University Students’ Mental Health Help-Seeking: Intention and Service Use

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Abstract

Compared with other young adults, university students exhibit more mental health problems, and consequent service needs. However, like other young adults, they are reluctant to use available targeted services such as student counselling. There is evidence to suggest that delayed treatment can not only impact academic performance but also students’ social and cognitive outcomes later in life. As a precursor to interventions aimed at increasing university students’ use of mental health services and improving their mental health, research is needed to elucidate the influential factors in the help-seeking process. The two most widely used theories in this area, respectively predicting intention to use services and actual service use, are the Theory of Planned Behavior and the Behavioral Model of Health Services Use.

The Theory of Planned Behavior asserts that intention is an immediate determinant of behaviour. As such, researchers have endeavoured to investigate the factors associated with help-seeking intentions in order to enrich understanding of university students’ use of mental health services. However, published findings have been inconsistent.

To consolidate the literature on help-seeking intentions, a meta-analytic review (Study 1) investigated the psychosocial correlates of university students’ intentions to seek professional mental health care. Eighteen eligible studies with 6,839 participants were identified through a comprehensive search of nine electronic databases. The results indicated that attitudes toward seeking professional help and anticipated benefits had the strongest relationships with students’ help-seeking intentions, whereas Asian cultural values, public stigma, and anticipated risks demonstrated small correlations with intentions. No significant relationships were observed between help-seeking intentions and social support, self-disclosure, self-concealment or psychological distress.
However, because the relationship between intention and actual behaviour is not clear-cut, predictors of students’ intentions to seek mental health care may not have impact on their actual use of mental health services. Accordingly, some researchers have employed the Behavioral Model of Health Services Use – a key theoretical framework for explaining and understanding individuals’ healthcare use – to examine direct predictors of young adults’ or university students’ actual service use. Conflicting findings have again emerged. In Study 2, a systematic review with effect sizes, the associations between different biopsychosocial variables (e.g., gender, social support and psychological distress) and young adults’ use of mental health services were formally combined and evaluated. Although the initial focus of this systematic review (as for the overall project) was on university students, preliminary searches revealed few published correlational studies of university students’ service usage. The sampling criteria were therefore widened to specify young adults (a category to which most university students belong). Eighteen eligible studies, resulting in a total of 96,297 participants, were identified through systematic searches of nine electronic databases. The findings, in combination, identified that prior service use, gender, ethnic background, and sexual orientation, together with evaluated and perceived need for professional help, were significant predisposing and need variables associated with young adults’ actual service use.

The results of Studies 1 and 2 were largely based on help-seeking research that had been conducted in the United States, highlighting a need to explore help-seeking intentions and the use of mental health services among domestic university students from different countries and cultural backgrounds. Moreover, integrated models were needed to examine and explain the interactions between identified predictor variables, help-seeking intentions, and actual service usage. These research needs were addressed in Studies 3 and 4, which utilised structural equation modelling and logistic regression analyses to assess the impact of
different biopsychosocial variables on mainland Chinese and Australian domestic university students’ help-seeking intentions and their use of mental health services.

For Study 3, a sample of 1,128 mainland Chinese university students (mean age = 20 years; $SD = 1.48$) was recruited: 630 males and 498 females completed an online survey comprising standardised psychometric measures in Mandarin. The proposed model of help-seeking intentions, which integrated the Theory of Planned Behavior and the Behavioral Model of Health Services Use, exhibited a good fit to the study data. Attitudes, subjective norms, and perceived behavioural control significantly mediated the relationships between gender, Asian cultural values, social support, evaluated need, anticipated benefits, anticipated risks, public stigma, self-stigma and help-seeking intentions. Actual service usage in the preceding 12 months was significantly predicted by help-seeking intentions, perceived behavioural control, frequency of exposure to mental health service related information, self-rated mental health status, and perceived need for help.

In Study 4, a similar online survey was completed in English by 611 Australian domestic university students (209 males and 402 females; mean age = 21 years, $SD = 5.6$). This study built on Study 3, by developing and testing four help-seeking models, and found that the model proposed and tested in Study 3 also resulted in the best fit for the Australian data. Attitudes and subjective norms significantly mediated the effects of knowledge of mental health and services, Asian cultural values, evaluated and perceived need, anticipated benefits, public stigma, and self-stigma on Australian students’ help-seeking intentions. Significant predictors of service use included help-seeking intentions, perceived behavioural control, gender, study major, knowledge of mental health, Asian cultural values, social support, income, self-rated mental health status, and perceived need.
In combination, these four empirical studies have addressed key gaps in the research literature regarding university students’ mental health help-seeking. Moreover, Studies 3 and 4 make an important contribution to current knowledge concerning formal help-seeking behaviour and intentions by mainland Chinese and Australian domestic university students. There are a number of implications for theory and future research directions in addition to practice by education providers, mental health professionals and policy makers. From a theoretical perspective, the project provides empirical support for the applicability of both the Theory of Planned Behavior and the Behavioral Model of Health Services Use to understanding university students’ mental health help-seeking. From a practical standpoint, the findings suggest that to stimulate mental health service use, education providers and mental health professionals should consider psycho-educational and marketing campaigns, to enhance understanding of mental health disorders and services among university students, their families and friends, in addition to reducing stigma concerns and normalising service use within this vulnerable population. Future longitudinal research will be helpful to extend the current findings by examining causal relationships between the identified biopsychosocial variables, university students’ help-seeking intentions, and their actual use of mental health services.
**Declaration**

I, Wenjing Li, certify that this thesis contains no material which has been accepted for the award of any other degree or diploma in any university or any other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

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List of Publications

Publications are listed in order of appearance in this dissertation


Statements of the Contributions on Jointly Authored Papers

Chapter 2

Title: Psychosocial correlates of college students’ help-seeking intention: A meta-analysis

Co-Authors: D.S., Dorstyn, L.A., Denson

Contributions: I was solely responsible for the study inception, study design, methodology (which included literature searches, data extraction, statistical analyses, data interpretation), and manuscript preparation. Both co-authors acted in a supervisory capacity during all stages of this research and manuscript preparation.

Chapter 3

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Co-Authors: D.S., Dorstyn, L.A., Denson

Contributions: I was solely responsible for the study inception, study design, methodology (which included literature searches, data extraction, statistical analyses, data interpretation), and manuscript preparation. Both co-authors acted in a supervisory capacity during all stages of this research and manuscript preparation.

Chapter 4

Title: Help-seeking intentions and behavior among Mainland Chinese college students: Integrating the theory of planned behavior and the behavioral model of health services use

Co-Authors: L.A., Denson, D.S. Dorstyn
Contributions: I was solely responsible for the study inception, study design, participant recruitment, data entry, statistical analyses, data interpretation, and manuscript preparation. Both co-authors acted in a supervisory capacity during all stages of this research and manuscript preparation.

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Title: Australian university students’ mental health help-seeking: Testing empirical models based on the theory of planned behavior

Co-Authors: L.A., Denson, D.S. Dorstyn

Contributions: I was solely responsible for the study inception, study design, participant recruitment, data entry, statistical analyses, data interpretation, and manuscript preparation. Both co-authors acted in a supervisory capacity during all stages of this research and manuscript preparation.

The undersigned agree that the statements made regarding author contributions are accurate and true:

L.A. Denson: Date:

D.S. Dorstyn: Date:
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Chapter 1: Introduction

1.1 Mental Health Status of Young Adults and University Students

Research suggests that chronic mental health issues, such as major depression and anxiety disorders, are prevalent among young adults (aged 18-24 years; Australian Bureau of Statistics, 2007; Kessler et al., 2007; Kessler et al., 2005; Royal College of Psychiatrists, 2011). In Australia, more than 26% of young people have met criteria for at least one mental disorder in the past 12 months: approximately 15% experiencing anxiety disorders, 13% with substance use disorders, and 6% reporting affective disorders (Australian Bureau of Statistics, 2008). It is important to note that the majority of university students are within this age range, and, when compared with age-matched non-students, they report more severe mental health problems and lower quality of life (Australian Bureau of Statistics, 2012; Blanco et al., 2008; Royal College of Psychiatrists, 2011; Slutske et al., 2004; Vaez, de Leon, & Laflamme, 2006; Wu, Pilowsky, Schlenger, & Hasin, 2007). For example, in the United States, the prevalence of alcohol use disorders has been reported as higher among university students than non-students (Blanco et al., 2008; Johnston, O'Malley, Bachman, & Schulenberg, 2007; Substance Abuse and Mental Health Services Administration, 2007). Consistently, Australian research has identified that university students have greater levels of psychological distress than their age-matched peers, with nearly 84% of students demonstrating elevated distress levels (Cvetkovski, Reavley, & Jorm, 2012; Leahy et al., 2010; Stallman, 2010). Chinese domestic university students are reported to be more anxious than their American and European counterparts, and to experience higher level of stress than students in Korea and Japan (Chan, 1996; Kim, Won, Liu, Liu, & Kitanishi, 1997; Lin, Endler, & Kocovski, 2001; Xie & Leong, 2008).

The poor mental health of university students may reflect a variety of stressors related to the nature of tertiary education, including changes in social networks, increased academic
demands (e.g., high requirements for time management), financial strain, and worry about future careers (Cvetkovski et al., 2012; Hall, 2010; Hicks & Heastie, 2008; Li et al., 2008; Verger et al., 2009). These stressors may not only make students vulnerable to mental health issues, but also exacerbate pre-existing symptoms (Hunt & Eisenberg, 2010; Royal College of Psychiatrists, 2011; Stallman, 2008). Untreated mental health issues can, in turn, adversely affect students’ academic achievement, physical health, and later social and cognitive outcomes (Adams, Wharton, Quilter, & Hirsch, 2008; Bayram & Bilgel, 2008; Hysenbegasi, Hass, & Rowland, 2005; Kessler, Foster, Saunders, & Stang, 1995; Royal College of Psychiatrists, 2011). Because the proportion of young adults engaging in tertiary education has increased, such that more than half of all young adults now attend universities worldwide, there are substantial potential benefits from effectively detecting and treating mental health issues among university students (Aud et al., 2013; Australian Bureau of Statistics, 2010, 2013; Ministry of Education of the People’s Republic of China, 2015).

1.2 University Students’ Under-Utilisation of Mental Health Services

To help address students’ increasing mental health needs, most universities worldwide have established free on-campus counselling services (Eisenberg, Golberstein, & Gollust, 2007; Ministry of Education of the People’s Republic of China, 2001; Raunic & Xenos, 2008; Royal College of Psychiatrists, 2011). However, students are reluctant to seek professional mental health care (Chang, 2007; Eisenberg et al., 2007; O’Keeffe, 2013; Raunic & Xenos, 2008; Thomas, Caputi, & Wilson, 2014; Zivin, Eisenberg, Gollust, & Golberstein, 2009). North American research has revealed that more than half of tertiary students either diagnosed with, or reporting, depression or anxiety symptoms have not accessed professional support (American College Health Association, 2008; Eisenberg et al., 2007). Students with alcohol or drug use disorders are also less likely to seek treatment than non-students (Blanco et al., 2008; Wu et al., 2007). Cranford, Eisenberg, and Serras (2009) reported that although
nearly 70% of university students perceived a need for professional help with their binge drinking and co-occurring mental health symptoms, only 38% attended mental health services. Similarly, an Australian study found that only 34% of students who experienced elevated levels of psychological distress had accessed mental health services (Stallman, 2010).

Accordingly, before planning interventions to improve students’ mental health and increase their use of mental health services, it is important to objectively explore both facilitators and barriers of their professional help-seeking behaviour. Moreover, researchers have acknowledged that university students are a distinct group of young adults, and that there is a specific need to explore their help-seeking patterns as separate from young adults (Blanco et al., 2008; Broman, 2012; Royal College of Psychiatrists, 2011).

1.3 Definition of Help-Seeking

Help-seeking generally refers to the behaviour of seeking help from a third party. The type of help sought can be informal, through existing social relationships (e.g., family and friends), or formal, whereby assistance is requested from professional sources such as health professionals, counsellors or teachers (Barker, 2007; Rickwood, Deane, Wilson, & Ciarrochi, 2005; Rickwood & Thomas, 2012). In terms of mental health, it is generally agreed that formal help-seeking involves actively seeking support from professional psychological services (e.g., university counselling services) or seeking assistance, in the form of treatment, intervention, and/or advice from a trained mental health professional (e.g., counsellors; Barker, 2007; Cornally & McCarthy, 2011; Rickwood & Braithwaite, 1994; Rickwood et al., 2005; Rickwood & Thomas, 2012). Across cultures, university students are consistently more likely to seek informal than formal help, even though the benefits of seeking informal support are unclear and an untrained person may not always respond appropriately to psychological
issues (Barker, 2007; Boey, 1999; Quinn, Wilson, MacIntyre, & Tinklin, 2009; Rickwood et al., 2005; Vogel, Wade, & Hackler, 2008b).

1.4 The Need to Examine Chinese and Australian University Students’ Formal Help-Seeking

This research project explored Chinese and Australian domestic university students’ formal help-seeking intentions and behaviour. There were three reasons for selecting these two specific populations of tertiary students outside North America. Firstly, despite high mental health needs and available services, both Chinese and Australian students are reluctant to seek professional psychological help (Boey, 1999; Chang, 2007; Lin, 2002; Stallman, 2008, 2010; Thomas et al., 2014; Wilson & Deane, 2010); hence, it is potentially valuable to explore this reluctance.

Secondly, mental health help-seeking is under-researched in mainland China. Although predictors of mental health service use have been evaluated in Hong Kong, Macao, and Taiwan (e.g., Chang, 2008; Chin, Chan, Lam, Lam, & Wan, 2015; Mak & Davis, 2014), the findings may not necessarily generalise to people from mainland China due to cultural and political differences (Boey, 1999; Chen et al., 2014; Goh et al., 2007; Li, Du, Chen, Song, & Zheng, 2013; Wong & Li, 2014). Likewise, existing Australian research into young adults’ use of mental health services cannot simply be assumed to generalise to Australian university students (e.g., Rickwood, Deane, & Wilson, 2007; Rickwood et al., 2005; Rickwood, Mazzer, & Telford, 2015; Wilson, 2010; Yap, Reavley, & Jorm, 2013), because as already described, university students are a discrete group with their own psychological issues (Blanco et al., 2008; Broman, 2012; Royal College of Psychiatrists, 2011).

Accordingly, it was meaningful to examine determinants of mental health help-seeking among mainland Chinese and Australian university students.
Thirdly, mainland Chinese and Australian domestic university students have very different cultural contexts: China is a representative of collectivist cultures, whereas Australia has strongly individualistic values (Rothwell, 2010; Triandis, 1995). Individuals of collectivist societies tend to give priority to group goals and their behaviour is regulated by social norms (Triandis, 1995, 1996). Conversely, people from individualistic countries usually value personal goals over goals of the group and their social behaviour is driven by their attitudes toward and perceived personal benefits of conducting that behaviour (Triandis, 1995, 1996). Previous research has identified differences between Chinese and Australian university students on some values such as social recognition, honesty, and happiness (Feather, 1986), yet there is little literature systematically examining differences between the two populations in help-seeking patterns. Previous research has provided some evidence of differences in help-seeking between people from collectivist backgrounds and those from individualist backgrounds. For example, individuals adhering to collectivistic cultural values have reported more negative attitudes toward seeking professional psychological help than those with individualistic orientations (Atkinson, Ponterotto, & Sanchez, 1984; Leong, Wagner, & Tata, 1995; Yoo & Skovholt, 2001). However, much of this research has been conducted in the United States, usually comparing Asian- or Chinese-Americans with Caucasian-Americans (e.g., Loya, Reddy, & Hinshaw, 2010; Masuda & Boone, 2011). Further investigation, such as an exploration of differences between mainland Chinese and Australian university students on professional help-seeking process, is therefore warranted.

1.5 The Theory of Planned Behavior

Many theoretical models have been utilised to explain and understand individuals’ health-promoting behaviours, including the Theory of Planned Behavior (TPB; Ajzen, 1985, 1991) and the Behavioral Model of Health Services Use (Andersen, 1995; Andersen & Newman, 1973). The TPB assumes that intention is an immediate determinant of behaviour,
and that it can be predicted by three factors: attitudes, subjective norms, and perceived behavioural control (Ajzen, 1985, 1991).

1.5.1 Intention

Because intention is recognised as an important and direct determinant of behaviour, it has been widely investigated in the field of help-seeking when attempting to explain under-utilisation of mental health services (e.g., Cramer, 1999; Kim & Park, 2009; Vogel, Wade, & Hackler, 2007a). Consequently, in addition to attitudes, subjective norms, and perceived behavioural control, prior empirical studies have identified a number of other biopsychosocial variables that may also affect university students’ help-seeking intentions. However, little consensus exists with regard to how these variables relate to intentions in addition to the magnitude of the associations.

To illustrate, there is evidence that psychological distress, anticipated risks, self-disclosure, and social support are either positively or negatively correlated with university students’ help-seeking intentions (Kahn & Williams, 2003; Kim & Omizo, 2003; Miville & Constantine, 2007; Ryan, Shochet, & Stallman, 2010; Shaffer, Vogel, & Wei, 2006; Vogel & Armstrong, 2010; Vogel et al., 2008b; Vogel & Wei, 2005; Vogel, Wester, Wei, & Boysen, 2005), but also evidence that the aforementioned variables and intentions are not significantly related to one another (Kelly & Achter, 1995; Kim & Park, 2009; Vogel, Gentile, & Kaplan, 2008a; Vogel & Wester, 2003; Vogel et al., 2005). Similarly, although anticipated benefits and self-concealment have been identified as having significant and positive relationships with help-seeking intentions (Kelly & Achter, 1995; Shaffer et al., 2006; Vogel et al., 2008a; Vogel et al., 2008b), these results have not always been replicated (Erkan, Ozbay, Cihangir-Cankaya, & Terzi, 2012; Liao, Rounds, & Klein, 2005; Vogel et al., 2005). Such inconsistent findings may limit the use and utility of research evidence when developing interventions to increase students’ willingness to attend mental health services.
1.5.2 Attitudes

In the context of formal help-seeking, attitudes refer to individuals’ positive or negative evaluations of accessing mental health services: more favourable attitudes lead to greater willingness to seek professional psychological help (Ajzen, 1991; Ajzen & Fishbein, 2000; Chen et al., 2014; Cramer, 1999; Kim & Omizo, 2003; Mak & Davis, 2014).

Specifically, the significance of attitudes in the prediction of both Chinese and Australian students’ help-seeking intentions has been demonstrated (Chang, 2008; O'Keeffe, 2013; Thomas et al., 2014). Furthermore, previous studies, mostly in the United States, have provided evidence of the mediating effect of attitudes on the associations between a range of psychosocial variables including social support, stigma concerns, subjective norms, anticipated benefits and risks, Asian cultural values and psychological distress, and help-seeking intentions (Chen et al., 2014; Kim & Omizo, 2003; Mo & Mak, 2009; Shaffer et al., 2006; Vogel et al., 2007a; Vogel et al., 2005; Yakunina & Weigold, 2011). However, the mediating role of help-seeking attitudes has not previously been examined among mainland Chinese or Australian university students.

1.5.3 Subjective norms

Subjective norms are defined as perceptions of social expectations or pressure relating to seeking professional support in the event of mental health needs: if an individual’s family, friends, and/or significant others expect them to attend services, the individual will be more likely to follow those suggestions and receive treatment (Ajzen, 1991; Mak & Davis, 2014). Research conducted in Hong Kong and Macao has revealed that subjective norms not only have direct effects on Chinese people’s intentions to seek professional psychological help, but also directly impact their attitudes toward and perceived behavioural control over service usage (Mak & Davis, 2014; Mo & Mak, 2009). Indeed, in comparison with individuals from other cultural backgrounds, subjective norms have been suggested to have more influence on
Chinese people’s help-seeking process, given that interpersonal relationships are a crucial part of Asian cultural values and because Chinese people usually highly value the opinions of family, friends, and significant others (Kim, Atkinson, & Umemoto, 2001; Kim, Atkinson, & Yang, 1999; Mo & Mak, 2009; Xie & Leong, 2008). In a study by Kim and Park (2009), subjective norms significantly mediated the relationship between Asian cultural values and help-seeking intentions. However, subjective norms have been under-researched as a predictor of help-seeking intentions among Australian university students. Moreover, even though the role of subjective norms in formal help-seeking has been investigated among Hong Kong and Macao Chinese people, whether the same results would apply to mainland Chinese university students is unknown.

1.5.4 Perceived behavioural control

Perceived behavioural control reflects individuals’ perceptions of personal control in the event of seeking mental health services; the more control people feel they have over using mental health services, the stronger their intention to seek professional support (Ajzen, 1991; Mak & Davis, 2014). The significance of perceived behavioural control in the prediction of help-seeking intentions has been consistently identified in empirical research among Hong Kong and Macao Chinese people and in review studies (Armitage & Conner, 2001; Godin & Kok, 1996; Mak & Davis, 2014; Mo & Mak, 2009). Importantly, according to the TPB (Ajzen, 1985, 1991), perceived behavioural control can also directly affect actual behaviour (i.e., the actual use of mental health services), although this has not been examined in the area of help-seeking. To the author’s knowledge, no published studies have explored the effect of perceived behavioural control on Australian university students’ mental health help-seeking.

1.5.5 The need to investigate actual use of mental health services

The TPB has been validated as an effective theoretical framework for explaining and understanding a series of health behaviours; accounting for 39-41% and 27-34% of the
variance in intention and behaviour, respectively (Armitage & Conner, 2001; Godin & Kok, 1996). However, the strength of the intention-behaviour relationship varies with the type of behaviour, with a low correlation identified between intentions to seek professional support and actual use of mental health services (Ajzen, 2011; Chin et al., 2015; Rickwood et al., 2005; Romano & Netland, 2008; Webb & Sheeran, 2006). Hence, although a number of predictors of help-seeking intentions have been established, it is necessary to explore the variables influencing actual service use (Chen et al., 2014; Kim & Park, 2009; Nam et al., 2013; Vogel, Wester, & Larson, 2007b).

1.6 The Behavioral Model of Health Services Use

The Behavioral Model of Health Services Use is a primary theoretical model that has been developed and widely used to interpret the utilisation of health services, including acute health care, aged care, and mental health services. This model suggests that an individual’s use or non-use of services can be predicted and explained by three dynamics: predisposing, enabling, and need variables (Andersen, 1995; Andersen & Newman, 1973).

1.6.1 Predisposing variables

Predisposing variables for mental health service usage include socio-demographic attributes (e.g., gender, ethnicity) and beliefs (e.g., knowledge) about mental disorders and related treatment (Andersen, 1995; Andersen & Newman, 1973). Research has consistently indicated that prior experience with professional mental health services, which may impact on mental health beliefs, is a significant predictor of future service use: positive treatment experiences are associated with increased future use (Andersen & Newman, 1973; Barker, 2007; Broman, 2012; Gulliver, Griffiths, & Christensen, 2010; Rickwood et al., 2007). Across cultures, being older, being female, not belonging to an ethnic minority group, and having higher education or more knowledge about mental health have also been reported as solid predictors of higher service usage (Broman, 2012; Chang, 2008; Eisenberg & Chung,
2012; Eisenberg, Hunt, & Speer, 2012a; Gudmundsdottir & Vilhjalmsson, 2010; Rickwood et al., 2007; Wong & Li, 2014; Yap et al., 2013; Yap, Reavley, & Jorm, 2014). However, these findings have not been consistently replicated (Aalto-Setala, Marttunen, Tuulio-Henriksson, Poikolainen, & Lonqvist, 2002; Chang, 2008; Cheung & Dewa, 2007; Gagne, Vasiliadis, & Preville, 2014; Li et al., 2013; Mojtahai, Olfson, & Mechanic, 2002; Shen et al., 2006).

Among Chinese people, perhaps the most influential predisposing predictor for utilisation of mental health services is the strength of Asian cultural values, which can be categorised into six domains – emotional self-control, maintaining family reputation, obeying social norms, considering family’s benefits before one’s own, being humble, and filial piety (Chang, 2008; Chin et al., 2015; Kim et al., 2001; Kim et al., 1999; Wang & Kim, 2010). These values have been repeatedly found to shape help-seeking patterns of Chinese people and others with Asian cultural backgrounds (e.g., Asian Americans). For example, to avoid bringing shame to family reputation, Asians prefer to solve problems personally or within a close circle of family and friends. Accordingly, they tend to be less likely to access mental health services, because discussing personal issues with a counsellor or other mental health professional during the treatment process may violate family honour (Kim et al., 2001; Kung, 2004; Raunic & Xenos, 2008; Shea & Yeh, 2008; Wong, Tran, Kim, Van Horn Kerne, & Calfa, 2010; Yoon & Jepsen, 2008). Any expectation of expressing emotions in treatment may also violate the Asian value of emotional self-control, which emphasises the ability to control one’s emotions (Kim et al., 1999; Kim & Omizo, 2003; Kung, 2004; Raunic & Xenos, 2008; Shea & Yeh, 2008). Researchers have, indeed, observed not only a negative association between Asian cultural values and Asian university students’ (including Asian Americans) attitudes toward professional help-seeking but also a significant indirect relationship between Asian cultural values and help-seeking intentions (Choi & Miller, 2014;
Kim & Omizo, 2003; Kim & Park, 2009; Liao et al., 2005; Shea & Yeh, 2008; Yakunina & Weigold, 2011). These findings need to be further examined in mainland Chinese samples.

Finally, with regard to predisposition, it is worthwhile exploring the possibility that Asian cultural values might influence Australian university students' mental health help-seeking. Although historically Western, Australia is a multicultural society and the majority of recent immigrants and international students have originated from Asia (Australian Bureau of Statistics, 2001; Department of Education and Training, 2016; Department of Immigration and Border Protection, 2014). Previous research has suggested that cultural values are changeable, therefore, through interactions with Asian immigrants and international students, young Anglo-Australians may incorporate some Asian cultural values, potentially influencing their help-seeking process (Feather, 1986; Hamid, Simmonds, & Bowles, 2009; Kim et al., 1999; Ranieri, Klimidis, & Rosenthal, 1994). However, this needs further investigation.

1.6.2 Enabling variables

Enabling variables include family resources (e.g., residential area, income, social support) and service characteristics (e.g., availability and accessibility; Andersen, 1995; Andersen & Newman, 1973). For mainland Chinese people in need of mental health support, residential area, health insurance coverage, and family income level have been reported as major enabling predictors of actual service use (Chen, 2012; Gao, Tang, Tolhurst, & Rao, 2001; Li et al., 2013; Liu et al., 2008; Park, Xiao, Worth, & Park, 2005). Likewise, family residential area, financial status, cost and accessibility of mental health services, and awareness of service options have been found to be significant predictors of young Australian adults' use of mental health services (Australian Medical Students' Association, 2013; Jorm, Wright, & Morgan, 2007; Muir et al., 2009; Rickwood et al., 2005). However, due to the provision of free on-campus counselling services, some of these enabling variables may, potentially, be less relevant to university students’ use of mental health services.
With regard to social support as an enabling variable, it is necessary to acknowledge that research findings concerning the relationship between social support and mental health service usage are complex and can sometimes appear conflicting. This may, in part, be due to the diverse ways in which social support has been conceptualised and measured – either as perceived quality, actual assistance, or size of social network (Albert, Becker, Mccrone, & Thornicroft, 1998; Barker, 2007; Sherbourne, 1988; Winemiller, Mitchell, Sutliff, & Cline, 1993). A full discussion of the challenges associated with the conceptualisation and operationalisation of social support is beyond the scope of this thesis. In the current context, some researchers have concluded that social support may serve as a barrier to professional help-seeking for both Chinese and Australian people, in the sense that individuals with higher quality social support are less likely to access services because they prefer, and are able, to obtain informal help from family and friends (Chang, 2008; Chin et al., 2015; Huang, Sousa, Tsai, & Hwang, 2008; Jorm et al., 2007; Muir et al., 2009; Rickwood et al., 2005). Conversely, there is some evidence that social support is a facilitator of service use; if an individual’s family and/or friends expect them to attend mental health services, they are more likely to do so (Albert et al., 1998; Goh et al., 2007; Kleinberg, Aluoja, & Vasar, 2013; Mak & Davis, 2014; Saunders, 1996; Saunders & Bowersox, 2007; Sherbourne, 1988; Verger et al., 2009; Wong & Li, 2014).

1.6.3 Need variables

Need variables consist of perceived (subjective) and evaluated (objective) need for professional support (Andersen, 1995; Andersen & Newman, 1973). Perceived need, which is based on individuals’ self-assessment of mental health status, has been consistently found to be positively associated with young adults and university students’ service usage (Australian Medical Students' Association, 2013; Eisenberg et al., 2012a; McGorry, Goldstone, Parker, Rickwood, & Hickie, 2014; Wilson, 2010; Zivin et al., 2009). However, inconsistent findings
regarding the effect of evaluated need (using professional diagnostic tools) on help-seeking behaviour have been reported. Researchers have identified that the more severe their illness, the more likely a person is to seek professional support (Andersen & Newman, 1973; Brown, Rice, Rickwood, & Parker, 2016; Chang, 2008; Chen et al., 2014; Shen et al., 2006; Sosulski & Woodward, 2013). In contrast, there is other evidence to suggest that diagnosed individuals may be less likely than others to receive treatment (Mojtahai et al., 2002; Stallman, 2008). This includes negative associations between reported symptoms of affective disorders and substance abuse and the use of mental health services (Herman et al., 2011; Hunsley, Lee, & Aubry, 1999; Hunt & Eisenberg, 2010; Leaf et al., 1988; Rickwood et al., 2007; Wu et al., 2007). It is also possible that there is no relationship between the severity of mental illness and service usage (Chin et al., 2015; Li et al., 2013; Mak & Davis, 2014). Notably, only limited research has been conducted on the operation of need variables in Chinese or Australian domestic student samples.

1.7 Other Influential Variables

1.7.1 Stigma concerns

In the context of mental health care, stigma concerns have been defined as the fear of being judged negatively or labelled as mentally ill, due to mental health service use. Stigma has been shown to be a widespread and major barrier to service utilisation (Corrigan, 2004; Deane & Chamberlain, 1994; Vogel, Wade, & Haake, 2006; Vogel et al., 2007b; Wang, Huang, Jackson, & Chen, 2012). According to Corrigan (1998, 2004), there are two types of stigma; public stigma and self-stigma.

Public stigma refers to the perception held by others (i.e., the public) that individuals who attend mental health services are socially unacceptable (Corrigan, 2004; Vogel et al., 2006). In contrast, self-stigma is an individual’s perception that they, themselves, will be socially unacceptable if professional services are used (Corrigan, 2004; Vogel et al., 2006).
Self-stigma has been further interpreted as an outcome of internalizing public stigma, and this internalization has the potential to destroy a person’s self-esteem or self-worth (Corrigan, 1998, 2004; Link & Phelan, 2001; Link, Struening, Neese-Todd, Asmussen, & Phelan, 2001; Vogel, Bitman, Hammer, & Wade, 2013b). In addition to influencing individuals who are using services, public stigma has been found to have a negative impact on users’ families and friends (Corrigan & Kleinlein, 2005; Yang et al., 2007; Yang & Pearson, 2002). Hence, public stigma may have particularly adverse impacts on Chinese service usage, given that Chinese people are more likely to adhere to the Asian cultural norm that people should not bring shame to the family reputation (Chang, 2008; Kim et al., 2001; Kim et al., 1999; Mak & Davis, 2014; Wang et al., 2012).

In order to avoid the harm (e.g., loss of job opportunities) that can result from being stigmatized, not surprisingly, individuals will try to avoid seeking professional psychological support (Corrigan, 2004; Corrigan & Matthews, 2003; Gulliver et al., 2010; Martin, 2010; O'Keeffe, 2013; Wang et al., 2012). Cross-culturally, researchers have found that both public stigma and self-stigma exert negative effects on young adults and university students’ help-seeking attitudes and intentions: individuals with higher stigma concerns tend to have more negative attitudes toward, and less willingness to, seek professional psychological help (Chen et al., 2014; Masuda et al., 2009; Muir et al., 2009; Shea & Yeh, 2008; Topkaya, 2014; Vogel et al., 2006; Vogel et al., 2007b). Although there has been some examination of the effect of public stigma and self-stigma on university students’ mental health help-seeking, employing different mediation models and involving North American samples (e.g., Choi & Miller, 2014; Vogel et al., 2007a; Vogel et al., 2005; Yakunina & Weigold, 2011), this has never been undertaken for Chinese or Australian university students.
1.7.2 Anticipated benefits and risks

Considerations of the possible consequences of carrying out a behaviour (i.e., behavioural beliefs or outcome expectations), have been suggested to play an important role in predicting attitudes: if individuals expect positive outcomes of a behaviour (e.g., using mental health services), they will have more favourable attitudes toward that behaviour (Ajzen, 1991; Ajzen & Fishbein, 1980, 2005; Fishbein & Ajzen, 1975). Omarzu (2000) has further divided the expected consequences of self-disclosure behaviour into two categories: anticipated benefits (utility) and anticipated risks. In the context of disclosing personal problems to a mental health professional, anticipated benefits refer to perceived benefits after receiving mental health services, and conversely, anticipated risks are perceived risks after accessing services (Omarzu, 2000; Vogel & Wester, 2003). The predictive effects of anticipated benefits and risks on young adults and university students’ help-seeking attitudes and intentions have been demonstrated (Shaffer et al., 2006; Thomas et al., 2014; Vogel & Wester, 2003; Vogel et al., 2005; Watsford, Rickwood, & Vanags, 2013). However, no published studies have investigated anticipated benefits and risks in Chinese societies, and only two published Australian studies (Thomas et al., 2014; Watsford et al., 2013), to date, have examined this effect.

1.8 Limitations of the Existing Help-Seeking Literature

In summary, as discussed above, although research has identified a variety of biopsychosocial variables that may influence young adults’ and/or university students’ help-seeking intentions or their actual service use, the empirical results have been inconsistent. Importantly, these inconsistent findings may restrict the development of effective interventions to improve students’ formal help-seeking. Moreover, previous researchers have failed to fully apply theoretical models – namely, integrating the TPB and Andersen’s Behavioral Model – or to explore the interactions between these variables (intention and
usage) simultaneously, despite previous suggestions to extend the TPB in the context of explaining and understanding formal help-seeking (Kim & Park, 2009; Yakunina & Weigold, 2011). Notably, domestic university students’ help-seeking is still under-researched both in mainland China and in Australia. Moreover, there has been little comparison of help-seeking between these two cultures or communities.

1.9 Project Aims

The aims of the current research project were to:

1. Quantitatively evaluate and consolidate available empirical findings regarding correlates of university students’ help-seeking intentions (Study 1, Chapter 2). This study employed meta-analytic techniques to synthesise the available empirical research that had examined associations between psychosocial variables and help-seeking intentions in university student samples. The specific objectives were to: (a) test the magnitude of the association between each psychosocial variable that has been identified in the existing research and help-seeking intentions, and (b) identify which variable has the strongest correlation with intentions.

2. Systematically evaluate the available literature investigating correlates of young adults’ use of mental health services (Study 2, Chapter 3). It is important to acknowledge that the initial aim of this study was to investigate predictors of university students’ service usage. However, the initial search identified few studies. The focus was broadened to include young adults, because although their situation has specific stressors, most university students are young adults (Aud et al., 2013; Australian Bureau of Statistics, 2013; Ministry of Education of the People's Republic of China, 2015). This study aimed to: (a) synthesise data from existing quantitative research on biopsychosocial predictors of young adults’ use
of mental health services, and (b) examine methodological biases inherent in existing published studies.

3. Develop a model of mainland Chinese university students’ help-seeking intentions by integrating the TPB and Andersen’s Behavioral Model (Study 3, Chapter 4). This empirical, survey-based study used structural equation modelling to test the proposed integrated model. It was hypothesised that predisposing, enabling, and need variables, together with public stigma, self-stigma, and anticipated benefits and risks, would have direct effects on attitudes, subjective norms, and perceived behavioural control. In turn, attitudes, subjective norms, and perceived behavioural control would predict help-seeking intentions, and each would be a specific mediator of the indirect effects on intentions. Furthermore, subjective norms would have direct effects on attitudes and perceived behavioural control. Additionally, logistic regression analysis investigated the predictive effects of help-seeking intentions, perceived behavioural control, predisposing, enabling, and need variables on Chinese students’ actual service usage.

4. Explore Australian university students’ mental health help-seeking by replicating and extending the previous model developed with mainland Chinese university students (Study 4, Chapter 5). This study employed a similar online survey and structural equation modelling, to test four help-seeking intention models with Australian students – hypothesising that the intention model tested in Study 3 would also fit the Study 4 sample best. A secondary aim of Study 4 was to examine the effects of Asian cultural values, help-seeking intentions, perceived behavioural control, and predisposing, enabling, and need variables on Australian students’ actual use of mental health services. Thirdly, findings from the
Australian student sample were compared with those from Chinese university students (Study 3) utilising a cross-cultural perspective.
## Statement of Authorship

<table>
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<th>Title of Paper</th>
<th>Psychosocial correlates of college students' help-seeking intention: A meta-analysis</th>
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<td>☑ Published □ Accepted for Publication □ Submitted for Publication □ Unpublished and Unsubmitted work written in manuscript style</td>
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### Principal Author

| Name of Principal Author (Candidate) | Wenjing Li |
| Contribution to the Paper | Study inception, study design, literature searches, data extraction, statistical analyses, data interpretation and manuscript preparation |
| Overall percentage (%) | 85% |
| Certification: | This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper. |

**Signature**

**Date** | 26/08/2016

### Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

i. the candidate’s stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate to include the publication in the thesis; and

iii. the sum of all co-author contributions is equal to 100% less the candidate’s stated contribution.

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| Signature | Date | 26/08/2016 |

Please cut and paste additional co-author panels here as required.
Chapter 2: Study 1

Psychosocial correlates of college students’ help-seeking intention: A meta-analysis

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Preface

The preceding chapter provided a critical review of the literature on university students’ help-seeking intentions. A number of psychosocial correlates of intentions have been identified, however findings regarding the magnitude of the examined associations are mixed. Importantly, the inconsistent findings may obstruct developing adequate interventions to enhance university students’ willingness to use mental health services.

In order to consolidate the available research, the following meta-analysis evaluated and integrated the available empirical evidence examining associations between various psychosocial variables and university students’ help-seeking intentions (Li, Dorstyn, & Denson, 2014). The specific aims were to: (1) provide an estimate of the magnitude of the correlation between different psychosocial variables and help-seeking intentions; and (2) identify which variable has the strongest relationship with intentions. A better understanding of these associations could help education providers and mental health professionals select potential targets and intervention strategies to improve mental health care among university students.
Psychosocial correlates of college students’ help-seeking intention: A meta-analysis

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Abstract

Associations between psychosocial variables and help-seeking intention among college students have often been examined, with inconclusive and sometimes conflicting findings. To consolidate the available research, data from 18 eligible studies comprising a total of 6,839 participants were pooled and meta-analyzed. Attitudes toward seeking professional psychological help and anticipated utility demonstrated the strongest correlations with help-seeking intention. Practice implications are discussed, including the importance of psychoeducation on the effectiveness of evidence-based intervention to motivate professional help-seeking.

Keywords: college, help-seeking, mental health services
Mental health services have emerged as a crucial part of college student support, particularly in the context of higher levels of psychological distress reported by this population (Eisenberg et al., 2007; Royal College of Psychiatrists, 2011). However, students are reluctant to access this professional support, despite the reported benefits of service utilization (Eisenberg et al., 2007; Wilson, 2010). The existing discrepancy between college students’ mental health needs and service use has motivated researchers to investigate correlates of students’ help-seeking intention, that is, the intention of seeking professional psychological help (Cramer, 1999; Liao et al., 2005; Vogel & Wei, 2005). Based on the theory of reasoned action/planned behavior (Ajzen, 1991; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and previous empirical findings (Godin & Kok, 1996; Sheeran, 2002), intention is considered to be an important predictor and determinant of behavior. It is therefore valuable and meaningful to investigate factors that may influence help-seeking intention in order to enhance current understanding of students’ help-seeking behavior.

Psychological and demographic factors, in particular, have been implicated in the theoretical literature as key variables in the process of seeking professional help (Codd & Cohen, 2003; Henshaw & Freedman-Doan, 2009; Kim & Park, 2009; Vogel et al., 2005). However, little consensus on the role of psychosocial variables has been achieved in this empirical literature. For example, there is evidence that psychological distress, self-disclosure, and social support may positively or negatively associate with help-seeking intention (Kahn & Williams, 2003; Vogel & Armstrong, 2010; Vogel & Wei, 2005; Vogel et al., 2005), but other studies have found no significant correlation between these variables (Kelly & Achter, 1995; Vogel et al., 2008a; Vogel & Wester, 2003). A significant association between self-concealment and help-seeking intention has also been found (Kelly & Achter, 1995; Vogel & Wester, 2003); however, these results have not always been replicated (Liao et al., 2005; Vogel & Armstrong, 2010). Perhaps the most consistent findings concern the
association between proactive attitudes and beliefs toward professional psychological help and increased help-seeking intention (Cepeda-Benito & Short, 1998; Cramer, 1999; Kelly & Achter, 1995; Liao et al., 2005), in addition to the strong association between public stigma and low help-seeking intention (Miville & Constantine, 2007; Vogel et al., 2008a; Vogel et al., 2005). However, questions remain as to the magnitude of these associations. These inconsistent findings also cast doubt on theoretical accounts of help-seeking intention.

Inconsistencies between research findings may, in part, reflect the use of diverse measures of help-seeking intention, with currently no agreed measure in the field (Rickwood & Thomas, 2012). The most commonly used one is the Intentions to Seek Counseling Inventory (ISCI; Cash, Begley, McCown, & Weise, 1975; Robertson & Fitzgerald, 1992), which has 20- and 24-item adaptations (Ponce & Atkinson, 1989, and Gim, Atkinson, & Whiteley, 1990, respectively). The ISCI measure defines help-seeking intention based on a range of psychosocial concerns relevant to college students. The original 17-item ISCI (Cash et al., 1975) was designed to measure students’ preference to seek help from counselors for various personal problems, including psychological and interpersonal concerns (e.g., depression), academic concerns (e.g., choosing a study major), and concerns relating to drug use (Cepeda-Benito & Short, 1998). The revised 20-item ISCI (Ponce & Atkinson, 1989) added problems specific to university students of an ethnic minority group (e.g., loneliness and alienation). Later, Gim et al. (1990) expanded the 20-item ISCI (Ponce & Atkinson, 1989) to a 24-item scale, which included four items relevant to Asian American students (e.g., ethnic identity confusion). This latter focus on ethnicity is substantiated by evidence of cultural differences in help-seeking intention (e.g., Liao et al., 2005). Importantly, the aforementioned measures are considered to investigate the same conceptual framework of help-seeking intention, all being based on Cash et al.’s (1975) ISCI (Gim et al., 1990; Ponce & Atkinson, 1989) in addition to having congruent test objectives, including a focus on help-
seeking intention, professional mental health services, and student concerns specific to the
university population (Rickwood & Thomas, 2012).

To date, we have not been able to identify any published meta-analytic reviews of
variables related to help-seeking intention specifically, and we have found only two meta-
analytic studies (Nam et al., 2013; Nam et al., 2010) examining the effects of psychosocial
and demographic factors on a related, but psychologically distinct, element in the process of
seeking help: help-seeking attitude. Ajzen and colleagues (Ajzen, 1991; Ajzen & Fishbein,
1980; Fishbein & Ajzen, 1975) contend that attitude is a predictor of intention, whereas
intention is the direct determinant of behavior. Accordingly, the psychosocial variables that
predict help-seeking attitude may not relate directly to help-seeking intention. Indeed, Nam et
al. (2013) acknowledged the need for further quantitative evaluation of psychosocial
variables potentially influencing help-seeking intention. Such empirical research will not only
help to improve understanding of college students’ help-seeking, but potentially highlight
modifiable factors that psychologists can effectively target in order to encourage students to
seek professional psychological support.

We aimed to consolidate the available research by performing a meta-analytic review
of empirical studies that investigated the correlations between different psychosocial
variables and college students’ help-seeking intention. The specific aims were to (a) provide
an estimate of the magnitude of association between help-seeking intention and a range of
psychosocial constructs that have been examined in the existing body of research, and (b)
determine which psychosocial construct has the strongest correlation with help-seeking
intention.
Method

Literature search and inclusion criteria

A search of nine electronic databases (PubMed, PsycINFO, Scopus, CINAHL, Informit, Cochrane library, Web of Science, Embase, and ERIC) was conducted to source relevant articles investigating relationships between psychosocial variables and help-seeking intention (see Table 1 for search terms). A manual search of journals relevant to the college counseling literature, namely, *Journal of Counseling Psychology, Journal of College Counseling*, and *Journal of College Student Development*, and the reference lists of all potentially eligible papers and relevant meta-analyses (i.e., Nam et al., 2013; Nam et al., 2010) was also performed to identify additional articles. Our search was limited to publications dated between January 1990 and December 2013, because important national and international acts and guidelines relating to mental health services for college students were established from 1990 onwards (e.g., Heads of University Counselling Services; Royal College of Psychiatrists, 2011). The initial search was broad to ensure that all potentially appropriate articles were retrieved (Lipsey & Wilson, 2001).
Studies had to meet the following inclusion criteria: (a) published in English in a peer-reviewed journal; (b) investigated university or college students’ intention of using formal mental health services, including college counseling centers and other mental health services (e.g., hospital or community based services); (c) a quantitative study with data that could be converted into effect sizes (e.g., Pearson’s \( r \), means and standard deviations); and (d) having participants who were university or college students aged 18 years and above. To increase validity and generalizability, we also specified that for inclusion, studies must (a) use standardized measures and (b) report psychosocial variables that had been examined by three or more help-seeking intention studies (Valentine, Pigott, & Rothstein, 2010). Eighteen studies met all inclusion criteria (see Figure 1) and were included in the current meta-analysis.
Potentially relevant studies identified and screened for retrieval:

\( (n = 1462; \text{duplicates removed}) \)

Studies retrieved for more detailed evaluation

\( (n = 260) \)

Studies excluded - off topic

\( (n = 1202) \)

Studies excluded - did not meet sample criteria (i.e. aged, very old, children, individuals with severe co-morbidities)

\( (n = 72) \)

Studies excluded - did not meet topic criteria (i.e. did not investigate professional mental health services, help-seeking attitudes or intention)

\( (n = 147) \)

Studies excluded - did not meet design criteria (i.e. qualitative studies)

\( (n = 17) \)

Potential eligible help-seeking studies included in meta-analysis

\( (n = 24) \)

Studies excluded - did not use standardized measures

\( (n = 2) \)

Studies excluded - did not include psychological variables that have been examined by three or more studies of help-seeking intention

\( (n = 1) \)

Studies excluded - did not have sufficient data to calculate effect size (incl. did not receive responses from authors)

\( (n = 3) \)

Studies with usable information on help-seeking intention and included in meta-analysis

\( (n = 18) \)

\( \text{Figure 1. Flowchart of study selection.} \)
Data collection and quality assessment

In accordance with meta-analysis reporting guidelines (American Psychological Association, 2010), the following data were extracted from all eligible studies: study information (author, year); theoretical background, if specified (e.g., theory of reasoned action); demographic information (e.g., gender); and methodological factors (e.g., sample size, type of measures). Individual study measures were subsequently grouped according to the key psychosocial construct that they assessed (Lipsey & Wilson, 2001). This resulted in nine psychosocial variables: attitudes toward seeking professional psychological help, social support, self-concealment, adherence to Asian values, psychological distress, public stigma, self-disclosure, anticipated utility, and anticipated risk (see Table 2).
Table 2

*Definitions of Nine Psychosocial Variables*

<table>
<thead>
<tr>
<th>Psychosocial variable</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Attitudes toward seeking professional psychological help</td>
<td>Individuals’ attitudes toward the utilization of mental health services (Fischer &amp; Turner, 1970)</td>
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<tr>
<td>Social support</td>
<td>The perception that one is connected to a supportive social network (Barrera, 1986)</td>
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<tr>
<td>Self-concealment</td>
<td>“The predisposition to actively conceal from others personal information that one perceives as distressing or negative” (Larson &amp; Chastain, 1990, p. 440)</td>
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<td>Adherence to Asian values</td>
<td>The endorsement of Asian cultural values, including collectivism, emotional self-control, and family recognition through achievement (Kim et al., 1999)</td>
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<tr>
<td>Psychological distress</td>
<td>Poor psychological functioning in reaction to stressful life events (Abeloff et al., 2000)</td>
</tr>
<tr>
<td>Public stigma</td>
<td>The public labels human differences and links labeled individuals to numbers of undesirable attributes; as a result, the negatively labeled person is separated and experiences status loss (Link &amp; Phelan, 2001)</td>
</tr>
<tr>
<td>Self-disclosure</td>
<td>“A process whereby a person verbally reveals private feelings, thoughts, beliefs, or attitudes to another person” (Vogel &amp; Wester, 2003, p. 351)</td>
</tr>
<tr>
<td>Anticipated utility</td>
<td>The perceived value of mental health service utilization (Vogel &amp; Wester, 2003)</td>
</tr>
<tr>
<td>Anticipated risk</td>
<td>The potential dangers perceived in self-disclosure (Vogel &amp; Wester, 2003)</td>
</tr>
</tbody>
</table>
The quality of each computed effect size was assessed using Lipsey and Wilson’s (2001) confidence rating system. Confidence ratings range from 1 (indicating that the effect size is highly estimated, or based on crude values such as N or p) to 5 (indicating no estimation, with descriptive data available to calculate the effect size directly). Importantly, every effect size examined in this meta-analysis received a score of 5, indicating high-quality effect size estimations. Data collection and confidence ratings were conducted by the first author.

**Effect size calculation**

Pearson’s correlation coefficient (r), which is a measure of magnitude of the relationship between two continuous variables, was used as the primary effect size (ESr) index in this study (Field & Gillett, 2010; Lipsey & Wilson, 2001; Rosenthal & DiMatteo, 2001). All included studies provided ESr; therefore, conversion and calculation were not required. Cohen’s (1988) guidelines were utilized to interpret the magnitude of the resulting effect size (r), with .10, .25, and .40 presenting small, medium, and large effects, respectively.

Analyses of effect sizes were performed using Meta-analysis with Interactive eXplanations (MIX) 2.0 software (Bax, 2011). This involves several stages. First, the value of ESr for each individual psychosocial measure utilized in a study was obtained. To ensure independence of the data, if both a total score and a subscore were reported in a study, only one was included (Lipsey & Wilson, 2001; Rosenthal, 2001). When a study contributed more than one ESr to a psychosocial construct, an average ESr was calculated for that study (Lipsey & Wilson, 2001). Second, the ESr for each study was transformed to Fisher’s Z, so that a normal distribution could be provided (Cooper & Hedges, 1994; Lipsey & Wilson, 2001; Rosenthal & DiMatteo, 2001). Third, the average of Fisher’s Z was computed by weighting each Fisher’s Z statistic by the inverse of the variance (Lipsey & Wilson, 2001).
Fourth, the weighted mean Fisher’s Z was then reconverted to a weighted mean effect size for each psychosocial construct ($r_w$; Lipsey & Wilson, 2001). Finally, 95% confidence intervals (CIs) were calculated to assess the statistical significance of each mean effect size (Lipsey & Wilson, 2001). An effect size is considered statistically significant if its associated CI does not include the value of zero (Lipsey & Wilson, 2001).

To test the homogeneity of the effect sizes, $Q$ statistics were used (Borenstein, Hedges, Higgins, & Rothstein, 2009; Lipsey & Wilson, 2001). A nonsignificant $Q$ statistic indicates a homogenous distribution of the effect size (Borenstein et al., 2009). To complement $Q$ statistics, $I^2$ statistics were also reported to determine the percentage of between-studies variability due to heterogeneity ($I^2 > 75\%$ represents considerable heterogeneity; Borenstein et al., 2009; Higgins, Thompson, Deeks, & Altman, 2003). Following the suggestion of Cumming (2012), the random effects model was adopted.

Fail-safe $N$s ($N_f$s; Orwin, 1983; Rosenthal, 1979) were calculated in order to deal with a major criticism of meta-analytic processes – that of publication bias. The $N_f$s estimates how many unpublished studies with nonsignificant results (i.e., $r \leq .10$) would have to be retrieved to overturn the current findings (Borenstein et al., 2009; Field & Gillett, 2010; Lipsey & Wilson, 2001). The larger the $N_f$s value, the more reliable the effect size estimate. Due to the different number of studies measuring different psychosocial constructs, a conservative $N_f$s value was adopted for this meta-analysis, with the $N_f$s for each psychosocial construct deemed adequate when it exceeded the number of included studies for that construct (i.e., $N_f$s $> N_{studies}$).

Finally, gender (defined as the number of males and females per study), age, and sample size were analyzed as potential moderator variables. Pearson’s correlation coefficients ($r$) were calculated to assess the relationship between these moderator variables and each
Results

Eighteen independent studies contributed to this meta-analysis, comprising a total sample of 6,839 participants. All studies were conducted in the United States, with the majority of participants being Caucasian American and female (M: F = 1:1.6). Prior use of mental health services was reported by 4.8% of participants; however, this was based on limited data (n = 7 studies) and thus needs to be interpreted cautiously. Of the nine psychosocial variables examined (all using self-report measures), attitudes toward seeking professional psychological help was reported by 14 studies, whereas three studies specifically examined the relationship between adherence to cultural values and help-seeking intention among an Asian and/or Asian American group (Kim & Omizo, 2003; Liao et al., 2005; Miville & Constantine, 2007). A summary table of the 18 included studies (Table A1) can be found in Appendix A.

Attitudes toward seeking professional psychological help (r = .46, 95% CI [0.41, 0.51], p < .001), and anticipated utility (r = .42, 95% CI [0.33, 0.50], p < .001) demonstrated large and statistically significant relationships with help-seeking intention. The associated Nfs values add confidence to this finding. In comparison, adherence to Asian values (r = -.15, 95% CI [-0.22, -0.07], p < .001), public stigma (r = -.11, 95% CI [-0.18, -0.03], p < .01), and anticipated risk (r = -.10, 95% CI [-0.18, -0.03], p < .01) demonstrated negative and significant, albeit small, associations with help-seeking intention. Importantly, the associated Nfs statistics were adequate (i.e., Nfs > Nstudies), as were the heterogeneity values (I² range = 0% to 65%), suggesting that the findings, whilst small, are robust. The remaining psychosocial constructs demonstrated small to negligible associations: social support (r = -.01, 95% CI [-0.06, 0.05], p > .05), self-concealment (r = -.01, 95% CI [-0.09, 0.08], 95% CI [0.33, 0.50], p < .001) demonstrated large and statistically significant relationships with help-seeking intention. The associated Nfs values add confidence to this finding. In comparison, adherence to Asian values (r = -.15, 95% CI [-0.22, -0.07], p < .001), public stigma (r = -.11, 95% CI [-0.18, -0.03], p < .01), and anticipated risk (r = -.10, 95% CI [-0.18, -0.03], p < .01) demonstrated negative and significant, albeit small, associations with help-seeking intention. Importantly, the associated Nfs statistics were adequate (i.e., Nfs > Nstudies), as were the heterogeneity values (I² range = 0% to 65%), suggesting that the findings, whilst small, are robust. The remaining psychosocial constructs demonstrated small to negligible associations: social support (r = -.01, 95% CI [-0.06, 0.05], p > .05), self-concealment (r = -.01, 95% CI [-0.09, 0.08],
$p > .05$), psychological distress ($r = .10, 95\% \text{ CI} [-0.01, 0.20], p > .05$), and self-disclosure ($r = .16, 95\% \text{ CI} [-0.13, 0.43], p > .05$; see Tables A2 and A3).

In relation to the moderator analyses, the correlation between sample size and mean effect size was not statistically significant ($r = .14, p = .572$). Similarly, age ($r = .04, p = .927$) was not a significant moderator, nor did the number of males ($r = .31, p = .218$) or the number of females ($r = -.03, p = .918$) significantly impact on the effect size estimates ($r_w$).

**Discussion**

This meta-analysis examined the relationship between help-seeking intention and a range of psychosocial constructs, with large and small effect sizes noted. The strongest associations with help-seeking intention were reported across individual measures of help-seeking attitudes and anticipated utility, whereas significant negative associations were found for adherence to Asian values, public stigma, and anticipated risk. These results are consistent with the theory of reasoned action/planned behavior (Ajzen, 1991; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), and the follow-up research on anticipated affect (Ajzen & Sheikh, 2013), in that attitude toward behavior, subjective norms (i.e., social expectations toward performing a certain behavior or not), and anticipated affect are significantly related to intention. The current findings also suggest the importance of those variables in understanding college students’ help-seeking patterns. In comparison to previous research (Cramer, 1999; Vogel et al., 2005), social support, self-concealment, and self-disclosure were not significantly associated with help-seeking intention. Further longitudinal research is, however, needed to confirm these findings in addition to clarifying the causal effect of the variables on help-seeking intention.

It is worth noting that psychological distress had a nonsignificant correlation with both help-seeking attitude (Nam et al., 2013) and intention, suggesting that psychological
distress does not significantly influence the help-seeking process for college students. It may be that the association between psychological distress and intention depends on the individual’s phenomenological experiences of distress (Vogel et al., 2005). Previous research has indeed suggested that help-seeking intention is correlated with the experience of intense problems, rather than general distress per se (Norcross & Prochaska, 1986). Notably, the included studies utilized generic measures of distress. In addition, the current sample was comprised largely of college students who were not reported to face specific mental health issues. Psychiatric comorbidities, such as alcohol abuse, have been demonstrated to significantly impede the help-seeking process (Tucker & King, 1999). Further empirical research utilizing both clinical and nonclinical samples of college students would help to clarify the association between the presence of psychiatric disorders and help-seeking intention.

**Limitations of the present study**

The current findings need to be considered in the context of the methodological limitations we encountered. First, although broad and comprehensive searches were conducted, and the reference lists of all included studies were examined, it is possible that some studies, including unpublished studies, were overlooked. Importantly, fail-safe Ns were calculated to address this problem, although it is acknowledged that Ns does not alleviate the file drawer problem (Lipsey & Wilson, 2001).

Second, the generalizability of this study was limited by the available research in the field of help-seeking. Despite our efforts to identify studies undertaken in other countries with diverse participants, by specifying ethnicity as a potential moderating variable in our database searches, all included studies had been conducted within the United States, with most having recruited undergraduate students as participants. Future empirical studies should
therefore be conducted with students from diverse cultural backgrounds and education levels, to ensure that they represent the heterogeneous college population seeking help.

Third, the current study’s narrow focus on help-seeking intention required that all included studies utilize a measure of help-seeking intention. The aim was to minimize some of the study heterogeneity inherent in this research. Importantly, the measures utilized by all 18 studies in this meta-analysis (i.e., the ISCI, the 20-item ISCI, and the 24-item Personal Problem Inventory) were based on the same conceptual framework (Rickwood & Thomas, 2012). Nevertheless, the results need to be applied cautiously, given the broad field of help-seeking.

Finally, although moderator analyses were conducted, these were limited to variables consistently reported by all 18 studies, that is, gender, age and sample size. Other moderating variables implicated in the literature include gender role socialization (Addis & Mahalik, 2003), ethnicity (Liao et al., 2005), and prior counseling experience (Kim & Omizo, 2003); however, these variables were not specifically examined by the included studies.

**Practical implications**

Our findings suggest that improving students’ attitudes toward seeking professional psychological help, and reducing their concerns about the consequence of using mental health services (i.e., anticipated risk), may represent pathways to modifying college students’ intentions and, potentially, their actual use of mental health services. Help-seeking intention could also be enhanced by promoting the utility and treatment efficacy (i.e., anticipated utility) of available services. This might include information and education sessions on how and where to seek professional supports and the benefits of timely evidence-based intervention (Gulliver, Griffiths, Christensen, & Brewer, 2012), perhaps within academic program structures (Stallman, 2012), or via the Internet (e.g., email and college Web sites;
Costin et al., 2009; Stallman, 2012). Alternatively, this psychoeducation could be disseminated more broadly, via social media, in order to increase public awareness of mental health problems, normalize (i.e., destigmatize) mental health issues, and potentially improve attitudes toward seeking formal help. If students’ families and friends can develop positive attitudes toward mental health services and treatments, they may be in a position to encourage troubled students to seek formal help (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

The influence of culturally specific (i.e., Asian) values on help-seeking intention also needs to be considered. This could be addressed by ensuring the provision of culturally appropriate and sensitive mental health care (Barletta & Kobayashi, 2007). Counselors with multicultural or bilingual backgrounds could better understand ethnic students’ cultural contexts and provide feelings of familiarity, which, in turn, can encourage students to seek professional help (Liao et al., 2005).

Increasing student awareness and information about mental health problems, however, needs to be balanced with service needs. The help-seeking literature has identified poor student-to-counselor ratios against a high demand for college counseling services, resulting in long waiting lists and limited access to treatment (Stallman, 2012). A triage method of managing demand might include initial structured telephone-based assessments, with students who endorsed clinically significant symptoms being offered follow-up face-to-face consults or, if necessary, urgent referral to community mental health services (Hardy, Weatherford, Locke, DePalma, & D'Iuso, 2011; Stallman, 2012). Students in less clinical distress could be offered psychoeducation. Online symptom checklists or self-help modules moderated by a therapist, as trialled in primary care settings (Gammon, Strand, & Eng, 2014), also have potential to be adapted to students’ specific needs.
Conclusion

The findings of the current meta-analysis highlight the importance of psychosocial variables to college students’ help-seeking intention. Future longitudinal research that draws on help-seeking models will help to elucidate the direction of these relationships, including whether and how help-seeking intention is associated with help-seeking behavior, that is, students’ actual utilization of mental health services and psychological treatments.
References

References marked with an asterisk indicate studies included in the meta-analysis.


## Table A1

**Supplemental Material. Descriptive Information and Methodological Characteristics of Eighteen Included Studies**

<table>
<thead>
<tr>
<th>First Author</th>
<th>N</th>
<th>Gender (n)</th>
<th>Ethnicity</th>
<th>Psychosocial variables included</th>
<th>Help-seeking intention measure used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cepeda-Benito (1998)</td>
<td>732</td>
<td>Male (256) Female (476)</td>
<td>Caucasian American (73%); Hispanic American (14%); African American (4%); Asian American (3%); Native American (2%)</td>
<td>Attitudes toward seeking professional psychological help; Social support; Self-concealment; Psychological distress</td>
<td>ISCI</td>
</tr>
<tr>
<td>Kahn (2003)</td>
<td>320</td>
<td>Male (50) Female (270)</td>
<td>Caucasian American (84%); African American (8%); Latino American (2%); Asian American (2%); Other (3%)</td>
<td>Attitudes toward seeking professional psychological help; Social support; Psychological distress; Self-disclosure</td>
<td>ISCI</td>
</tr>
<tr>
<td>Kelly (1995)</td>
<td>256</td>
<td>Male (70) Female (186)</td>
<td>Caucasian American (90%); African American (5%); Asian American (3%); Other (2%)</td>
<td>Attitudes toward seeking professional psychological help; Social support; Self-concealment</td>
<td>ISCI</td>
</tr>
<tr>
<td>Kim (2003)</td>
<td>242</td>
<td>Male (102) Female (140)</td>
<td>Asian American</td>
<td>Attitudes toward seeking professional psychological help; Adherence to Asian values</td>
<td>24-item PPI</td>
</tr>
<tr>
<td>Kim (2009)</td>
<td>110</td>
<td>Male (45) Female (65)</td>
<td>Asian American</td>
<td>Attitudes toward seeking professional psychological help</td>
<td>24-item PPI</td>
</tr>
<tr>
<td>Leech (2007)</td>
<td>519</td>
<td>Male (86) Female (427) u/a (6)</td>
<td>Not reported</td>
<td>Attitudes toward seeking professional psychological help; Social support; Self-concealment; Psychological distress</td>
<td>ISCI</td>
</tr>
<tr>
<td>Liao (2005)</td>
<td>538</td>
<td>Male (230) Female (308)</td>
<td>Caucasian American (63%); Asian and Asian American (38%)</td>
<td>Attitudes toward seeking professional psychological help; Social support; Self-concealment; Psychological distress</td>
<td>24-item PPI</td>
</tr>
<tr>
<td>Lopez (1998)</td>
<td>253</td>
<td>Male (95) Female (157) u/a (1)</td>
<td>Caucasian American (78%); African American (14%); Asian American (2%); Hispanic-Latino American (2%); multiracial (2%)</td>
<td>Attitudes toward seeking professional psychological help; Psychological distress</td>
<td>20-item ISCI</td>
</tr>
<tr>
<td>Mivile (2007)</td>
<td>201</td>
<td>Female (201)</td>
<td>Asian American</td>
<td>Adherence to Asian values; Public stigma</td>
<td>ISCI</td>
</tr>
<tr>
<td>Shaffer(2006)</td>
<td>821</td>
<td>Male (389) Female (432)</td>
<td>Caucasian American (91%); Asian American (2%); African American (2%); multiracial (2%); Latino American (1%); Other (1%)</td>
<td>Attitudes toward seeking professional psychological help; Anticipated utility; Anticipated risk</td>
<td>ISCI</td>
</tr>
<tr>
<td>First Author (Year)</td>
<td>N</td>
<td>Gender (n)</td>
<td>Ethnicity</td>
<td>Psychosocial variables included</td>
<td>Help-seeking intention measure used</td>
</tr>
<tr>
<td>-------------------</td>
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</tr>
<tr>
<td>Vogel (2003)</td>
<td>268</td>
<td>Male (101) Female (167)</td>
<td>Caucasian American (88%); African American (3%); Asian American (6%); Hispanic (2%); Other (1%)</td>
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<tr>
<td>Vogel (2005)</td>
<td>355</td>
<td>Male (118) Female (237)</td>
<td>Caucasian American (85%); Asian American (6%); African American (5%); multiracial (3%); Hispanic American (1%)</td>
<td>Social support; Psychological distress</td>
<td>ISCI</td>
</tr>
<tr>
<td>Vogel (2005)</td>
<td>354</td>
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<td>Caucasian American (84%); African American (5%); Asian American (7%); Hispanic American (1%); Other (3%)</td>
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<td>Vogel (2007)</td>
<td>676</td>
<td>Male (338) Female (338)</td>
<td>Caucasian American (90%); Asian American (4%); African American (2%); Hispanic American (2%); Other (2%)</td>
<td>Attitudes toward seeking professional psychological help; Public stigma</td>
<td>ISCI</td>
</tr>
<tr>
<td>Vogel (2008)</td>
<td>295</td>
<td>Male (146) Female (149)</td>
<td>Caucasian American (78%); Asian American (10%); African American (6%); Native American (2%); Hispanic American (1%); Other (3%)</td>
<td>Anticipated utility; Anticipated risk; Psychological distress</td>
<td>ISCI</td>
</tr>
<tr>
<td>Vogel (2008)</td>
<td>369</td>
<td>Male (196) Female (173)</td>
<td>Caucasian American (91%); African American (2%); Latino American (2%); Asian American (1%); multiracial and other (3%)</td>
<td>Attitudes toward seeking professional psychological help; Public stigma; Anticipated utility; Anticipated risk</td>
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<tr>
<td>Vogel (2010)</td>
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</tbody>
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Table A2

**Supplemental Material. Effect Size r for Each Psychosocial Variable**

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<thead>
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<th>Variable</th>
<th>Scale</th>
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<th># of participants</th>
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<th>Study reference</th>
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<td>-SF</td>
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<td>676</td>
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<tr>
<td><strong>Total</strong></td>
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<td></td>
<td>519</td>
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<td>Vogel et al., 2005</td>
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<td>7</td>
<td>2,902</td>
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<td><strong>Adherence to Asian values</strong></td>
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<td>0.16</td>
<td>-0.13</td>
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Note. $N_{\text{studies}}$ = number of studies contributing to the mean effect size; $N_{\text{participants}}$ = number of participants; $ES_r$ = effect size; $r_w$ = weighted mean effect size; 95% CI = 95% confidence interval; ATSPPH-SF = Attitudes toward Seeking Professional Psychological Help-Short Form; ATSPPH = Attitudes toward Seeking Professional Psychological Help; SPS = 24-item Social Provisions Scale; ISEL = Interpersonal Support Evaluation List; WSSNS = Wilcox Social Support Network Survey; SCS = Self-Concealment Scale; AVS = Asian Values Scale; AVS-R = Asian Values Scale-Revised; HSCL-21 = Hopkins Symptom Checklist-21; 24-item PPI = 24-item Personal Problem Inventory; CES-D = Center for Epidemiological Studies Depression Scale; 20-item ISCI = 20-item Intentions to Seek Counseling Inventory; SSRPH = 5-item Stigma Scale for Receiving Psychological Help; PDD = 12-item Perceived Devaluation-Discrimination scale; PSOSH = 5-item Perceptions for Stigmatization by Others for Seeking Help Scale; DES-anticipated utility = Disclosure Expectations Scale-utility subscale; DES-anticipated risk = Disclosure Expectations Scale-risk subscale; DDI = 12-item Distress Disclosure Index.

*a Weighting only applies to total effect sizes that are based on two or more studies

$p < .05$; **$p < .01$; ***$p < .001$
Table A3

**Supplemental Material. Heterogeneity Index for Each Psychosocial Variable**

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<th>Psychosocial variable</th>
<th>$Q$</th>
<th>$I^2$ (%)</th>
<th>(95% CI for $I^2$)</th>
<th>$N_{fs}$</th>
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<td>Attitudes toward seeking professional psychological help</td>
<td>74.19***</td>
<td>82.48%</td>
<td>(71.82% - 89.11%)</td>
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<tr>
<td>Social support</td>
<td>17.67*</td>
<td>60.40%</td>
<td>(13.97% - 81.77%)</td>
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<tr>
<td>Self-concealment</td>
<td>28.79***</td>
<td>79.16%</td>
<td>(57.20% - 89.85%)</td>
<td>8</td>
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<tr>
<td>Adherence to Asian values</td>
<td>1.05</td>
<td>0%</td>
<td>(0% - 89.60%)</td>
<td>8</td>
</tr>
<tr>
<td>Psychological distress</td>
<td>103.36***</td>
<td>91.29%</td>
<td>(86.12% - 94.54%)</td>
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<tr>
<td>Public stigma</td>
<td>10.77*</td>
<td>62.86%</td>
<td>(1.75% - 85.96%)</td>
<td>10</td>
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<tr>
<td>Anticipated utility</td>
<td>22.40***</td>
<td>82.14%</td>
<td>(58.87% - 92.25%)</td>
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<tr>
<td>Anticipated risk</td>
<td>10.36*</td>
<td>61.39%</td>
<td>(0% - 85.49%)</td>
<td>10</td>
</tr>
<tr>
<td>Self-disclosure</td>
<td>42.34***</td>
<td>95.28%</td>
<td>(89.48% - 97.88%)</td>
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*Note. $Q$ = homogeneity statistics; $I^2$ = the percentage of between-studies variability that is due to heterogeneity; $N_{fs}$ = fail-safe N.*
# Statement of Authorship

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<th>Title of Paper</th>
<th>Predictors of mental health service use by young adults: A systematic review</th>
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</table>
| Publication Status | ✓ Published  
✓ Submitted for Publication  
Γ Accepted for Publication  
Γ Unpublished and Unsubmitted work written in manuscript style |

## Principal Author

| Name of Principal Author (Candidate) | Wenjing Li |
| Contribution to the Paper | Study inception, study design, literature searches, data extraction, statistical analyses, data interpretation and manuscript preparation |
| Overall percentage (%) | 85% |
| Certification: | This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper. |
| Signature | Date 26/08/2016 |

## Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

i. the candidate’s stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate to include the publication in the thesis; and

iii. the sum of all co-author contributions is equal to 100% less the candidate’s stated contribution.

| Name of Co-Author | Diana Dorstyn |
| Contribution to the Paper | Acted in a supervisory capacity during all stages |
| Signature | Date 26/08/2016 |

| Name of Co-Author | Linley Denson |
| Contribution to the Paper | Acted in a supervisory capacity during all stages |
| Signature | Date 26/08/2016 |

Please cut and paste additional co-author panels here as required.
Chapter 3: Study 2

Predictors of mental health service use by young adults: A systematic review

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Preface

The meta-analytic review detailed in the previous chapter identified specific psychosocial variables that relate to university students’ help-seeking intentions. However, the identified influential factors on university students’ help-seeking intentions may not affect their actual use of mental health services. Indeed, questions remain as to the association between intention and actual behaviour (Sheeran, 2002; Webb & Sheeran, 2006). As discussed in Chapter 1, previous researchers have investigated the relationships between a range of biopsychosocial variables and mental health service utilisation among university students and young adults, yet the findings are not conclusive.

Accordingly, the following systematic review was conducted to evaluate and consolidate the available research examining the associations between biopsychosocial variables and young adults’ service use (Li, Dorstyn, & Denson, 2016b). It is important to note that the initial focus of this study was on university students. Due to the limited quantity of studies on this particular topic, the focus was broadened to young adults – a category that includes a large proportion of university students. The findings of this review highlight a need for mental health professionals to be sensitive to the particular demands of young adults (e.g., more personalised support).
Predictors of mental health service use by young adults: A systematic review

Wenjing Li, Diana S. Dorstyn, and Linley A. Denson

School of Psychology, Faculty of Health Sciences, University of Adelaide, South Australia
Abstract

Objective: The purpose of this review was to systematically evaluate the available heterogeneous research examining determinants of mental health service use among young adults. Methods: Nine electronic databases were searched to identify quantitative studies examining sociodemographic and psychological variables predictive of, or associated with, mental health service use. Included studies were examined against the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. Effect size estimates in the form of odds ratios were calculated and classified according to predisposing, enabling, and need factors, consistent with Andersen’s behavioral model of health care. Results: Eighteen studies met all of the inclusion criteria (N = 96,297 participants). Studies generally followed the STROBE recommendations for external validity, although limitations in internal validity were noted. Prior service contact and being homosexual or bisexual, female, or Caucasian were predisposing factors significantly associated with mental health service use. Social support was the single enabling factor identified, although this finding was based on limited data. In relation to need, young adults who reported higher perceived need for professional help or more mental health difficulties were more likely to have utilized services. Conclusions: This review identified subgroups of young adults who are less likely to access mental health support. Future research should focus on developing psychoeducational interventions targeted at young men and racial-ethnic minority groups, in addition to informing young adults of the success of mental health counseling in the absence of a diagnosis.
Investigating biopsychosocial predictors of help seeking among young adults (ages 18-24) is important because mental disorders typically present during young adulthood (Kessler et al., 2007; Royal College of Psychiatrists, 2011), the prevalence of mental illness is high in this age cohort (Australian Institute of Health and Welfare, 2011), and young adults underuse services (Biddle, Gunnell, Sharp, & Donovan, 2004; Eisenberg & Chung, 2012; Karlin, Duffy, & Gleaves, 2008; Rickwood et al., 2005). However, much of the available counseling research has either targeted distinct subgroups, such as college students (Blanco et al., 2008; Flisher, De Beer, & Bokhorst, 2002; Hunt & Eisenberg, 2010), or focused on help-seeking intention as the sole determinant of behavior, despite the questionable relationship between intention and actual service use (Sheeran, 2002; Webb & Sheeran, 2006).

The research examining predisposing (sociodemographic characteristics and health beliefs), enabling (family and community resources), and need (perceived and actual need for services) variables that are thought to predict and explain young adults’ use of mental health services (Andersen, 1995; Barker, 2007) is also characterized by methodological heterogeneity, making it difficult to compare results across studies. Conflicting findings may, in part, reflect different study populations – for example, clinical and nonclinical samples. Being female, not belonging to a racial-ethnic minority group, and having prior positive treatment experiences are predisposing variables associated with higher service use (Broman, 2012; Eisenberg & Chung, 2012; Gulliver et al., 2010; Sosulski & Woodward, 2013). However, gender and race-ethnicity do not consistently predict service use among young adults with psychiatric diagnoses (Aalto-Setala et al., 2002; Cheung & Dewa, 2007; Mojtabai et al., 2002).

In terms of enabling factors, stigma concerns and limited awareness of service options prevent young adults from receiving services (Muir et al., 2009; Rickwood et al., 2005). Accordingly, social support is potentially both an effective buffer against mental health issues.
and a significant facilitator of service use (Albert et al., 1998; Gulliver et al., 2010). However, study outcomes vary with the type of social support measures utilized; significant associations appear only when perceived quality, rather than available quantity, of social support is measured (Albert et al., 1998; Barker, 2007). Similarly, both perceived and evaluated need have demonstrated positive associations with service use (Andrade et al., 2014; Eisenberg et al., 2012a; Sosulski & Woodward, 2013). However, some evidence suggests that individuals with affective symptoms or substance use disorders may be less likely than others to receive treatment (Gayman, Cuddeback, & Morrissey, 2011; Herman et al., 2011; Hunsley et al., 1999; Stallman, 2008; Wu et al., 2007). Use of different diagnostic measures (for example, self-report screening measures versus professional diagnostic criteria) may contribute to these findings. Specifically, fixed-choice answers in a self-report measure may not capture the varied and complex experiences of young adults with mental health needs. Moreover, research suggests that mild to moderate depression symptoms that do not meet diagnostic thresholds can still result in longer-term distress and social impairments among young adults (Allen, Chango, Szwedo, & Schad, 2014).

In summary, biopsychosocial variables that influence young adults’ mental health service use have been investigated, but the findings are inconsistent and require cautious interpretation. This systematic review consolidated the available help-seeking literature by examining potential methodological biases in the published data and quantitatively examining associations between predisposing, enabling, and need variables and young adults’ use of mental health services. The findings highlight potentially important targets to improve mental health in this vulnerable population.
Method

Literature search

Eligible studies were identified through systematic searches of the PubMed, PsycINFO, Scopus, CINAHL, InformIT, Cochrane Library, Web of Science, Embase, and ERIC databases (see Table B1 for key search terms). The initial database search was deliberately kept broad to maximize identification of studies (Lipsey & Wilson, 2001). Reference lists of all eligible articles, relevant meta-analyses, and reviews (Eisenberg et al., 2012a; Gulliver et al., 2010; Hunt & Eisenberg, 2010; Laws & Fiedler, 2013; Nam et al., 2013; Nam et al., 2010; Raunic & Xenos, 2008; Rickwood et al., 2005) were manually searched for additional eligible studies.

Inclusion criteria

Eligible studies examined sociodemographic or standardized psychological (that is, affective or cognitive-behavioral) correlates of mental health service use among young adults (aged 18 to 24 years; Australian Institute of Health and Welfare, 2011; Geiger & Castellino, 2011). This included, but was not limited to, college students aged 18 years and older – a subpopulation primarily consisting of young adults (Broman, 2012; Royal College of Psychiatrists, 2011). Studies targeting specific vulnerable or special-service populations – namely, homeless young adults, young veterans, and chronic illness or disability groups – were excluded due to their different treatment needs (Department of Veterans' Affairs, 2013; Edidin, Ganim, Hunter, & Karnik, 2012). Consistent with existing research (Australian Institute of Health and Welfare, 2013; Rickwood & Thomas, 2012), mental health services were broadly defined as community mental health services, counseling services, or services provided in hospital departments, with treatment delivered by trained mental health professionals (that is, general practitioners, nurses, psychiatrists, psychologists, psychotherapists, counselors, or social workers), regardless of duration of service use or data
collection method (that is, prospectively via self-report or retrospectively via medical records). Eligible studies were published in English in a peer-reviewed journal between January 1990 and June 2015. To be eligible, a study had to provide sufficient data for calculation of odds ratio (OR) effect sizes (for example, Pearson’s r). Finally, to ensure validity and generalizability of these findings, empirical studies had to report variables that were investigated in at least three included studies (Valentine et al., 2010). If studies employed overlapping samples, only the study providing the largest amount of information (that is, with the largest sample or with a similar sample size and more independent variables) was included to ensure data independence (Lipsey & Wilson, 2001; Rosenthal, 1991). Similarly, from the single longitudinal study reviewed, only the most recent data set was utilized (that is, data from the third wave of data collection - young adults with a mean age of 21.5 years; Yu, Adams, Burns, Brindis, & Irwin, 2008).

In total, 18 eligible studies with independent data were included in this systematic review. A flow chart of the study selection process (Figure B1) can be found in Appendix B.

**Data collection and quality assessment**

Consistent with reporting guidelines for systematic reviews (American Psychological Association, 2010), a data extraction sheet was developed. This included sample characteristics (for example, sociodemographic variables) and methodology (for example, study design) per study.

For ease of data interpretation, individual outcome measures were classified according to the variables they represented – specifically, prior use of services, sexual orientation, gender, race-ethnicity, social support, psychological distress, perceived need for help, depression, and anxiety. These were then broadly grouped as predisposing, enabling, or
need factors. Examination of age as a moderator was considered but precluded by the narrow age range of the sample. Data collection was completed by the first author.

Included studies were assessed for compliance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement (Vandenbroucke et al., 2007). Each STROBE criterion was rated as met, met with some limitations, or not met. This evaluation process was independently conducted by the first and second authors, with good interrater reliability demonstrated ($r = .90, p < .001$).

**Statistical analyses**

The OR was the main effect size metric used in this review. An OR represents the odds that an outcome (that is, use or nonuse of mental health services) will occur given a particular exposure (that is, the examined predisposing, enabling, or need variables; Higgins & Green, 2011; Lipsey & Wilson, 2001). An OR provides a common standardized metric when analyses compare otherwise nonidentical outcomes of interest, such as continuous versus categorical variables (Chinn, 2000). Unlike effect size $r$, the possible range of OR values is not affected by the distribution of the examined variables. For this review, an OR value of 1 suggested that there was no relationship between service use and the investigated biopsychosocial variable. A value less than 1 meant that the biopsychosocial variable was associated with decreased odds of service use, whereas a value greater than 1 implied that the variable was associated with greater likelihood of use (Lipsey & Wilson, 2001).

Effect sizes were calculated in several stages with the assistance of meta-analysis with Interactive eXplanations (MIX) 2.0 software (Bax, 2011). First, data related to any association between service use and a sociodemographic or psychological variable were extracted from each study. Second, Pearson’s $r$ (Herman et al., 2011; Miville & Constantine, 2006; Roddenberry & Renk, 2010; Rosenthal & Wilson, 2008) and $2 \times 2$ frequency tables
(Oliver, Reed, Katz, & Haugh, 1999; Roh et al., 2009) were converted to ORs by using Wilson’s effect size calculator (Wilson, 2002). Most studies directly provided OR estimates, necessitating few conversions. To ensure statistical independence, if a total score and subscores for a standardized psychosocial measure were reported, only the total score was used. If a study provided more than one OR for a single sociodemographic variable (for example, for each racial-ethnic minority group), an average OR was calculated for that study (Cooper & Hedges, 1994; Lipsey & Wilson, 2001). Third, ORs that were operationalized in the same manner across studies that used the same design were pooled to produce an average OR. Prior to pooling, each OR was converted into a log OR and then weighted by its inverse variance. The weighted mean log ORs were then transformed back to ORs for interpretation (Cooper & Hedges, 1994; Higgins & Green, 2011; Lipsey & Wilson, 2001). Finally, 95% confidence intervals (CIs) were calculated to examine the precision of each OR (Higgins & Green, 2011). The conservative random-effects model was selected for these calculations (Cumming, 2012).

Results

Sample characteristics

Eighteen independent studies met all the inclusion criteria, resulting in a total of 96,297 participants (Table 3). The studies included 16 cross-sectional studies, one longitudinal study (seven years of data), and one single-birth cohort study of young adults (born in 1987 and followed to 2008). More studies recruited among college students (11 studies) than from the general young adult population (seven studies); however, because of larger samples ($N = 22,194$ versus $N = 74,103$, respectively), data from young adults in the general population predominate in this review. The pooled mean age was $21 \pm 2.3$ (six studies), although this mean was based on limited data. Although all studies reported an eligible age range, not all specified the mean age of the sample. Similarly, data were not
always reported for gender ratios (14 studies; male-to-female ratio of 1 to 1.21) or for key sociocontextual variables, such as employment status (four studies).
<table>
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<th>Study</th>
<th>Country</th>
<th>N in sample</th>
<th>Age (M)</th>
<th>Gender</th>
<th>Sample type (ascertainment)</th>
<th>Race-ethnicity</th>
<th>Mental health services</th>
<th>Period of use measured</th>
<th>Data source</th>
</tr>
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<tbody>
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<td>Bergeron et al., 2005</td>
<td>Canada</td>
<td>1,092</td>
<td>≥ 18</td>
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<td>Clinical (WMH-CIDI modified version)</td>
<td>Canadian, 94%; other, 6%</td>
<td>Mental health professionals, hospitalization</td>
<td>Past 12 months</td>
<td>Self-report</td>
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<td>Biddle et al., 2004</td>
<td>UK</td>
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<td>Males, 174; females, 270</td>
<td>Clinical (GHQ-12; cutoff &gt; 4)</td>
<td>British</td>
<td>General practitioners</td>
<td>Past 4 weeks</td>
<td>Self-report</td>
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<tr>
<td>Downs and Eisenberg, 2012</td>
<td>US</td>
<td>543</td>
<td>≥ 18</td>
<td>Males, 179; females, 360; missing, 4</td>
<td>Clinical (students with suicidal ideation)</td>
<td>Asian American, 6%; Black American, 9%; Hispanic/Latino, 6%; multiracial, 11%; White, 6%; other, 8%</td>
<td>Therapy, counseling, psychotropic medications</td>
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<td>US</td>
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<td>≥ 18</td>
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<td>White, 61%; Black, 6%; Asian, 20%; Hispanic, 4%; multiracial, 5%; other, 4%</td>
<td>Therapy, counseling, psychotropic medications</td>
<td>Past 12 months</td>
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<td>Eisenberg et al., 2011</td>
<td>US</td>
<td>14,175</td>
<td>≥ 18</td>
<td>Males, 6,152; females 8,023</td>
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<td>Asian American, 9%; Black American, 6%; Hispanic, 8%; multiracial, 5%; other, 6%; White, 66%</td>
<td>Therapy, counseling, psychotropic medications</td>
<td>Past 12 months</td>
<td>Self-report</td>
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<td>Flisher et al., 2002</td>
<td>South Africa</td>
<td>905</td>
<td>≥ 19</td>
<td>Males, 377; females, 528</td>
<td>Clinical (students of university health services)</td>
<td>South African-black, 30%; colored, 13%; Indian, 4%; White, 53%</td>
<td>Psychiatrists or psychologists</td>
<td>Jan. 1, 1991 – Dec. 31, 1993</td>
<td>Medical records</td>
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<td>US</td>
<td>672</td>
<td>20</td>
<td>Males, 424; females, 248</td>
<td>Clinical (DSM-IV)</td>
<td>White American, 34%; Cuban, 27%; Hispanic, 26%; African American, 13%</td>
<td>Medical doctors, mental health specialists, other professionals (for example, counselors)</td>
<td>Any time in the past</td>
<td>Self-report</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>N in sample</td>
<td>Age (M)</td>
<td>Gender</td>
<td>Sample type (ascertainment)</td>
<td>Race-ethnicity</td>
<td>Mental health services</td>
<td>Period of use measured</td>
<td>Data source</td>
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<td>589</td>
<td>19.7</td>
<td>Male, females</td>
<td>Nonclinical</td>
<td>European American, 29%; Native Hawaiian, 18%; Japanese, 16%; Filipino, 11%; other Asian, 12%; other Pacific Islander, 7%; other, 7%</td>
<td>Counseling, psychiatric medications</td>
<td>Past 12 months and any time in the past</td>
<td>Self-report</td>
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<td>≥ 18</td>
<td>Male, females</td>
<td>Nonclinical</td>
<td>African American, 95%; other, 5%</td>
<td>Mental health professionals, specialty clinics (for example, hospitals)</td>
<td>Past 12 months</td>
<td>Self-report</td>
</tr>
<tr>
<td>Mitchell et al., 2013</td>
<td>US</td>
<td>166</td>
<td>≥ 18</td>
<td>Not reported</td>
<td>Clinical (DSM-IV)</td>
<td>Not reported</td>
<td>24-hour psychiatric emergency system</td>
<td>Any time in 2008</td>
<td>Medical records</td>
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<td>Miville and Constantine, 2006</td>
<td>US</td>
<td>162</td>
<td>19.6</td>
<td>Male, females</td>
<td>Nonclinical</td>
<td>Mexican American</td>
<td>Professional psychological services (for example, counseling)</td>
<td>Past 12 months</td>
<td>Self-report</td>
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<tr>
<td>Oliver et al., 1999</td>
<td>US</td>
<td>248</td>
<td>≥ 18</td>
<td>Male, females</td>
<td>Nonclinical</td>
<td>White, 85%; Black, 7%; Hispanic, 1%; Asian, 5%; other, 2%</td>
<td>Professional counseling services</td>
<td>Any time in the past</td>
<td>Self-report</td>
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<tr>
<td>Paananen et al., 2013b</td>
<td>Finland</td>
<td>58,320</td>
<td>≥ 21</td>
<td>Not reported</td>
<td>Clinical (hospital discharge records)</td>
<td>Finnish</td>
<td>Specialized psychiatric care</td>
<td>Inpatient, 1987-2008; outpatient, 1998-2008</td>
<td>Hospital discharge records</td>
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<td>Roddenberry and Renk, 2010</td>
<td>US</td>
<td>159</td>
<td>24.8</td>
<td>Male, females</td>
<td>Nonclinical</td>
<td>Caucasian American, 68%; African American, 13%; Hispanic American, 11%; other, 9%</td>
<td>Health services</td>
<td>Within week before participating</td>
<td>Self-report</td>
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<tr>
<td>Roh et al., 2009</td>
<td>South Korea</td>
<td>689</td>
<td>≥ 18</td>
<td>Male, females</td>
<td>Clinical (BDI; cutoff &gt;16)</td>
<td>South Korean</td>
<td>Psychiatric services, psychiatric medications</td>
<td>Any time in the past</td>
<td>Self-report</td>
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### Table 3

*Continued*

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<th>Study</th>
<th>Country</th>
<th>N in sample</th>
<th>Age (M)</th>
<th>Gender</th>
<th>Sample type (ascertainment&lt;sup&gt;a&lt;/sup&gt;)</th>
<th>Race-ethnicity</th>
<th>Mental health services</th>
<th>Period of use measured</th>
<th>Data source</th>
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<tbody>
<tr>
<td>Rosenthal and Wilson, 2008</td>
<td>US</td>
<td>1,773</td>
<td>18</td>
<td>Males, 566; females, 1,207</td>
<td>Nonclinical</td>
<td>White, 10%; Asian, 13%; African American, 49%; Latino, 28%</td>
<td>Counseling services</td>
<td>Past 6 months</td>
<td>Self-report</td>
</tr>
<tr>
<td>Vanheusden et al., 2008</td>
<td>Netherlands</td>
<td>2,258</td>
<td>≥ 19</td>
<td>Not reported</td>
<td>Clinical (ASR; scores in borderline or clinical range)</td>
<td>Dutch</td>
<td>Primary care (for example, general practitioner), specialty care (for example, psychotropic medications)</td>
<td>Past 12 months</td>
<td>Self-report</td>
</tr>
<tr>
<td>Yu et al., 2008&lt;sup&gt;c&lt;/sup&gt;</td>
<td>US</td>
<td>10,817</td>
<td>21.5</td>
<td>Males, 5,433; females, 5,384</td>
<td>Nonclinical</td>
<td>White, 66%; Hispanic, 12%; Black, 16%; Asian, 4%; Native American, 2%; other, 1%</td>
<td>Professional counseling services</td>
<td>Past 12 months</td>
<td>Self-report</td>
</tr>
</tbody>
</table>

*Note.* <sup>a</sup>ASR = Adult Self-Report. BDI = Beck Depression Inventory. GHQ-12 = General Health Questionnaire. WMH-CIDI = World Mental Health Composite International Diagnostic Interview.

<sup>b</sup> Cohort study.

<sup>c</sup> Longitudinal study.
Only 16% of participants (16 studies) had used any form of mental health services; nine studies recruited young adults from a nonclinical population, and nine used clinical samples (that is, individuals with a diagnosed substance use, anxiety, or affective disorder). There were no significant differences between these two sample groups in terms of sample size (18 studies; \( U = 37.0, Z = -.31, p = .76, r = -.08 \)), age (six studies; \( U = 2.0, Z = -.29, p = .77, r = -.12 \)), or gender (14 studies; \( U = 22.0, Z = -.26, p = .80, r = -.07 \)).

Most studies used prospective data from a self-report measure (15 studies). Only three studies extracted retrospective data from medical records. Thirteen studies defined mental health services in terms of a multidisciplinary team of health professionals, whereas five investigated a single specific service (for example, general practitioner). The specific type of care provided (that is, primary, secondary, or tertiary) was not routinely indicated.

**Reporting quality**

Reporting of results across the included studies revealed an attrition bias; no studies reported sensitivity analyses, and only one reported on the management of missing data (Herman et al., 2011). Selection biases were also inherent, with studies routinely failing to report key sociocontextual variables (for example, employment status) and potentially confounding variables (for example, psychotropic medication use). However, studies generally addressed potential detection and reporting biases, in accordance with STROBE, by providing a clear description of theoretical and empirical backgrounds, study objectives, and design and by using valid and reliable psychological instruments (Viswanathan et al., 2012).

**Predisposing, enabling, and need variables**

Both clinical and nonclinical samples displayed similar sociodemographic patterns of mental health service use. Young women were twice as likely as young men to access services, and members of racial-ethnic minority groups reported lower use (Table 4). The
gender difference was confirmed by the longitudinal study (Yu et al., 2008) and the cohort study (Paananen et al., 2013). Prior contact with services was associated with increased future use in clinical samples: individuals with a history of service use were almost four times more likely than those without such a history to use services. With regard to social vulnerability, two studies found that homosexual or bisexual individuals were more likely than heterosexuals to seek help (Eisenberg et al., 2007; Eisenberg, Hunt, Speer, & Zivin, 2011).
Table 4

Predisposing, Enabling, and Need Factors Associated With Young Adults’ Use of Mental Health Services in 18 Reviewed Studies

<table>
<thead>
<tr>
<th>Factor, variable, and N of studies</th>
<th>Scale (subscale)a</th>
<th>Design</th>
<th>Sample</th>
<th>N in sample</th>
<th>ORb</th>
<th>95% CI</th>
<th>Studies</th>
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<td>Prior use of services</td>
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<tr>
<td>2</td>
<td>Cross-sectional</td>
<td>Clinical</td>
<td>610</td>
<td>3.47**</td>
<td>1.47–8.19</td>
<td>Mitchell et al., 2013; Biddle et al., 2004</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Longitudinal</td>
<td>Nonclinical</td>
<td>10,817</td>
<td>1.42</td>
<td>.98–2.07</td>
<td>Yu et al., 2008</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>500</td>
<td>1.20</td>
<td>.76–1.91</td>
<td>Maulik et al., 2011</td>
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<tr>
<td>Nonheterosexual sexual orientation (reference: heterosexual)c</td>
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<tr>
<td>2</td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>16,960</td>
<td>1.83***</td>
<td>1.37–2.44</td>
<td>Eisenberg et al., 2011; Eisenberg et al., 2007</td>
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<tr>
<td>1</td>
<td>Cross-sectional</td>
<td>Clinical</td>
<td>543</td>
<td>1.39</td>
<td>.97–2.01</td>
<td>Downs and Eisenberg, 2012</td>
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<td>Female (reference: male)</td>
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<td>Longitudinal</td>
<td>Nonclinical</td>
<td>10,817</td>
<td>1.71**</td>
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<td>Clinical</td>
<td>58,320</td>
<td>1.48***</td>
<td>1.41–1.55</td>
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<td>6,159</td>
<td>1.45*</td>
<td>1.04–2.03</td>
<td>Downs and Eisenberg, 2012; Gayman et al., 2011; Vanheusden et al., 2008; Bergeron et al., 2005; Roh et al., 2009; Flisher et al., 2002</td>
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<td>17,708</td>
<td>1.29*</td>
<td>1.00–1.67</td>
<td>Maulik et al., 2011; Oliver et al., 1999; Eisenberg et al., 2011; Eisenberg et al., 2007</td>
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<td>Factor, variable, and N of studies</td>
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<td>Design</td>
<td>Sample</td>
<td>N in sample</td>
<td>OR</td>
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<td>Studies</td>
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<td><strong>Predisposing factor</strong></td>
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<td>1</td>
<td></td>
<td>Longitudinal</td>
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<td>10,817</td>
<td>.88</td>
<td>.37–2.45</td>
<td>Yu et al., 2008</td>
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<td>3</td>
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<td>Clinical</td>
<td>2,307</td>
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<td>2</td>
<td></td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>16,960</td>
<td>.63**</td>
<td>.47–.83</td>
<td>Eisenberg et al., 2011; Eisenberg et al., 2007</td>
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<td>Clinical</td>
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<td>SSAS</td>
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<td>Nonclinical</td>
<td>500</td>
<td>.99</td>
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<td>Warm and trusting relationships</td>
<td>Cross-sectional</td>
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<td>543</td>
<td>.88**</td>
<td>.80–.97</td>
<td>Downs and Eisenberg, 2012</td>
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<td>DSM-IV</td>
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<td>Clinical</td>
<td>166</td>
<td>35.51***</td>
<td>7.31–172.65</td>
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<td>1,773</td>
<td>3.52***</td>
<td>2.39–5.18</td>
<td>Rosenthal and Wilson, 2008</td>
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<td>Clinical</td>
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<td>.44–24.41</td>
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<td>Clinical</td>
<td>1,092</td>
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<td>.41–4.47</td>
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<td>Clinical</td>
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<td>1.03*</td>
<td>1.00–1.06</td>
<td>Vanheusden et al., 2008</td>
</tr>
</tbody>
</table>
### Table 4

*Continued*

<table>
<thead>
<tr>
<th>Factor, variable, and N of studies</th>
<th>Scale (subscale)</th>
<th>Design</th>
<th>Sample</th>
<th>N in sample</th>
<th>OR&lt;sup&gt;b&lt;/sup&gt;</th>
<th>95% CI</th>
<th>Studies</th>
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<tr>
<td>Need factor</td>
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<td>2</td>
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<td>Clinical</td>
<td>2,801</td>
<td>4.89***</td>
<td>2.38–10.02</td>
<td>Downs and Eisenberg, 2012; Vanheusden et al., 2008</td>
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<td>1</td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>500</td>
<td>1.66*</td>
<td>1.03–2.69</td>
<td>Maulik et al., 2011</td>
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<td>Depression (reference: without depression)</td>
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<td>1</td>
<td>CES-D</td>
<td>Longitudinal</td>
<td>Nonclinical</td>
<td>10,817</td>
<td>3.61***</td>
<td>2.58–5.06</td>
<td>Yu et al., 2008</td>
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<td>2</td>
<td>CES-D</td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>1,089</td>
<td>2.92***</td>
<td>1.80–4.75</td>
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<td>1</td>
<td>DSM-IV</td>
<td>Cross-sectional</td>
<td>Clinical</td>
<td>672</td>
<td>1.33</td>
<td>.86–2.06</td>
<td>Gayman et al., 2011</td>
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<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>16,960</td>
<td>1.08***</td>
<td>1.07–1.09</td>
<td>Eisenberg et al., 2007; Eisenberg et al., 2011</td>
</tr>
<tr>
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<td>BSI (depression)</td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>159</td>
<td>.94</td>
<td>.36–2.43</td>
<td>Roddenberry and Renk, 2010</td>
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<td>Anxiety (reference: without anxiety)</td>
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<td>1</td>
<td>PHQ-9 (anxiety)</td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>2,785</td>
<td>2.97**</td>
<td>1.46–6.06</td>
<td>Eisenberg et al., 2007</td>
</tr>
<tr>
<td>1</td>
<td>BAI</td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>500</td>
<td>2.23***</td>
<td>1.40–3.56</td>
<td>Maulik et al., 2011</td>
</tr>
<tr>
<td>1</td>
<td>BSI (anxiety)</td>
<td>Cross-sectional</td>
<td>Nonclinical</td>
<td>159</td>
<td>1.66</td>
<td>.69–3.99</td>
<td>Roddenberry and Renk, 2010</td>
</tr>
<tr>
<td>1</td>
<td>WMH-CIDI</td>
<td>Cross-sectional</td>
<td>Clinical</td>
<td>1,092</td>
<td>1.46</td>
<td>.62–3.42</td>
<td>Bergeron et al., 2005</td>
</tr>
<tr>
<td>1</td>
<td>DSM-IV</td>
<td>Cross-sectional</td>
<td>Clinical</td>
<td>672</td>
<td>.89</td>
<td>.45–1.77</td>
<td>Gayman et al., 2011</td>
</tr>
</tbody>
</table>
Note. *ASR = Adult Self-Report; BAI = Beck Anxiety Inventory; BSI = Brief Symptom Inventory; CES-D = Center for Epidemiological Studies Depression Scale; DDTSI = dysphoria domain of the Trauma Symptom Inventory; GHQ-12 = General Health Questionnaire; K10 = Kessler Psychological Distress Scale; MOS = Medical Outcomes Survey Social Support Survey; MSPSS = Multidimensional Scale of Perceived Social Support; PHQ-9 = 9-item Patient Health Questionnaire; SSAS = Social Support for Adolescents Scale; WMH-CIDI = World Mental Health Composite International Diagnostic Interview.

b Weighting applies only to total effect sizes that are based on two or more studies.

c Nonheterosexual groups include bisexual, gay, lesbian, queer, and other.

d Racial-ethnic groups were defined different across studies.

e 1 item from a standardized multi-item measure

*p < .05, **p < .01, ***p < .001.
Only one enabling variable, social support, was identified, and it was measured inconsistently (Table 4). Of the four self-report measures, only the Multidimensional Scale of Perceived Social Support and a single item measuring the existence of “warm and trusting relationships” produced significant associations, with young adults who reported a higher quality of social support being less likely to access services (Downs & Eisenberg, 2012; Miville & Constantine, 2006). Limited data were obtained for other potentially enabling variables, including health insurance (two studies), residential area (two studies), and financial status (three studies). These contextual variables were also defined inconsistently. For example, one study defined residential area in terms of province (Bergeron, Poirier, Fournier, Roberge, & Barrette, 2005), whereas another study categorized residence as rural, semiurban, or urban (Paananen et al., 2013).

Diverse measures were used to assess mental health status. Psychological distress (as measured by Adult Self-Report and the *DSM-IV*) was the only significant predictor for the clinical group (Mitchell, Kader, Haggerty, Bakhai, & Warren, 2013; Vanheusden et al., 2008), whereas depression (as measured by Center for Epidemiological Studies Depression Scale [CES-D] and Patient Health Questionnaire [PHQ-9]), anxiety (as measured by the Beck Anxiety Inventory and PHQ-9), and psychological distress (as measured by the dysphoria domain of the Trauma Symptom Inventory) were each significant predictors of service use among the general (nonclinical) young adult population (Eisenberg et al., 2007; Herman et al., 2011; Maulik, Mendelson, & Tandon, 2011; Rosenthal & Wilson, 2008; Yu et al., 2008). Notably, probable diagnoses of depression (based on CES-D screening) significantly increased the odds of service use in the longer term among the nonclinical group (Table 4).

Regarding perceived need, participants in clinical samples who reported a need for mental health support were almost five times more likely to access services than those who perceived
no need for professional help (Downs & Eisenberg, 2012; Vanheusden et al., 2008). This significant relationship was also found in a nonclinical sample (Maulik et al., 2011).

Discussion

This systematic review used meta-analytic techniques to quantitatively evaluate data from 18 studies investigating correlates of young adults’ mental health service use. Studies generally applied STROBE criteria, with high external validity demonstrated. Both nonmodifiable and modifiable variables were identified as significant predisposing, enabling, and need factors in service utilization. These included prior use of services, sexual orientation, gender, and race-ethnicity, in addition to social support, affect, and perceived need for help.

The strongest association was between prior and future use of services in the clinical sample. It follows that service use may be a learned behavior; positive past experiences and familiarity may build trust in available services, which may, in turn, encourage future use (Barker, 2007). However, the single longitudinal study conducted with a nonclinical sample reported that receiving mental health care in adolescence did not predict service use in young adulthood (Yu et al., 2008). Future longitudinal research is therefore needed to confirm any causal relationship between past and future use by young adults.

Homosexual or bisexual young adults were more likely than heterosexuals to access professional support in the general young adult population. These socially vulnerable subgroups are also more likely to have a diagnosis of at least one mental disorder, which may, in turn, explain higher service use (O'Keeffe, 2013; Said, Kypri, & Bowman, 2013). As in previous studies (Rickwood et al., 2007; Sosulski & Woodward, 2013), gender was a significant predictor of service use across samples. The suggestion is that young women may be more distressed than young men (Australian Institute of Health and Welfare, 2011) and
better at self-monitoring – and thus more likely to share problems with professionals (Gudmundsdottir & Vilhjalmsson, 2010). However, further research recruiting samples with more balanced gender ratios is needed. The significant association between racial-ethnic background and service use, which is consistent with the counseling literature (Eisenberg & Chung, 2012; Herman et al., 2011), also needs to be interpreted cautiously given that the race-ethnicity of the samples was not routinely reported.

The impact of enabling variables on service use could not be confirmed in this review. Although the studies evaluated the quality of available social support — a variable that has been linked to service utilization (Albert et al., 1998; Barker, 2007) — significant associations were found for two measurements only. Similarly, a recent meta-analytic review of college students’ intentions to use services reported a nonsignificant correlation between intention and various social support measures (Li et al., 2014). It would be valuable to further evaluate predictive effects of individual measurements of social support on young adults’ help-seeking patterns, with careful attention to measurement issues.

As in previous studies (Andersen, 1995; Andrade et al., 2014; Eisenberg et al., 2012a; Zivin et al., 2009), perceived need for help was associated with service use across samples. However, data related to evaluated need suggested that in clinical samples, diagnosis of a mental disorder was not independently associated with use. The strength of such an association may vary with psychiatric comorbidity and illness severity (Eisenberg, Speer, & Hunt, 2012b; Mojtabai et al., 2002; Sosulski & Woodward, 2013; Vilhjalmsson & Gudmundsdottir, 2014). These results may also reflect the use of diverse self-report inventories, with different cutoff scores determining symptom severity and clinical cases. Future reviews should investigate how measurement type (for example, screening measures versus professional diagnostic criteria) and the level of symptomatology affect associations between distress and service use.
Limitations

Our review had several limitations. First, although the narrow 95% CIs demonstrated the strength of the findings, the small number of included studies for some variables (for example, prior use of services) limits the generalizability of those results. Second, methodological moderators (for example, study location) were not formally analyzed because most of the studies reviewed were conducted in the United States. Furthermore, important contextual variables, such as employment status, could not be examined due to the limited available data (Moayyedi, 2004). Future empirical studies should consistently report living arrangements, health insurance benefits, and employment status to facilitate examination of their influence on young adults’ help seeking.

Third, we adopted a broad definition of mental health services because our focus was on variables associated with use of any type of service (use versus nonuse). Research suggests, however, that correlates of service use may vary by service type and amount (Leaf & Martha, 1987; Leaf et al., 1988; Vilhjalmssson & Gudmundsdottir, 2014). For instance, gender differences in types of services used have long been acknowledged, with females preferring general medical settings (Gudmundsdottir & Vilhjalmssson, 2010; Leaf & Martha, 1987). Future empirical studies and subsequent reviews should separately investigate the correlates of using different types of service. The broad definition and primary focus on service correlates also make it difficult to comprehensively evaluate and draw conclusions about characteristics of young adults using different forms of services (for example, community clinics or student counseling services). Future studies are therefore recommended to examine the characteristics of young adults who are receiving treatments or who successfully complete treatments.

Fourth, this study examined only independent relationships between the identified variables, whereas researchers have outlined dynamic and bidirectional interactions between
predisposing, enabling, and need factors associated with service use (Andersen, 1995; Broman, 2012; Gudmundsdottir & Vilhjalmsson, 2010; Spendelow & Jose, 2010). This includes an interactive effect between sociodemographic variables and psychological distress in the prediction of service use (Gudmundsdottir & Vilhjalmsson, 2010). Future longitudinal research on help seeking may elucidate the interactions of the identified variables.

Implications

Consistent with Andersen’s theoretical framework, personal and attitudinal factors (that is, predisposing and need variables) were found to significantly influence help seeking among young adults. Similar findings have also been obtained with older adults; need factors were the most important predictors of service use in this age cohort (Karlin et al., 2008; Klap, Unroe, & Unützer, 2003). It follows that psychoeducational campaigns that inform perceptions of mental health problems and services, which have been recommended to increase service use among older adults (Karlin et al., 2008), can also enhance young adults’ utilization of services. This education, which could be widely disseminated via telecommunication technology and social media, might target knowledge of key physical, cognitive, and behavioral symptoms of mental disorders (for example, depression) and treatment efficacy in order to improve attitudes toward mental health conditions and treatment (Barker, 2007; Mojtabai et al., 2002; Muir et al., 2009). Broader public education campaigns should also be considered, particularly because young adults’ perceptions of urgency can be influenced by parents and peers, who may initiate help seeking on their behalf (Barker, 2007; Muir et al., 2009; Rickwood et al., 2007).

The identified gender differences may partly reflect masculine norms, including reliance on one’s own strengths and resources (Berger, Addis, Green, Mackowiak, & Goldberg, 2013). Thus, by challenging stereotypes and reducing perceived stigma, use of social media to normalize utilization of professional services may help narrow the gender gap
in service use and encourage young men to seek professional help (Martinez-Hernaez, Digiacomo, Carceller-Maicas, Correa-Urquiza, & Martorell-Poveda, 2014).

The findings support the importance of enhancing young adults’ satisfaction with services by promoting positive experiences in order to facilitate future use. Mental health professionals should consider the specific demands, preferences, and needs of young adults, especially those from potentially vulnerable subgroups, when providing care. This includes their preference for personalized and age-appropriate services and flexible interpersonal communication styles (Martinez-Hernaez et al., 2014; Watsford et al., 2013). Clinicians must be specifically trained in cultural sensitivity and competence to increase intake, retention, and successful treatment of individuals from racial-ethnic minority groups and other vulnerable young clients (Eisenberg et al., 2012a; Kearney, Draper, & Baron, 2005).

Conclusions

This systematic review has identified the importance of predisposing, enabling, and need variables in the enhancement of young adults’ use of mental health services. Recommendations for improving research and treatment are made on the basis of the findings. Large-scale longitudinal research is required to determine whether the biopsychosocial characteristics associated with service use remain stable or change over time.
References


**Appendix B**

Table B1

*Supplemental Material. Key Terms Used in the Electronic Database Searches*

<table>
<thead>
<tr>
<th>OR</th>
<th>AND</th>
</tr>
</thead>
<tbody>
<tr>
<td>College students</td>
<td>Community mental health service(s)</td>
</tr>
<tr>
<td>Higher education</td>
<td>Counseling</td>
</tr>
<tr>
<td>Undergraduate students</td>
<td>Counseling center(s)</td>
</tr>
<tr>
<td>University students</td>
<td>Counseling service(s)</td>
</tr>
<tr>
<td>Young adults</td>
<td>Health care seeking</td>
</tr>
<tr>
<td></td>
<td>Health service(s)</td>
</tr>
<tr>
<td></td>
<td>Help-seeking</td>
</tr>
<tr>
<td></td>
<td>Help seeking</td>
</tr>
<tr>
<td></td>
<td>Help seeking behavior(u)r(s)</td>
</tr>
<tr>
<td></td>
<td>Mental health</td>
</tr>
<tr>
<td></td>
<td>Mental health care</td>
</tr>
<tr>
<td></td>
<td>Mental health service(s)</td>
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<tr>
<td></td>
<td>Mental health service use</td>
</tr>
<tr>
<td></td>
<td>Mental health service utilization</td>
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<tr>
<td></td>
<td>Mental health treatment</td>
</tr>
<tr>
<td></td>
<td>Professional psychological help</td>
</tr>
<tr>
<td></td>
<td>Psychiatry</td>
</tr>
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<td></td>
<td>Psychiatric medication</td>
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<td>Psychological service(s)</td>
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<td>Psychopharmacology</td>
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<td>Psychotherapy</td>
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<td>Psychotropic</td>
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<td></td>
<td>Treatment utilization</td>
</tr>
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<td>University health service(s)</td>
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Figure B1. Supplemental Material. Flowchart of study selection.
## Statement of Authorship

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<th>Help-seeking intentions and behavior among Mainland Chinese college students: Integrating the theory of planned behavior and the behavioral model of health services use</th>
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<td>Publication Status</td>
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### Principal Author

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<tr>
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<tr>
<td>Contribution to the Paper</td>
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</tr>
<tr>
<td>Overall percentage (%)</td>
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</tr>
<tr>
<td>Certification:</td>
<td>This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.</td>
</tr>
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### Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

i. the candidate’s stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate to include the publication in the thesis; and

iii. the sum of all co-author contributions is equal to 100% less the candidate’s stated contribution.

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Chapter 4: Study 3

Help-seeking intentions and behavior among Mainland Chinese college students: Integrating the theory of planned behavior and the behavioral model of health services use

This chapter consists of a manuscript submitted for publication. The details of this manuscript are:

Preface

In combination, the two studies that comprised Chapters 2 and 3 demonstrate the need to investigate help-seeking intentions and mental health service utilisation among university students from other cultural backgrounds, given that the included studies in Study 1 and most of the reviewed studies in Study 2 were conducted in the United States. Studies 1 and 2 also suggest that integrated models are needed to elucidate the interactions between the identified influential variables with students’ help-seeking intentions and service usage.

To address these needs, a large-scale survey study to explore mainland Chinese university students’ formal help-seeking behaviour was conducted. A model of help-seeking intentions was developed by integrating the TPB and Andersen’s Behavioral Model. On the basis of these theories and previous findings, it was hypothesised that: (1) the model would yield a good fit to the data; (2) the variables derived from Andersen’s Behavioral Model, in conjunction with public stigma, self-stigma, and anticipated benefits and risks, would predict help-seeking intentions through attitudes, subjective norms, and perceived behavioural control derived from the TPB; and (3) subjective norms would have a direct effect on attitudes and perceived behavioural control. In order to bridge the gap between intentions and the use of services, this study also investigated the predictive effects of various biopsychosocial variables (e.g., help-seeking intentions) on Chinese students’ service use. The findings contribute to the limited knowledge of Chinese students’ mental health help-seeking. The results also provide evidence to suggest that education providers and mental health professionals who are working with Chinese university students should consider psycho-educational approaches to inform students about mental health services and reduce potential stigma around seeking professional support.
Help-seeking intentions and behavior among Mainland Chinese college students: Integrating the theory of planned behavior and the behavioral model of health services use

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Abstract

This study investigated help-seeking intentions and actual use of mental health services within a sample of 1,128 Mainland Chinese college students (630 males and 498 females, mean age = 20.01 years; SD = 1.48). Results of structural equation modeling and logistic regression analysis suggested that social-cognitive variables had significant effects both on students’ intentions to seek professional mental health care and their actual service use. To promote help-seeking, practitioners should consider marketing campaigns and psycho-education for students and communities, enhancing knowledge and acceptance of mental health problems and effective treatment options.

Keywords: Chinese college students, counseling, help-seeking
Compared with college students elsewhere, Mainland Chinese college students report even higher levels of psychological distress, and, despite increasing provision of mental health services (MHS) by most mainland universities, less willingness to access professional support (Boey, 1999; Guo, Huang, Liu, & Wang, 2013; Li et al., 2008; Ministry of Education of the People's Republic of China, 2001; Phillips et al., 2009; Wang et al., 2007). Correlates of service use have been examined in Hong Kong, Taiwan, Macao and with Chinese people living abroad (e.g., Chang, 2008; Chin et al., 2015; Mak & Davis, 2014), however these findings may not generalize to Mainland Chinese students due to political and cultural differences (Boey, 1999; Chen et al., 2014; Li et al., 2013; Wong & Li, 2014). Indeed, differences in help-seeking attitudes have been found between overseas Chinese and Mainland Chinese college students (Goh et al., 2007). Further investigation of mental health help-seeking among college students in Mainland China is therefore needed (Clement et al., 2015; Li et al., 2008; Wu, Liu, Chang, & Sun, 2014).

In health psychology, several theoretical models are used to understand willingness and reluctance to undertake health-promoting behaviors including help-seeking. The Theory of Planned Behavior (TPB; Ajzen, 1985, 1991) is one example. The TPB suggests that intention is an immediate determinant of actual behavior. Intention is considered to be affected by three factors: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991; Ajzen & Fishbein, 2005; Ajzen & Madden, 1986). In relation to MHS, a favorable attitude or evaluation of accessing professional support may imply greater willingness to seek professional psychological help. Subjective norms, including individuals’ perceptions of social expectations concerning professional psychological help, can also influence MHS use among college students: if significant others expect them to seek treatment, they will be more likely to do so. Similarly, the greater the degree of perceived
behavioral control, or one’s predictions of personal control over utilizing MHS, the stronger the intention to access professional support (Mak & Davis, 2014).

The TPB has a strong evidence base, with previous research, mostly in North America, having elucidated the mediating effect of attitudes on the relationships between various psychosocial variables (e.g., subjective norms) and help-seeking intentions (Kim & Omizo, 2003; Kim & Park, 2009; Shaffer et al., 2006; Vogel et al., 2005; Yakunina & Weigold, 2011). The significance of subjective norms and perceived behavioral control in the prediction of intentions has also received empirical support, based on research conducted in Hong Kong and Macao. The suggestion is that perceptions of significant others may exert particular influence on Chinese help-seeking patterns, because harmonious interpersonal relationships are highly valued in Chinese culture (Mak & Davis, 2014; Mo & Mak, 2009; Sue & Morishima, 1982; Xie & Leong, 2008). Indeed, research indicates that subjective norms not only directly affect help-seeking intentions among Hong Kong and Macao Chinese people, but also predict individual attitudes and perceived behavioral control concerning MHS usage (Mak & Davis, 2014; Mo & Mak, 2009). However, it is unknown whether the same findings apply to Mainland Chinese college students. Moreover, perceived behavioral control is considered to have direct effects on actual behavior (Ajzen, 1985, 1991), although this has not been explored in the area of help-seeking.

Other significant predictors of help-seeking intentions include stigma concerns, anticipated benefits and anticipated risks. Both public stigma (externalized) and self-stigma (internalized) have been proposed as major barriers for Chinese people needing MHS (Corrigan, 2004; Mak & Davis, 2014; Wang et al., 2012). Notably, indirect effects of public stigma and self-stigma on help-seeking intentions have been demonstrated in various mediation models (Choi & Miller, 2014; Vogel et al., 2007a; Vogel et al., 2005; Yakunina & Weigold, 2011), however no previous research has evaluated this among Chinese college
students. Similarly, indirect relationships between anticipated benefits (perceived benefits after receiving mental health treatment), anticipated risks (perceived risks of using MHS), and help-seeking intentions have been found in mediation models which include attitudes as a mediator (Shaffer et al., 2006; Vogel & Wester, 2003; Vogel et al., 2005) but to date we have not identified any published studies investigating anticipated benefits and risks of mental health help-seeking in Chinese societies.

Although the TPB has been demonstrated as an effective theoretical framework for understanding a wide range of health behaviors (Armitage & Conner, 2001; Godin & Kok, 1996), a low correlation between intent and actual MHS use has been reported (Chin et al., 2015; Webb & Sheeran, 2006; Wilson, Deane, Marshall, & Dalley, 2008). Accordingly, researchers acknowledge the need to examine actual utilization (Chen et al., 2014; Kim & Park, 2009; Li et al., 2014; Nam et al., 2013; Vogel et al., 2007b).

A key theoretical model of service utilization is Andersen’s Behavioral Model (Andersen, 1995; Andersen & Newman, 1973). According to Andersen (1995), individuals’ use or non-use of services is predicted and explained in terms of predisposing, enabling and need factors. Predisposing factors include socio-demographic characteristics (e.g., gender, culture and education) and people’s beliefs (i.e., attitudes, values, and knowledge) about disorders and treatments (Andersen, 1995; Andersen & Newman, 1973). The limited extant research on Chinese MHS utilization has observed that service use is independent of gender, but associated with higher educational levels (Chang, 2008; Li et al., 2013; Shen et al., 2006). Furthermore, research with Asians living abroad has validated an indirect relationship between adherence to Asian cultural values and intent to seek mental health care (Choi & Miller, 2014; Kim & Park, 2009; Liao et al., 2005; Yakunina & Weigold, 2011). Once again, this is unexplored in Mainland Chinese samples.
Enabling variables relate to family (e.g., residential area, health insurance, income, social support) and community resources (i.e., availability and accessibility of professional services; Andersen, 1995; Andersen & Newman, 1973). Previous studies in Mainland China have indicated that living in an urban area, higher family income and health insurance are each associated with higher use of services (Chen, 2012; Gao et al., 2001; Li et al., 2013; Liu et al., 2008; Park et al., 2005). In terms of social support, some researchers report that it is a negative predictor of service use: Chinese people are more likely to seek informal help from family and friends, in line with the Asian cultural value that personal issues should be resolved within the circle of significant others (Chang, 2008; Chin et al., 2015; Huang et al., 2008; Kim et al., 1999). There is, however, also evidence suggesting that if significant others hold positive attitudes toward accessing MHS and encourage usage, then Chinese individuals are more likely to seek professional support, consistent with cultural norms of conformity to family expectations (Goh et al., 2007; Mak & Davis, 2014; Wong & Li, 2014). These potentially opposing social influences may challenge the development and evaluation of interventions promoting help-seeking.

Need variables, comprising perceived (individuals’ self-assessment of mental health status) and evaluated need (professional diagnoses of mental illness), are positively associated with service use in the Western literature (Andersen & Newman, 1973; Andrade et al., 2014; Eisenberg et al., 2012a; Zivin et al., 2009). However, few studies have addressed the effects of need variables within Chinese societies and their findings vary: positive correlations between level of illness severity, number of symptoms and willingness to use MHS have been reported (Chang, 2008; Chen et al., 2014; Shen et al., 2006), whereas other studies have reported no significant association between illness severity and service usage (Chin et al., 2015; Li et al., 2013; Mak & Davis, 2014).
In summary, mediated effects of attitudes, subjective norms, and perceived behavioral control on the relationships between different biopsychosocial variables and help-seeking intentions have been identified. However, previous research has failed to employ an integrated model to explore the interactions between these variables simultaneously. The current study therefore developed a model of Chinese students’ help-seeking intent by integrating the TPB and Andersen’s model. Based on theories and previous findings, we hypothesized that predisposing, enabling, and need variables, together with other influential factors identified by previous research, would predict student attitudes, subjective norms, and perceived behavioral control which, in turn, would predict help-seeking intentions. Moreover, subjective norms would predict attitudes and perceived behavioral control (Figure 2). We also hypothesized that the relationships between the above-mentioned variables and help-seeking intentions would be mediated by attitudes, subjective norms, and perceived behavioral control separately.
Figure 2. The proposed model. (Andersen’s model)

Predisposing
- gender
- adherence to Asian values

Enabling
- social support

Need
- evaluated need (incl. symptom & severity)
- perceived need (incl. self-rated mental health status & perceived need)

(Other significant predictors)
- anticipated benefits
- anticipated risks
- public stigma
- self-stigma

(Theory of Planned Behavior)

- Attitudes
- Subjective Norms
- Perceived Behavioral Control

Intentions to seek professional psychological help
In order to address the gap in the empirical literature relating to actual MHS use, our study additionally examined the predictive effects of various biopsychosocial variables on Chinese students’ actual utilization of MHS. We hypothesized that help-seeking intentions and perceived behavioral control, which have been proposed as significant and direct predictors of actual behavior (Ajzen, 1991), would predict service use before and after predisposing, enabling, and need variables were added successively. Moreover, predisposing, enabling, and need variables would also predict Chinese students’ use of MHS (see Table 5 for included variables).

Table 5

Variables Included in the Logistic Regression Analysis

<table>
<thead>
<tr>
<th>Block</th>
<th>Variables (Measure)</th>
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<tbody>
<tr>
<td>Block 1</td>
<td>help-seeking intentions (WSC); perceived behavioral control</td>
</tr>
<tr>
<td>Block 2</td>
<td><strong>Predisposing variables</strong></td>
</tr>
<tr>
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<td>gender; father’s education level; mother’s education level; parents’ marital status; adherence to Asian cultural values (AVS); knowledge about mental health; frequency of exposure to MHS related information</td>
</tr>
<tr>
<td>Block 3</td>
<td><strong>Enabling variables</strong></td>
</tr>
<tr>
<td></td>
<td>residential area; annual family income; health insurance; awareness of available services; social support (SPS)</td>
</tr>
<tr>
<td>Block 4</td>
<td><strong>Need variables</strong></td>
</tr>
<tr>
<td></td>
<td>psychological distress-severity (K10); psychological distress-symptom (HSCL-21); self-rated mental health status; perceived need for help</td>
</tr>
</tbody>
</table>
Method

Participants

A total of 1,128 students from universities in Shandong Province (part of the Eastern China region and totaling a population of 97,333,900) were recruited. This included 630 males (55.9%) and 498 females (44.1%), with ages ranging from 17 to 45 years ($M = 20.01$, $SD = 1.48$). The sample mainly consisted of undergraduate students (99.8%), across academic majors. Most participants self-identified as Han Chinese (98.4%) and grew up in Shandong (90.2%). Only 3.3% ($n = 37$) reported having used MHS in the preceding 12 months; of those, 54.1% ($n = 20$) had accessed university counseling services.

Measures

Demographic Information. Participants provided information concerning their age, gender, years in university, academic major, ethnic background, parents’ marital status and education levels, family residential area, household income, and health insurance.

Attitudes. The Attitudes Toward Seeking Professional Psychological Help Scale-Short Form (ATSPPH-SF), is a brief 10-item version of the 29-item ATSPPH (Fischer & Turner, 1970), developed by Fischer and Farina (1995) to assess participants’ attitudes toward counseling. Items are responded on a 4-point Likert scale ranging from 1 (disagree) to 4 (agree), with higher total scores indicating more positive attitudes. Psychometric properties including a high test correlation with the original ATSPPH ($r = .87$), a one month test-retest reliability of .80, and internal consistency ranging from .65 to .82 for Chinese college students (Chang, 2008; Fang, Pieterse, Friedlander, & Cao, 2011; Hao & Liang, 2007; Wong & Li, 2014; Yeh, 2002). For the current study, the internal consistency of the Chinese translation (Wong & Li, 2014) was .45.
**Subjective norms.** A 10-item scale designed by Hammer and Vogel (2013), in accordance with Ajzen and Fishbein’s (2005) guidelines, was used to measure the factor of subjective norms. Items are rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores being indicative of more positive subjective norms. The internal consistency has been reported as .94 (Hammer & Vogel, 2013). Cronbach’s alpha was .95 in the current sample.

**Perceived behavioral control.** A 3-item scale developed by Mo and Mak (2009) was used to assess the factor of perceived behavioral control. Each item is rated on a 6-point Likert scale (1 = *strongly disagree* to 6 = *strongly agree*). Higher scores reflect higher levels of behavioral control. The internal consistency has been reported as .77 among a sample of Hong Kong Chinese (Mo & Mak, 2009). Cronbach’s alpha for the present sample was .87.

**Normative and control beliefs.** Belief-based Theory of Planned Behavior Measures were developed by Mak and Davis (2014) to measure behavioral, normative, and control beliefs, as defined in the TPB (Ajzen, 1991). In the current study, only the items relating to normative and control beliefs were used. The normative beliefs measure includes two subscales: injunctive and descriptive norm beliefs. The injunctive subscale involves four salient referents (i.e., family members, friends, partner and colleagues); each is measured by two items relating to respondents’ normative belief strength and motivation to comply with the referent’s advice regarding using MHS. A total of 8 items are rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Two items are summed for the overall belief about a certain referent. The descriptive subscale includes three referents (i.e., family members, friends and colleagues); each is assessed by two items in relation to normative belief strength (1 = *strongly disagree* to 7 = *strongly agree*) and identification (1 = unwilling to 7 = willing) with the referent. The two items are summed for the overall belief about a referent. Control beliefs contain five factors (e.g., support from someone around me), and each is measured by two.
items relating to control belief strength and power of the factor in a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The sum of two items indicates the overall belief about a control factor. Cronbach’s alpha was .92 for injunctive norm beliefs, .86 for descriptive norm beliefs, and .94 for control beliefs.

**Public stigma.** The Perceptions of Stigmatization by Others for Seeking Help scale (PSOSH; Vogel, Wade, & Ascheman, 2009) was included to measure students’ fear of being stigmatized by significant others for utilizing MHS. Five items are rated on a 5-point Likert scale (1 = *Not at all* to 5 = *A great deal*). Higher total scores represent greater public stigma concern. Construct validity has been demonstrated through positive relationships with self-stigma toward help-seeking (r = .37) and public stigma of mental illness (r = .20; Vogel et al., 2009). Internal consistency estimates ranged from .78 to .92 and the 3-week test-retest reliability was .82 (Cheng, Kwan, & Sevig, 2013; Choi & Miller, 2014; Vogel et al., 2009; Yakunina & Weigold, 2011). Cronbach’s alpha was .89 in the current sample.

**Self-stigma.** The 10-item Self-Stigma of Seeking Help Scale (SSOSH; Vogel et al., 2006) was used to assess participants’ self-stigma in the event of using MHS. Each item is rated on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Higher total scores reflect a higher level of perceived self-stigma. The SSOSH has demonstrated positive associations with anticipated risks (r = .47) and public stigma (r = .48), and negative relationships with anticipated benefits (r = -.45), attitudes toward counseling (r = -.63), and help-seeking intentions (r = -.38; Vogel et al., 2006). The internal consistency has ranged from .75 to .92 in various samples with a test-retest reliability of .72 (2 weeks; Chen et al., 2014; Cheng et al., 2013; Choi & Miller, 2014; Tucker et al., 2013; Vogel et al., 2013a; Vogel et al., 2006; Wade et al., 2015). Cronbach’s alpha for the Chinese translation (Vogel et al., 2013a) was .60 in the present study.
Anticipated benefits and risks. The Disclosure Expectations Scale (DES) is an 8-item measure designed by Vogel and Wester (2003) to assess the anticipated benefits and risks of receiving mental health treatment. Each of the two factors is measured by four items rated on a 5-point Likert scale ranging from 1 (Not at all) to 5 (Very). Total scores are summed for each subscale, with higher scores reflecting more anticipated benefits or more anticipated risks. The benefits subscale has shown to be positively associated with attitudes toward counseling, help-seeking intentions and self-disclosure, whereas negative correlations have been reported between the risks subscale and above constructs (Vogel & Wester, 2003). The internal consistency has ranged from .80 to .87 for the benefits subscale and from .74 to .82 for the risks subscale (Shaffer et al., 2006; Vogel et al., 2008a; Vogel et al., 2008b; Vogel & Wester, 2003; Vogel et al., 2005). The 2-week test-retest reliability was .75 for benefits and .77 for risks (Shaffer et al., 2006). In the current study, Cronbach’s alphas were .81 (benefits) and .76 (risks).

Adherence to Asian values. The Asian Values Scale (AVS; Kim et al., 1999) evaluates respondents’ adherence to Asian values including emotional self-control, family recognition through achievement, obeying social norms, collectivism, humility, and filial piety. A total of 36 items are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree); higher total scores denote greater adherence to Asian values. The internal consistency has ranged from .78 to .86 and the 2-week test-retest reliability was .83 (Hamid et al., 2009; Kim et al., 1999; Kim & Omizo, 2003; Liao et al., 2005; Shea & Yeh, 2008). Evidence of construct validity has also been provided in previous research (Kim et al., 1999). Cronbach’s alpha obtained in this study was .68.

Social support. The Social Provisions Scale (SPS; Cutrona & Russell, 1987) is a 24-item self-report measure developed to assess the quality of perceived social support. Items are rated on a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree). A total score is
computed by summing all items, with higher scores indicating higher perceived social support. Adequate internal consistency (.85 -.93) and test-retest reliability estimates (.84 -.92) have been identified across samples (Cutrona & Russell, 1987; Kahn & Williams, 2003; Leech, 2007; Vogel & Wester, 2003; Vogel et al., 2005). With respect to construct validity, significant correlations with other self-report measures of social support have been demonstrated (Cutrona & Russell, 1987). Cronbach’s alpha for the current sample was .88.

**Psychological distress (symptoms).** The Hopkins Symptom Checklist-21 (HSCL-21; Green, Walkey, McCormick, & Taylor, 1988) is a self-report symptom inventory which has been widely used to measure psychological distress (including general feelings of distress, somatic distress, and performance difficulty) in relation to MHS utilization. Twenty-one items are rated on a 4-point Likert scale (1 = *not at all* to 4 = *extremely*), with higher scores suggesting greater distress. The HSCL-21 has been found to be associated with other measures of distress and to be effective in measuring changes in distress during therapy (Deane, Leathem, & Spicer, 1992). High internal consistency has been reported in various samples ranging from .87 to .90 (Cepeda-Benito & Short, 1998; Green et al., 1988; Leech, 2007; Vogel et al., 2008b; Vogel & Wester, 2003; Vogel et al., 2005). Cronbach’s alpha for the current sample was .95.

**Psychological distress (severity).** The Kessler Psychological Distress Scale (K10) is a 10-item screening measurement of non-specific psychological distress used to assess the level of morbidity (Kessler et al., 2002; Kessler et al., 2003). Each statement is rated on a 5-point Likert scale ranging from 1 * (none of the time) to 5 * (all of the time);* higher scores indicate higher level of severity of distress. Cronbach’s alphas have ranged from .80 to .92 in Chinese samples and the validity of K10 has been confirmed across studies conducted in China (Chen, 2012; Chen & Zhu, 2015; Shen et al., 2006; Wen, Fan, Jin, & Wang, 2010; Zhou et al., 2008). Cronbach’s alpha was .95 in the present study.
Intention to seek professional psychological help. The 24-item Willingness to See a Counselor scale (WSC; Gim et al., 1990) is an extended version of Cash et al.’s (1975) 17-item Intention to Seek Counseling Inventory; the additional items address issues relevant to ethnic minority students. The WSC is used to assess college students’ intention to seek professional psychological help for a range of psychosocial concerns (Gim et al., 1990; Robertson & Fitzgerald, 1992). Each item is rated on a 4-point Likert scale ranging from 1 (not willing) to 4 (willing), with higher scores representing strong intent to seek MHS. Internal consistency has ranged from .92 to .94 among Asian and Asian American college students (Choi & Miller, 2014; Kim & Omizo, 2003; Kim & Park, 2009). Cronbach’s alpha for the current sample was .96.

Use of mental health services. The utilization of MHS was assessed by asking a single question: “In the past 12 months, have you taken any prescribed psychotropic medications (e.g., anti-depressants, anti-panic or anti-anxiety agents) or used any professional mental health services for your personal or emotional problems?” For the purpose of this study, MHS was broadly defined as community mental health services, counseling services, general practitioners, hospital emergency departments, inpatient and outpatient mental health-related care, psychiatrists, psychologists, psychotherapists, social workers, or telecounseling. If participants responded yes, they were required to answer follow-up questions regarding the type of service, the frequency of contacts, the satisfaction of utilization, and their current use of services.

Open-ended questions. Four open-ended questions in relation to motivation, barriers, and benefits concerning professional psychological help-seeking, and suggestions for MHS delivery, were developed by the first author in order to elicit students’ own opinions concerning the utilization of MHS.
Procedure

The DES, SPS, WSC, AVS, HSCL-21, and subjective norms scale, originally developed in English, were translated into Mandarin Chinese by an accredited translation firm following translation and back-translation procedures. These Chinese versions were then pilot tested by two Chinese people who were fluent in English in order to check expression of language.

After receiving ethical approval from the University of Adelaide School of Psychology Human Research Ethics Subcommittee (Approval 14/91), informal contact with staff members and students from universities in China was made by the first author. Participants were recruited via in-class announcements inviting them to voluntarily participate in online research about Chinese college students’ utilization of MHS. Students were also informed that they had equal chances to win a gift card valued at AUD $100. The online survey (powered by SurveyMonkey™) contained two sections. The first compulsory section comprised an information sheet, consent form, demographic questionnaire, and several psychosocial measures. The second, optional section, included four open-ended questions. To minimize missing data, the online survey could only be submitted if all questions in the first section had been answered.

Data analyses were conducted using IBM SPSS Statistics 21. Structural Equation Modeling (SEM) utilized IBM SPSS Amos 21 (IBM Corp., 2012).

Results

Descriptive analyses

Descriptive statistics and correlations for the measures are presented in Table 6. In relation to the key variables that TPB considers as predictors of intentions (i.e., intentions to seek professional psychological help): attitudes, subjective norms and perceived behavioral
control were significantly related to most or all other psychosocial variables, with small to medium associations demonstrated.
Table 6  
Means, Standard Deviations, and Correlations of the Total Scale Scores

<table>
<thead>
<tr>
<th>Measure</th>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Attitudes</td>
<td></td>
<td>26.07</td>
<td>3.88</td>
<td>-</td>
<td>- .35***</td>
<td>-.17***</td>
<td>.26***</td>
<td>-.07*</td>
<td>.24***</td>
<td>.14***</td>
<td>-.20***</td>
<td>-.20***</td>
<td>.10**</td>
<td>.08**</td>
<td>.06</td>
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<tr>
<td>2.Self-stigma</td>
<td></td>
<td>26.29</td>
<td>4.62</td>
<td>- .38***</td>
<td>-.26***</td>
<td>.07*</td>
<td>-.49***</td>
<td>-.28***</td>
<td>.34***</td>
<td>.37***</td>
<td>.09**</td>
<td>-.25***</td>
<td>.15***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.Public stigma</td>
<td></td>
<td>10.22</td>
<td>4.49</td>
<td>- .06*</td>
<td>.22***</td>
<td>-.35***</td>
<td>-.22***</td>
<td>.31***</td>
<td>.33***</td>
<td>.11***</td>
<td>-.20***</td>
<td>.18***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.Anticipated benefits</td>
<td></td>
<td>11.27</td>
<td>3.30</td>
<td>- .32***</td>
<td>.25***</td>
<td>.19***</td>
<td>-.07*</td>
<td>-.13***</td>
<td>-.03</td>
<td>.09**</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.Anticipated risks</td>
<td></td>
<td>10.03</td>
<td>3.08</td>
<td>- .01</td>
<td>.08*</td>
<td>-.03</td>
<td>-.09**</td>
<td>-.14***</td>
<td>-.01</td>
<td>-.15***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.Social support</td>
<td></td>
<td>68.09</td>
<td>9.42</td>
<td>- .46***</td>
<td>-.41***</td>
<td>-.47***</td>
<td>-.15***</td>
<td>.33***</td>
<td>-.20***</td>
<td></td>
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<tr>
<td>7.Adherence to Asian values</td>
<td></td>
<td>155.13</td>
<td>15.77</td>
<td>- -.25***</td>
<td>-.34***</td>
<td>-.15***</td>
<td>.27***</td>
<td>-.16***</td>
<td></td>
<td></td>
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<tr>
<td>8.Psychological distress—symptoms</td>
<td></td>
<td>43.56</td>
<td>12.06</td>
<td>-</td>
<td>.79***</td>
<td>.40***</td>
<td>-.01</td>
<td></td>
<td>.44***</td>
<td>-.08**</td>
<td>.44***</td>
<td></td>
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<tr>
<td>9.Psychological distress—severity</td>
<td></td>
<td>23.55</td>
<td>8.68</td>
<td>-</td>
<td>.44***</td>
<td>-.08**</td>
<td>.44***</td>
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<tr>
<td>10.Subjective norm</td>
<td></td>
<td>40.13</td>
<td>11.65</td>
<td>-</td>
<td></td>
<td>.17***</td>
<td>.03</td>
<td></td>
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<tr>
<td>11.Perceived behavioral control</td>
<td></td>
<td>12.57</td>
<td>3.42</td>
<td>-</td>
<td></td>
<td>.41***</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>12.Help-seeking intentions</td>
<td></td>
<td>53.57</td>
<td>18.23</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
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</table>

Note. N = 1,128. Attitudes = Attitudes Toward Seeking Professional Psychological Help Scale-Short Form; Self-stigma = Self-Stigma of Seeking Help Scale; Public stigma = Perceptions of Stigmatization by Others for Seeking Help Scale; Anticipated benefits = Benefits subscale of Disclosure Expectations Scale; Anticipated risks = Risks subscale of Disclosure Expectations Scale; Social support = Social Provisions Scale; Adherence to Asian values = Asian Values Scale; Psychological distress-symptoms = Hopkins Symptom Checklist-21; Psychological distress-severity = Kessler Psychological Distress Scale; Help-seeking intentions = 24-item Willingness to See a Counselor Scale.

*p < .05. **p < .01. ***p < .001.
Testing the structural model of help-seeking intentions

Several stages were involved in testing the model. Firstly, confirmatory factor analysis was conducted to develop and examine the adequacy of a measurement model (Anderson & Gerbing, 1988; Byrne, 2010; Martens, 2005). Secondly, following the recommendation of Holmbeck (1997) and Martens (2005), the hypothesized structural model was compared with an alternative model to determine which one had a better fit to the data. Thirdly, the significance of the indirect effects was further examined using a bootstrap procedure (Shrout & Bolger, 2002). It should be noted that both normative and control beliefs were initially considered for inclusion in the model but were excluded due to increased model complexity.

Item parceling. To avoid violating the assumption of normality and to improve model fit by reducing the number of estimated parameters, item parcels were created as observed indicators for each of 9 latent variables (Bandalos, 2002; Little, Cunningham, Shahar, & Widaman, 2002; Russell, Kahn, Spoth, & Altmaier, 1998). Three parcels were built for the following latent variables: adherence to Asian values, self-stigma, public stigma, social support, subjective norms, attitudes, and help-seeking intentions, respectively. Two parcels were created for anticipated benefits and risks. Consistent with Andersen (1995), single items of perceived need for psychological help and self-rated mental health status were utilized as observed indicators for perceived need. Likewise, illness symptoms and severity provided two indicators of evaluated need.

Normality. The maximum likelihood estimation, which assumes normality, was used. Although it is robust under the condition of excessive kurtosis, the normality of each observed variable was examined (Hoyle, 1995; Kaplan, 2009). As recommended by Field (2009), interpretations of skewness and kurtosis values were made in conjunction with histograms and probability-probability plots: all variables were approximately normally
distributed. The large sample size also ensured that the normality assumption was reasonably robust for further analyses.

**Fit indices.** Based on the literature (Hu & Bentler, 1999; Kline, 2005; Martens, 2005), model fit was assessed using chi-square goodness-of-fit test ($\chi^2$), the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). According to Hu and Bentler (1999), a CFI equal to or greater than .95; RMSEA equal to or smaller than .06; and SRMR equal to or smaller than .08 represent good model fit.

**Measurement model.** The measurement model yielded a good fit to the data: $\chi^2$ (418, $N = 1,128$) = 1356.31, $p < .001$; CFI = .96; RMSEA = .05 (90%CI = .04 -.05); and SRMR = .05. All parcels significantly loaded on the latent variables ($p < .001$).

**Structural model.** The hypothesized model demonstrated good data fit: $\chi^2$ (424, $N = 1,128$) = 1371.45, $p < .001$; CFI = .96; RMSEA = .05 (90%CI = .04 -.05); and SRMR = .05. As shown in Figure 3, gender, evaluated need, anticipated benefits, anticipated risks and self-stigma emerged as significant predictors of attitudes. These predictors, along with subjective norms, explained 42% of the variance. Both evaluated need and anticipated risks also had significant effects on subjective norms, predicting 26% of its variance. Adherence to Asian values, social support, anticipated risks, self-stigma, public stigma, and subjective norms significantly predicted perceived behavioral control, accounting for 28% of the variance. Although attitudes and subjective norms were significantly related to intentions, perceived behavioral control was not. Furthermore, evaluated need, anticipated benefits, anticipated risks, and self-stigma directly predicted intentions. All of the predictors explained 37% of variance in help-seeking intent. It is noteworthy that perceived need failed to predict any of the four dependent variables.
Figure 3. The structural model. $N = 1,128$. Values shown are standardized parameter estimates. Only significant structural paths are shown in the figure. Item parcels, measurement errors, factors loadings, residual errors and inter-correlations between independent variables are omitted for clarity.

*p < .05. **p < .01. ***p < .001.
An alternative model was also examined by constraining to zero the direct paths from nine independent variables to help-seeking intentions (Path c; see Figure 2). These results showed an adequate model fit: \( \chi^2 (433, N = 1,128) = 1572.87, p < .001; \) CFI = .95; RMSEA = .05 (90\%CI = .046 - .051); and SRMR = .06. Given this, the two competing models (i.e., the proposed model and the alternative model) were further compared by performing a chi-square difference test. The significant chi-square statistic (\( \Delta \chi^2 (9) = 201.42, p < .001 \)) indicated a better fit of the hypothesized model to the data. As this model was more effective in predicting help-seeking intentions, it was used in the subsequent bootstrap procedure.

**Bootstrapping.** To evaluate the significance of specific indirect effects, a bootstrap procedure was performed on 10,000 bootstrap samples. The 95\% confidence intervals (CIs) for the identified indirect effect estimates were examined. If the 95\% CI did not include the value of zero, it could be confirmed that the indirect effect was statistically significant at the \( p < .05 \) level (Shrout & Bolger, 2002). Paths d and e (see Figure 2) were constrained to zero in the following analyses in order to test the specific medicating effects of attitudes, subjective norms, and perceived behavioral control on the relationships between the nine biopsychosocial variables and help-seeking intentions. As indicated in Table 7, indirect effects from gender, evaluated need, anticipated benefits, anticipated risks, and self-stigma to intentions through attitudes were statistically significant. Subjective norms had a mediating effect on the associations between evaluated need, anticipated risks, and intentions. Additionally, adherence to Asian cultural values, social support, evaluated need, anticipated risks, self-stigma, and public stigma were indirectly and significantly related to intentions via perceived behavioral control.
Table 7

**Bootstrap Analyses of Indirect Effects on Help-Seeking Intentions through Attitudes Toward Seeking Professional Psychological Help, Subjective Norms, and Perceived Behavioral Control**

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Mediator variables</th>
<th>Dependent variables</th>
<th>Standardized indirect effect ($\beta$)</th>
<th>SE</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
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</thead>
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<tr>
<td>Gender $\rightarrow$</td>
<td>Attitudes $\rightarrow$</td>
<td>Intentions</td>
<td>.03</td>
<td>.01</td>
<td>.01</td>
<td>.06</td>
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<tr>
<td>Gender $\rightarrow$</td>
<td>SN $\rightarrow$</td>
<td>Intentions</td>
<td>-.01</td>
<td>.01</td>
<td>-.02</td>
<td>.01</td>
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<tr>
<td>Gender $\rightarrow$</td>
<td>PBC $\rightarrow$</td>
<td>Intentions</td>
<td>.00</td>
<td>.00</td>
<td>-.00</td>
<td>.01</td>
</tr>
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<td>Asian values $\rightarrow$</td>
<td>Attitudes $\rightarrow$</td>
<td>Intentions</td>
<td>-.01</td>
<td>.02</td>
<td>-.05</td>
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<td>Intentions</td>
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<td>-.02</td>
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<td>Attitudes $\rightarrow$</td>
<td>Intentions</td>
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<td>.02</td>
<td>-.04</td>
<td>.03</td>
</tr>
<tr>
<td>Social support $\rightarrow$</td>
<td>SN $\rightarrow$</td>
<td>Intentions</td>
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<td>.01</td>
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<td>Social support $\rightarrow$</td>
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<td>Intentions</td>
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<td>Evaluated need $\rightarrow$</td>
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<td>PBC $\rightarrow$</td>
<td>Intentions</td>
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<td>.01</td>
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<td>AB $\rightarrow$</td>
<td>Attitudes $\rightarrow$</td>
<td>Intentions</td>
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<td>AB $\rightarrow$</td>
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<td>Intentions</td>
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<td>.01</td>
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<td>Intentions</td>
<td>-.00</td>
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Table 7

Continued

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<thead>
<tr>
<th>Independent variables</th>
<th>Mediator variables</th>
<th>Dependent variables</th>
<th>Standardized indirect effect (β)</th>
<th>SE</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR →</td>
<td>Attitudes →</td>
<td>Intentions</td>
<td>-.05</td>
<td>.02</td>
<td>-10 - .02</td>
</tr>
<tr>
<td>AR →</td>
<td>SN →</td>
<td>Intentions</td>
<td>-.03</td>
<td>.01</td>
<td>-05 - .01</td>
</tr>
<tr>
<td>AR →</td>
<td>PBC →</td>
<td>Intentions</td>
<td>.01</td>
<td>.01</td>
<td>.00 - .02</td>
</tr>
</tbody>
</table>

Self-stigma → Attitudes → Intentions | -.06 | .03 | -14 - .02 |

Self-stigma → SN → Intentions | -.01 | .01 | -03 .01 |

Self-stigma → PBC → Intentions | -.01 | .01 | -03 - .00 |

Public stigma → Attitudes → Intentions | -.01 | .01 | -04 .01 |

Public stigma → SN → Intentions | -.01 | .01 | -03 .01 |

Public stigma → PBC → Intentions | -.01 | .01 | -03 - .00 |

Perceived need → Attitudes → Intentions | -.01 | .02 | -05 .03 |

Perceived need → SN → Intentions | -.01 | .02 | -04 .02 |

Perceived need → PBC → Intentions | -.00 | .01 | -02 .01 |

*Note.* Attitudes = Attitudes toward seeking professional psychological help; SN = Subjective norm; PBC = Perceived behavioral control; Asian values = Adherence to Asian values; AB = Anticipated benefits; AR = Anticipated risks.
Predictors of actual use of MHS

Logistic regression analysis was employed to investigate the role of help-seeking intentions, perceived behavioral control, predisposing, enabling, and need variables in the prediction of service usage, as it is inappropriate to include categorical variables (i.e., MHS utilization) in a structural model (Byrne, 2010). Specifically, in order to explore changes in the contributions of help-seeking intentions and perceived behavioral control to the prediction of utilization when predisposing, enabling, and need variables were added into the model successively, all of the predictor variables were entered in four blocks.

Intentions and perceived behavioral control, which have been suggested as direct determinants of actual behavior (Ajzen, 1985, 1991), were entered in Block 1. This model significantly predicted students’ use of MHS ($\chi^2(2) = 8.21, p = .017$), with the two variables explaining 2.9% of variance in utilization (Table 8). Seven predisposing variables were entered in Block 2. This model, with help-seeking intentions, perceived behavioral control, and predisposing variables, was also a significant fit of the data ($\chi^2(11) = 20.98, p = .034$). However, adding predisposing variables to the model had no significant improvement in model fit ($\chi^2(9) = 12.77, p = .173$). Importantly, help-seeking intention continued to significantly predict use. Subsequently, five enabling variables were included in Block 3. This model again significantly predicted usage ($\chi^2(17) = 32.94, p = .011$), but there was also no significant improvement in model fit by adding enabling variables ($\chi^2(6) = 11.96, p = .063$). Notably, help-seeking intention retained a significant and positive association with service use. Finally, four need variables were entered in Block 4. The final model also significantly predicted MHS utilization ($\chi^2(21) = 75.10, p < .001$). All of the predictors explained nearly 26% of variance in service use and the addition of need variables significantly improved the model fit ($\chi^2(4) = 42.15, p < .001$). Help-seeking intention was no longer a significant predictor; instead, increased frequency of exposure to MHS related
information, lower level of self-rated mental health status, and higher level of perceived need were related to usage.

Table 8

Logistic Regression Models of Predictors of Chinese College Students’ Use of Mental Health Services

<table>
<thead>
<tr>
<th>Predictors (reference(^a))</th>
<th>(B)</th>
<th>(SE)</th>
<th>Wald</th>
<th>(df)</th>
<th>OR</th>
<th>(p)</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>(95%\text{CI})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Block 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help-seeking intentions</td>
<td>.02</td>
<td>.01</td>
<td>4.0</td>
<td>1</td>
<td>1.02</td>
<td>.046</td>
<td>1.0</td>
<td>1.04</td>
</tr>
<tr>
<td>PBC</td>
<td>-.11</td>
<td>.05</td>
<td>5.16</td>
<td>1</td>
<td>0.90</td>
<td>.023</td>
<td>0.82</td>
<td>0.99</td>
</tr>
<tr>
<td><strong>Block 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help-seeking intentions</td>
<td>.02</td>
<td>.01</td>
<td>4.43</td>
<td>1</td>
<td>1.02</td>
<td>.035</td>
<td>1.00</td>
<td>1.04</td>
</tr>
<tr>
<td><strong>Block 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help-seeking intentions</td>
<td>.02</td>
<td>.01</td>
<td>4.05</td>
<td>1</td>
<td>1.02</td>
<td>.044</td>
<td>1.00</td>
<td>1.04</td>
</tr>
<tr>
<td><strong>Block 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of exposure to MHS related information</td>
<td>.54</td>
<td>.25</td>
<td>4.79</td>
<td>1</td>
<td>1.71</td>
<td>.029</td>
<td>1.06</td>
<td>2.77</td>
</tr>
<tr>
<td>Self-rated mental health status</td>
<td>-.72</td>
<td>.20</td>
<td>12.59</td>
<td>1</td>
<td>0.49</td>
<td>.000</td>
<td>0.33</td>
<td>0.72</td>
</tr>
<tr>
<td>Perceived need (no)</td>
<td>1.48</td>
<td>.43</td>
<td>11.58</td>
<td>1</td>
<td>4.38</td>
<td>.001</td>
<td>1.87</td>
<td>10.26</td>
</tr>
</tbody>
</table>

\(\text{Note.}\) Only significant predictors are shown in the table. The complete table is available from the first author on request. OR = Odds Ratio. PBC = Perceived Behavioral Control. MHS = Mental Health Service.

\(^a\)Reference group for each predictor.
Qualitative findings

Open-ended responses were translated by the first author. Themes related to the responses to each of the four open-ended questions were identified and coded in accordance with Braun and Clarke (2013). The five most frequently coded themes for each question are listed in Table 9. Severity of illness was most often described as the primary motivator for Chinese college students to seek professional support, whereas public stigma was the most frequently mentioned barrier. Based on responses concerning potential benefits of receiving MHS, it may be inferred that Chinese college students commonly understand mental health treatments as medical treatments for physical disorders. In terms of suggestions for future service delivery, publicizing information about available services and promoting psycho-education sessions were highly recommended.
Table 9

*Frequency of Top 5 Themes for Each of Four Open-Ended Questions*

<table>
<thead>
<tr>
<th>Terms</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivations to use mental health services ( (N = 293) )</td>
<td></td>
</tr>
<tr>
<td>Severe mental health problems</td>
<td>79</td>
</tr>
<tr>
<td>Relationship problems</td>
<td>37</td>
</tr>
<tr>
<td>Social support</td>
<td>35</td>
</tr>
<tr>
<td>Depression</td>
<td>34</td>
</tr>
<tr>
<td>Academic performance problems</td>
<td>19</td>
</tr>
<tr>
<td>Barriers to use mental health services ( (N = 286) )</td>
<td></td>
</tr>
<tr>
<td>Public stigma</td>
<td>108</td>
</tr>
<tr>
<td>Fee</td>
<td>60</td>
</tr>
<tr>
<td>Self-stigma</td>
<td>45</td>
</tr>
<tr>
<td>Lack of knowledge about mental health and mental health services</td>
<td>28</td>
</tr>
<tr>
<td>Do not want to talk</td>
<td>9</td>
</tr>
<tr>
<td>Benefits of using mental health services ( (N = 256) )</td>
<td></td>
</tr>
<tr>
<td>Getting better</td>
<td>153</td>
</tr>
<tr>
<td>Be positive</td>
<td>38</td>
</tr>
<tr>
<td>Be emotionally stable</td>
<td>32</td>
</tr>
<tr>
<td>Be self-confident</td>
<td>12</td>
</tr>
<tr>
<td>Be able to solve problems by myself</td>
<td>11</td>
</tr>
<tr>
<td>Suggestions for mental health service delivery to students ( (N = 250) )</td>
<td></td>
</tr>
<tr>
<td>Dissemination</td>
<td>90</td>
</tr>
<tr>
<td>In-campus psycho-educational seminars</td>
<td>42</td>
</tr>
<tr>
<td>Establishing in-campus mental health services</td>
<td>37</td>
</tr>
<tr>
<td>Be sensitive to students’ problems</td>
<td>21</td>
</tr>
<tr>
<td>Regular contacts with students</td>
<td>19</td>
</tr>
</tbody>
</table>
Discussion

The aim of this study was to investigate help-seeking behavior among Mainland Chinese college students by integrating the TPB (Ajzen, 1985) and Andersen’s (1995) Behavioral Model. The hypothesized model of help-seeking intentions exhibited a good fit to the data. Further examination of the indirect effects on intentions through attitudes, subjective norms, and perceive behavioral control provided partial support for the hypothesis that these three variables mediate the relationships between different biopsychosocial variables and help-seeking intentions. In addition, only five variables significantly predicted Chinese students’ service usage.

Consistent with previous research, the results indicated that gender, anticipated benefits, anticipated risks, self-stigma, and evaluated need significantly predicted attitudes, which in turn were positively related to help-seeking intentions (Ajzen & Sheikh, 2013; Chang, 2008; Chen et al., 2014; Choi & Miller, 2014; Vogel et al., 2005; Wade et al., 2015; Yakunina & Weigold, 2011; Yeh, 2002). Notably, evaluated need was negatively associated with attitudes: students with a higher level of psychological distress tended to report less positive attitudes toward seeking professional support, consistent with previous studies among Chinese adolescents and Taiwanese students (Chang, 2008; Chen et al., 2014). In Asian societies, individuals with mental illness are often negatively labelled and socially isolated. Receiving professional psychological support has been described as a contributor to this discrimination. Consequently, people with mental health issues may report negative attitudes toward accessing MHS (Hou & Zhang, 2007; Kim et al., 2001; Kim & Omizo, 2003; Sue & Morishima, 1982).

Subjective norms were found to be a significant mediator of the relationship from evaluated need and anticipated risks to help-seeking intentions. Specifically, the model revealed that subjective norms were not only positively associated with intentions, but also...
positively related to attitudes and perceived behavioral control, consistent with previous research among Hong Kong and Macao Chinese people (Mak & Davis, 2014; Mo & Mak, 2009). It seems that significant others’ encouragement toward help-seeking not only impacts Chinese students’ intent to seek professional psychological help, but also shapes their attitudes toward and sense of control about using MHS. These findings demonstrate the importance of social expectations in encouraging Chinese students to use MHS. It is possible that compared to individuals from other cultures, Chinese students are more likely to adhere to traditional values of conformity, deference, and respect for elders’ wishes. Therefore, they are more willing to seek professional support when significant others suggest it, despite maintaining negative attitudes to MHS (Kim et al., 2001; Kim & Omizo, 2003; Mo & Mak, 2009).

In relation to perceived behavioral control, the model identified that adherence to Asian values, social support, anticipated risks, self-stigma and public stigma significantly predicted this factor. Although perceived behavioral control did not contribute to students’ help-seeking intent, its mediating effects were identified through the bootstrapping procedure. One possible explanation is that in relation to Chinese students’ help-seeking for mental health purposes, external factors (e.g., family expectations) may be more influential than their own control. Hence, when perceived behavioral control was examined together with subjective norms, the latter may occupy a part of the former’s influence on help-seeking intentions (Mak & Davis, 2014; Mo & Mak, 2009). Ajzen and colleagues (1991; 2005) have, indeed, indicated that the weights of attitudes, subjective norms and perceived behavioral control in the prediction of intentions may vary across behaviors and populations.

For these Chinese students, evaluated need and self-stigma were negatively related to attitudes, but positively associated with help-seeking intentions. The positive relationship between evaluated need and intentions may reflect the need measures utilized in this study.
The HSCL-21 and K10 both list symptoms of mental illness, when the measure of help-seeking intentions (i.e., WSC) lists specific problems that college students may encounter, hence the matching of symptoms (e.g., numbness or tingling in parts of your body) with problems (e.g., general anxiety) may increase the likelihood of identifying a positive association between evaluated need and help-seeking intentions. In addition, the positive relation between self-stigma and intentions may be due to the decline in self-esteem and/or self-confidence. Research has consistently shown that the internalization of stigma may result in reduced self-esteem and self-confidence (Chen et al., 2014; Corrigan, 2004; Vogel et al., 2013b). Our qualitative findings indicated that being positive and being confident were two of the five major benefits that students attributed to MHS use, therefore, low self-esteem and self-confidence associated with self-stigma may directly motivate students to seek help.

Furthermore, help-seeking intentions, perceived behavioral control, frequency of exposure to MHS related information, self-rated mental health status, and perceived need for help, demonstrated significant effects on service use. These results, together with the findings of the structural model, suggest that social-cognitive factors, more so than demographic characteristics, significantly explain Chinese college students’ mental health help-seeking. In particular, help-seeking intentions may contribute the most to the prediction and explanation of service use, given that intentions consistently predicted usage even after predisposing and enabling variables were entered into the model. Importantly, the current findings provided support for the TPB (Ajzen, 1991, 2011; Ajzen & Fishbein, 2005), which suggests that intention is the immediate determinant and significant predictor of behavior, and confirmed the efficacy of the TPB in explaining formal help-seeking behavior.

The present study identified some additional interesting results. Firstly, even though perceived need did not predict help-seeking intentions, it was significantly and positively related to service use. Moreover, in accordance with Western literature (Andrade et al., 2014;
Eisenberg et al., 2012a), perceived need displayed the strongest association with service use: students who reported perceived need for professional help were almost 5 times more likely to have used services than those who did not report a need. This may suggest that the impact of perceived need on use of MHS is direct, rather than operating through mediators. Previous research in China has also revealed that the recognition of need for professional help is an important facilitator to service use (Chen, 2012; Chen & Zhu, 2015). Similarly, a significant and negative effect of perceived behavioral control on service use was identified, although it was not related to intentions. This is consistent with an assumption of the TPB that perceived behavioral control can directly predict actual behaviors (Ajzen, 1991, 2011). However, it should be noted that perceived behavioral control lost its influence on usage when predisposing, enabling, and need variables were entered. Future studies are needed to further investigate the interactions between these variables and perceived behavioral control.

Secondly, contrary to prior research (Chang, 2008; Chin et al., 2015; Choi & Miller, 2014; Kim & Omizo, 2003; Liao et al., 2005), the current findings indicated that neither adherence to Asian values nor social support significantly impacted students’ help-seeking activities. One possible explanation is that Chinese college students’ lifestyle and awareness of mental health may have been influenced by Western values due to globalization and Internet development, which in turn may have impacted on their service use, independent of the extent of adhering to Asian cultural values. Previous research has found that Asian Americans who adhere to European cultural values are more willing to use MHS (Choi & Miller, 2014). Future research should investigate the predictive effect of adaptation to Western cultural values on Chinese students’ help-seeking behavior. Another explanation could be that the Asian cultural values scale utilized in this study was developed with Asian Americans and on the basis of shared Asian cultural values, thus, it may not include some specific cultural values held by Chinese people. Researchers should consider developing a
specific measure of Chinese cultural values and examining its relationship with help-seeking. Additionally, the non-significant findings for social support may reflect the loss of original social networks due to geographic isolation (Khawaja & Dempsey, 2007; Yoon & Jepsen, 2008). Indeed, 90% of our participants were living on campus, away from family and friends. Moreover, these non-significant findings, together with the identified significant effect of social expectations, suggest that rather than the quality of social support, it is family and friends’ expectations that influence Chinese students’ help-seeking. Future research on effective mental health interventions should incorporate the impact of social expectations.

Thirdly, evaluated need measured by using self-report psychometric screening scales did not predict students’ service utilization, whereas self-rated mental health status was significantly associated with use: students with a lower level of self-rated mental health status were more likely to have used MHS. These contradictory findings may be attributed to Chinese students’ misunderstanding of mental health issues and MHS. To illustrate, students might consider some physical impairments as symptoms of mental illness when rating their own mental health status, potentially exaggerating the therapeutic effect of psychological services on these impairments. Indeed, the majority of respondents in the current study provided vaguely worded statements about potential benefits of mental health treatments.

Finally, consistent with Plaistow et al. (2014), our study revealed that frequency of exposure to MHS related information significantly predicted service use. This was also supported by our qualitative findings: students suggested that in order to promote help-seeking, education and mental health professionals should provide more information about mental health issues and services through campaigns (e.g., psycho-education seminars). Future research should expand this finding by exploring how different ways of providing information (through advertisements for the public or materials provided by counselors during treatment) influence students’ MHS use.
Limitations

The present findings must be interpreted in light of several limitations. Firstly, although the included measures are generally reliable and have been used often in previous studies across different populations, most were developed for North Americans, and some (i.e., ATSPPH-SF, SSOSH, and AVS) had lower reliability in the current study. Importantly, the validity of these measures were not compromised: they were carefully translated and back-translated by an accredited translation firm. Future research in Chinese populations would benefit from developing and employing culturally relevant scales. Moreover, the use of a single self-report item to assess MHS utilization in the preceding year excluded other potentially relevant information, for example whether students attended alone or were accompanied by family. Previous reviews have observed that the effects of intentions and perceived behavioral control on behavior vary by how the behavior is measured—objectively or by self-report (Armitage & Conner, 2001; Webb & Sheeran, 2006). Therefore, future longitudinal and epidemiological research is suggested to document students’ use of MHS.

Secondly, the generalizability of the current findings may be limited due to participant recruitment procedures. Although the current sample was large and participants were recruited across majors and universities, the majority lived in Shandong Province and defined themselves as Han Chinese, and only 25.7% of participants reported severe symptoms on K10. Hence, it was not possible to examine within-group variability, although the literature indicates ethnic differences in Chinese students’ mental health status (Li et al., 2008). Future studies should consider expanding the scope of the research and replicating current findings with college students from other ethnic backgrounds and/or other geographical regions of China.

Thirdly, this study is not able to establish causal interpretations due to the cross-sectional design. Future research could use longitudinal data to explore and elucidate the
causal relationships between identified biopsychosocial variables and Chinese college students’ use of MHS.

Implications

Despite the study’s limitations, its large size and reasonable gender ratio permitted complex multivariate analyses, enabling significant contributions to theory and practice. Theoretically, the results support the applicability of the TPB within Chinese populations, and indicate that researchers should consider adding pathways from subjective norms to attitudes and perceived behavioral control, when investigating Chinese people’s help-seeking intentions. Moreover, the present findings also contributed to the limited knowledge regarding Chinese college students’ help-seeking behavior by integrating two influential theories in health psychology.

Practically, the study provides direction for education providers and mental health practitioners working with Chinese college students. Firstly, our findings suggest that community advertising and education would promote help-seeking. The resources of available MHS in Mainland China have substantially increased due to government initiatives and comprehensive mental health policies. For example, Chinese universities and schools are required to provide professional psychological support for students, with or without mental health issues (Ministry of Education of the People’s Republic of China, 2001). However, the current study indicates that many students are ill-informed about MHS and probably hold incorrect beliefs about disorders and treatments: almost half of our participants were unaware of available MHS. Therefore, education providers and mental health professionals should not only provide basic service information (e.g., location), but also work on correcting inaccurate beliefs. For this purpose, our participants recommended on-campus psycho-educational seminars and workshops which could explain mental disorders and symptoms, the types and processes of treatments, and the consequences of delayed diagnosis and treatment.
Furthermore, considering the significant influence of social expectations on Chinese college students’ help-seeking, psycho-educational campaigns should be also disseminated to the community, via mass media, to inform students’ families and friends about mental health and promote positive attitudes toward using professional services. Thus stigma associated with mental illness and seeking professional psychological help could be reduced, in turn promoting help-seeking.

Mental health professionals may need to advance beyond face-to-face modes of service delivery, and use the Internet to provide help for students with mental health issues. Doing so can avoid stigma concerns about publicly accessing MHS, and enhance the likelihood of regular contacts with students, as recommended by our participants. Practitioners should also be sensitive to cultural differences. Rather than preferring Western theories, they could consider mindfulness and other approaches derived from Eastern cultures that may be more appropriate to Chinese populations (Tang, Reilly, & Dickson, 2012). Family therapy approaches (e.g., structural family therapy) are also recommended because our findings highlighted the importance of family interaction in this context. Researchers have, indeed, observed that family therapy is effective for Mainland Chinese clients (e.g., Sim & Hu, 2009; Xiong et al., 1994; Yang & Pearson, 2002).

**Conclusion**

The current integrated model explained Chinese college students’ help-seeking behavior and indicated that social-cognitive factors are important predictors of students’ help-seeking intentions and their actual usage. Longitudinal research is recommended to further clarify these relationships.
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help-seeking? A systematic review of quantitative and qualitative studies.

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# Statement of Authorship

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<td>Publication Status</td>
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## Principal Author

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<tr>
<th>Name of Principal Author (Candidate)</th>
<th>Wenjing Li</th>
</tr>
</thead>
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<tr>
<td>Contribution to the Paper</td>
<td>Study inception, study design, participant recruitment, data entry, statistical analyses, data interpretation and manuscript preparation</td>
</tr>
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<td>Overall percentage (%)</td>
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**Certification:** This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.

**Signature**

**Date** 26/08/2016

## Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

- the candidate's stated contribution to the publication is accurate (as detailed above);
- permission is granted for the candidate to include the publication in the thesis; and
- the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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<th>Linley Denson</th>
</tr>
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<td>Acted in a supervisory capacity at all stages.</td>
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Australian university students’ mental health help-seeking: Testing empirical models based on the Theory of Planned Behavior

This chapter consists of a manuscript submitted for publication. The details of this manuscript are:

Preface

As discussed in Chapter 1, university students’ formal help-seeking behaviour is still under-researched in Australia. Moreover, there is a gap in the literature relating to the comparison between mainland Chinese and Australian university students on mental health help-seeking. Studies 1 and 2 also identified key research needs to explore help-seeking activities among university students outside the United States. A large-scale online survey was therefore designed to investigate Australian university students’ help-seeking intentions and their use of mental health services.

This study replicated and extended the findings of Study 3 by firstly developing and testing four models of help-seeking intentions. It was hypothesised that the original model, which was developed for Chinese university students, would provide the best fit to the data. Secondly, the predictive effects of a variety of biopsychosocial variables on Australian students’ use of mental health services were examined. It is noteworthy that the variables involved in this study were assessed using the same measures that were employed in Study 3, making the comparison between mainland Chinese and Australian students more credible. The findings indicated that demographic and social-cognitive factors were significantly related to Australian university students’ help-seeking intentions and service usage, whereas only social-cognitive variables were identified as significant predictors for Chinese university students.
Australian university students’ mental health help-seeking: Testing empirical models based on the Theory of Planned Behavior

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School of Psychology, Faculty of Health Sciences, University of Adelaide, South Australia
Abstract

Objective: To explore and examine correlates of Australian university students’ help-seeking intentions and actual use of mental health services, we applied the Theory of Planned Behavior and the Behavioral Model of Health Services Use; testing and extending new models based on data from Chinese domestic university students. Method: Australian domestic university students (209 males and 402 females, total 611, mean age = 21 years; SD = 5.6) completed psychometric measures and commented on facilitators, barriers, benefits, and potential improvements to mental health services. Results: The original model developed for Chinese students fit the Australian data best. Bootstrapping revealed that relationships between a number of predictors (knowledge concerning mental health and professional services, evaluated and perceived need, anticipated benefits, stigma concerns, and Asian cultural values) and intention to use services were significantly mediated by attitudes and subjective norms. Logistic regression analysis identified predictors of students’ actual service use: help-seeking intentions, perceived behavioural control, gender, study major, knowledge of mental health, social support, income, self-rated mental health status, perceived need for help, and Asian cultural values. Conclusions: To engage students, mental health professionals need to consider psycho-educational and marketing approaches to raise students’ awareness of available services, inform their understanding of mental illness and treatments, and reduce stigmatized attitudes.

Keywords: Australian university students, counselling, help-seeking intention, psychological services, service utilisation, tertiary education
Stressors associated with tertiary education render Australian university students more vulnerable to mental health issues than other young adults, but they are reluctant to access services (Leahy et al., 2010). Previous research on mental health service (MHS) use by young Australians may not entirely generalise to university students. Moreover, few empirical help-seeking studies conducted in Australia are theoretically grounded. Accordingly, we applied the Theory of Planned Behavior (TPB; Ajzen, 1991) and the Behavioral Model of Health Services Use (Andersen, 1995) to examine correlates of Australian domestic university students’ professional help-seeking: testing and extending new models developed from a survey of Chinese students (Li, Denson, & Dorstyn, 2016a).

The TPB suggests that individual behaviour is immediately determined by intention to engage in that behaviour. Intention is in turn influenced by attitudes (i.e., self-evaluations about conducting the behaviour), subjective norms (i.e., perceived social expectations concerning the behaviour), and perceived behavioural control (i.e., predictions of personal control over performance; Ajzen, 1991). For example, help-seeking attitude is a significant predictor of young Australians’ intention to attend services (Rickwood et al., 2007).

Andersen’s (1995) model proposes three variable types that directly predict and explain individual health service use: predisposing (i.e., socio-demographic characteristics, knowledge concerning health and health services), enabling (e.g., income, social support, awareness of available services), and need (both perceived and actual need for help). This theory is supported by research: gender, knowledge of mental health, cost and accessibility of services, financial status, residential area, awareness of available services, social support, and perceived need each demonstrate significant relationships with young Australians’ MHS utilisation (Jorm et al., 2007; Rickwood et al., 2007; Rickwood et al., 2005; Yap et al., 2013).
Unfortunately, Australian empirical findings have not yet been integrated and tested as an explicit model. To address this, we replicated and extended findings by Li, Denson, and Dorstyn (2016a) who used a Chinese university student sample, framed by the TPB and Andersen’s model, to highlight the mediating effects of attitudes, subjective norms, and perceived behavioural control on relationships between help-seeking intentions and predisposing (e.g., gender), enabling (e.g., social support), and need (e.g., evaluated need) variables.

We elected to replicate Li et al.’s (2016a) research using the same measures, firstly because their models were derived from a domestic student sample, and secondly because most of their variables are salient for young Australians, suggesting that those models might apply to university students also. In addition to variables proposed by Ajzen (1991) and Andersen (1995), Li et al. (2016a) also examined the predictive effects of public stigma, self-stigma, and anticipated benefits and risks. Research has demonstrated the significance of these variables in understanding young Australians’ help-seeking behaviour, supporting their inclusion here (Jorm et al., 2007).

We also explored how Australian students’ endorsement of Asian cultural values might associate with their help-seeking. Many current international students have Asian backgrounds (Department of Education and Training, 2016). Interactions with Asian people may influence values development by young Australians which in turn may impact their attitudes and service use (Feather, 1986). To our knowledge, this study is the first to explore the association between Asian cultural values and Australians’ help-seeking.

Firstly, we investigated students’ help-seeking intentions by developing and testing four models (Figure 4). We hypothesised that Model 4, identical to Li et al.’s (2016a) model, would fit the Australian data best. Predisposing, enabling, and need variables, in conjunction
with anticipated benefits and risks, stigma concerns, and Asian cultural values, would predict attitudes, subjective norms, and perceived behavioural control, which in turn would predict intentions. Moreover, subjective norms would predict attitudes and perceived behavioural control. We added a new variable, knowledge, because for young Australians, it is a significant predictor of utilisation (Rickwood et al., 2007). We further hypothesised that attitudes, subjective norms, and perceived behavioural control each would specifically mediate relationships between all the predictors included in Model 4 and intentions.
Figure 4. The proposed model. (Model 1 includes paths a, b, c; Model 2 includes paths a, b, c, d, e; Model 3 includes paths a, b, c, f, g; Model 4 includes paths a, b, c, d, e, f, g).
Secondly, we examined predictive effects of several biopsychosocial variables (Table 10) on students’ service use in the preceding 12 months. We hypothesised that all those variables would significantly predict usage.

Table 10

*Variables Included in the Logistic Regression Analysis*

<table>
<thead>
<tr>
<th>Block</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>help-seeking intentions; perceived behavioral control</td>
</tr>
<tr>
<td>Block 2</td>
<td><em>Predisposing variables</em></td>
</tr>
<tr>
<td></td>
<td>gender; father’s education level; mother’s education level; major; own</td>
</tr>
<tr>
<td></td>
<td>marital status; parents’ marital status; own ethnic background; father’s</td>
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<tr>
<td></td>
<td>ethnic background; mother’s ethnic background; knowledge of mental</td>
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<td></td>
<td>health; frequency of exposure to MHS related information</td>
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<tr>
<td>Block 3</td>
<td><em>Enabling variables</em></td>
</tr>
<tr>
<td></td>
<td>residential area; annual family income; health insurance; awareness of</td>
</tr>
<tr>
<td></td>
<td>available services; social support</td>
</tr>
<tr>
<td>Block 4</td>
<td><em>Need variables</em></td>
</tr>
<tr>
<td></td>
<td>psychological distress-severity; psychological distress-symptom; self-rated</td>
</tr>
<tr>
<td></td>
<td>mental health status; perceived need for help</td>
</tr>
<tr>
<td>Block 5</td>
<td>Asian cultural values</td>
</tr>
</tbody>
</table>
Method

Participants

In total, 611 Australian domestic university students (209 men and 402 women) were recruited. The mean age was 21 years (SD = 5.6, range = 16 – 56). Participants were predominantly first year students (60.4%). 68.9% self-identified as having Australian ethnic backgrounds, 15.5% as European, 12.8% as Asian, and 2.8% as ‘others’. Only 26.8% had used MHS in the past 12 months.

Measures

Demographic Information. Participants were asked about their age, gender, and ethnic background.

Attitudes. The 10-item Attitudes Toward Seeking Professional Psychological Help Scale-Short Form (ATSPPH-SF) based on the original 29-item ATSPPH (Fischer & Turner, 1970), assesses attitudes on a 4-point Likert scale (1 = disagree to 4 = agree): higher scores reflect more positive attitudes. Correlation with the full scale was .87, one-month test-retest reliability was .80, and the internal consistency was .84 (Fischer & Farina, 1995). Our reliability estimate was .81.

Subjective norms. This factor was assessed using a 10-item self-report measure designed by Hammer and Vogel (2013). Each statement is rated on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree): higher total scores reflect more positive perceived social expectations regarding seeking MHS. Prior reliability estimate was .94. Our Cronbach’s alpha was .91.

Perceived behavioural control. This direct determinant of intention was measured by 3 items, each scored from 1 (strongly disagree) to 6 (strongly agree): higher total scores
indicate higher perceived personal control over performing a behaviour. Prior reliability estimate was .77 (Mo & Mak, 2009). Our Cronbach’s alpha was .81.

Normative and control beliefs. Two subscales of the Belief-based Theory of Planned Behavior Measures (Mak & Davis, 2014) assessed the direct predictors of subjective norms and perceived behavioural control – normative (i.e., injunctive and descriptive norm beliefs) and control beliefs, respectively (Ajzen, 1991). These were translated from Chinese into English by an accredited translation agency following a translation and back-translation process.

The injunctive norms measure assesses the strength of respondents’ (1) beliefs concerning, and (2) motivation to fulfil, family members, friends, partner, and colleagues’ expectations regarding using MHS. Eight items (one pair for each referent) are rated from 1 = strongly disagree to 7 = strongly agree. The descriptive norms measure comprises 3 item pairs, assessing the strength of respondents’ normative belief concerning (1 = strongly disagree to 7 = strongly agree) and identification with (1 = not willing to 7 = willing) the MHS-related behaviour of family members, friends and colleagues.

The control beliefs subscale comprises five control factors. Each is scored for the strength of the participant’s control belief in the presence of, and power of, that factor. The ten items are each rated 1 = strongly disagree to 7 = strongly agree; and for each factor the two items are summed to represent that overall belief. Our reliability estimates were .69 (injunctive norm beliefs), .75 (descriptive norm beliefs), and .83 (control beliefs).

Public stigma. The Perceptions of Stigmatization by Others for Seeking Help Scale (PSOSH) assesses fear of being stigmatized by significant others in the event of using MHS. Five items are rated from 1 (not at all) to 5 (a great deal); higher total scores indicate greater
public stigma concern. Three-week test-retest reliability was .82, and the internal consistency ranged from .83 to .90 (Vogel et al., 2009). Our Cronbach’s alpha was .91.

**Self-stigma.** The Self-Stigma of Seeking Help Scale measures participants’ self-stigma toward using MHS. Ten items are rated from 1 (strongly disagree) to 5 (strongly agree): higher scores indicate higher perceived self-stigma. Prior reliability estimates ranged from .86 to .90 with two-week test-retest reliability of .72 (Vogel et al., 2006). Our Cronbach’s alpha was .88.

**Anticipated benefits and risks.** The Disclosure Expectations Scale assesses individuals’ expectations about benefits and risks of seeking help. Each of the two subscales consists of 4 items rated from 1 = not at all to 5 = very; higher total scores indicating more anticipated benefits (or risks). Two-week test-retest reliability were .75 (benefits) and .77 (risks), and prior internal consistency were .83 (benefits) and .74 (risks; Vogel & Wester, 2003). Our reliability estimates were .83 (benefits) and .84 (risks).

**Asian cultural values.** The Asian Values Scale is a 36-item measure used to assess participants’ agreements with 6 major Asian values; collectivism, emotional self-control, family recognition through achievement, filial piety, humility, and obeying social norms. Each statement is rated from 1 (strongly disagree) to 7 (strongly agree): higher total scores indicate higher agreement with Asian values. Internal consistency (.81 – .82) and 2-week test-retest reliability (.83) were both adequate (Kim et al., 1999). Our reliability estimate was .86.

**Social support.** The Social Provisions Scale measures the quality of perceived social support. Twenty-four items are rated from 1 (strongly disagree) to 4 (strongly agree): higher total scores reflect higher perceived social support. Internal consistency ranged from .85 to .92 and test-retest reliability estimates ranged from .84 to .92 (Cutrona & Russell, 1987). Our Cronbach’s alpha was .93.
**Psychological distress (symptoms).** The Hopkins Symptom Checklist-21 (HSCL-21) is used to measure participants’ symptoms of psychological distress. Twenty-one items are rated from 1 (*not at all*) to 4 (*extremely*), with higher total scores reflecting greater distress. Internal consistency was .90 (Green et al., 1988). Our Cronbach’s alpha was .93.

**Psychological distress (severity).** The Kessler Psychological Distress Scale (K10) is a screening measure of non-specific psychological distress designed by Kessler et al. (2002) to assess level of psychiatric morbidity. Ten items are rated from 1 (*none of the time*) to 5 (*all of the time*); higher total scores suggest greater distress severity. Adequate reliability (.89) has been identified in an Australian sample (Stallman, 2010). Our Cronbach’s alpha was .93.

**Intention.** The 24-item Willingness to See a Counsellor scale (WSC; Gim et al., 1990), extended from the original 17-item Intention to Seek Counselling Inventory (Cash et al., 1975), examines participants’ help-seeking intentions. Each item is rated from 1 = *not willing* to 4 = *willing*; higher total scores indicate stronger intention to seek help. Internal consistency estimate was .92 (Kim & Omizo, 2003). Our Cronbach’s alpha was .96.

**Use of MHS.** Participants indicated whether or not in the past 12 months they had “……taken any prescribed psychotropic medications (e.g., anti-depressants, anti-panic or anti-anxiety agents) or used any professional mental health services (defined as community mental health services, counselling services, general practitioners, hospital emergency departments, inpatient and outpatient mental health-related care, psychiatrists, psychologists, psychotherapists, social workers, or telecounseling)……”. Those who reported having used MHS were asked about the type and frequency of use, service satisfaction and current usage.

**Open-ended questions.** Four open-ended questions were included, exploring students’ motivation to access MHS, their opinions concerning the barriers and benefits of seeking professional help, and their suggestions for service delivery.
Procedure

This study was approved by the University of Adelaide School of Psychology Human Research Ethics Subcommittee (Approval 14/91). Some participants were recruited from the School’s research participation pool (first-year psychology students receiving course credit for participation). Additionally, invitation emails were sent through other departments at the University of Adelaide and via social-networking websites: those student participants had equal chances to win a gift voucher of AUD$100.

After consenting, participants completed an online survey (via SurveyMonkey™). To prevent missing data, the survey could only be submitted if all demographic questions and psychosocial measures were completed. Finally, four optional open-ended questions were presented. Quantitative analyses were performed using SPSS 22 and Amos 22 (IBM Corp., 2013).

Results

Testing the structural models

As shown in Table 11, correlations between most of the 15 variables were significant, with small to medium relationships noted.
Table 11

Means, Standard Deviations, and Correlations of the Total Scale Scores

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attitudes</td>
<td>28.85</td>
<td>5.44</td>
<td>-.58***</td>
<td>-.15***</td>
<td>-.29***</td>
<td>.59***</td>
<td>.22***</td>
<td>.33***</td>
<td>.20***</td>
<td>-.17***</td>
<td>.05</td>
<td>.02</td>
<td>.16***</td>
<td>.38***</td>
<td>-.27***</td>
<td>.58***</td>
<td></td>
</tr>
<tr>
<td>2. Self-stigma</td>
<td>25.20</td>
<td>6.94</td>
<td>-</td>
<td>.36***</td>
<td>.44***</td>
<td>-.39***</td>
<td>-.38***</td>
<td>-.23***</td>
<td>-.17***</td>
<td>.09*</td>
<td>.11**</td>
<td>.13**</td>
<td>-.26***</td>
<td>-.18***</td>
<td>.30***</td>
<td>-.50***</td>
<td></td>
</tr>
<tr>
<td>3. Public stigma</td>
<td>8.48</td>
<td>4.22</td>
<td>-</td>
<td>.33***</td>
<td>-.09*</td>
<td>-.39***</td>
<td>.01</td>
<td>-.04</td>
<td>.06</td>
<td>.34***</td>
<td>.34***</td>
<td>-.14***</td>
<td>-.10*</td>
<td>.18***</td>
<td>-.18***</td>
<td></td>
<td></td>
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<tr>
<td>4. Anticipated risks</td>
<td>12.62</td>
<td>4.25</td>
<td>-</td>
<td>-.19***</td>
<td>-.25***</td>
<td>-.05</td>
<td>-.01</td>
<td>.03</td>
<td>.27***</td>
<td>.30***</td>
<td>-.17***</td>
<td>-.04</td>
<td>.13**</td>
<td>-.31***</td>
<td></td>
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<tr>
<td>5. Anticipated benefits</td>
<td>13.87</td>
<td>3.64</td>
<td>-</td>
<td>.23***</td>
<td>.25***</td>
<td>.20***</td>
<td>-.09*</td>
<td>.05</td>
<td>.01</td>
<td>.10*</td>
<td>.31***</td>
<td>-.11**</td>
<td>.47***</td>
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<tr>
<td>6. Social support</td>
<td>76.55</td>
<td>11.38</td>
<td>-</td>
<td>.15***</td>
<td>.12**</td>
<td>-.11**</td>
<td>-.37***</td>
<td>-.41***</td>
<td>.22***</td>
<td>.15***</td>
<td>-.18***</td>
<td>.23***</td>
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<tr>
<td>7. Predisposing-knowledge</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.55***</td>
<td>-.28***</td>
<td>.18***</td>
<td>.19***</td>
<td>.14***</td>
<td>.25***</td>
<td>-.20***</td>
<td>.28***</td>
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<tr>
<td>8. Knowledge-frequency</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.25***</td>
<td>.18***</td>
<td>.15***</td>
<td>.11**</td>
<td>.26***</td>
<td>-.13**</td>
<td>.19***</td>
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<tr>
<td>9. Enabling-knowledge</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.02</td>
<td>.01</td>
<td>-.03</td>
<td>-.14**</td>
<td>.12**</td>
<td>-.16***</td>
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<tr>
<td>10. Psychological distress—symptoms</td>
<td>46.09</td>
<td>12.99</td>
<td>-</td>
<td>.82***</td>
<td>-.04</td>
<td>.07</td>
<td>.06</td>
<td>.10*</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>11. Psychological distress—severity</td>
<td>24.76</td>
<td>9.31</td>
<td>-</td>
<td>-.06</td>
<td>.09*</td>
<td>.03</td>
<td>.03</td>
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<tr>
<td>12. Perceived behavioral control</td>
<td>14.78</td>
<td>2.55</td>
<td>-</td>
<td>.15***</td>
<td>-.15***</td>
<td>.20***</td>
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<tr>
<td>13. Subjective norm</td>
<td>44.85</td>
<td>10.85</td>
<td>-</td>
<td>-.14**</td>
<td>.31***</td>
<td></td>
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</tr>
<tr>
<td>14. Asian cultural values</td>
<td>128.21</td>
<td>22.4</td>
<td>-</td>
<td>-.17**</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>15. Help-seeking intentions</td>
<td>55.55</td>
<td>18.2</td>
<td>-</td>
<td>-</td>
<td></td>
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</tbody>
</table>
Note. $N = 611$. Attitudes = Attitudes Toward Seeking Professional Psychological Help Scale-Short Form; Self-stigma = Self-Stigma of Seeking Help Scale; Public stigma = Perceptions of Stigmatization by Others for Seeking Help Scale; Anticipated benefits = Benefits subscale of Disclosure Expectations Scale; Anticipated risks = Risks subscale of Disclosure Expectations Scale; Social support = Social Provisions Scale; Adherence to Asian values = Asian Values Scale; Psychological distress-symptoms = Hopkins Symptom Checklist-21; Psychological distress-severity = Kessler Psychological Distress Scale; Help-seeking intentions = 24-item Willingness to See a Counselor Scale.

*p < .05. **p < .01. ***p < .001.
Several stages were involved in testing the hypothesised models. First, a measurement model was developed and assessed using confirmatory factor analysis (Byrne, 2010). Second, four proposed models were examined and compared to determine which one fit the data best. Third, bootstrapping was used to test the significance of the specific indirect effects on intentions (Shrout & Bolger, 2002). We initially considered including normative and control beliefs but they were precluded by increased model complexity.

**Item parcelling.** To improve model fit and reduce the risk of violating the normality assumption, we created three parcels (i.e., observed indicators) for each of the following variables: attitudes, public stigma, subjective norms, Asian cultural values, intentions, self-stigma, and social support, and two parcels for anticipated benefits and risks, respectively (Bandalos, 2002). Two single item measures, perceived need for help and self-rated mental health status, were combined as indicators of perceived need. Self-report illness symptoms (HSCL-21) and severity (K10) were utilised as indicators of evaluated need. Knowledge of mental health, frequency of exposure to MHS related information, and awareness of available MHS were selected as indicators for the ‘knowledge’ variable (Andersen, 1995).

**Normality.** Because the maximum likelihood estimation (ML) was used, the normality of each variable was assessed, although ML is robust in the context of excessive kurtosis (Hoyle, 1995; Kaplan, 2009). Skewness and kurtosis values, together with histograms and probability-probability (P-P) plots, indicated that all included variables were approximately normally distributed. Considering the relatively large sample size, the normality assumption was tenable (Byrne, 2010).

**Fit indices.** Chi-square goodness-of-fit test ($\chi^2$), the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR) were employed to examine the model fit. CFI values equal to or greater
than .95, RMSEA values equal to or smaller than .06, and SRMR values equal to or smaller than .08 indicate good model fit (Hu & Bentler, 1999).

**Measurement model.** The measurement model exhibited a good model fit: $\chi^2 (504, N = 611) = 946.88, p < .001; CFI = .97; RMSEA = .04 (90\% CI = .03 – .04); and SRMR = .04. All factor loadings were significant ($p < .001$).

**Structural models.** All four models provided good fit for the data (Table 12), so a chi-square difference test was conducted. Because the significant chi-square values implied that Model 4 had better data fit than Models 1 ($\Delta \chi^2 (15) = 137.89, p < .001$), 2 ($\Delta \chi^2 (2) = 34.16, p < .001$), and 3 ($\Delta \chi^2 (13) = 103.45, p < .001$), it was selected for the bootstrap procedure.

Table 12

*Fit Statistics for Structural Models*

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>$df$</th>
<th>$p$</th>
<th>CFI</th>
<th>RMSEA [90%CI]</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>854.15</td>
<td>421</td>
<td>&lt; .001</td>
<td>.97</td>
<td>.04 [.04, .05]</td>
<td>.04</td>
</tr>
<tr>
<td>Model 2</td>
<td>981.75</td>
<td>507</td>
<td>&lt; .001</td>
<td>.97</td>
<td>.04 [.036, .043]</td>
<td>.04</td>
</tr>
<tr>
<td>Model 3</td>
<td>819.70</td>
<td>419</td>
<td>&lt; .001</td>
<td>.97</td>
<td>.04 [.036, .044]</td>
<td>.04</td>
</tr>
<tr>
<td>Model 4</td>
<td>947.591</td>
<td>505</td>
<td>&lt; .001</td>
<td>.97</td>
<td>.04 [.03, .04]</td>
<td>.04</td>
</tr>
</tbody>
</table>

*Note.* $N = 611.$ CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual.
All predictors included in Model 4 together accounted for 49% of the variance in intentions (Figure 5). Seven variables had significant effects on attitudes, accounting for 73% of the variance. Only three variables were significantly related to subjective norms, explaining 21% of the variance. Self-stigma and subjective norms were the only two significant predictors of perceived behavioural control, accounting for 15% of its variance. Gender and social support did not significantly influence attitudes, subjective norms, perceived behavioural control, or intentions.
Figure 5. Model 4. N = 611. Values shown are standardized parameter estimates. Only significant structural paths are shown in the figure. Items parcels, measurement errors, factors loadings, residual errors and inter-correlations between independent variables are omitted for clarity. *p < .05. **p < .01. ***p < .001.
**Bootstrapping.** A bootstrap procedure with 10,000 bootstrap samples tested the mediated effects of attitudes, subjective norms, and perceived behavioural control on the relationships between the 10 predictors from Model 4 and intentions. To examine the specific mediating effect, Paths f and g (see Figure 4) were constrained to zero. The 95% confidence intervals (CIs) for the estimates were examined: if they did not contain zero, it could be concluded that the mediating effect was statistically significant \( p < .05 \); Shrout & Bolger, 2002). The results indicated that attitudes significantly mediated the effects of evaluated need, anticipated benefits, self-stigma, perceived need, and Asian cultural values on intentions. Subjective norm was also a significant mediator of the associations between knowledge, anticipated benefits, public stigma, and intentions. Notably, none of the indirect effects on intentions through perceived behavioural control was statistically significant (Table 13).
Table 13

**Bootstrap Analyses of Indirect Effects on Help-Seeking Intentions through Attitudes Toward Seeking Professional Psychological Help, Subjective Norms, and Perceived Behavioural Control**

**Control**

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Mediator variables</th>
<th>Dependent variables</th>
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Note. Attitudes = Attitudes toward seeking professional psychological help; SN = Subjective Norms; PBC = Perceived Behavioral Control; Asian values = Asian cultural values; AB = Anticipated Benefits; AR = Anticipated Risks.
Predictors of MHS utilisation

The predictive effects of intentions, perceived behavioural control, predisposing, enabling and need factors, and Asian cultural values, on service usage were examined using logistic regression analysis. In order to investigate changes in the model fit when specific sets of variables were added into the model, all of the predictor variables were entered in blocks. Intentions and perceived behavioural control were entered in Step 1, because they are direct predictors of behaviour according to the TPB. Both these variables were significant predictors of usage ($\chi^2 (2) = 54.41, p < .001$; Table 14), accounting for 12.4% of the variance. Eleven predisposing variables were then added in Step 2. This model also significantly predicted usage ($\chi^2 (24) = 176.32, p < .001$), explaining 36.5% of its variance. There was a significant improvement in the model fit by adding the predisposing variables ($\chi^2 (22) = 121.91, p < .001$). Next, five enabling variables were entered, in Step 3. This model ($\chi^2 (30) = 209.04, p < .001$) explained 42.1% of the variance in use and adding the enabling variables to the model had significant effect on the fit ($\chi^2 (6) = 32.72, p < .001$). Four need variables were entered in Step 4. This model which incorporated intentions, perceived behavioural control, and predisposing, enabling and need variables significantly predicted usage ($\chi^2 (34) = 340.53, p < .001$), accounting for 62.1% of its variance. Again, the addition of the need variables significantly improved the model fit ($\chi^2 (4) = 131.49, p < .001$). Finally, the variable of Asian cultural values was incorporated (Step 5). The final model also significantly predicted usage ($\chi^2 (35) = 344.78, p < .001$), and considered together these variables explained nearly 63% of the variance. The model fit was significantly improved by adding the effect of Asian cultural values ($\chi^2 (1) = 4.24, p = .039$).
Table 14

**Logistic Regression Models of Predictors of Australian University Students’ Use of Mental Health Services**

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</tbody>
</table>

Note. Only significant predictors are shown in the table. The complete table is available from the first author on request. OR = Odds Ratio. PBC = Perceived Behavioral Control. MHS = Mental Health Service.

\(^a\) Reference group for each predictor.
Qualitative findings

Thematic content analysis was utilised to examine responses to the open-ended questions (Braun & Clarke, 2013). Approximately 35% of respondents suggested illness severity as the major motivator for them to attend services. High costs and stigma concerns were depicted as potential barriers. In terms of potential benefits from MHS, respondents most often nominated recovery from mental illness and/or learning coping skills to address potential future issues. Importantly, students recommended increasing awareness of MHS through publicity campaigns and marketing (Table 15).
Table 15

*Frequency of Top 5 Themes for Each of Four Open-Ended Questions*

<table>
<thead>
<tr>
<th>Themes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivations to use mental health services (N = 572)</strong></td>
<td></td>
</tr>
<tr>
<td>Severe mental health problems</td>
<td>35%</td>
</tr>
<tr>
<td>Advice from family, friends, and/or significant others</td>
<td>27%</td>
</tr>
<tr>
<td>Seeking professional psychological help as the last resort</td>
<td>10%</td>
</tr>
<tr>
<td>Depression</td>
<td>8.2%</td>
</tr>
<tr>
<td>Be cheaper</td>
<td>4.7%</td>
</tr>
<tr>
<td><strong>Barriers to use mental health services (N = 568)</strong></td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>39%</td>
</tr>
<tr>
<td>Stigma concerns</td>
<td>31%</td>
</tr>
<tr>
<td>Don’t have time</td>
<td>13.9%</td>
</tr>
<tr>
<td>Don’t need</td>
<td>10.2%</td>
</tr>
<tr>
<td>Fear (e.g., fear of side effects of medication)</td>
<td>8.6%</td>
</tr>
<tr>
<td><strong>Benefits of using mental health services (N = 561)</strong></td>
<td></td>
</tr>
<tr>
<td>Resolution of issues</td>
<td>22%</td>
</tr>
<tr>
<td>Learn coping strategies to deal with mental health issues</td>
<td>21.6%</td>
</tr>
<tr>
<td>Improve quality of life</td>
<td>17%</td>
</tr>
<tr>
<td>Talk to someone in non-judgmental environment</td>
<td>14%</td>
</tr>
<tr>
<td>Professional support</td>
<td>10.3%</td>
</tr>
<tr>
<td><strong>Suggestions for mental health service delivery to students (N = 432)</strong></td>
<td></td>
</tr>
<tr>
<td>Dissemination</td>
<td>29%</td>
</tr>
<tr>
<td>Psycho-educational campaigns</td>
<td>9.7%</td>
</tr>
<tr>
<td>Be free</td>
<td>7.9%</td>
</tr>
<tr>
<td>Easy access</td>
<td>5.8%</td>
</tr>
<tr>
<td>Be anonymous</td>
<td>4.6%</td>
</tr>
</tbody>
</table>
Discussion

In order to explore Australian university students’ professional help-seeking, we replicated and extended Li et al.’s (2016a) research on Chinese students’ help-seeking intentions and actual MHS use. The findings indicated that Li et al.’s (2016a) model (Model 4) can be generalised to Australian students, with social-cognitive factors having a similar, significant effect on help-seeking activities for the current sample. In addition, demographic characteristics also played a significant role for the Australian sample.

Consistent with Li et al. (2016a), attitudes significantly mediated pathways from anticipated benefits, self-stigma, and evaluated need to intentions. Moreover, students with higher perceived and evaluated need tended to have more negative attitudes. Research has indicated that individuals who tend to conceal distressing information are more likely to have negative help-seeking attitudes (Kahn & Williams, 2003). The tendency not to disclose personal feelings has been identified among Australians, hence, despite our participants indicating a need for help they may still maintain negative attitudes, being reluctant to disclose personal and emotional issues (Feather, 1986).

We also found that perceived and evaluated need were both positively related to intentions. This positive association may, however, partially reflect the nature of the measures utilised (Li et al., 2016a). Measures of evaluated need (HSCL-21 and K10) list the symptoms of mental disorders; the intentions measure (i.e., WSC) indicates the issues that university students may encounter. Thus if the student’s symptoms match with a specific issue, both may be endorsed, increasing the probability of obtaining a positive relationship.

Our findings suggest that subjective norms also play a mediating role between biopsychosocial variables and intentions, similar to Li et al. (2016a). Specifically, in addition to mediating the relationships from knowledge, anticipated benefits, and public stigma to
intentions, subjective norm has a direct impact on attitudes and perceived behavioural control. This latter finding is consistent with previous Chinese research (Li et al., 2016a; Mak & Davis, 2014; Mo & Mak, 2009), suggesting that significant others’ expectations may influence students’ attitudes toward, and sense of control about, accessing services. Our respondents, indeed, indicated that they would be more likely to use MHS if family and friends encouraged them. These findings need to be replicated with more samples from other cultures to ensure generalisability.

Similar to Li et al. (2016a), perceived behavioural control was not a significant contributor to Australian students’ help-seeking intentions. Perhaps, instead, attitude may be the most essential factor in the explanation of Australian students’ intent to seek MHS, given this was the only significant direct determinant of intentions. It is possible that in terms of seeking help for mental health purposes, Australian students tend to rely on personal evaluations of MHS to make decisions whereas external factors (e.g., social expectations) only contribute to the evaluation procedure (i.e., attitudes; Miller, 1994). This may reflect individualistic values: people place more emphasis on their own personal goals and benefits over those of their in-groups (Triandis, 1989).

In contrast to Li et al.’s (2016a) findings, public stigma was positively associated with attitudes within this Australian sample – perhaps at least partially reflecting the specific measure, the PSOSH, used in this study. Researchers have suggested that fear of being judged by significant others inhibits individuals from seeking informal help for mental health issues: instead, they may turn to professional services (Bluhm, Covin, Chow, Wrath, & Such, 2014). Fear of being stigmatized by significant others might therefore motivate students to think more positively about using MHS. Furthermore, it is noteworthy that anticipated risks only had direct effect on help-seeking intentions, suggesting that anticipated risk may be a direct contributor to Australian students’ reluctance to seek professional help.
Indeed, fear of negative consequences of accessing MHS was reported by our participants as a major barrier to receiving treatment.

Consistent with previous findings among Chinese students (Li et al., 2016a), intention was the most influential factor in determining Australian students’ use of MHS. This result not only provides further empirical support for the main assumption of the TPB (Ajzen, 1991) that intention is an immediate determinant of actual behaviour, but also supports the application of the TPB to mental health help-seeking.

Moreover, in line with Li et al. (2016a), we found that students who reported worse mental health status and/or greater perceived need for help were more likely to have utilised MHS. These results are supported by our participants’ nomination of severe mental health issues as a motivator for help-seeking. However, it should be acknowledged that evaluated need (self-reported via distress screening scales) was not significantly associated with recent usage. This result, together with the structural equation model, suggested that evaluated need might have indirect effect on use through attitudes and intentions, rather than direct effects. More investigation is needed to confirm this.

In contrast to Li et al. (2016a), study majors and mental health knowledge were consistent predictors of Australian students’ usage: students with more knowledge were more likely to have used MHS. Interestingly, however, students from health disciplines (e.g., psychology) reported lower utilisation than other disciplines (e.g., commerce). Their presumably greater knowledge of mental health was not reflected in greater willingness to attend services. Alternatively, however lower usage might be due to lower distress: previous Australian research indicated that students from non-health disciplines (i.e., law and mechanical engineering) were more distressed than those from health disciplines (i.e., psychology and medicine; Leahy et al., 2010), even though the current study did not find
significant differences between the two groups on distress levels (i.e., K10). Or, possibly, health students may fear negative impacts of mental health diagnoses on their career prospects. Fear of negative career impact is a major barrier to medical students’ help-seeking (Chew-Graham, Rogers, & Yassin, 2003). Commenting on potential barriers, one of our participants wrote “I am studying nursing……There is such a stigma which is really negative towards nurses seeking mental health. I feel like if I did it would not only impact my life now but also future job opportunities” (Participant 325).

Importantly, contrasting with Li et al.’s (2016a) findings that Asian cultural values did not affect help-seeking activities with a Chinese student sample, this study revealed that Australian students’ endorsement of Asian cultural values was not only negatively associated with their help-seeking intentions, but also, with service usage. This suggests the potential importance of Asian cultural values in predicting and understanding help-seeking patterns of Australians. Indeed, within this Australian domestic student sample, 13% reported Asian cultural backgrounds. Future research should explore associations between Asian cultural values and help-seeking in other Australian samples.

Noticeably, although perceived behavioural control, gender, and social support did not predict intentions, these variables were significant predictors of service usage, suggesting that instead of predicting usage through mediators, they may have direct impact on Australian students’ service use. These results supported another assumption of the TPB, that perceived behavioural control can serve as a direct predictor of behaviour (Ajzen, 1991).

Limitations

Several study limitations should be acknowledged. Firstly, although we analysed the overall influence of Asian cultural values on Australian university students’ help-seeking, the specific impact of discrete cultural constructs (e.g., filial piety) was not examined. Future
research should therefore explore the influence of each separate domain. Secondly, to maximise accurate recall, this study focused only on service usage in the preceding 12 months and because the utilisation measure was a single self-report question, we did not obtain other valuable information (e.g., number and type of sessions). Moreover, research has suggested that different ways of assessing behaviours – through objective observation or by self-report – can affect the association between intentions and perceived behavioural control and behaviour (Webb & Sheeran, 2006). Hence, further research is needed to document usage in depth.

Thirdly, previous Australian studies have reported that help-seeking intention and actual usage vary with types of mental health problems. For example, young adults with substance use disorders reported the lowest likelihood of service use (Australian Bureau of Statistics, 2007). Although we examined how illness severity and symptoms affect students’ help-seeking, the impact of specific mental disorders was not investigated. Future studies should consider incorporating this dimension.

Finally, due to the cross-sectional design, we are not able to assume causality. Longitudinal studies are needed to explore the causal direction of the identified relationships.

**Implications**

The current findings lend support to the applicability of the TPB and Andersen’s model, and suggest that researchers should consider the impact of subjective norms on attitudes and perceived behavioural control.

Our quantitative and qualitative results suggest that most participants had limited knowledge and awareness of MHS, and many had unfavourable attitudes and/or significant stigma concerns. To engage students, education providers and psychologists should therefore consider marketing campaigns. Specifically, our respondents recommended on-campus
workshops and the provision of psycho-educational material via email. They suggested that this education should focus on information about illness, treatments and services (e.g., contact details of psychologists), benefits of service use, relevant policies (e.g., health insurance), and self-help strategies. In order to reduce stigma and create a community within which students would feel comfortable to attend services, these educational campaigns should also be disseminated to the public via social media. Some students recommended changing the names of services to avoid labelling and ensure stigma-free access: “change the name of the service to ...less impacting on making you feel like you have not got the ability to live on your own” (Participant 233).

At a policy level, the Australian government has published general policies and strategies to reduce stigma and facilitate early interventions for mental disorders, such as the E-Mental Health Strategy (Department of Health and Ageing, 2012) and the National Mental Health Strategy (Department of Health and Ageing, 2009). However, our findings suggest a specific need for funding of stigma reduction strategies and psycho-educational campaigns for university students. It is also important to note that “don’t have time” was the third most frequently identified barrier for participants to seek services. Most Australian university students need paid work to afford basic necessities, and many struggle to balance work and study (Hall, 2010). Accordingly, they do not have time to consider their mental health needs. Recent government proposals to raise fees and cut income support for students may exacerbate this problem, if students need to work more (National Tertiary Education Union, 2014b). Policy-makers need to consider the impact of such policies on students’ mental health and consequently their academic performance.

Mental health professionals should be sensitive to the preferences of university students. For example, to increase accessibility and reduce stigma, practitioners could consider using the Internet as an adjunct to traditional treatment approaches, as some
participants suggested. Australian research has demonstrated the effectiveness of online mental health resources (e.g., beyondblue) both in reducing symptoms and encouraging young adults to attend professional services (Kauer, Mangan, & Sanci, 2014; Rickwood et al., 2007).

**Conclusion**

This study investigated Australian university students’ professional help-seeking, and found that both social-cognitive factors and demographic characteristics had significant effects on students’ help-seeking intentions and actual service use. These findings provided further empirical support for the applicability of the TPB, implying that mental health professionals should consider psycho-educational and marketing approaches to increase help-seeking by students.
References


Chapter 6: Discussion

This chapter outlines and discusses the results of four independent studies which addressed gaps in the theoretical and empirical literature regarding young adults and university students’ mental health help-seeking. As mentioned in Chapter 1, previous research has identified various biopsychosocial correlates of help-seeking intentions among these subgroups, in addition to their use of mental health services, however the findings are mixed. In addition, given that much of the published help-seeking research was conducted in the United States, there remains a need to investigate help-seeking patterns among university students from other countries, such as China and Australia. Accordingly, the specific aims of this project were to: (1) meta-analyse the available correlational research on university students’ help-seeking intentions; (2) systematically review the research on predictors of students’ actual use of mental health services; (3) explore mainland Chinese university students’ help-seeking intentions and actual use of mental health services; and (4) investigate Australian university students’ formal help-seeking behaviour by replicating and extending previous work with Chinese university students.

These aims were addressed by using distinct empirical methods, namely meta-analysis (Study 1), systematic review (Study 2), and cross-sectional survey-based quantitative studies (Studies 3 and 4). Importantly, Studies 1 and 2 utilised explicit methods to systematically search, critically appraise and synthesise the literature on university students’ help-seeking intentions and young adults’ use of mental health services, adding to the reliability and accuracy of the conclusions drawn. The use of consistent research methodologies in Studies 3 and 4, including the same online method of data collection, the same self-report measures in Mandarin and English respectively, and the same statistical methods (i.e., structural equation modelling and logistic regression analysis), makes comparison between Chinese and Australian university students meaningful and valid. In
order to enhance current understanding of the similarities and differences between Chinese and Australian students in help-seeking intentions and actual use of mental health services, the key findings from Studies 3 and 4 are integrated throughout this discussion. Methodological strengths and limitations of this research project will also be discussed as well as the implications of the current findings for theory, practice, policy, and future research into university students’ mental health help-seeking.

6.1 Summary of Findings

6.1.1 Help-seeking intention

The meta-analytic review (Study 1, Chapter 2) evaluated the correlations between nine psychosocial variables and university students’ help-seeking intentions. Specifically, attitudes toward seeking professional psychological help, along with anticipated benefits, had the strongest and positive associations with help-seeking intentions. In contrast, small and negative correlations were found for Asian cultural values, public stigma, and anticipated risks, whereas psychological distress, self-disclosure, social support, and self-concealment were not significantly related to intentions. The significant and large association between help-seeking attitudes and intentions lends support to one assumption of the TPB: that attitude is an important and direct predictor of intention (Ajzen, 1991). However, the findings were largely based on studies conducted with domestic university students in the United States hence may not generalise to the help-seeking intentions among students in other countries. In addition, the findings highlighted a need for future research to apply structural models to better understand the interaction between the identified variables and intentions.

In order to address these gaps in the literature, models of help-seeking intentions were developed and formally tested with mainland Chinese (Study 3, Chapter 4) and Australian (Study 4, Chapter 5) domestic university students. These models integrated the TPB, Andersen’s Behavioral Model, and other salient predictors of intentions (i.e., anticipated
benefits and risks, public stigma, and self-stigma) derived from the extant literature. It was hypothesised that: (1) the model which was developed for Chinese university students would fit both Chinese and Australian samples; (2) predisposing, enabling, and need variables derived from Andersen’s Behavioral Model, together with anticipated benefits and risks, public stigma, and self-stigma, would predict attitudes, subjective norms, and perceived behavioural control (the three direct determinants of intentions, according to the TPB). Attitudes, subjective norms, and perceived behavioural control would accordingly predict help-seeking intentions, and each would be a specific mediator; and (3) subjective norms would also have direct effects on attitudes and perceived behavioural control.

The results of Studies 3 and 4 provided partial support for these hypotheses. Specifically, tests of the proposed model of help-seeking intentions demonstrated a good fit for both samples. Consistent with the existing Western literature (Ajzen & Sheikh, 2013; Choi & Miller, 2014; Vogel et al., 2005; Wade et al., 2015; Yakunina & Weigold, 2011), significant specific indirect effects of gender, evaluated need, anticipated benefits and risks, and self-stigma on Chinese university students’ help-seeking intentions, through attitudes, were observed. Likewise, attitude was found to be a significant mediator between evaluated need, anticipated benefits, and self-stigma, and Australian university students’ help-seeking intentions. However, in contrast to Chinese data, the structural equation model produced in Study 4 indicated that Asian cultural values, public stigma, and perceived need for help also had significant and indirect effects on Australian students’ help-seeking intentions, whereas gender was not a significant predictor, and anticipated risks had only direct effects on intentions.

In terms of the mediating effect of subjective norms, there were different findings for the two student samples. For Chinese students, subjective norms were a significant mediator of the impact of evaluated need and anticipated risks on help-seeking intentions. For
Australian students, subjective norms significantly mediated the relationships between knowledge, anticipated benefits, and public stigma, and intentions. Importantly, for both Chinese and Australian students, subjective norms had significant and direct effects on help-seeking attitudes and perceived behavioural control. These results may suggest that cross-culturally, family, friends, and/or significant others’ expectations toward using mental health services not only have an important influence on university students’ intentions to access services, but also shape their attitudes toward and sense of control about help-seeking.

Although the findings from Study 3 appeared to suggest that perceived behavioural control was a significant mediator of the associations between Asian cultural values, social support, evaluated need, anticipated risks, public stigma, self-stigma and help-seeking intentions among Chinese students, its mediating effect was not identified within the sample of Australian students. It is worth noting that, in both Studies 3 and 4, the structural models indicated that when predicting help-seeking intentions along with attitudes and subjective norms, the predictive effect of perceived behavioural control was not statistically significant. This finding is consistent with a proposition of the TPB that the weights of attitudes, subjective norms, and perceived behavioural control in predicting intentions may vary according to the specific type of behaviour and population examined (Ajzen, 1991; Ajzen & Fishbein, 2005). Accordingly, in the context of predicting university students’ intentions to seek professional mental health care, attitudes and subjective norms may occupy a part of the impact of perceived behavioural control.

6.1.2 Use of mental health services

Although predictive variables for university students’ help-seeking intentions have been identified, these findings may not apply to the prediction of their actual service use, given the documented low association between help-seeking intentions and actual use of mental health services (Chin et al., 2015; Webb & Sheeran, 2006; Wilson et al., 2008). Thus,
there is a need to investigate and evaluate the predictors of actual service usage (Chen et al., 2014; Kim & Park, 2009; Nam et al., 2013; Vogel et al., 2007b).

In order to address this gap, a systematic review (Study 2, Chapter 3) of the existing literature reporting predictors of mental health service utilisation among young adults was conducted. The planned focus of this review was university students’ usage, but because few published studies reported university students’ service usage, the review’s focus was expanded to include usage by young adults – a category that includes most university students (Aud et al., 2013; Australian Bureau of Statistics, 2013; Ministry of Education of the People's Republic of China, 2015). The findings of the systematic review suggested that prior service contact, gender, ethnic background, and sexual orientation are significant predisposing variables relevant to young adults’ use of mental health services: specifically, past use of services and being female, Caucasian, or non-heterosexual are associated with more usage. Both perceived and evaluated need for professional help were also significant predictors of usage: young adults who reported a need for professional support or those with more severe mental health symptoms were more likely to have used mental health services. Social support was the only enabling variable identified, although its predictive effect on service use could not be confirmed as the construct was measured inconsistently across reviewed studies.

Other contextual variables (e.g., health insurance), which have been described as important predictors of health service use by Andersen (1995), however, were difficult to evaluate as the reviewed studies did not report this data consistently. Similar to Study 1, there were few studies in this systematic review conducted outside the United States. This highlighted a need for additional empirical evidence on the effects of various biopsychosocial predictors of mental health service use among young adults and/or university students in other countries – with reference to Andersen’s Behavioral Model as a theoretical framework.
Surveys and logistic regression analyses were performed in Studies 3 and 4 to address these research needs and to further examine and confirm (in this specific context) the relationship between help-seeking intentions and actual service usage. Studies 3 and 4 hypothesised that help-seeking intentions and perceived behavioural control, which are direct determinants of actual behaviour according to the TPB (Ajzen, 1991), would predict mainland Chinese (Study 3) and Australian (Study 4) university students’ use of mental health services, together with a range of predisposing, enabling, and need variables (see Table 5 in Study 3 (p.103) and Table 10 in Study 4 (p.153) for included variables). These hypotheses were partially supported. Specifically, help-seeking intention was found to be a significant and consistent predictor of Australian students’ use of services even after adding predisposing, enabling, and need variables to the analysis. For Chinese students, intention was also a solid predictor of usage until need variables were added into the model. In addition, perceived behavioural control was found to have a significant effect on service usage among both sample groups, although its predictive effect was not stable. Overall, these results were consistent with the proposition of the TPB that intention and perceived behavioural control are direct predictors of behaviour, providing evidence to support the applicability of the TPB in the context of understanding university students’ formal help-seeking behaviour (Ajzen, 1991, 2011).

Based on Andersen’s Behavioral Model and previous empirical findings, a total of seven and eleven predisposing variables were tested among Chinese (Study 3) and Australian (Study 4) samples, respectively. Consistent with prior Australian research (Rickwood et al., 2007; Yap et al., 2013), gender, knowledge about mental health, and Asian cultural values were found to be significant predictors of Australian students’ use of services. However, the same predictive effects were not identified for Chinese students’ service use: frequency of exposure to mental health service related information was the only significant predisposing
predictor for Chinese students. The predictive impact of study major was only examined in Study 4, for Australian students, and it was a consistent predictor of service usage: students with a major in health disciplines were less likely to have used mental health services than students from non-health disciplines, although there were no significant differences between the two groups on distress levels. Perhaps this reflects previous findings that university students from health disciplines (e.g., medicine) were more reluctant to seek professional help for mental health issues because they fear negative impacts of mental health diagnoses on their future career (Chew-Graham et al., 2003; Givens & Tjia, 2002; Tjia, Givens, & Shea, 2005).

With regard to enabling variables, the predictive effects of residential area, annual family income, health insurance, awareness of available services, and social support were investigated within each sample. However, none of them had significant effects in predicting Chinese university students’ use of mental health services. In contrast, two enabling variables, social support and income, were found to significantly predict Australian students’ service utilisation.

The most consistent findings emerged for the associations between need variables (evaluated need, self-rated mental health status, and perceived need) and service usage in the preceding 12 months. Consistent with past research (Andrade et al., 2014; Eisenberg et al., 2012a), for both Chinese and Australian students, perceived need for help demonstrated the strongest effect on service use. Importantly, self-rated mental health status significantly predicted service use within each sample, even though objectively evaluated need (i.e., illness symptoms and severity, measured using psychometric self-report measures of psychological distress) did not emerge as a significant predictor.
6.1.3 Qualitative findings

To enhance understanding of Chinese and Australian university students’ own opinions about use of mental health services, four open-ended text-based questions concerning facilitators of, barriers to, and benefits of utilising mental health services, and suggestions for service delivery, were included in the online surveys developed for Studies 3 and 4. The two samples’ responses were strikingly similar for all four questions. Regarding the facilitators of attending services, both Chinese and Australian students reported the severity of mental illness as a primary motivator for students to access professional support, followed by family, friends, and/or significant others’ expectations toward seeking services, and depression symptoms. However, service usage could be inhibited by stigma concerns and worry about the cost of services. In relation to the potential benefits of receiving services, Chinese and Australian students consistently mentioned recovery from illness and their enhanced ability to deal with future mental health issues. Specifically, when asked how to improve future mental health service delivery to university students, both sample groups suggested promotion of psycho-educational campaigns targeting university students and the general public, in order to disseminate information about mental health services. In terms of differences between the samples, it is significant that lack of knowledge of mental health and mental health services, and no time to access services, were reported as specific barriers to service utilisation by Chinese and Australian students, respectively.

6.2 Strengths of This Research

As discussed in Chapter 1, there are gaps in the literature regarding university students’ intentions to seek professional mental health care and their actual use of mental health services. By using different research methodologies and samples to address these gaps, within a strong theoretical framework, this project demonstrates a number of strengths.
6.2.1 Studies 1 and 2: quantitative reviews of help-seeking intentions and service utilisation

Studies 1 and 2 are the first published meta-analysis and systematic review (utilising meta-analytic techniques) to comprehensively examine and integrate various correlates of university students’ help-seeking intentions and young adults’ use of mental health services, respectively. Both studies identified modifiable variables (e.g., help-seeking attitudes, anticipated benefits and perceived need for help) that mental health professionals can target to encourage university students’ (and other young adults’) usage of mental health services. As such, both of these studies make significant potential contributions to the development of effective evidence-based intervention programs to target the specific mental health service needs of university students.

The methodological strengths of Studies 1 and 2 include the application of explicit and systematic methods to search and retrieve studies that met pre-determined eligibility criteria, extraction and coding of eligible studies (e.g., study design, sample size), assessment of study quality and critical synthesis of study findings – components which all contribute to high quality empirical evidence (Ellis, 2010; Higgins & Green, 2011; Lipsey & Wilson, 2001). Specifically, the focus on standardised measures in Studies 1 and 2 contributed to the validity and generalisability of the findings. Furthermore, the database search terms, procedure of study selection, use of a data extraction sheet, and the steps of data analyses were well-documented, allowing future replication of the process and providing a significant contribution to the credibility of both studies. Importantly, in order to ensure the reliability of the results, the quality of each effect size computed in Study 1 was critically reviewed and the methodological quality of the studies included in Study 2 examined against established guidelines for observational research: the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement (Vandenbroucke et al., 2007).
6.2.2 Studies 3 and 4: Chinese and Australian students’ mental health help-seeking

A key contribution of Studies 3 and 4 is that they appear to be the first large-scale surveys using theoretically-based integrated models to explore and test correlates of mainland Chinese and Australian domestic university students’ mental health help-seeking. Previous help-seeking research has been conducted in Western countries (e.g., the United States) or other Chinese societies (e.g., Hong Kong), however the findings may not be generalisable to mainland Chinese students due to cultural and political differences (Boey, 1999; Chen et al., 2014; Li et al., 2013; Wong & Li, 2014). Furthermore, previous Australian help-seeking research has lacked theoretical underpinnings, with relatively few studies of university students incorporating formal models. Therefore, the findings of Studies 3 and 4 advance the understanding of mainland Chinese and Australian university students’ mental health help-seeking. Study 4 is also the first to report a relationship between Asian cultural values and Australians’ help-seeking activities.

Importantly, the models tested in Studies 3 and 4 integrated the TPB and Andersen’s Behavioral Model. This is a novel attempt to use integrated models – combining the two most commonly used theories in this topic area – to predict and statistically examine individuals’ formal help-seeking behaviour. Moreover, each of these empirical studies investigated help-seeking intentions and service utilisation within the same samples – mainland Chinese and Australian domestic university students, respectively – thus contributing to the research evidence concerning the strength of the intention-behaviour relationship in the specific context of mental health service usage.

Furthermore, by using the same measures, Studies 3 and 4 provide an opportunity for direct cross-cultural comparisons between mainland Chinese and Australian university students. The results make an important contribution towards understanding cultural similarities and differences between the two groups in professional help-seeking behaviour.
6.3 Limitations of This Research Project

Despite the strengths mentioned above, the findings of this research project need to be interpreted with caution due to a number of methodological limitations.

6.3.1 Study 1: meta-analysis

Despite a broad search of electronic databases and relevant peer-reviewed journals in English, along with a manual search of the reference list of all retrieved articles and relevant reviews, it is likely that some important research, namely unpublished studies and non-English publications, may have been overlooked. Fail-safe Ns were calculated to deal with this issue, but future meta-analytic reviews could consider incorporating grey literature (e.g., dissertations) and/or non-English studies. Additionally, in order to reduce the study heterogeneity, eligible studies in this meta-analytic review were required to have used a standardised measure of help-seeking intentions. It became apparent that the intention measures employed by all the reviewed studies had generally followed the same conceptual framework, which may limit the generalisability of the findings (Rickwood & Thomas, 2012). Future research should therefore consider exploring whether and how the method of measuring intentions may influence the relationships that this review identified between psychosocial variables and help-seeking intentions. Finally, moderator analyses were performed with sample size, age, and gender, however other potential moderators, such as ethnicity (Liao et al., 2005) and prior use of services (Kim & Omizo, 2003), could not be assessed because the empirical studies that were reviewed did not consistently provide this information.

6.3.2 Study 2: systematic review

One limitation of Study 2 concerns its generalisability. Notably, some contextual variables (e.g., financial status) could not be evaluated as they were neither consistently reported nor defined (Lipsey & Wilson, 2001; Moayyedi, 2004). Even though some social-
demographic variables (e.g., prior use of mental health services) were examined, only a small number of included studies contributed data to those analyses. Also, as acknowledged in the Introduction, the conceptualisation and measurement of social support varied widely between the reviewed studies, which made it difficult to draw conclusions about the effectiveness of social support in young adults’ use of mental health services. Future reviews should consider evaluating the effects of specific measures of social support in predicting young adults’ or university students’ help-seeking behaviour.

Another limitation relates to the broad definition of mental health services adopted in Study 2. Given that the major focus of this research project was on the correlates of service use versus non-use (i.e., what determines whether students and young adults do, or do not use any mental health service), this study combined empirical research involving a wide range of professional mental health services. However, research suggests that the associations with usage might vary according to the specific type of service (Leaf & Martha, 1987; Leaf et al., 1988; Vilhjalmsson & Gudmundsdottir, 2014). For example, gender differences have been identified in types of mental health services used: women report more preference for general medical services (Gudmundsdottir & Vilhjalmsson, 2010; Leaf & Martha, 1987).

A final limitation is that this systematic review only evaluated independent associations of predictor variables with use of mental health services. Researchers have suggested dynamic and bi-directional interactions between predisposing, enabling, and need variables and health service use (Andersen, 1995; Broman, 2012; Gudmundsdottir & Vilhjalmsson, 2010). Hence, future empirical studies collecting prospective and longitudinal data may help to demonstrate the directions of the relationships between the identified variables and mental health service utilisation.
6.3.3 Studies 3 and 4: Chinese and Australian students’ mental health help-seeking

The first and perhaps, in retrospect, the greatest limitation of Studies 3 and 4 is the brief utilisation measure employed. The use of a single self-report question to retrospectively measure participants’ use of mental health services was sufficient to answer the primary usage question relevant to the project: that is, whether or not each student had actually used a mental health service or not. However, this did not provide in-depth understanding of mainland Chinese and Australian university students’ service usage, such as whether participants used a service alone or were accompanied by family members, number of sessions, or treatment efficacy: all important potential considerations. Research also indicates that the relationships between intentions and perceived behavioural control and actual behaviour (i.e., actual use of mental health services) can vary according to whether the behaviour is measured objectively (e.g., by clinician-administered interview) or by self-report (Armitage & Conner, 2001; Webb & Sheeran, 2006). Second, the cross-sectional design of Studies 3 and 4 limited the ability to draw causal interpretations from the current findings. Prospective longitudinal research is therefore needed.

There are additional specific limitations of Studies 3 and 4 that must be acknowledged. Firstly, for Study 3, although the measures employed have been widely utilised in previous research across populations, most were developed and standardised in English for use in the United States – not in Australia or China. Given that most of the measures were translated into Mandarin for the Chinese sample, and one was translated into English for the Australian sample, and that meaning inevitably varies with culture, it is arguable that the two samples were not completing precisely identical measures – an inevitable complication of cross-cultural research. Indeed, despite careful translation and back-translation, a lower reliability of some measures (i.e., ATSPPH-SF, SSOSH, and AVS) was identified. This relatively lower reliability may raise concerns about the applicability of
those measures within Chinese populations. Future Chinese research should therefore seek to develop, standardise and use culturally appropriate instruments.

Secondly, even though the study sample of mainland Chinese university students was recruited across majors and universities, most of the students self-identified as ethnic majority Han Chinese and were from Shandong Province. Therefore, Study 3 failed to investigate within-group variability. Previous research has suggested that there are ethnic differences in the mental health status of Chinese university students (Li et al., 2008). Future research should replicate this study with a more diverse mainland Chinese sample, including students from other ethnic backgrounds and geographical regions.

For Study 4, although the impact of the global variable of Asian cultural values on Australian university students’ help-seeking behaviour was analysed, the predictive effects of each specific cultural domain within the Asian values measure (e.g., complying with social norms) were not explored. Furthermore, other data indicate that young Australians’ usage of mental health services varies with the type of mental illness, for example, young people with substance use disorders are least likely to engage with services (Australian Bureau of Statistics, 2007). Even though this study investigated the impact of illness severity and symptoms on Australian university students’ service use, the predictive effect of having different specific mental health disorders was not assessed. Future researchers could expand on this study by focusing on the effect of being diagnosed with a specific mental disorder on students’ help-seeking activities.

6.4 Implications of the Research Project

The findings of this project have significant implications for theory, education providers, mental health professionals, policy makers, and future research into university students’ help-seeking intentions and behaviour.
6.4.1 Implications for theory

This research provided evidence to support the applicability of the TPB and Andersen’s Behavioral Model within university students and young adults. Specifically, the results of Studies 3 and 4 clarify and support the applicability of the TPB in the field of mental health help-seeking, with a significant correlation between help-seeking intentions and actual service use identified. Moreover, both Studies 3 and 4 also produced evidence, through structural equation modelling, to suggest that researchers should consider the direct effects of subjective norms on attitudes and perceived behavioural control, when applying the TPB as a theoretical framework to examine Chinese or Australian university students’ help-seeking intentions.

6.4.2 Implications for education providers and mental health professionals

This project also identified important modifiable factors, such as attitudes toward seeking professional support, stigma concerns, and knowledge of mental health and mental health services, which education providers and mental health professionals can target in order to stimulate university students and young adults’ engagement with mental health services. It follows that psycho-education and marketing approaches aimed at enhancing help-seeking attitudes and intentions, reducing stigma concerns, and providing information about mental illness, professional services and the objective benefits of utilisation would likely increase help-seeking: this needs to be formally tested. Indeed, both Chinese and Australian university students involved in Studies 3 and 4 recommended on-campus psycho-educational workshops and/or providing relevant information via the Internet (e.g., email). Specifically, the Australian students suggested that this psycho-education should include basic service information (e.g., location), information of mental disorders and relevant treatment, potential benefits of seeking professional help, and relevant policies (e.g., confidentiality). It is important to note that the results of Study 3 indicate that Chinese university students not only
lack awareness of available mental health services but also hold some incorrect beliefs about mental illness and treatment. Therefore, psycho-educational campaigns for Chinese students should focus on correcting specific inaccurate beliefs.

In order to reduce stigma concerns, and normalise the use of mental health services, psycho-educational campaigns should also be disseminated broadly to the public, as suggested by Studies 3 and 4 participants. Moreover, given the identified significant effect of social expectations on both Chinese and Australian students’ mental health help-seeking, it is also important to reinforce students’ families’, friends’ and significant others’ knowledge about mental health services and thus improve their attitudes toward mental health patients and treatment, in order to promote students’ service use.

In addition, because the results of Study 2 appeared to indicate that positive past experiences with mental health services could facilitate future use, mental health professionals should be sensitive to the specific needs and preferences of both university students and young adults, when providing treatment. For example, the participants in Study 4 suggested that professionals could consider using the Internet as an alternative or supplement to the traditional modes of service delivery, in order to ensure anonymity and increase accessibility. Indeed, research supports the effectiveness of online resources (e.g., www.beyondblue.org.au – an Australian online resource for the general community) in stimulating help seeking and reducing illness symptoms (Gammon et al., 2014; Kauer et al., 2014; Rickwood et al., 2007; Yap, Reavley, & Jorm, 2012).

Moreover, to encourage service use, mental health professionals should also be culturally competent and sensitive. Studies 1 and 2 showed that Asian cultural values had significant associations with university students’ help-seeking intentions and that ethnic minority young adults were less likely to use mental health services. For mental health
professionals working with Chinese university students, this might include the use of therapeutic interventions, such as mindfulness, which originated from Eastern cultures and, as such, may be more suitable for Chinese people (Kabat-Zinn, 1994; Shonin, Van Gordon, & Griffiths, 2014; Tang et al., 2012).

6.4.3 Implications for policy makers

To address students’ mental health needs, most mainland Chinese universities have established free mental health services – reflecting the government mandate that universities must incorporate mental health services to provide professional care for students with or without mental illness (Ministry of Education of the People's Republic of China, 2001). In Australia, alongside student counselling services, relevant government mental health policies and strategies such as the E-Mental Health Strategy (Department of Health and Ageing, 2012), the National Mental Health Strategy (Department of Health and Ageing, 2009), universal funding of mental health services through Medicare, and the national health scheme have been launched aim to facilitate mental health service use by the entire Australian community. Nevertheless, the findings of Studies 3 and 4 suggest that there is an ongoing need for both Chinese and Australian governments to more actively support psycho-education campaigns for both university students and the public.

Importantly, Study 4 found that “don’t have time” was one of the most frequently mentioned barriers for Australian university students to attend services – but not for Chinese students. Previous Australian studies have consistently reported that students usually work to afford basic needs and more than half of them report difficulty balancing work and study (Hall, 2010; James, Bexley, Devlin, & Marginson, 2007). They therefore have no time to consider their mental health needs. The Australian government’s recent proposals to raise fees and cut financial support for university students may exacerbate this situation, if future students need to work more hours to support themselves (National Tertiary Education Union,
2014a, 2014b). Policy makers therefore need to take into account the impact of such policies on university students’ academic performance, mental health status and long-term outcomes.

6.4.4 Implications for future research

Social-demographic data including participants’ ethnicity, living and employment status, and prior experience with mental health services was not consistently provided by the studies reviewed in the meta-analysis (Study 1) and the systematic review (Study 2), which limited the examination of their impacts on university students’ help-seeking intentions and young adults’ service usage. Future empirical researchers should consistently collect and report more social-demographic information to not only assist meta-analytic studies but also help policy makers to better predict and understand university students’ mental health help-seeking.

Moreover, the systematic searches conducted in Studies 1 and 2 revealed that most of the published research on university students’ mental health help-seeking had been conducted in the United States. Studies 3 and 4, which were conducted within mainland China and Australia, partially address this gap in the world literature regarding formal help-seeking behaviour among students from diverse cultural backgrounds. However, there is still a need for more empirical research to replicate the current findings with university students from other cultures and countries. This will require careful cross-cultural translation, comparison and standardisation of all measures used. Future research could also explore in more depth how Asian cultural values – overall and as distinct domains – may be influencing Australians and other members of multicultural societies.

In addition, although a range of biopsychosocial predictors of university students’ help-seeking intentions and actual service use were examined in Studies 3 and 4, other potentially influential factors, such as self-concealment (Cramer, 1999), sexual orientation
(Eisenberg et al., 2011), and group identification (Kearns, Muldoon, Msetfi, & Surgenor, 2015), were not included. Future research would benefit from exploring the impact of these additional variables on university students’ help-seeking patterns.

Mental health services were broadly defined in this research project to include a wide range of professional services (e.g., university counselling centres and services provided in hospital departments) because the focus was on university students’ service use versus non-use. However, researchers have identified that an individual’s service usage can vary by the type of services (Leaf & Martha, 1987; Leaf et al., 1988; Vilhjalmsson & Gudmundsdottir, 2014); hence, future reviewers and empirical researchers should consider evaluating the separate determinants of utilising different specific types of mental health services.

Limitations reflecting measurement issues have been acknowledged throughout this thesis – for example, inconsistencies in the way that social support is conceptualised and measured by researchers, and the heavy reliance of intention researchers on a single conceptual model for measuring intention. These issues require careful consideration by future researchers.

As acknowledged above, a specific and important measurement limitation of Studies 3 and 4 was the use of a single self-report item for service usage versus non-usage. Future researchers could consider collecting more detailed usage information and, where possible, avoid relying solely on self-report measures. Although actual service use is complex to measure, nevertheless it is important to do so – for example, obtaining permission to access records of students’ medical or counselling centre attendance, medications dispensed, and/or health insurance billing records, to supplement self-report of usage. Ideally, such empirical research would be prospective rather than retrospective, and would collect and report detailed
and objective measures of actual utilisation, including psychotherapeutic and pharmacological interventions, dosage, and treatment outcomes (both short- and long-term).

Future prospective research collecting longitudinal data could support and extend the current findings by establishing temporal and causal relationships between the identified biopsychosocial variables, intention, and university students’ actual mental health help-seeking. Additionally, future research could benefit from adopting a wider range of qualitative methods including one-to-one interviews and focus groups, to gain a deeper understanding of students’ own perspectives concerning formal help-seeking. In summary, additional epidemiological, prospective, and longitudinal research using quantitative and qualitative methods is needed to document the determinants of university students’ use of mental health services.

6.5 Conclusion

This project addresses some gaps in the literature relative to university students’ professional mental health help-seeking. This was achieved by conducting four independent studies. The findings of Studies 1 and 2 highlight the importance of biopsychosocial variables (e.g., gender, attitudes) in predicting and enhancing university students’ help-seeking intentions and young adults’ use of mental health services. By employing theoretically-based models – integrating the TPB and Andersen’s Behavioral Model – Studies 3 and 4 provide insight into the interactions between various biopsychosocial variables, university students’ help-seeking intentions, and their actual use of mental health services. The results reveal that social-cognitive variables are significant predictors of mainland Chinese university students’ help-seeking intentions and their service use, whereas both demographic and social-cognitive factors are associated with Australian university students’ intentions and actual usage.
This research provides empirical support for using the TPB and Andersen’s Behavioral Model as theoretical frameworks to explain and understand university students’ formal help-seeking behaviour. Perhaps most importantly, the findings suggest that governments, education providers and mental health professionals need to implement and evaluate psycho-educational campaigns throughout the community and within tertiary education settings, if they wish to encourage university students to engage with mental health services and derive maximum benefit from their studies.
References


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