.90 for the depression subscale.

Procedure

The study was a two-part study whereby data was collected at two-time points six months apart. Mental health literacy data was collected at Time 1, and depression and anxiety scores were collected across both time points. Alongside demographic information (age, gender and ethnicity), the measures were distributed as an online questionnaire through the University of Leicester's School of Psychology Experimental Participation Requirement system (EPR). This system allowed for the recruitment of participants. Students could sign-up to participate in the research in return for course credits. Data were matched across the time points through a unique ID allocated within the internal experiment participation software. The study gained ethical approval from the University of Leicester Ethics Board. Before the questionnaire, participants were provided with a consent form on the first page of the online survey. The consent form included details about the nature of the study, the ability to withdraw during and after participation, confidentiality, anonymity, and intended use of the data. All participants completed the questionnaires in the same order, and participants were required to answer all questions.

Statistical Analysis

Demographic information, the mental health literacy factors and anxiety and depression scores were first analysed descriptively and presented as means, standard deviation and skewness. To examine the relationship between the six factors of mental health literacy and the mental health outcomes (depression and anxiety), correlational and multiple regression analyses were conducted. Correlational analysis was used to test the statistical significance and effect size of the correlations between mental health literacy factors, depression and anxiety. The analysis was performed by running a Pearson Product Moment Correlation. We assessed the size of the correlation using McGrath and Meyer's (2006) criteria. This criterion suggests that coefficients of $r \geq .37$ represent a large effect size, $.24 \leq r < .37$ a moderate effect size, and $.1 \leq r < .24$ a small effect size. According to Cohen (1992), associations are significant if moderate effect size (above .24), this is deemed to be the minimum at which the findings can be considered to be of practical significance. Secondly, to explore the relationship between mental health literacy and depression and anxiety, we ran a two-step multiple regression analysis to examine which dimensions of mental health literacy predicted unique variance in depression and anxiety at two-time points. The significance was set at $p < .05$ along with a 95% confidence interval.

Results

Descriptives

The descriptive statistics for mental health literacy, depression and anxiety are shown in Table 4.1. The mean statistics for the mental health literacy factors reveal that the sample had moderate to high levels of mental health literacy (characterised by higher scores).

Correlational Analysis

Before running the multiple regression analysis, Pearson correlation analysis was performed. As shown in Table 4.2, some mental health literacy factors were significantly

related to depression and anxiety. The results reveal that at Time 1, knowledge of how to seek mental health information, knowledge of self-treatments, and knowledge of professional help available share a significant negative correlation with depression. The results were the same at Time 2 with the addition of the mental health literacy factor attitudes that promote the recognition of appropriate help-seeking being negatively related to depression. There was a significant positive relationship with the knowledge of risks and causes and a significant negative correlation with knowledge of professional help for anxiety. At Time 2, knowledge of risks and causes was not related to anxiety, but knowledge of professional help available was still negatively associated with depression. The effect sizes of these correlations at Time 1 were considered to be small.

Table 4.1. *Descriptive statistics for the study variables*

	Min	Max	Mean	SD	Skewness		Kurtosis	
					Statistic	SE	Statistic	SE
<i>Time 1</i>								
Total MHL	76.00	140.00	112.07	11.61	-.18	.21	.47	.43
Recognition of disorders	7.00	28.00	21.42	3.73	-.88	.21	1.89	.43
Knowledge of how to seek information	7.00	20.00	15.28	2.49	.19	.21	.95	.43
Knowledge of risks and causes	13.00	24.00	19.71	2.67	.06	.21	-.81	.43
Knowledge of self-treatments	10.00	24.00	19.95	2.51	-.56	.21	.99	.43
Knowledge of professional help available	6.00	16.00	11.82	2.22	.27	.21	-.02	.43
Attitudes that promote the recognition of appropriate help-seeking	9.00	28.00	23.87	3.55	-.81	.21	1.67	.43
Depression	0.00	14.00	4.65	3.34	.74	.21	.04	.43
Anxiety	0.00	20.00	8.82	4.45	.37	.21	-.35	.43
<i>Time 2</i>								
Total MHL	76.00	140.00	112.48	11.66	-.12	.27	.55	.53
Recognition of disorders	7.00	28.00	21.31	3.71	-1.35	.27	3.32	.53

Knowledge of how to seek information	7.00	20.00	15.33	2.6	.03	.27	1.21	.53
Knowledge of risks and causes	15.00	24.00	19.9	2.68	.04	.27	-1.11	.53
Knowledge of self-treatments	10.00	24.00	19.9	2.57	-.60	.27	1.39	.53
Knowledge of professional help available	6.00	16.00	12.08	2.41	.18	.27	-.39	.53
Attitudes that promote the recognition of appropriate help-seeking	9.00	28.00	23.95	3.59	-.94	.27	2.12	.53
Depression	0.00	18.00	5.55	3.73	.56	.27	.04	.53
Anxiety	0.00	19.00	8.97	4.16	.23	.27	.24	.53

Note. SD =standard deviation, SE = standard error, MHL=Mental Health Literacy

Multiple Regression Analysis

We then performed a series of multiple regression analyses to examine the value of the mental health literacy factors by considering whether it predicted mental health outcomes (depression and anxiety) at two time points. At Time 1 depression and anxiety were considered dependent variables and the six factors of mental health literacy were independent variables. Age and gender were entered at Step 1 to control for demographic variables. The six mental health literacy factors were entered at Step 2.

For depression, the results revealed that at Time 1 age and gender did not significantly predict depression outcomes $F(2,210) = 1.042$, $R = .131$, $R^2 = .017$, $\text{adj } R^2 = .001$, $p = .356$. The inclusion of the six mental health literacy factors at Step 2 contributed to significant changes in R^2 ($R^2 = .130$, $p = .011$). At this step, knowledge of professional help available was a significant factor associated with depression. This was a negative association whereby higher knowledge of professional help leads to decreased levels of depression. For anxiety the results revealed that age and gender were not significant variables in anxiety outcomes $F(2,120) = 2.29$, $R = .192$, $R^2 = .037$, $\text{adj } R^2 = .021$, $p = .105$. The inclusion of the six mental

health literacy factors led to significant changes in R^2 ($R^2=.115$, $p=.023$), in particular knowledge of risks and causes, was significantly associated with anxiety (Table 4.3).

We then tested these associations between the mental health literacy factors and depression and anxiety at a second time-point (Time 2), 6 months after the first data collection point. To this end, we controlled for the corresponding depression and anxiety outcomes at Time 1 to eliminate its influence of these responses at Time 2. In these analyses, depression and anxiety at Time 2 were dependent variables and depression and anxiety scores at Time 1 were considered as the independent variables in Step 1.

The mental health literacy factors were then included at Step 2. For both depression and anxiety, the mental health literacy factors did not predict mental health outcomes at Time 2. The results however did reveal that depression at Time 1 predicted depression at Time 2 and anxiety at Time 1 predicted anxiety at Time 2 (Table 4.4).

Table 4.2: *Correlations between the Mental health literacy factors and depression and anxiety at Time 1 and Time 2.*

	1	2	3	4	5	6	7	8	9
Time 1									
1.Total MHL	-	-							
2.Recognition of disorders	.58**	-	-	-	-	-	-	-	-
3.Knowledge of how to seek mental health information	.73**	.25**	-	-	-	-	-	-	-
4.Knowledge of risks and causes	.58**	.18*	.23*	-	-	-	-	-	-
5.Knowledge of self treatments	.79**	.26**	.59**	.39**	-	-	-	-	-
6.Knowledge of professional help available	.58**	.09	.57**	.16	.44**	-	-	-	-
7.Attitudes that promote the recognition of appropriate help seeking	.79**	.29**	.48**	.39**	.62**	.34**	-	-	-
8.Depression	-.20*	-.04	-.19**	.04	-.22*	-.31**	-.17	-	-
9.Anxiety	-.03	.03	-.16	.19**	-.09	-.19*	.05	.59**	-
Time 2									
1.Total MHL	-	-	-						
2.Recognition of disorders	.48**	-	-	-	-	-	-	-	-
3.Knowledge of how to seek mental health information	.73**	.16	-	-	-	-	-	-	-
4.Knowledge of risks and causes	.52**	.06	.15	-	-	-	-	-	-
5.Knowledge of self-treatments	.83**	.15	.63**	.36**	-	-	-	-	-
6.Knowledge of professional help available	.60**	.01	.61**	.10	.52**	-	-	-	-
7.Attitudes that promote the recognition of appropriate help-seeking	.84**	.24*	.49**	.44**	.75**	.37**	-	-	-
8.Depression	-.33**	.00	-.36**	-.09	-.32**	-.29*	.31**	-	-
9.Anxiety	-.14	.01	-.19	.09	-.21	-.23*	-.09	.53**	-

Note. *p<.05; ** p<.01

Table 4.3. *Regression Analysis with Depression and Anxiety Dependent Variables and the six mental health literacy factors used as Predictor Variables at Time 1.*

	B	β	t	p=	Lower bound CI (95%)	Upper bound CI (95%)	B	β	t	p=	Lower bound CI (95%)	Upper bound CI (95%)
Depression: Time 1 (<i>n</i> =123)							Anxiety: Time 1 (<i>n</i> =123)					
<i>Step 1</i>												
Age	.01	.00	.05	.96	-.28	.29	-.12	-.06	-.62	.54	-.49	.26
Gender	-1.41	-.13	-1.43	.15	-3.35	.53	-2.69	-.19	-2.08	.04	-5.25	-.13
<i>Step 2</i>												
Recognition of disorders	.02	.02	.24	.81	-.15	.19	.03	.02	.24	.81	-.19	.26
Knowledge of how to seek information	.05	.04	.32	.75	-.27	.38	-.29	-.17	-1.38	.17	-.73	.04
Knowledge of risks and causes	.19	.15	1.54	.13	-.06	.43	.41	.25	2.51	.01	.09	.25
Knowledge of self-treatments	-.20	-.15	-1.21	.23	-.54	.13	-.23	-.13	-1.01	.32	-.67	.22
Knowledge of professional help available	-.39	-.26	-2.41	.02	-.71	-.07	-.23	-.11	-1.05	.29	-.65	.20
Attitudes that promote the recognition of appropriate help-seeking	-.09	-.09	-.83	.41	-.31	.13	.15	.12	1.02	.31	-.14	.44

Note . *p<.05; ** p<.01, CI= Confidence Interval

Table 4.4. *Regression Analysis with Depression and Anxiety Dependent Variables and the six mental health literacy factors used as Predictor Variables at Time 2.*

	B	β	t	p	Lower bound CI (95%)	Upper bound CI (95%)	B	β	t	p	Lower bound CI (95%)	Upper Bound CI (95%)
Depression: Time 2 (<i>n</i> = 80)							Anxiety : Time 2 (<i>n</i> = 80)					
<i>Step 1</i>												
Age	-.03	-.02	-.24	.81	-.30	.24	.01	.01	.06	.95	-.32	.34
Gender	2.95	.21	2.79	.01	.85	5.05	.15	.01	.17	.91	-.24	2.74
Depression Time 1	.88	.76	10.01	.00	.70	1.05	.70	.69	8.36	.00	.53	.87
<i>Step 2</i>												
Recognition of Disorders	.07	.70	.88	.38	-.09	.23	.03	.03	.29	.77	-.17	.23
Knowledge of how to seek mental health information	-.14	-.09	-.09	.36	-.44	.16	.18	.11	.93	.36	-.20	.55
Knowledge of risks and causes	.03	.02	.26	.79	-.19	.26	.10	.07	.72	.47	-.18	.39
Knowledge of self-treatments	-.09	-.07	-.52	.61	-.46	.27	-.41	-.25	-1.80	.08	-.86	.04
Knowledge of professional help available	-.04	-.02	-.24	.82	-.34	.26	-.17	-.09	-.90	.37	-.54	.20
Attitudes that promote the recognition of appropriate help-seeking	-.11	-.12	-.94	.35	.36	.13	-.04	-.03	-.27	.79	-.34	.26

Note. * $p < .05$; ** $p < .01$, CI= Confidence Interval

Discussion

This study examined the relationship between mental health literacy and mental health outcomes (depression and anxiety) in university students across two different time points. To do this, we used the new multidimensional Student Mental Health Literacy Scale to assess which of the six mental health literacy factors were specifically associated with depression and anxiety scores over the two different time points. The findings help to increase the specificity of the relationship between mental health literacy and mental health outcomes.

Previous research considered mental health literacy an important determinant of mental health outcomes (Bjørnsen et al., 2019; Milin et al., 2016). Lacking the awareness of and knowledge of mental health disorders has significantly impacted early diagnosis and treatment. Research had found that having a good level of mental health literacy allowed for early symptom recognition, increased help-seeking and better attitudes towards mental health (Essau et al., 2013; Burns & Rapee, 2006; Yap et al., 2013; Reavley & Jorm, 2012). These factors are essential when it comes to positive mental health outcomes. University students have poor mental health symptom recognition and little knowledge of who and where to turn to for support (Furnham et al., 2011; Hunt & Eisenberg, 2010; Reavley et al., 2012; We et al., 2013) therefore impacting the mental health outcomes.

Within this study, we found a good level of mental health literacy across the six factors amongst the sample surveyed. However, there has been limited research in understanding the role of mental health literacy in determining mental health outcomes, especially in depression and anxiety. This study explored this by using the multidimensional model of mental health literacy to see which of the six factors predicted depression and anxiety across the two-time points.

In terms of depression, the study found that mental health literacy levels were significantly associated with depression at Time 1. The results suggested that lower mental

health literacy levels were associated with higher depression. The findings align with Lam (2014), who found that inadequate mental health literacy levels were associated with higher depression symptoms. The current study went further to find that "knowledge of professional help available" was the most significant mental health literacy factor, directly affecting depression. Higher levels of knowledge of professional help available were associated with lower depression scores. The concept of help-seeking behaviours could explain this finding. Research into the barriers and facilitators of mental health help-seeking has found that lacking knowledge regarding mental health services is a significant barrier to help-seeking and that having an awareness of mental health services available is vital to establish access to support (Gulliver et al., 2010). Mental health literacy is a key factor in preventing the adverse effects of mental health disorders related to an individual's mental health knowledge that can enable them to take possible action early to prevent their mental health from deteriorating. Therefore, by having higher knowledge of professional help available, students can seek help for their depression symptoms early, reducing the severity of their depression.

In terms of anxiety, the results found that mental health literacy was significantly related to anxiety scores. In particular, the mental health literacy factor "knowledge of risks and causes" was positively associated with anxiety levels, whereby high knowledge of risks and causes were related to increased anxiety levels. The nature of anxiety itself could explain the findings. Those with generalised anxiety disorders often have symptoms of worry and distress, which can be associated with various life situations such as finances or health. It could be argued that those who worry about their health may be more likely to research risks and causes of their health concerns to be more cautious about their health. However, having more knowledge surrounding a health concern could further increase an individual's anxiety, making them overthink and become more conscious about their health. Therefore, having an increased knowledge surrounding anxiety could further the severity of an individual's

symptoms. It's important to note the effect of the mental health literacy factors on depression and anxiety levels at Time 1 were small therefore suggesting other factors may be contributing to depression and anxiety.

The findings at Time 1 were not found at Time 2. It could be argued that the role of mental health literacy on depression and anxiety levels are localised to one-time point. This is important because the effect of low mental health literacy levels on mental health outcomes is not long term. Additionally, it could be argued that other factors influenced mental health outcomes in university students. For example, from Time 1 to Time 2 participants could have accessed mental health literacy information which could have impacted levels of knowledge. This in turn could have impacted mental health outcomes. Secondly, when collecting data at Time 2, the Covid-19 pandemic had just started which led to the UK being under lockdown. This could have significantly impacted mental health outcomes as students were no longer on campus. Therefore, these factors outlined could explain the small effect and lack of relationship found at Time 2 as they were not accounted for.

As with all research, there are strengths and limitations to this study. Firstly, the findings from the study are theoretically important. This is the first known study to examine the relationship between mental health literacy and mental health outcomes using a multidimensional model of mental health literacy in line with the underlying theory. By using a multidimensional measure, we have increased the specificity of the relationship between mental health literacy, depression and anxiety. Secondly, the results from Time 1 allow for a direct impact on education strategies designed for the prevention of mental health outcomes. As highlighted by the results having the knowledge of the professional help available is associated with lower depression levels. Thus it could be argued that enhancing students' knowledge of services available will allow for early detection of depression as students will be aware of where to turn to seek help. It has been argued that well-designed interventions for

enhancing mental health literacy may lead to better mental health outcomes by facilitating help-seeking behaviours (Kelly et al., 2007). Therefore, we argue that programs should be developed to increase university students' knowledge of professional help available to facilitate help-seeking, which will help improve depression symptoms. Finally, the study was a longitudinal study that allowed us to assess the relationship over time to test whether this relationship was casual.

One main limitation of this study is that it did not account for changes in mental health literacy over the two-time points. Within the study, we only collected mental health literacy at Time 1, which could have limited the findings. There could be a possibility that mental health literacy levels changed between the two-time points and were not considered. By not measuring mental health literacy at both time points, we may have reduced the validity of our findings. Further research will be needed to assess mental health literacy levels across both time points to fully understand the relationship between mental health literacy, depression and anxiety over time.

Secondly, the study assessed the impact of mental health literacy on mental health outcomes but did not assess this relationship the other way around. Previous research has evaluated the influence of an individuals' mental health status on mental health literacy levels, with findings suggesting a relationship between experiences of psychological symptoms and mental health literacy levels (Kim et al., 2015). It would be helpful to assess whether experiences of depression and anxiety symptoms influence mental health literacy levels in university students.

Finally, it may have been helpful to have assessed the influence of mental health literacy education strategies on mental health outcomes between both times points to see whether there would be a difference in mental health symptoms before and after introducing an education program. Future research should assess an education program of mental health

literacy that uses this multidimensional model to explore the effect of mental health literacy on mental health outcomes more clearly.

Overall, this study aimed to investigate the relationship between mental health literacy and mental health outcomes, particularly depression and anxiety in university students. The results highlighted that mental health literacy is a key factor that could impact mental health outcomes in university students. The study increased the specificity of this finding by suggesting that the mental health literacy factor knowledge of professional help available and knowledge of risks and causes are vital factors that impact mental health outcomes in university students. Enhancing university students' mental health literacy levels should be considered in education programs designed as preventive measures of mental health disorders in university students.

Chapter Five

Do personality factors influence mental health literacy levels in university students.

Abstract

Research has shown that mental health literacy levels can vary due to demographic factors (gender and age) and personality. This study aimed to explore the influence of individual factors on mental health literacy levels. The study specifically aimed to examine personality factors (Big Five) on mental health literacy levels among a UK sample of 123 psychology students. The participants ranged between 18-35 years ($M=19.06$, $SD=2.12$). Respondents completed measures on mental health literacy (Student Mental Health Literacy Scale) and personality (Big 5). Correlational and multiple regression analysis found a small effect size in the relationship between personality and mental health literacy levels. The study suggests that the relationship between personality and mental health literacy is not statistically significant. The results from this study are outlined in this chapter. Overall, the findings suggest that researchers can measure mental health literacy without considering the influence of personality.

Introduction

Within the field of health literacy, it has been well documented that low levels of health literacy are a key predictor of people's health behaviours, service use and health outcomes (Berkman et al., 2011). Mental health literacy is an extension of health literacy, defined as the "knowledge and beliefs about mental health which aid their recognition, management and prevention" (Jorm et al., 1997).

Among university students, mental health literacy is low. As a result, students cannot recognise symptoms of mental health disorders and the need to seek help (Furnham et al., 2011; Hunt & Eisenberg, 2010; Reavley et al., 2012; Wei et al., 2013) and lack the knowledge and understanding of mental health problems. Improving mental health literacy is crucial in

university students due to the high prevalence of mental health and the lack of knowledge surrounding help-seeking. Doing so will enable students to intervene early and prevent the negative impact of mental health disorders on university life.

To facilitate better mental health literacy in university students, it is essential to highlight the factors that influence mental health literacy levels. For instance, research has shown that mental health literacy levels vary due to demographic factors such as gender and age. Females generally have higher mental health literacy levels than males (Wright et al., 2006; Burns & Rapee., 2006; Hadjimina & Furnham., 2017). This is argued to be due to a females' nature to be more open regarding their emotions and understand the importance of seeking support for their mental health (Gibbons et al., 2015). In looking at age, differences in mental health literacy levels have been well compared across age groups, with mental health literacy being higher in younger participants compared to older with younger participants being able to correctly recognise a mental health disorder (Fisher & Goldney., 2003; Hadjimina & Furnham., 2017). These demographic groups with better mental health literacy also have higher help-seeking behaviours (Pescosolido & Boyer, 2010).

Research has also considered the impact of personality factors on mental health literacy. To improve our understanding of mental health literacy, it is essential to uncover the construct's psychological processes (e.g. correlates). For example, mapping the concept against differences in personal characteristics (i.e. Big 5 personality variables) helps reveal predictors of mental health literacy. This investigation is essential because the five-factor personality model (Extraversion, Agreeableness, Neuroticism, Conscientiousness, Openness to new experiences) provides the most well used and empirically supported method of demonstrating the main ways in which individuals vary across a population (Costa & McCrae 1995; Widiger & Crego, 2019). Furthermore, all five personality traits have been found to predict many health-related behaviours (Friedman & Kern, 2014; Strickhouser et al., 2017).

For example, personality factors are associated with treatment-seeking behaviours (Goodmin et al., 2002; Kakhnovets, 2011; Jennings et al., 2017). More specifically, of the five personality traits, it could be argued that agreeableness (sympathetic, considerate), conscientiousness (efficient and orderly) and openness to new experiences (curious) may be related to mental health literacy factors because these personality factors are related to higher levels of adherence to health advice and behaviours (Eustace et al., 2018; Ko et al., 2020) and positive responses to stress (Lü et al., 2016).

Few studies have assessed the relationship between personality traits and mental health literacy. Swami et al. (2011) explored the general public's ability to recognise mental health disorders and whether this ability was related to psychiatric scepticism, knowledge of psychiatry, and the Big Five personality factors. A total of 477 participants of the British public were asked to complete an over-claiming scale, they were asked to rate the degree to which they believed 20 mental health disorders (five of which were foils to resemble real disorders) were real or fake. Participants were then asked to complete a scales measuring psychiatric scepticism, knowledge of psychiatry as well as completing the Big 5 personality scale. The results found that participants were more likely to rate foils as fake disorders than real. The difference in ratings between real and fake disorders was predicted by knowledge of psychiatry, psychiatric knowledge and the Big 5 personality traits (agreeableness and openness). The results found that agreeableness positively predicted better mental health literacy, whereas openness negatively predicted better mental health literacy. This relationship between agreeableness and mental health literacy can be explained by suggesting that agreeable individuals are more empathetic and concerned about others' wellbeing therefore leading to better mental health literacy. Swami et al. (2011) replicated their study and found that the relationship between openness and mental health literacy was the opposite; a positive relationship between the two was found. This is similar to the findings of Pauhls

and Bruce (1990), who also found a positive relationship between openness and mental health literacy. The positive relationship between openness and mental health literacy has been explained by the positive relationship between openness and greater cognitive ability (Chamorro-Premuzic, 2007). The research into the relationship between personality and mental health literacy had only found a weak to moderate relationship (Swami et al., 2011); therefore, further work is needed.

Based on the current literature regarding personality and mental health literacy, we identified some issues. The main issue is that a limited number of studies assess the influence of personality factors on university students' mental health literacy. Secondly, current research available to assess factors influencing mental health literacy have used unidimensional conceptualisations of mental health literacy and does not assess the influence of these factors on each mental health literacy factor separately. Therefore, the current study aimed to examine this relationship using the multidimensional Student Mental Health Literacy scale developed in Chapter Two. Using our knowledge from existing research, the present study aimed to investigate whether the main five personality factors can predict the six mental health literacy factors.

Method

Participants

Data were obtained from a sample of UK university students. The sample comprised 123 participants (110 females and 13 males) aged 18-35 years (Mean = 19.06, SD=2.12) who were undergraduate students enrolled on the School of Psychology experiment participation scheme. Students were given the opportunity to participate in experiments in return for course credit. Sixty reported as white ethnicity, 25 declared themselves Asian, 15 as Black, ten as mixed ethnicity, and 13 participants fell into an 'other' category.

Measures

This study used an online survey measure consisting of questions measuring mental health literacy and personality with a completion time of between 5-7 minutes. The survey was designed so that all respondents had to answer all questions. Below, we provide details on the items in each section.

Student Mental Health Literacy scale

Mental health literacy was measured by the Student Mental Health Literacy Scale developed in Chapter Two consisting of 35 items. The scale consists of 35 items divided into six key subscales reflecting the factors of mental health literacy:

1. Recognition of Disorders
2. Knowledge of where to seek mental health information
3. Knowledge of Risk factors and causes
4. Knowledge of Self-treatments
5. Knowledge of where to seek professional help
6. Attitudes that promote the recognition of appropriate help seeking.

The items on each subscale were rated on a 4-point Likert Scale. Items 1-7 measure recognition of disorders on a 4 point Likert scale (1= "Very Unlikely" to 4= "Very Likely"); items 8-12 measure knowledge of where to seek mental health information (1= "Strongly Disagree", 4= "Strongly Agree"); items 13-18 measure Knowledge of risks and causes (1= "Very Unlikely" to 4= "Very Likely"); items 19-24 measure Knowledge of self treatments ("1=Very Unhelpful", "4=Very Helpful"); items 25-28 measure Knowledge of Professional help available (1= "Strongly Disagree" to 4= "Strongly Agree"); items 30-35 measure attitudes that promote the recognition of appropriate help-seeking (1= "Strongly Disagree" to 4= "Strongly Agree"). For the multidimensional model each subscale is given an individual total score, higher scores indicate a higher level of mental health literacy on each subscale. The overall scale has good internal reliability with a Cronbach alpha of .90.

Personality

To assess the five-factor model of personality we used the Ten Item Personality Inventory (TIPI) which measures Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Openness to new experiences. This brief 10 item scale assesses the Big Five personality factors and shows adequate convergent and discriminant validity and test–retest reliability. Participants rated pairs of traits (e.g. ‘Extraverted, enthusiastic’) on a 7-point scale (1 = Disagree strongly, 7 = Agree strongly) to indicate the extent to which the items related to them. Items 2,4,6,8,10 were reverse-coded, and two items were averaged to arrive at scores for each of the Big Five personality traits. Internal consistency coefficients for each of the Big Five factors were as follows: extraversion, 0.56; emotional stability, 0.52; conscientiousness, 0.55; openness to experience, 0.60; and agreeableness, 0.59 (Gosling et al, 2003).

Statistical Analysis

There were no missing data for the responses. The survey software used to obtain the data was designed so that all respondents had to answer all questions. This was necessary to prevent individuals from simply gaining a course credit by skipping through the task. To examine the relationship between personality traits and the six factors of mental health literacy, we ran two sets of analyses. First, we conducted correlational analyses to test the statistical significance of the correlations between each factor of mental health literacy and personality factors. The analysis was performed by running a Pearson Product Moment Correlation. We assessed the size of the correlation using McGrath and Meyer's (2006) criteria. This criterion suggests that coefficients of $r \geq .37$ represent a large effect size, $.24 \leq r < .37$ a moderate effect size, and $.1 \leq r < .24$ a small effect size. According to Cohen (1992), associations are significant if moderate effect size (above .24).

Secondly, we conducted a two-step multiple regression analysis to explore which personality factors predicted mental health literacy. Age and gender were placed into Step 1. The Big 5 personality factors were entered at Step 2.

Results

Descriptives

Descriptive statistics were conducted for mental health literacy and personality traits. Across the six factors of mental health literacy, students had a good level of recognition, knowledge surrounding information, knowledge of risks, help-services and attitudes (means of the six factors are shown in Table 5.1).

Table 5.1: *Descriptive Statistics scores for mental health literacy factors and personality traits among the sample of university students (N=123)*

	Mean	Minimum	Maximum
Age	19.06	18.00	35.00
Mental Health Literacy Factors			
Recognition of disorders	21.42	7.00	28.00
Knowledge of how to seek mental health information	15.28	7.00	20.00
Knowledge of risks and causes	19.71	13.00	24.00
Knowledge of self-treatments	19.95	10.00	24.00
Knowledge of professional help available	11.82	6.00	16.00
Attitudes that promote the recognition of available help-seeking	23.87	9.00	28.00
Personality Factors			
Extraversion	3.98	1.00	7.00
Agreeableness	5.07	2.00	7.00
Conscientiousness	5.04	1.50	7.00
Emotional stability	4.20	1.00	7.00
Openness	5.01	2.00	7.00

Correlational Analysis

Prior to running the multiple regression analysis, a Pearson correlation analysis was performed. As shown in Table 5.2 the results found that age was significantly positively

related to the mental health literacy factor recognition of disorders. Gender was found to be significantly related to emotional stability. In terms of personality traits, the results indicated that agreeableness was significantly positively correlated with knowledge of self-treatments $r(123) = .230, p = .011$ and that knowledge of professional help available was related to emotional stability $r(123) = .211, p = .019$ and openness to new experiences $r(123) = .199, p = .027$. The correlations had small effect sizes therefore are not considered to significantly impact mental health literacy.

Multiple Regression Analysis

We then performed a series of multiple regression analyses to examine the value of personality traits on the mental health literacy factors by considering whether they affected mental health literacy levels. We assessed the factors that were found to be significantly related in the correlational analysis. Age and gender were entered at Step 1 and the five personality traits were entered at Step 2. Table 5.3 outlines the results.

Knowledge of self-treatments

To explore which personality factors accounted for the unique variance in knowledge of self-treatments age and gender were controlled for in Step 1. The variables in Step 1 were not statistically significant $F[2, 120] = .594, R = .099, R^2 = .01, \text{adj } R^2 = -.007, p = .554$. At Step 2 the inclusion of personality led to a significant change in $R^2 (R^2 = .132, p = .005)$. At this stage, agreeableness, conscientiousness and emotional stability accounted for the unique variance in knowledge of self-treatments.

Knowledge of professional help

To explore the individual differences factors that account for the unique variance in knowledge of professional help available, age and gender were controlled for in Step 1. The variables in Step 1 were not found to be significant $F[2, 120] = 1.50, R = .156, R^2 = .024, \text{adj } R^2$

=.008, $p=.227$). The inclusion of the five personality traits did not lead to a statistically significant change in R^2 ($R^2=.057$, $p=.054$).

Table 5.2: *Correlations between the Mental health literacy factors depression, anxiety and the Big Five personality traits.*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Age	-	-	-	-	-	-	-	-	-	-	-	-	-
2.Gender	-.06	-	-	-	-	-	-	-	-	-	-	-	-
3.Recognition of Disorders	-.23*	.03	-	-	-	-	-	-	-	-	-	-	-
4.Knowledge of Information	.09	-.10	.25**	-	-	-	-	-	-	-	-	-	-
5.Knowledge Risks and Causes	.15	-.09	.18*	.23*	-	-	-	-	-	-	-	-	-
6.Knowledge of Self-Treatments	.05	-.09	.26**	.59**	.39**	-	-	-	-	-	-	-	-
7.Knowledge of Professional Help	.15	.02	.09	.56**	.16	.44**	-	-	-	-	-	-	-
8.Attitudes that promote the recognition of appropriate help-seeking	.11	-.16	.28**	.48**	.39**	.62**	.34**	-	-	-	-	-	-
9. Extraversion	-.06	.01	.01	.16	.16	.16	.12	.09	-	-	-	-	-
10.Agreeableness	.03	.09	-.10	.17	.09	.23*	.16	.14	.13	-	-	-	-
11.Conscientiousness	-.02	-.01	-.08	.12	.02	.17	.16	-.16	.17	.23*	-	-	-
12.Emotional Stability	-.05	.22*	.06	.16	-.15	-.03	.21**	-.05	.46**	.30**	.42**	-	-
13. Openness	.07	.12	-.07	.13	.09	.11	.19**	.15	.31**	.08	-.05	.21*	-

Note. *p<.05; ** p<.01

Table 5.3: Regression Analysis with the mental health literacy factors as dependent variables and depression, anxiety and the Big Five personality traits as predictor variable

	B	β	t	p=	Lower CI (95%)	Upper CI (95%)	B	β	t	p=	Lower CI (95%)	Upper CI (95%)
	Knowledge of self-treatment						Knowledge of professional help					
Step 1												
Age	.05	.05	.49	.63	-.16	.27	.16	.16	1.72	.08	-.02	.35
Gender	-.69	-.09	-.94	.35	-2.16	.77	.18	.03	.28	.78	-1.11	1.47
Step 2												
Extraversion	.29	.19	1.82	.07	-.03	.62	-.02	-.01	-.14	.89	-.31	.27
Agreeableness	.49	.24	2.62	.01**	.12	.87	.17	.09	.97	.33	-.17	.51
Conscientiousness	.37	.20	2.05	.04*	.01	.72	.16	.09	.97	.33	-.16	.48
Emotional Stability	-.45	-.27	-2.44	.02*	-.81	-.08	.19	.13	1.13	.25	-.14	.52
Openness	.23	.10	1.10	.27	-.18	.64	.33	.17	1.77	.07	-.04	.69

Note. *p<.05; ** p<.01

Discussion

The current study aimed to investigate whether the five personality factors predicted mental health literacy factors in a sample of university students. To do this, we used the new multidimensional Student Mental Health Literacy Scale to assess the relationship between personality and each of the six factors of mental health literacy. This study found that overall there was no significant relationship between the five personality traits and mental health literacy factors.

In terms of the correlational analysis, the results indicated that agreeableness was positively correlated with knowledge of self-treatments. Emotional stability and openness to new experiences were positively related to knowledge of professional help available. The results from the multiple regression analysis further revealed that after controlling for age and gender: agreeableness, conscientiousness and emotional stability were related to knowledge of self-treatments. However, it is important to note that the magnitude of these relationships was small, as indicated by the small effect size, highlighting that these relationships were not significant enough to influence mental health literacy levels. Therefore, it can be argued that mental health literacy is largely free from the influence of personality factors. The results, however, are not consistent with previous research.

Previous research has indicated a significant relationship between conscientiousness and health literacy (Iwasa & Yoshida., 2020). Those with high levels of conscientiousness are more likely to have positive health-related behaviours (Bogg & Roberts., 2004). This is explained by the fact that those with high levels of conscientiousness are better at gathering health information and have the necessary skills to do so. In terms of emotional stability, our findings are not consistent. Again, previous research has found a significant relationship between emotional stability and health literacy. Research has shown that low emotional

stability can influence coping styles, thus influencing health outcomes (Carver and Connor-Smith, 2010). Previous research indicates that more emotionally unstable individuals tend to use more passive coping styles when dealing with stressful life events such as experiences of psychological symptoms; therefore, this predicts poorer outcomes (Carver and Connor-Smith, 2010; Lahey, 2009). Our findings did not find a significant relationship between emotional stability and mental health literacy.

The study findings have important implications. Firstly, this investigation was essential because the five-factor personality model (Extraversion, Agreeableness, Neuroticism, Conscientiousness, Openness to new experiences) demonstrates the main ways in which individuals vary across a population (Costa & McCrae 1995; Widiger & Crego, 2019). Furthermore, all five personality traits have been found to predict many health-related behaviours (Friedman & Kern, 2014; Strickhouser et al., 2017). By revealing that personality does not impact mental health literacy levels, this study has allowed us to rule out personality traits when measuring mental health literacy. This is important because researchers do not need to control personality when using the Student Mental Health Literacy Scale to measure university students' mental health literacy levels. The findings from this study are new within this field as personality has often been overlooked within the field of mental health literacy. This study, therefore, contributes to the progression in this research area. The study findings highlight that mental health literacy is largely free from the influence of personality traits; therefore, it does not need to be considered when measuring the concept.

Finally, understanding these relationships is essential, especially among university students due to the high prevalence of mental health disorders and the lack of knowledge surrounding mental health and help-seeking. To facilitate better mental health literacy in university students, we must understand the factors that impact mental health literacy levels. In this

case, we now know that personality is not a predictor of mental health literacy and cannot be considered to facilitate mental health literacy levels.

There are two main limitations to our study. Firstly, the findings from this study cannot be used to make causal conclusions regarding the relationship between personality traits and mental health literacy. There could be a possibility that another variable is explaining this relationship. It may be helpful for future studies to test this relationship using longitudinal methods to assess whether strategies that trigger certain personality traits lead to increased levels of mental health literacy. Secondly, it would have been useful for this study to have examined a wider range of individual differences. For example, an individual's socio-economic background is associated with mental health literacy levels because it reflects an individual's access to resources such as mental health information and easier access to services (von Dem Knesebeck et al., 2013) as well as ethnicity with white individuals having higher mental health literacy levels compared to Latinos, Asians, and others, possibly because mental health literacy is based on a westernized understanding of mental health (Kim et al., 2015). It would have been useful to assess further facets of individual differences because they all contribute to a person's personality.

Despite these limitations, the results from this study demonstrate that there is no significant relationship between personality traits and mental health literacy. This is the first study to explore the influence of personality traits on university students' levels of specific mental health literacy factors using a multidimensional measure. To facilitate better mental health literacy in university students, it remains important for researchers to explore the factors that influence mental health literacy levels. The findings from this study largely suggest that mental health literacy is free from the influence of personality factors. These findings point to important future directions in the area of personality, mental health literacy, and university students. The results help us understand the construct of mental health literacy

further and allow researchers to use the Student Mental Health Literacy scale freely to measure the concept knowing that it is free from the influence of personality. Future research may wish to replicate this study using more longitudinal methods and a larger sample size to assess these findings further.

Chapter Six

General Discussion

In this final chapter, the results from the studies presented in this thesis (Chapter two – five) are summarised to illustrate the overall theoretical and practical contributions to knowledge regarding mental health literacy in university students. Discussions specific to each study have already been presented within each study chapter. Therefore, instead, this chapter presents how this thesis fills existing gaps within the field of mental health literacy, how each of the study findings relates to each other and how they together contribute to the literature. The strengths and limitations of each study have been presented in each study chapter. This chapter, therefore, highlights the broader issues related to this research. Additionally, the implications of these studies are provided in terms of how this thesis has informed the measurement of mental health literacy in university students and how this can be applied to wider aspects of student mental health and help-seeking. Finally, where this study has fallen short in its scope and methodology, suggestions for future research have been highlighted. A concluding paragraph is also provided to summarise the unique contribution to knowledge.

Contributions to Knowledge

Study one: The Development and Testing of the Mental Health Literacy University Scale (Chapter Two)

Mental health literacy was defined as the "knowledge and beliefs about mental disorders which aid their recognition, management, or prevention" (Jorm et al., 1997, p.182).

Subsequent research had revealed that mental health literacy was multi-faceted (Jorm, 2012), comprised of six factors:

- Recognition of mental disorders,
- Knowledge of how to seek mental health information,
- Knowledge of mental health risk factors and causes,

- Knowledge of self-treatment,
- Knowledge of professional help available, and
- Attitudes that promote recognition of appropriate help-seeking (Jorm, 2012, 2015).

Within the literature, the concept had been well-applied; aiding the development of interventions surrounding help-seeking (Altweck et al., 2015; Amarasuriya et al., 2015; Mason et al., 2015), understanding attitudes towards interventions (Xu et al., 2018; Reavley et al., 2012), and specific mental health disorders (Bullivant et al., 2020; McIntosh & Paulson, 2019). However, in terms of the measurement, existing research had been based on very narrow definitions of the concept (O'Connor, Casey, & Clough, 2014) or had included additional components such as attitudes, stigma, positive mental health, and help-seeking efficacy related to help-seeking and mental illness (Bjørnsen et al., 2017; Kutcher et al., 2016; Kusan, 2013; Wei, 2017). Further to this, measures had considerably varied in the number of factors used within their measures (O'Connor et al., 2014) with discussions into whether mental health literacy should be measured unidimensional (Kutcher et al., 2016) or multidimensionally (O'Connor & Casey, 2015). The variation in the definitions and conceptualisation of mental health literacy had led to confusion regarding how and what to measure when assessing the concept and made it difficult to compare across studies (Spiker & Hammer, 2018). Furthermore, there had been calls for more domain-specific assessments of mental health literacy (Jorm, 2015).

After reviewing the literature, Study One was able to identify gaps within the field. Firstly, despite the underlying theory conceptualizing mental health literacy as multi-faceted (Jorm, 2012) and comprising six factors, no measure had operationalized the concept in line with all six factors. Secondly, there has been little attempt to develop more domain-specific mental health literacy measures specifically for university students. This was necessary due to the increased prevalence of mental health problems among the student population. The

available student-specific measures failed to operationalize mental health literacy using the underlying six factors (Dias et al., 2018; Chao et al., 2020) and varied in the number of factors included. Research had found that to prevent the negative impact of mental health on university life, it was important for students to have a good level of mental health literacy. However, the research highlighted that mental health literacy among university students was low (Furnham et al., 2011; Reavley et al., 2012; Wei et al., 2013). As a result, it became increasingly important to develop a mental health literacy scale that specifically assessed the construct using items relevant to students. Therefore, Study One aimed to create a student-specific mental health literacy measure that included all six factors outlined by the theory.

To do this, Study One was a two-fold study. Firstly, student-specific items were developed using internet and literature searches for the scale. This was a significant contribution because existing measures had often employed general item wording and content, which did not readily apply to student experiences (O'Connor & Casey, 2015). Study One suggests that university students are a high risk and vulnerable group. The university experience is associated with a number of unique stressors (moving away from home, financial, personal) that impact their mental health. Study One, therefore developed items that represented these unique experiences of university students. As stated earlier, no previous measure of mental health literacy had accounted for the unique stressors experienced by university students. Study One is therefore able to contribute to the future measurement of student mental health literacy as the items are new and unique to students' experiences and have not been used by any existing measure.

The second half of the study focused on exploring the number of factors that made up the scale structure. To do this, exploratory and confirmatory factor analyses were conducted to explore any underlying factor structure and use maximum likelihood extraction to drive the

analysis theoretically. This is a crucial contribution made by Study One because the item development and factor extraction techniques used by previous studies, such as principle factor analysis, had limited the likelihood of extracting the six factors. This method finds the least number of factors accounting for the common variance between items. Using the theory of mental health literacy to drive the analysis, through the use of maximum likelihood analysis, Study One identified and replicated the theoretically proposed six factors across two different samples of university students. As stated, no previous measurement had operationalized mental health literacy through all six factors.

Overall, Study One is the first study to have operationalized mental health literacy through all six factors defined by theory, and which is specific to university students. The Student Mental Health Literacy Scale is a valid and reliable self-report instrument for assessing mental health literacy in university students. The resulting tool includes a unique combination of items specific to university students and not currently used by existing mental health literacy measures. This development is a huge contribution to knowledge in terms of measuring and applying mental health literacy. Future research concerning university students' mental health literacy may benefit from using this measure to inform the design and development of targeted education strategies among university students.

Study Two: Does the multidimensional model of mental health literacy increase the specificity of the relationship between mental health literacy and help-seeking intentions (Chapter Three)

Previous research examining mental health literacy in UK university students had demonstrated that greater knowledge of mental health problems was significantly positively correlated with help-seeking intentions (Smith & Shochet, 2011; O'Connor & Casey, 2015; Gorczynski et al., 2017). However, studies found that university students lacked sufficient

mental health literacy skills to recognise mental health problems to seek and access professional help when necessary (Furnham et al., 2011; Hunt and Eisenberg, Reavley et al., 2012; Wei et al., 2013). Research into the barriers and facilitators of help-seeking found that poor mental health literacy levels were a significant barrier to help-seeking in young people (Gulliver et al., 2010). Therefore, researchers had argued that poor mental health literacy amongst young people was a significant barrier to professional help-seeking (Rickwood et al., 2007). Although the findings from prior research indicated a relationship between mental health literacy levels and help-seeking, it was not clear where this relationship lay in terms of the six factors.

This was because existing research assessing the relationship between mental health literacy and help-seeking had often used unidimensional single factor measures whereby participant's mental health literacy was measured as an overall total score, therefore not considering the six factors individually (O'Connor & Casey, 2015; Gorczynski et al., 2017; Gorczynski et al., 2020). However, as found in Study One, mental health literacy in university students is best operationalized as a multidimensional model comprised of six unique factors that can be measured separately instead of an overall total score. By using unidimensional mental health literacy measures, existing studies have not explored all factors of mental health literacy. Therefore, it remained unclear which factors of mental health literacy were key to help-seeking. As a result, Study Two aimed to explore this relationship further to see where this relationship lies. To do this, Study Two used the new Student Mental Health Literacy Scale to explore whether it would help to increase the specificity of this relationship by identifying which of the six mental health literacy could be related to help-seeking intentions. Study Two used correlational and multiple regression analysis to examine both a unidimensional model of mental health literacy (characterized by an overall total score) and a multidimensional model. This was to see which mental health literacy

factors were related to help-seeking intentions. The findings from the correlational analysis found evidence to support previous research that mental health literacy was positively associated with help-seeking.

Further to this, the findings revealed that out of the six factors, knowledge of self-treatments, knowledge of professional help, and attitudes that promote the recognition of appropriate help-seeking were positively correlated with help-seeking intentions. This is an important contribution to knowledge because this is the first attempt made by a study to explore the six theoretically proposed factors of mental health literacy with help-seeking intentions. This finding is beneficial because it could allow education strategies and policymakers to make more intentional choices about which variables to target when trying to improve mental health literacy in university students.

Following the correlations, the multiple regression analysis found that the unidimensional model of mental health literacy, characterized by an overall total score was a better predictor of help-seeking intentions than the six factors individually. This could suggest that all six factors together are key to predicting help-seeking intentions in university students. Study Two, therefore, argues that all aspects of mental health literacy must be considered when focusing on strategies aimed at increasing help-seeking intentions. This is in line with previous research which had highlighted that to improve help-seeking in students, mental health interventions and strategies must help to increase the mental health literacy of students. This is by helping to increase recognition of symptoms, knowledge relating to sources of help, self-help strategies, and improving students' attitudes towards mental health and help-seeking (Gulliver et al., 2010).

Overall, the study demonstrated increased mental health literacy overall increased help-seeking intentions. Low help-seeking and access to support are essential areas of student mental health research; therefore, it is crucial to explore factors that influence help-seeking in

university students. Although, most universities offer on-campus services such as well-being and counselling free of charge, most university students do not seek professional help despite experiencing psychological symptoms, such as depression, anxiety, and suicidal thoughts. The finding suggests that it would be useful for universities to develop strategies to increase mental health literacy and educate students about the benefits of seeking and accessing help services.

Study Three: Understanding the role of Mental Health Literacy in determining mental health outcomes. (Chapter Four)

Research had suggested that those with an adequate level of mental health literacy, were better able to recognise symptoms of mental health disorders from an early age (Essau et al., 2013), and were more likely to seek professional help (Burns & Rapee, 2006) and have better attitudes towards mental health (Yap et al., 2013; Reavely & Jorm, 2012) all of these being associated with more positive mental health outcomes. Despite having been well applied within psychology, there had been limited research in understanding the role of mental health literacy in determining mental health outcomes. This was especially the case with depression and anxiety, which are common mental health difficulties experienced by university students. The available research had suggested that inadequate mental health literacy levels were associated with higher depression symptoms (Lam, 2014; Singh et al., 2020). However, the few studies that had explored the role of mental health literacy on mental health outcomes, had used varying conceptualisations and measures of mental health literacy in terms of the number of mental health literacy factors explored. Therefore, previous research had not examined the role of all six theoretically proposed factors of mental health literacy. Thus, within the literature, the role of mental health literacy on mental health outcomes remained unclear due to the varying definitions and measures used. As a result, the primary aim of

Study Three was to use the new Student Mental Health Literacy Scale to explore the role of the six theoretically proposed factors of mental health literacy on depression and anxiety outcomes in university students. The study was conducted across two-time points.

In terms of depression, the study found mental health literacy levels were statistically significant with depression at Time 1. The results suggested that lower mental health literacy levels were associated with higher depression levels. The findings align with Lam (2014), who found that inadequate mental health literacy levels were associated with higher depression symptoms. Study Three went further than previous studies by identifying that “knowledge of professional help available” was the most statistically significant mental health literacy factor, directly affecting depression. Higher levels of knowledge of professional help available were associated with lower depression scores. Regarding anxiety, the mental health literacy factor “knowledge of risks and causes” was directly associated with higher anxiety levels. However, the results were not found at Time 2, suggesting that the relationship between the mental health literacy factors on depression and anxiety are localised to only one point.

The findings from Study Three are theoretically important and make an important contribution to knowledge. This is the first known study to have looked at the role of mental health literacy on mental health outcomes using a theoretically driven measure of mental health literacy. As suggested earlier, previous studies varied in the definitions and measures of mental health literacy used. Using the new multidimensional Student Mental Health Literacy Scale, Study Three explored the role of all six factors of mental health literacy and increased the specificity of the relationship between mental health literacy, depression and anxiety. For example, the findings from Time 1 allow for a direct impact on strategies designed for early detection of mental health outcomes. As highlighted by the results, having the knowledge of the professional help available is associated with lower depression levels.

The findings from Study Three are important and beneficial because they allow for the design of more targeted education strategies by allowing institutions and professionals to focus on increasing the aspects of mental health literacy that specifically improve mental health outcomes. Thus Study Three argues that enhancing students' knowledge of services available will allow for early detection of depression as students will be aware of where to turn to seek help.

Overall, Study Three aimed to investigate the role of mental health literacy on mental health outcomes, particularly depression and anxiety in university students. The results highlighted that mental health literacy is a key factor that could impact mental health outcomes in university students. The study increased the specificity of this finding by highlighting key factors that impact mental health outcomes in university students.

Study Four: Do personality factors influence mental health literacy levels in university students (Chapter Five)

Research has suggested that university students have low mental health literacy levels. In order to facilitate better mental health literacy in university students, it was important to highlight the factors that influenced students' mental health literacy levels. Previous research had shown that mental health literacy levels varied due to demographic factors such as gender and age. Females generally had higher mental health literacy levels than males (Wright et al., 2006; Burns & Rapee., 2006; Hadjimina & Furnham., 2017). When looking at age differences, mental health literacy levels had been well compared across age groups, with mental health literacy being higher in younger participants, compared to older with younger participants being able to correctly recognise a mental health disorder (Fisher & Goldney., 2003; Hadjimina & Furnham., 2017). With better mental health literacy, these demographic groups also had higher help-seeking behaviours (Pescosolido & Boyer, 2010). Research had

also considered the impact of personality factors on mental health literacy; however, research in this area was limited. The research available into the relationship between personality and mental health literacy had found only a weak to moderate relationship (Swami et al., 2011) and had suggested that more work in this area was needed.

Study Four argued that, to improve our understanding of mental health literacy, it is important to uncover the construct's psychological processes (e.g. correlates). For example, mapping the concept against differences in personal characteristics (i.e. Big 5 personality variables) is useful in revealing predictors of mental health literacy. Therefore, Study Four aimed to investigate whether the five personality factors predicted mental health literacy factors in a sample of university students. This investigation is essential because the five-factor personality model (Extraversion, Agreeableness, Neuroticism, Conscientiousness, Openness to new experiences) provides the most well used and empirically supported method of demonstrating the main ways in which individuals vary across a population (Costa & McCrae 1995; Widiger & Crego, 2019). Furthermore, all five personality traits had previously predicted many health-related behaviours (Friedman & Kern, 2014; Strickhouser et al., 2017). For example, personality factors were associated with treatment-seeking behaviours (Goodman et al., 2002; Kakhnovets, 2011; Jennings et al., 2017). Based on the relationships between personality and health-related behaviours, Study Four argued that there would be relationships between personality and mental health literacy.

Study Four used the new multidimensional Student Mental Health Literacy Scale to assess the impact of personality on each of the six factors of mental health literacy. This multidimensional measure was used to increase the specificity of the relationship. Correlational and multiple regression analyses were conducted to assess this. The findings revealed that the magnitude of the relationship between the five personality traits and mental

health literacy was small, as suggested by the small effect. The small effect size highlights that the relationship between personality and mental health literacy is non-significant.

The study findings have important implications. By revealing that personality does not impact mental health literacy levels, this study has allowed us to rule out personality traits when measuring mental health literacy. This is important because researchers do not need to control for personality traits when using the Student Mental Health Literacy Scale to measure mental health literacy among students. The findings from this study are new within this field as personality has often been overlooked within the field of mental health literacy. This study, therefore, contributes to the progression in this research area. The study findings highlight that mental health literacy is largely free from the influence of personality traits and therefore do not need to be considered when measuring the concept. Finally, understanding these relationships is important, especially among university students due to the high prevalence of mental health disorders and the lack of knowledge surrounding mental health and help-seeking. To facilitate better mental health literacy in university students, we must understand the factors that impact mental health literacy levels. In this case, we now know that personality is not a predictor of mental health literacy and cannot be considered to facilitate mental health literacy levels.

Overall, the results from Study Four demonstrate that there was no statistically significant relationship between personality traits and mental health literacy. This is the first study to explore the influence of personality traits on university students' mental health literacy levels, using a multidimensional measure. To facilitate better mental health literacy in university students, it remains important for researchers to explore the factors that influence mental health literacy levels. The findings from this study largely suggest that mental health literacy is free from the influence of personality factors. These findings point to important future directions in the area of personality, mental health literacy

and university students. The results help us understand the construct of mental health literacy further and allow researchers to use the Student Mental Health Literacy Scale freely to measure the concept knowing that it is free from the influence of personality. Future research may wish to replicate this study using more longitudinal methods and a larger sample size to further assess these findings.

General Limitations of the research

This thesis has provided important developments in the area of mental health literacy in university students regarding the measurement and the importance of the new measure within wider student mental health research. However, the findings should be considered in light of their limitations. Although we have identified the limitations of each study, here we will present the overall limitations of this thesis. One of the most important limitations of this study relates to convenience sampling, which impacts the generalizability of the findings. The participants recruited in these studies were mainly enrolled on undergraduate psychology courses. Research has shown that having a background in psychology is associated with mental health literacy (Furnham et al., 2011), as studying psychology could increase an individuals knowledge about mental health disorders. Enrolment in a psychology course is a strong predictor of mental health literacy (Naal et al., 2020). This can be considered the main limitation of this research. This is because receiving a direct education in psychology is most likely going to influence and increase levels of mental health literacy. It could be argued that psychology students have a better level of mental health literacy compared to students of other subject disciplines such as economics or physics. Thus, the findings may not generalise and be representative to all university students. Additionally, psychology students have some knowledge of research methods which could have led to demand characteristics whereby students could have used there own interpretation of the study aims and altered their answers

to fit this interpretation. Furthermore, the students in this sample participated in the studies in return for a course credit. It could be suggested that students only participated for the course credit therefore they may not have answered in an accurate or trustworthy manner. This could have influenced the reliability of the findings. Overall, the use of psychology students in this research could have influenced the generalizability of the research findings as the sample may not be representative to all university students.

Secondly, the majority of the university students were female, with very few males making up the sample. Previous research has often found that males have poorer mental health literacy than females (Burns & Rapee, 2006). In our studies, we could not reliably assess the influence of gender on mental health literacy, which is a key factor in the literature. However, gender was controlled for in all studies conducted. Future extensions of this study could look at broadening the research into female and male mental health literacy to allow for reliable comparisons to be made.

Thirdly, the sample was from one UK university. Mental health literacy is a western conceptualisation; therefore, the items developed in this thesis may not necessarily be congruent to the beliefs surrounding mental illness and help-seeking preferences of people from diverse cultural backgrounds (Jorm, 2012). Cross-cultural studies have revealed that, compared to non-western populations, western populations show a greater knowledge of mental health disorders and less stigma towards mental illness (Jorm, 2000; Angermeyer & Dietrich, 2006). Therefore, further research should explore the stability and dimensional nature of the factor structure among different cultural populations of university students.

Another limitation is that the study relied on self-report measures, which could raise concerns surrounding the validity of the findings. This method was used due to the ease of administration and its ability to collect large amounts of data from samples quickly and

efficiently and allow for the assessment of many variables. Despite this, there could have been some issues with this data collection method. For example, participants in this thesis may have been affected by factors such as self-deception and social desirability (e.g., answering questions in a way they feel is acceptable to society), affecting the findings reliability and validity.

Finally, the studies only assessed mental health literacy among undergraduate students. They did not account for mental health literacy levels among postgraduate students, nor did they specifically evaluate the impact of age. There are a variety of ages that attend university; therefore, it would be useful to assess mental health literacy levels across different age groups. Previous research has found that age influences mental health literacy levels. Although we controlled for age, we did not directly assess the age differences regarding mental health literacy levels.

Future Directions

The present research has represented the first known attempt to provide evidence for a six factor conceptualisation of mental health literacy, as defined by the underlying theory. As a result of these findings, future research in mental health literacy could benefit from expanding the results from this thesis. This could be achieved using both qualitative and quantitative research methods to develop a more comprehensive understanding of mental health literacy within wider psychological research.

The development and testing of the new Student Mental Health Literacy Scale in Study One has helped inform the theory and measurement of mental health literacy in university students. As highlighted throughout this thesis, no student-specific measure of mental health literacy was conceptualised using all six factors outlined by the theory. This thesis argues that future researchers should use this new Student Mental Health Literacy Scale, when assessing university students' mental health literacy levels.

Secondly, Study Two and Three looked at the relationships between mental health literacy, help-seeking intentions and mental health outcomes and found statistically significant relationships. Therefore, this thesis points to several future avenues, for studies relating to the application of the measurement and practices related to university students' mental health literacy and the development of mental health literacy promotion strategies. Research has suggested that mental health literacy interventions are related to mental health promotion, prevention and early intervention (Cairns & Rossetto, 2019). Future studies should develop and test student-specific mental health literacy education strategies to further explore these relationships. Using pre-post intervention methods will allow researchers to specifically assess whether increasing and improving mental health literacy levels helps improve help-seeking intentions and mental health outcomes.

Finally, the issue of cultural transferability is of particular importance for mental health literacy measures. The findings from this thesis were extracted from students from one UK university. It could be argued that this thesis used a western understanding and conceptualisation of mental health literacy within the studies. For example, the items developed for the Student Mental Health Literacy Scale were developed based on UK university student's unique experiences and beliefs. The items developed may not necessarily represent and transfer to the experiences and beliefs of university students from different cultural settings. Therefore, it is important that we develop models of mental health literacy that are inclusive and culturally sensitive, that can be used across various cultures and where common factors are acknowledged. Future research should employ similar methods used in this thesis to replicate and verify the current findings across different cultural settings to increase the current researchs generalizability. Additionally, more qualitative work should be conducted to understand better which mental health literacy factors are culturally transferable and require adaptation to improve the fit.

Conclusion

The central focus of this thesis has been to assess the conceptualisation of mental health literacy among university students. This is by developing a Student Mental Health Literacy Scale and testing the usefulness of this new scale within wider psychology, including help-seeking, mental health outcomes, and individual differences. To this end, four extensive studies were conducted using various designs.

Study One provided the most significant contribution to knowledge from this thesis, which was developing the Student Mental Health Literacy Scale. After identifying the gaps within the literature in terms of the conceptualisation and measurement of mental health literacy in university students, Study One aimed to develop a student-specific mental health literacy scale that supported the underlying theory of mental health literacy. The development of this new measure has important implications for practice, particularly in understanding mental health literacy and specific health outcomes. Having a multidimensional student-specific mental health literacy model is useful for health professionals to determine levels of mental health literacy across each factor and determine which factor of mental health literacy individuals require further attention. Using the Student Mental Health Literacy Scale allows for identifying specific mental health literacy levels. Furthermore, the scale can enable health professionals, educators, and policymakers to develop, design, and implement education strategies focused on increasing mental health literacy factors that require further attention. Alongside this, the findings presented in this thesis have implications for programs designed to improve help-seeking outcomes and depression and anxiety symptoms through education techniques.

The results from this thesis help inform educators on the factors of mental health literacy to focus on to improve health outcomes.

The research outlined within this thesis presents an important step in operationalizing and conceptualizing mental health literacy as it is defined by theory. The scale is specific to the experiences of university students and can contribute to the literature of mental health literacy by facilitating the progression of studies among the student populations. The results also have important implications for designing and evaluating education programs to promote mental health literacy and better mental health outcomes.

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Appendices

Appendix A

Ethical Approval and Consent Form



University Ethics Sub-Committee for Psychology

21/10/2019

Ethics Reference: 22273-rj202-ls:neuroscience,psychology&behaviour

TO:

Name of Researcher Applicant: Radhika Joshi

Department: Psychology

Research Project Title: How does the model of Mental Health Literacy map onto different domains of student mental health.

Dear Radhika Joshi,

RE: Ethics review of Research Study application

The University Ethics Sub-Committee for Psychology has reviewed and discussed the above application.

1. Ethical opinion

The Sub-Committee grants ethical approval to the above research project on the basis described in the application form and supporting documentation, subject to the conditions specified below.

2. Summary of ethics review discussion

The Committee noted the following issues:

Queries addressed in notes and text.

3. General conditions of the ethical approval

The ethics approval is subject to the following general conditions being met prior to the start of the project:

As the Principal Investigator, you are expected to deliver the research project in accordance with the University's policies and procedures, which includes the University's Research Code of Conduct and the University's Research Ethics Policy.

If relevant, management permission or approval (gate keeper role) must be obtained from host organisation prior to the start of the study at the site concerned.

4. Reporting requirements after ethical approval

You are expected to notify the Sub-Committee about:

- Significant amendments to the project
- Serious breaches of the protocol
- Annual progress reports
- Notifying the end of the study

5. Use of application information

Details from your ethics application will be stored on the University Ethics Online System. With your permission, the Sub-Committee may wish to use parts of the application in an anonymised format for training or sharing best practice. Please let me know if you do not want the application details to be used in this manner.

Best wishes for the success of this research project.

Yours sincerely,

Prof. Panos Vostanis

Chair

Participant Consent Form

BACKGROUND INFORMATION

Title: How does Mental Health Literacy map onto different domains of student mental health.

Researchers: Radhika Joshi

Supervisor: John Maltby

Purpose of data collection: Postgraduate research

1. Proposed aim

Research has shown that mental health literacy (MHL) has a positive influence on students help seeking. The current study aims to use a new measure of MHL developed and tested for university students to assess how the model of MHL and factors that make up the construct map onto different issues surrounding student mental health such as help seeking, mental health levels and personality. The study will assess this using a range of methods such as correlational studies as well as longitudinal studies. Students will be taking part in a two-part study where students will participate in the questionnaire at the beginning of the first semester and will then be assessed again at the beginning of second semester therefore data will be collected twice from the same sample within 6 months of each other.

2. Detailed methodology

Through the study you will be asked a series of questions that have been taken from standardized measures. There are a number of domains that you will be assessed on.

- a) Questions on your knowledge of mental health (MHL)
- b) Questions surrounding your mental health
- c) Questions on your help seeking behaviours
- d) Questions regarding your personality

3. A key consideration you will need to make before starting the study.

The study will ask questions about your current mental health in terms of how you have been feeling. This may be upsetting or uncomfortable for some participants, as a result, if you think you might be likely to feel any discomfort or stress as a result of being asked about your mental health then please do not take part in the study.

However, if you do choose to take part and as a result of the questionnaire you feel you need to speak to someone then there are a variety of support services available across the university.

- a) You can approach your personal tutor or course leader, however if they are not available then you can approach any member of the course teaching about these issues.
- b) Within the Students Union there is a welfare team who are available (welfare@le.ac.uk) with a welfare Officer available 'on call' 24 hours a day, 365 days a year, in case of emergencies, who is contactable through University Security (0116 252 2023 or 0116 252 2888). They now also have a dedicated, confidential text line where you can send a message at any time of the day or night (Just text ZERO and your message to 64446).
- c) You can also contact the University of Leicester Student Counselling provision on: counselling@le.ac.uk or on 0116 223 1780.

By taking part in this study we would expect that you would be honest with your responses and indicate your true beliefs rather than answering the questions in the way you believe they should be answered or what you think the correct answer should be. This is very

important so that a true reflection of mental health literacy is obtained from undergraduate students.

4. Confidentiality

The questionnaire is completely confidential and all participants will remain anonymous. Individuals will not be identifiable by their responses. Participation and answers will be confidential to the lead researcher for the purpose of rewarding EPR credits (University of Leicester students). The responses will not be used to make individual assessments instead they will be used to assess relationships between variables across the whole group. It is important to note that even if you do decide to take part in the study you will have the right to withdraw, you should not feel compelled to continue with the study. Should you decide to complete the questionnaire you still have the right to withdraw your data at a later date. As consent forms are kept separate from individual data we ask you to generate your own Personal Identification Number which can be whatever you wish it to so that we can identify your data. Within the questionnaire there is space for you to write your identification number. Should you wish to remove your data from the data set you should quote your identification number and we will remove your data from the data set.

CONSENT STATEMENT

1. I understand that my participation is completely voluntary and that I have the right to withdraw from the study at any time up until 6 months after the completion of the project without giving any reason.
2. I understand that if I decide to stop the questionnaire during its completion then I should close my computer browser or use the withdrawal system that is available within the questionnaire window when completing the survey.
3. I understand that if I wish to withdraw my data after completing the questionnaire then I should contact the lead researcher **Radhika Joshi on rj202@le.ac.uk** stating my Personal Identification Number.
4. I understand that my data will be held confidentially by the named researchers.
5. I understand that I will provide my consent by ticking the consent box below.
6. I understand that my data, will be in electronic form and will then be downloaded from the electronic survey system when data collection has been completed. The data will then become coded. From this point I understand that the only way my data will be identifiable will from my Personal Identification Number that I created during the questionnaire so that I can withdraw at later stage.
7. I understand that due to the requirements of Journals and the University of Leicester policy on open access the anonymised coded dataset which will accompany publications may be shared online via a public data forum such as the “Leicester Research Archive” and the “University of Leicester Figshare”.
8. Due to the requirements of some scientific journals and organisations, I understand that my coded data may be shared with other researchers. I understand that my coded data may be used in other studies related to the topic. My name, Personal Identification number and any other identifying details of participating in the study will not be shared with anyone
9. I understand that the overall findings from this study may be submitted for publication in a scientific journal, or presented at scientific conferences.
10. This study will take up to 3 years to complete

11. I will be able to obtain general information about the results of this research by emailing the researcher on the email provided.

I am giving my consent for my data to be used for the purposes of the present study outlined

All questions that I have about the research have been satisfactorily answered.

I agree to participate.

If you would like to receive a summary of the results by e-mail after the study has been completed then please provide your email address to rj202@le.ac.uk (Please note this information is kept separately and securely from your responses to the questionnaire).

If you have further questions about this study, you may Radhika Joshi on rj202@le.ac.uk. This study was reviewed by the University of Leicester Psychology Research Ethics Committee (PREC). You may contact the Chair of PREC Professor Panos Vostanis at pv11@le.ac.uk if you have any questions or concerns regarding the ethics of this project

Appendix B

Scales used in this thesis

Student Mental Health Literacy Scale

To what extent do you think that a student experiencing....					
		1	2	3	4
		Very Unlikely	Unlikely	Likely	Very Likely
1	intense feelings of worry or fear regarding life situations and is having difficulty sleeping or concentrating, has a Generalized Anxiety Disorder?				
2	excessive fear of feeling embarrassed within social situations alongside panic or is refusing to get involved in group activities has Social Anxiety?				
3	feelings of sadness, being overwhelmed, a lack of appetite, and is showing signs of self harm has Major Depressive Disorder?				
4	unusual mood shifts ranging from the lows of depression e.g. reduced drive and motivation to the highs of mania e.g. increased energy has Bipolar Disorder?				
5	an extreme fear of gaining weight, restrictive eating habits or binge eating alongside self-induced vomiting has an Eating Disorder				
6	an increased tolerance to substances e.g. needs more of a drug to get the same effects, blackouts and withdrawal symptoms has a Drug dependence.				
7	heavy alcohol use causing loss of control over behaviour, withdrawal symptoms , and a negative influence on day to day life has an Alcohol Disorder.				
To what extent do you agree with the statements below?.....					
		Strongly Disagree	Disagree	Agree	Strongly Agree
8	I am confident that I can seek information about the signs, symptoms and risk factors associated with mental health.				
9	I am confident that I can discuss and get advice on mental health from student counselling				

10	I am confident about using the internet to find information on how to seek help.				
11	I am confident I know where I could go to speak to someone (Personal Tutor , supervisor, counsellor) to ask for help or information about mental health				
12	I am confident that I could use helplines to ask for help or seek information about mental health.				
To what extent do you think the statements below are likely to be risk factors to a student's mental health?					
		Very Unlikely	Unlikely	Likely	Very Likely
13	The transition to university e.g. moving away from home for the first time.				
14	Difficulty making friends and feeling a sense of belonging				
15	Finances e.g. debts/student finance at university				
16	Academic demands at university e.g. working independently, deadlines and exams				
17	Lifestyle changes e.g. living with new people.				
18	Personal factors e.g. forming new relationships, experiencing personal relationships and breaking up of those relationships				
To what extent do you think it would be helpful for a student experiencing difficulties with their mental health at university					
		Very Unhelpful	Unhelpful	Helpful	Very Helpful
19	to try a more healthy lifestyle e.g. increasing sleep, eating healthy and engaging in physical activities.				
20	to engage in relaxation techniques e.g. breathing exercises.				
21	to talk to someone they trust e.g. a family member or friend.				
22	to engage in leisure activities and spend time socialising.				
23	to set themselves small goals.				
24	to take part in workshops to learn practical ways to cope with mental health stress at university.				
To what extent do you agree with the statements below? I am aware.....					
		Strongly Disagree	Disagree	Agree	Strongly Agree
25	of the services available within the university to turn to if I have concerns about my mental health.				

26	of the services available outside of the university to turn to if I have concerns about my mental health.				
27	that there are professionals and services that I can approach to talk to if I have concerns with my mental health				
28	that the University counselling service can refer me to specialist mental health services if I have concerns with my mental health.				
To what extent do you agree with the statements below? It is important...					
		Strongly Disagree	Disagree	Agree	Strongly Agree
29	for students to recognise the risk factors to mental health to enable them to deal with mental health issues effectively and appropriately.				
30	for Universities to introduce education programs to highlight the benefits of treatment and to aid recognition and help seeking in students.				
31	that Universities clearly advertise mental health services available to students to make them aware of where to go to seek help				
32	to start conversations regarding mental health across university campuses to decrease the stigma surrounding mental health.				
33	to teach students the skills to allow them to understand their thoughts and feelings so they can then share these feelings with others.				
34	to tailor mental health support to specific populations of people (Black Asian Minority Ethnic and Lesbian, Gay, Bisexual, Transgender, Transsexual, Queer, Questioning, Intersex, Asexual, Ally, Pansexual communities)				
35	for there to be better communication between different departments e.g. between mental health services on campus, disability services and the National Health Service.				

General Help-Seeking Questionnaire

Instructions: 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 circling the number that best describes your intention to seek help from each help source that is listed.

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

1 = Extremely Unlikely 3 = Unlikely 5 = Likely 7 = Extremely Likely

The Beliefs towards Mental Illness Scale

Items

Factor 1: Dangerousness

1. A mentally ill person is more likely to harm others than a normal person.
2. Mental disorder would require a much longer period of time to be cured than would other general diseases.
3. It may be a good idea to stay away from people who have psychological disorder because their behavior is dangerous.
6. Mentally-ill people are more likely to be criminals.
13. I am afraid of people who are suffering from psychological disorder because they may harm me.

Factor 2: Poor interpersonal and social skills.

4. The term "Psychological disorder" makes me feel embarrassed.
5. A person with psychological disorder should have a job with minor responsibilities.
8. I am afraid of what my boss, friends, and others would think if I were diagnosed as having a psychological disorder.
11. It might be difficult for mentally-ill people to follow social rules such as being punctual or keeping promises.
12. I would be embarrassed if people knew that I dated a person who once received psychological treatment.
14. A person with psychological disorder is less likely to function well as a parent.
15. I would be embarrassed if a person in my family became mentally ill.
19. Mentally-ill people are unlikely to be able to live by themselves because they are unable to assume responsibilities.
20. Most people would not knowingly be friends with a mentally-ill person.
24. I would not trust the work of a mentally-ill person assigned to my work team.

Factor 3: Incurability

7. Psychological disorder is recurrent.
 9. Individuals diagnosed as mentally ill will suffer from its symptoms throughout their life.
 10. People who have once received psychological treatment are likely to need further treatment in the future.
 18. I do not believe that psychological disorder is ever completely cured.
 21. The behavior of people who have psychological disorders is unpredictable.
 22. Psychological disorder is unlikely to be cured regardless of treatment.
-

The Self stigma of seeking help scale

1. I would feel inadequate if I went to a therapist for psychological help.
2. My self-confidence would NOT be threatened if I sought professional help.
3. Seeking psychological help would make me feel less intelligent.
4. My self-esteem would increase if I talked to a therapist.
5. My view of myself would not change just because I made the choice to see a therapist.
6. It would make me feel inferior to ask a therapist for help.
7. I would feel okay about myself if I made the choice to seek professional help.
8. If I went to a therapist, I would be less satisfied with myself.
9. My self-confidence would remain the same if I sought help for a problem I could not solve.
10. I would feel worse about myself if I could not solve my own problems.

Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week.
Don't take too long over you replies: your immediate is best.

D	A		D	A	
		I feel tense or 'wound up':			I feel as if I am slowed down:
	3	Most of the time		3	Nearly all the time
	2	A lot of the time		2	Very often
	1	From time to time, occasionally		1	Sometimes
	0	Not at all		0	Not at all
		I still enjoy the things I used to enjoy:			I get a sort of frightened feeling like 'butterflies' in the stomach:
0		Definitely as much		0	Not at all
1		Not quite so much		1	Occasionally
2		Only a little		2	Quite Often
3		Hardly at all		3	Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			I have lost interest in my appearance:
	3	Very definitely and quite badly		3	Definitely
	2	Yes, but not too badly		2	I don't take as much care as I should
	1	A little, but it doesn't worry me		1	I may not take quite as much care
	0	Not at all		0	I take just as much care as ever
		I can laugh and see the funny side of things:			I feel restless as I have to be on the move:
0		As much as I always could		3	Very much indeed
1		Not quite so much now		2	Quite a lot
2		Definitely not so much now		1	Not very much
3		Not at all		0	Not at all
		Worrying thoughts go through my mind:			I look forward with enjoyment to things:
	3	A great deal of the time		0	As much as I ever did
	2	A lot of the time		1	Rather less than I used to
	1	From time to time, but not too often		2	Definitely less than I used to
	0	Only occasionally		3	Hardly at all
		I feel cheerful:			I get sudden feelings of panic:
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit at ease and feel relaxed:			I can enjoy a good book or radio or TV program:
	0	Definitely		0	Often
	1	Usually		1	Sometimes
	2	Not Often		2	Not often
	3	Not at all		3	Very seldom

Please check you have answered all the questions

Scoring:

Total score: Depression (D) _____ Anxiety (A) _____

0-7 = Normal

8-10 = Borderline abnormal (borderline case)

11-21 = Abnormal (case)

Personality Scale

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

Disagree strongly	Disagree moderately	Disagree a little	Neither agree nor disagree	Agree a little	Agree moderately	Agree strongly
1	2	3	4	5	6	7

I see myself as:

1. — Extraverted, enthusiastic.
2. — Critical, quarrelsome.
3. — Dependable, self-disciplined.
4. — Anxious, easily upset.
5. — Open to new experiences, complex.
6. — Reserved, quiet.
7. — Sympathetic, warm.
8. — Disorganized, careless.
9. — Calm, emotionally stable.
10. — Conventional, uncreative.