The Impact of Mental Health Literacy on Treatment Seeking Intentions across Specific Disorders: Accounting for Race/Ethnicity

by

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Abstract

While 75% of mental health problems emerge by young adulthood, there is a strong reluctance during this developmental stage to seek professional help. Although limitations in mental health literacy, such as incorrect problem recognition, may hinder professional help-seeking intentions, the relationship between these variables has been understudied among young adults in the United States. Furthermore, though research suggests that racial/ethnic minority young adults are less likely than majority young adults are to seek help for general mental health needs, racial/ethnic differences in help-seeking intentions for specific disorders have not been explored in depth. The current study used a vignette-based approach to examine rates of problem recognition and professional help-seeking intentions among 1,776 young adults, the relationship between these latter variables, and the moderating role of race/ethnicity. Additionally, preferred source of help based on intentions to seek professional help for each psychological disorder was assessed for the overall sample and by race/ethnicity. Findings revealed that the frequency of correct problem recognition was significantly higher than the frequency of incorrect problem recognition across psychological disorders. Similarly, across psychological disorders, the frequency of intentions to seek professional help was significantly higher than the frequency of intentions not to seek professional help or being undecided. Correctly identifying a psychological disorder was significantly associated with intentions to seek professional help for GAD, Major Depression, PTSD, and ADHD. Race/ethnicity significantly influenced intentions to seek professional help for SAD and Major Depression, and significantly moderated the relationship

between problem recognition and professional help-seeking intentions for Schizophrenia. Significant differences were found for primary source of help. Participants who endorsed intentions to seek professional help chose medical or mental health professional sources at a higher frequency than participants who indicated that they would not seek professional help or who were undecided. Among racial/ethnic groups, participants from minority backgrounds endorsed a preference for medical professionals and mental health professionals as a primary source of help at a lower frequency than participants from majority backgrounds. Based on the pattern of findings, implications for ways to address unmet mental health care needs and directions for future research were discussed.

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List of Abbreviations

U.S.	United States
SAD	Social Phobia/Social Anxiety Disorder
GAD	Generalized Anxiety Disorder
PTSD	Post-Traumatic Stress Disorder
ADHD	Attention-Deficit/Hyperactivity Disorder
PWI	Predominantly White Institution
HBCU	Historically Black College/University

The Impact of Mental Health Literacy on Treatment Seeking Intentions across Specific Disorders: Accounting for Race/Ethnicity

Recent prevalence estimates indicate that 18.5% of Americans aged 18 or older have a mental health problem (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). Despite the increasing availability of effective treatments, many mental health problems are often unrecognized and untreated (Zartaloudi & Madianos, 2010). This 'service gap' is especially pronounced during young adulthood and is a significant problem among university students (Vidourek, King, Nabors, & Merianos, 2014). Although 75% of mental health problems emerge by young adulthood (Kessler, Amminger, Aguilar-Gaxiola, Alonso, Lee, & Üstün, 2007), there is a strong reluctance to seek professional help during this developmental stage (Gulliver, Griffiths, & Christenson, 2010). Previous research including young adults has shown that mental health literacy (i.e., "knowledge and beliefs about mental disorders which aid their recognition, management, or prevention;" Jorm et al., 1997) is positively associated with professional help-seeking intentions (Smith & Shochet, 2011). Problem recognition represents a core component of one's knowledge on mental health and is a key indicator of mental health literacy (Coles & Coleman, 2010; Reavley & Jorm, 2011).

Although the benefits of health literacy are widely accepted, most research in this area has focused on specific aspects of physical health (Jorm, 2000) as well as a narrow selection of psychological disorders (e.g., anxiety and depressive disorders; Reavley & Jorm, 2011). In addition, the small base of empirical studies examining the relationship between mental health literacy and professional treatment seeking during young adulthood have predominantly been conducted outside of the United States (U.S.), such as in Australia and Northwestern Europe.

Thus, the role of mental health literacy in predicting help-seeking intentions across different types of disorders, particularly among U.S.-based young adults, is not yet clear.

Furthermore, the role of race/ethnicity in moderating the relationship between mental health literacy and professional help-seeking intentions has not been well explored. Research indicates that individuals from racial/ethnic minority groups are less likely than those from racial/ethnic majority groups to seek mental health treatment even when mental health problems are identified (Harris, Edlund, & Larson, 2005; McGuire & Miranda, 2008). However, the pattern of racial/ethnic differences in help-seeking intentions for specific psychological disorders has not been explored in depth. Additionally, it is not yet clear how race/ethnicity impacts professional help-seeking intentions across various disorders, particularly in relation to influencing the association between mental health literacy and help-seeking intentions.

The focus of the current study is to examine the relationship between problem recognition and professional help-seeking intentions for several psychological disorders. Six vignettes were used to portray symptoms related to Social Phobia/Social Anxiety Disorder (SAD), Generalized Anxiety Disorder (GAD), Major Depression, Schizophrenia, Post-Traumatic Stress Disorder (PTSD), and Attention-Deficit/Hyperactivity Disorder (ADHD). These six disorders were chosen to (a) represent some of the disorders that have previously been included in vignette-based mental health literacy studies among young adults (i.e., SAD, GAD, and Major Depression), and (b) examine those that have received limited attention (i.e., Schizophrenia, PTSD, and ADHD) in the U.S. These latter disorders have important developmental considerations for the target population, given the changing clinical presentation of ADHD for older adolescents/young adults in comparison to children and younger adolescents (Slobodin, Cassuto, & Berger, 2015) and the typical onset of Schizophrenia occurring during late

adolescence/young adulthood (Gogtay, Vyas, Testa, Wood, & Pantelis, 2011). The current study extends previous research by examining racial/ethnic differences in the association between mental health literacy and professional help-seeking intentions for these psychological disorders using a sample of young adults from diverse backgrounds from two universities located in the Southeastern U.S.

Theoretical Perspectives on the Relationship between Mental Health Literacy and Help-Seeking Intentions

A number of theories and models have been developed to specifically explain the process of mental health help-seeking (Gulliver, Griffiths, Christensen, & Brewer, 2012). Based on qualitative data collected among a sample of 23 older youth and young adults aged 16-24 years residing in the United Kingdom, Biddle, Donovan, Sharp, and Gunnell (2007) developed the cycle of avoidance explanatory model of help-seeking. Their model suggests that help-seeking is a process that involves an interworking between conceptions of mental distress, social meanings connected to help-seeking and treatment, and purposeful actions in which one engages to access needed help. Along similar lines, Rickwood, Deane, Wilson, and Ciarrochi's (2005) conceptualization of the help-seeking process is based on data collected from a sample of 2,721 young people from Australia aged 14-24 years. These authors suggest that the help-seeking process involves translating psychological distress (a personal domain) to seeking help (an interpersonal domain) and that a number of variables (e.g., sociodemographic factors such as race/ethnicity) may facilitate or hinder this progression.

While these two data-driven models have been specifically developed to explain the help-seeking process for young people, a third, less developmentally oriented framework may best account for the relationship between mental health literacy and help-seeking intentions: the

cognitive information-processing model of the decision to seek professional help (Vogel, Wester, Larson, & Wade, 2006). This model is based on a conceptual integration of earlier theories and empirical evidence and accounts for the interpretations that are made about symptom expression and the context in which symptoms are displayed, as well as one's ability to respond to these stimuli. It suggests that individuals may experience difficulty making appropriate decisions about whether to seek professional help for mental health problems if they are not able to recognize what their symptoms mean or to what problem their symptoms are linked (Vogel et al., 2006).

Theories on the decision-making process involved in seeking professional help have traditionally been applied to the ability to recognize how one's own symptoms relate to professional help-seeking behaviors among individuals who have been diagnosed with a disorder. However, a growing body of research has found that vignette-based methodology can provide information on the predictive role that mental health literacy, particularly problem recognition, can have on help-seeking intentions for a variety of psychological disorders (Reavley & Jorm, 2011), even outside of one's personal experience with specific psychological problems.

Mental Health Literacy: Examining Endorsements of Problem Recognition and Help-Seeking Intentions across Disorders

Problem recognition. In the mental health literacy literature, the inability to recognize symptoms or problems accurately is operationalized as the mislabeling of psychological disorders (Coles & Coleman, 2010). Previous research using vignette-based surveys has assessed problem recognition by giving respondents a series of short case descriptions that portray symptoms related to a select number of psychological disorders. Response options to assess problem recognition have varied across studies, with participants being asked either open-ended

questions about the nature of the problem described (e.g., "What, if anything, is wrong with the person described in the vignette?") or to select the problem they believe is represented in the vignette from a list of response options.

Problem recognition rates for anxiety-based disorders show variability. Among a sample of 3,021 young people aged 15-25 from Australia, 3% accurately recognized SAD when given an open-ended response option (Reavley & Jorm, 2011). None of the respondents labeled the problem described in the vignette as an "anxiety disorder' but a large majority (78%) used other lay terms such as 'anxiety,' 'shyness,' or 'low self-confidence.' Rates among a British sample of 374 young people aged 17-22 have only been slightly higher, with 19% accurately recognizing SAD (Furnham, Annis, & Cleridou, 2014). On the other hand, among a sample of 284 university students from the U.S., 87% accurately recognized SAD when given a list of possible problems (including "psychological disorders") from which to choose (Coles & Coleman, 2010). Findings from this study also revealed that only 41% of young adults accurately recognized GAD (Coles & Coleman, 2010).

Similar to results on problem recognition of anxiety disorders, findings for depressive disorders also vary. Among an Australian-based sample of 18-25 year olds, approximately 58% accurately identified Major Depression when given an open-ended response option (Wright et al., 2005). However, other research conducted among 774 young adults aged 20-29 attending an Australian university showed that 83% of young adults accurately identified Major Depression when given an open-ended response option (Reavley, McCann, & Jorm, 2012). Rates among a sample from Switzerland have also been high, with over 90% of young adults accurately recognizing Major Depression (Lauber, Nordt, Falcato, & Rossler, 2001). Alternatively, results from Britain have been much lower, with 52% accurately recognizing Major Depression

(Furnham et al., 2014). Findings on problem recognition of Major Depression in the U.S. have also varied. Among a university sample of 54 African American young adults, 62% accurately recognized Major Depression when given an open-ended response option (Stansbury, Wimsatt, Simpson, Martin, & Nelson, 2011). Rates of problem recognition were higher (88% accuracy) among a more diverse U.S. sample of university students when a list of possible problems was presented (Coles & Coleman, 2010).

Recognition rates for Schizophrenia/psychosis have been relatively consistent across studies, regardless of response options. In Australian-based samples, rates of problem recognition have been in the lower range, with approximately 37% of young adults accurately recognizing Schizophrenia (Reavley & Jorm, 2011) and 34% recognizing general psychosis (Wright et al., 2005). Findings on problem recognition of Schizophrenia among British young people have been similar, with approximately 39% recognizing this disorder (Furnham et al., 2014).

Rates of problem recognition of PTSD in vignette-based research among young adults have been assessed in one published non-military study that was conducted outside of the U.S. (Reavley & Jorm, 2011). This research found that approximately 34% of young adults accurately selected PTSD to describe symptoms reflecting this disorder that were presented in a vignette.

Similarly, one published study examined problem recognition of ADHD (Furnham et al., 2014). Results from this British-based study show that close to 52% of young people accurately recognized ADHD. Although research on problem recognition of ADHD has been minimal in the mental health literacy literature for young adults, researchers are increasingly placing focus on the identification of ADHD during adulthood (Culpepper & Mattingly, 2010).

Overall, findings show that accurate problem recognition among young adults varies across psychological disorders. However, much of the research on mental health literacy among young people has used combined samples of adolescents and young adults and has been conducted outside of the U.S. To address this limitation, the current study examines variations in problem recognition of the aforementioned disorders among young adults in the U.S.

Help-seeking intentions. When mental health problems are described through vignettes, professional help-seeking intentions among young adults have been shown to vary. Overall intentions to seek help from professional or non-professional sources are quite high, with over two-thirds of young people indicating that they would seek or recommend help for problems described (Reavley & Jorm, 2011; Reavley et al., 2012; Stansbury et al., 2011). However, there is considerable variability in the sources of help that young adults would seek to help manage symptoms of psychological disorders (Reavley & Jorm, 2011). Endorsements of preferred sources of help across disorders may include (a) medical professionals (e.g., general practitioners), (b) mental health professionals or services (psychiatrists, psychologists, counselors, or telephone help-lines), (c) social support (e.g., family and/or friends), or (d) complementary/alternative health providers or spiritual lifestyle professionals (e.g., herbalists, acupuncturists, chiropractors, massage therapists, traditional healers, shamans, pastors, or priests). In comparison to rates of help-seeking intentions (i.e., from any source of help), rates of professional help-seeking intentions from mental health or medical practitioners are relatively lower (Coles & Coleman, 2010; Reavley & Jorm, 2011; Stansbury et al., 2011).

Intentions to seek help from professionals for anxiety-based disorders depicted in vignettes have generally been above 50%. Among an Australian sample, 73% of young people endorsed intentions to seek help for problems described in a SAD vignette. However, among

those who endorsed that they would seek help, only 4-25% endorsed that they would seek help from a mental health practitioner while 32% endorsed that they would seek help from a general practitioner (Reavley & Jorm, 2011). Coles and Coleman's (2010) findings show that 64% of young people would recommend that a person displaying symptoms of SAD seek professional help and 52% of young people would recommend that a person displaying symptoms of GAD seek professional help.

Studies suggest that young people may be more likely to seek professional help for problems related to Major Depression compared to anxiety-based disorders. Research conducted in Australia indicates that while approximately 83-89% of young people would seek help for depressive symptoms, seeking help from a mental health practitioner is endorsed at low rates (3-23%) whereas seeking help from a general practitioner is endorsed at a slightly higher rate (26-30%; Reavley & Jorm, 2011; Reavley et al., 2012). Respondents from these studies were allowed to endorse multiple sources of help. Other Australian-based research indicates that when asked about the best form of help an individual in a vignette with depressive symptoms should seek, 9-27% of young adults suggested a mental health provider whereas 22% suggested a general practitioner (Wright et al., 2005). Among African American young adults, 59% indicated intentions to seek help for depressive symptoms from a professional source (e.g., a physician, psychologist, or a counselor; Stansbury et al., 2011). Findings among a racially/ethnically diverse sample of young adults in the U.S. show higher professional help-seeking intentions for Major Depression, with 83% of young adults recommending that the person in the vignette should seek professional help (Coles & Coleman, 2010).

Vignette-based research on young adults' help-seeking intentions for Schizophrenia and other forms of psychosis has only been published outside of the U.S. thus far. Findings from

Reavley and Jorm (2011) indicate that while 78% of young adults indicate that they would seek help for Schizophrenia, only 5-21% would seek help for problems related to this disorder from a mental health practitioner. Yet, 36% would seek help from a general practitioner. Research by Wright et al. (2005) indicates that 19-31% of young adults would seek help for psychotic symptoms from a psychiatrist, psychologist, or counselor, while 15% would seek help for these same symptoms from a general practitioner.

Similarly, while overall help-seeking intentions are high (85%) for PTSD, help-seeking intentions from a professional source are lower (Reavley & Jorm, 2011). Only 5-22% of young people would seek help from a mental health practitioner for PTSD symptoms but slightly more (40%) would seek help from a general practitioner (Reavley & Jorm, 2011).

Rates of professional help-seeking intentions for ADHD have not been directly examined. However, British-based researchers found that the probability of young people suggesting help for ADHD symptoms is somewhat likely, based on a Likert-type scale (Furnham et al., 2014).

While overall intentions to seek help for mental health problems are beneficial, the source of help that is sought can contribute to differences in met and unmet mental health care needs (Corrigan, 2004). Most previous research on help-seeking intentions has largely focused on reporting rates of overall help-seeking intentions (i.e., professional and non-professional sources combined) and has not compared endorsements of specific options of professional help-seeking intentions for specific disorders. Also of interest are the sources of help that would be sought for disorders that have not been well-represented in studies on mental health literacy among young adults, such as PTSD and ADHD. The current study builds on previous research by examining

differences in professional help-seeking intentions for the aforementioned disorders and the primary source of help that would be sought for each disorder.

Associations between Problem Recognition and Help-Seeking Intentions

In general, research shows that mental health literacy is an important predictor of professional help-seeking intentions (Smith & Shochet, 2011). The association between problem recognition and help-seeking intentions has been researched for certain disorders, especially among samples located outside of the U.S. However, it is not clear what this association looks like across disorders that are problematic and developmentally salient during young adulthood.

Although anxiety disorders are one of the most prevalent psychological disorders during young adulthood, more so than mood disorders, they have received very little focus in the mental health literacy literature until recently (Reavley & Jorm, 2011). Thus, it is not clear how recognizing anxiety disorders relates to professional help-seeking intentions during this developmental stage. Recent findings suggest that accurately recognizing SAD and GAD may be associated with help-seeking (Coles & Coleman, 2010; Reavley & Jorm, 2011). However, these conclusions have been based on descriptive statistics (e.g., comparing frequencies of help-seeking based on problem recognition rates) versus inferential statistics (e.g., statistically examining the relationship between help-seeking intentions and problem recognition rates). As discussed above, rates of problem recognition of specific anxiety disorders are quite low (with the exception of Coles and Coleman's [2010] findings on SAD), relative to some of the other disorders that have been included in studies of mental health literacy. Yet, these studies report that young adults seem more likely to seek help from friends and family, which may be due to perceptions that the anxiety symptoms are not pervasive and will wane on their own. Indeed, prior research has shown that young people do have difficulty identifying problems that extend

past the normal threshold of stress and will alter their definition of "normal" distress to avoid seeking professional help (Eisenberg, Golberstein, & Gollust, 2007; Gulliver et al., 2010).

Findings on the association between problem recognition of Major Depression and help-seeking intentions have been mixed. Descriptive findings suggest that the accurate recognition of Major Depression may be associated with intentions to seek professional help (Coles & Coleman, 2010; Reavley & Jorm, 2011). However, research using inferential statistics has found that problem recognition of Major Depression is not associated with professional help-seeking and suggests that the rate of professional help-seeking intentions for Major Depression is generally low, regardless of recognition (Reavley et al., 2012). In general, although symptoms of Major Depression seem widely recognized, rates of professional help-seeking for this disorder are quite low. In fact, population based research conducted in the U.S. indicates that even when individuals endorse severe depressive symptoms, only 35% report having contact with a mental health professional (Pratt & Brody, 2014). Contact with a physician was not reported in Pratt and Brody's work, although it is possible that some individuals sought general medical help. Their findings do show that rates of help-seeking from a mental health professional for depressive symptoms increases with the severity of symptoms. It may be that while symptoms of Major Depression are recognized, at times they may not be perceived as problematic enough to daily functioning to warrant seeking professional help. However, in one vignette-based study, when young adults were asked to select the best form of help for Major Depression, those who correctly identified this disorder were more likely to select professional versus informal sources of help (Wright et al., 2005).

There is preliminary evidence that accurately recognizing Schizophrenia is associated with intentions to seek professional help (Reavley & Jorm, 2011). Based on selections made by

young adults on how an individual in a vignette portraying psychotic symptoms could best be helped, Wright and colleagues (2005) found that correctly identifying psychosis was significantly associated with intentions to seek professional help. Although respondents in both studies had difficulty accurately recognizing Schizophrenia, overall rates of help-seeking intentions for this disorder were quite high, suggesting that the severity of symptoms related to Schizophrenia may motivate individuals to seek treatment. Indeed, previous research does indicate that individuals are more likely to seek professional help for psychological disorders that have a significant impact on normal functioning, such as Schizophrenia (Thornicroft, Rose, & Kassam, 2007). Of note, while Schizophrenia may be accompanied by anosognosia (i.e., a lack of insight into one's problems), which may correlate with a lack of help-seeking, anosognosia is not universally expressed in all individuals with Schizophrenia (Lehrer & Lorenz, 2014).

The association between problem recognition of PTSD and professional help-seeking intentions is not yet clear. The one published vignette-based study conducted among young adults to explore this relationship showed that even though only 34% of respondents accurately recognized PTSD, it was the most likely disorder to lead to help-seeking, particularly from professional sources (Reavley & Jorm, 2011). Since this study was conducted in Australia, it is not clear how problem recognition of PTSD would relate to professional help-seeking intentions among a U.S.-based sample of young adults. Public awareness of PTSD in the U.S., particularly involving military populations, has increased due to its increased media coverage over the last decade (Purtle, Lynn, & Malik, 2016). It may be that young adults in the U.S. will demonstrate high levels of problem recognition of PTSD and may also endorse intentions to seek professional help for PTSD symptoms.

Overall, existing vignette-based research across several disorders is characterized by variations in the relationship between problem recognition and help-seeking intentions. However, some disorders, such as ADHD, have received less attention and most of the work examining the association between problem recognition and help-seeking intentions has also focused on young adults outside of the U.S. The current study builds on previous findings by using an inferential approach (logistic regression) to examine whether problem recognition influences professional help-seeking intentions for the aforementioned disorders among young adults.

Racial/Ethnic Differences in Mental Health Literacy and Help-Seeking Intentions

Race/ethnicity has been shown to relate to knowledge and beliefs about mental health and professional help-seeking, which may help explain disparities in service utilization (Ojeda & Bergstresser, 2008). However, explorations of racial/ethnic differences in the vignette-based mental health literacy and professional help-seeking literature on young adults have been fairly minimal. While some vignette-based research indicates that professional help-seeking intentions are generally low among young adults from racial/ethnic minority groups (Stansbury et al., 2011), comparisons between racial/ethnic majority and racial/ethnic minority groups have not been reported. However, research among a national sample of young adults in the U.S. found that individuals from racial/ethnic minority backgrounds (including African American, Hispanic, and Asian) were less likely to seek professional mental health services than individuals from European American racial/ethnic backgrounds (Eisenberg, Hunt, Speer, & Zivin, 2011). Instead, individuals from racial/ethnic minority backgrounds may be more likely to turn to social support or complementary/alternative health providers or spiritual lifestyle professionals to address symptoms related to psychological disorders (Blank, Mahmood, Fox, & Guterbock, 2002;

Mazzula & Rangel, 2012; Snowden, 2007). Drawing from these findings, it is likely that similar patterns of racial/ethnic differences will be observed in professional help-seeking intentions. It may also be that racial/ethnic background will contribute to variability in preferred primary sources of help across disorders.

Racial/ethnic differences may also influence the relationship between mental health literacy and professional help-seeking intentions. Research indicates that while mental health literacy is low among the general U.S. population, it is particularly low among racial/ethnic minority groups (Crisanti, Li, McFaul, Silverblatt, & Pyeatt, 2016). To date, no vignette-based studies have directly examined how interactions between race/ethnicity and mental health literacy influence professional help-seeking intentions. One study has examined racial/ethnic differences in problem recognition among a sample of young adults. Results from this work indicate that problem recognition of Major Depression is generally higher among racial/ethnic majority young adults than among racial/ethnic minority young adults (Coles & Coleman, 2010), suggesting that there may be variability in professional help-seeking intentions for Major Depression based on race/ethnicity. Interestingly, this same study did not find racial/ethnic differences in problem recognition of other internalizing disorders, including SAD or GAD. Mental health literacy vignette-based research conducted among young adults has not yet explored how race/ethnicity may interact with problem recognition of Schizophrenia, PTSD, or ADHD.

Although the moderating role of race/ethnicity on the relationship between mental health literacy and help-seeking intentions has not yet been examined, the correlations discussed above suggest that an interaction effect may exist among these variables and may account for variations in help-seeking intentions across racial/ethnic groups. The current study includes an analysis of

the influence of race/ethnicity on professional help-seeking intentions. In addition, the effect of the interaction between problem recognition and race/ethnicity on professional help-seeking intentions is also examined.

The Current Study

Overall, the types of disorders that have been represented in research on mental health literacy have been quite limited and several disorders that may present during young adulthood have not been well represented. The current study uses a vignette-based approach to explore the relationship between problem recognition and professional help-seeking intentions for several psychological disorders, while accounting for the role of race/ethnicity. Preferred sources of help for each disorder are also explored for the overall sample and by race/ethnicity. Data from a non-clinical sample of diverse young adults residing in the southeast region of the U.S. are used.

The following research questions will be examined:

1) Does the frequency of category endorsements within the problem recognition and professional help-seeking intention variables differ significantly for each psychological disorder (including SAD, GAD, Major Depression, Schizophrenia, PTSD, and ADHD) among young adults?

2) Does problem recognition influence professional help-seeking intentions across disorders among young adults and does race/ethnicity influence help-seeking intentions as well as moderate the relationship between problem recognition and professional help-seeking intentions?

3) Does the frequency of category endorsements for primary source of help differ significantly based on intentions to seek professional help across each psychological disorder for the overall sample and by race/ethnicity?

Based on previous literature, it is expected that:

1) There will be a significant difference in the frequency of category endorsement.

(a) The frequency of participants who accurately recognize Major Depression, PTSD, and ADHD will be significantly higher than the frequency of participants who do not recognize these disorders. A significant difference in the frequency of correct and incorrect problem recognition of SAD, GAD, and Schizophrenia across participants is not expected.

(b) The frequency of participants who endorse intentions to seek professional help for Schizophrenia, PTSD, and ADHD will be significantly higher than the frequency of participants who do not endorse intentions to seek help or who are undecided about their intentions to seek help. A significant difference in the frequency of participants who endorse professional help-seeking intentions versus those who do not endorse professional help-seeking intentions or who are undecided about their intentions to seek help is not expected for SAD, GAD, and Major Depression.

2) There will be significant associations between problem recognition and professional help-seeking intentions and race/ethnicity and professional help-seeking intentions.

(a) Accurate problem recognition is expected to relate significantly to intentions to seek help for several disorders, including SAD, GAD, PTSD, and ADHD. A significant association between problem recognition and professional help-seeking intentions is not expected for Major Depression or Schizophrenia.

(b) It is expected that young adults from racial/ethnic minority backgrounds will be significantly less likely to endorse intentions to seek professional help across disorders than young adults from racial/ethnic majority backgrounds. Specific *a priori* hypotheses

about the pattern of racial/ethnic differences in professional help-seeking intentions across disorders are not made due to limited extant research conducted in this area. Building on expected differences in professional help-seeking intentions based on race/ethnicity, the moderating role of race/ethnicity on the relationship between problem recognition and help-seeking intentions will also be examined. However, *a priori* hypotheses about the moderating role of race/ethnicity on the relationship between problem recognition and professional help-seeking intentions are also not made due to limited extant research conducted in this area.

3) Overall, it is expected that there will be significant differences for the overall sample and by race/ethnicity in the frequency of category endorsements within the primary source of help variable based on intentions to seek help for each psychological disorder.

(a) For each psychological disorder, it is expected that young adults who endorse intentions to seek professional help will also endorse a preference for medical professionals and mental health professionals as a primary source of help at a higher frequency than young adults who do not endorse intentions to seek professional help (see Figure 1). In turn, it is expected that young adults who do not endorse intentions to seek professional help will also endorse a preference for social support or complementary/alternative health providers or spiritual lifestyle professionals as a primary source of help at a higher frequency than young adults who endorse intentions to seek professional help (see Figure 1).

(b) In regards to racial/ethnic differences, it is expected that young adults from racial/ethnic majority backgrounds will endorse a preference for medical professionals and mental health professionals as a primary source of help at a higher frequency than

young adults from racial/ethnic minority backgrounds (see Figure 2). On the other hand, it is expected that young adults from racial/ethnic minority backgrounds will endorse a preference for social support or complementary/alternative health providers or spiritual lifestyle professionals as a primary source of help at a higher frequency than young adults from racial/ethnic majority backgrounds (see Figure 2).

Method

Participants

The current cross-sectional study involved an initial sample (N = 2,019) of male and female undergraduate students aged 18 years and older who took part in a larger study that examined mental health literacy, help-seeking behaviors and attitudes, psychological functioning, and acculturation. Participants were drawn from a predominantly white institution (PWI; Auburn University [AU]; n = 1756, 87.0%), and a historically black college/university (HBCU; Alabama State University [ASU]; n = 263, 13.0%), located in the southeastern region of the U.S. The participants included freshman, sophomore, junior, and senior students who were enrolled in the course "Introduction to Psychology." The majority of participants from the full sample was female (n = 1, 555, 77.0%), between the ages of 18 and 22 (n = 1,835, 90.8%), and from racial/ethnic majority backgrounds (European American n = 1,418, 70.2%). In regards to U.S. cultural exposure, the majority of participants (n = 1,467, 81.1%) endorsed Southern U.S. culture. Other U.S. cultural exposure included Eastern (n = 100, 5.5%), Northern (n = 131, 7.2%), Western (n = 63, 3.5%), and Central (n = 48, 2.7%). The majority (n = 1,731, 85.7%) identified their religious/faith background as Christian (e.g., Protestant, Catholic, Mormon, Jehovah's Witness, Orthodox). Demographic characteristics for the final sample retained after data screening procedures (N = 1,776; see *Data Analytic Strategy*) are presented in Table 1. The

final sample only included young adults (participants between the ages of 18-29 years old).

Procedures

All study procedures were approved by each university's Institutional Review Board. Data collection at AU occurred between February 2015 and November 2016. Data collection at ASU took place between March 2016 and November 2016. Before participating in the project, all individuals were provided an Information Letter that outlined the study procedures. After providing informed consent, all participants completed an online Qualtrics survey comprised of a series of questionnaires that assessed variables related to help-seeking behaviors for mental health problems and that collected demographic information.

Measures

Data screening used the following measure:

Depression anxiety stress scale. The Depression Anxiety Stress Scale – DASS-21 (Lovibond & Lovibond, 1995) is a brief self-report questionnaire comprised of three subscales: depression, anxiety, and stress. Each subscale includes 7-items that are measured using a 4-point scale (0 = "did not apply to me at all" to 3 = "applied to me very much, or most of the time") and that are used to screen for the presence of depression, anxiety, and stress symptoms over the past week. Previous research has found good to high internal consistency for item scores on the three subscales (αs > .81; Henry & Crawford, 2005; Osman et al., 2012). Similarly, item scores for each subscale demonstrated good to high internal consistency for the overall sample in the current study (αs > .82).

Preliminary and primary analyses used the following measures:

Problem recognition and help-seeking intentions. An adapted version of the Mental Health Literacy Questionnaire for Anxiety Disorders (MHLQ-AD; Coles & Coleman, 2010) was

used to portray specific mental health problems through the use of vignettes and then to assess *problem recognition* and *help-seeking intentions* through follow-up questions. The order of the vignettes was counterbalanced to reduce potential order effects. Participants were presented with either male or female versions of the vignettes based on the sex that they endorsed. Two vignettes from the MHLQ-AD, one of SAD and one of GAD, were used (see Appendix A). Four vignettes drawn from studies that examined non-anxiety based psychological disorders were also included in order to assess help-seeking attitudes towards a wider range of mental health problems. The four other vignettes portrayed Major Depression (Coles & Coleman, 2010), Schizophrenia (Reavley & Jorm, 2011), PTSD (Munro, Freeman, & Law, 2004), and ADHD (Volkow & Swanson, 2013; see Appendix A). All six vignettes depicting psychological disorders included key symptomatic features outlined in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000). Two additional vignettes describing asthma and general life stress/problems (see Appendix A) were presented to reduce sensitization towards believing that a psychological disorder was the correct response across vignettes. These non-psychological disorder vignettes were not included in the data analyses.

Problem recognition was measured after each vignette by asking participants to indicate what they thought was "wrong with" the person described (see Appendix B). Open-ended responses to the "other" option for *problem recognition* were examined by vignette to determine if respondents systematically generated an alternative response to this variable. *Help-seeking intentions* were measured by asking participants to indicate whether or not they would seek professional help for the problem described in the vignette (see Appendix B). The response options provided for *problem recognition* and *help-seeking intentions* were drawn from Coles

and Coleman's (2010) work. Respondents were allowed to choose one option from the list of response options for the *problem recognition* and *help-seeking intentions* variables.

Primary source of help. The *primary source of help* that participants would seek was measured using an adapted list of professional treatment seeking options represented in the most recent 2013 National Survey on Drug Use and Health: Mental Health Findings report (SAMHSA, 2014). In order to represent U.S.-based sources of help, a list of options was generated using a nationally derived list of professionals seen among adults aged 18 years or older who received treatment for a psychological disorder (SAMHSA, 2014). "Social support" and "other" options were also included in the current study to provide respondents a choice to indicate a non-professional source of help (see Appendix B). Respondents were allowed to choose one option from the list of response options for the primary source of help variable. Open-ended responses to the "other" option were examined by vignette to determine if respondents systematically generated an alternative response for the *primary source of help* variable.

Race/ethnicity. Participants' *race/ethnicity* was assessed from self-reported demographic information. Participants had ten possible response options to indicate their race/ethnicity, including an open-ended "other" option and a "prefer not to answer" option (see Appendix B). Open-ended responses to the "other" option were examined to determine if respondents systematically generated an alternative response or if an existing racial/ethnic category best fit each alternative response. In anticipation of small group sizes for several of the separate racial/ethnic minority groups, the utility of categorizing participants into two overall racial/ethnic groups, racial/ethnic majority and racial/ethnic minority was explored.

Preliminary analyses used the following measure:

Family income. Participants' *family income* was assessed from self-reported demographic information. Family income was measured on a 10-point scale ("0" = "under 10,000" to "10" = "$90, 000 or more").

Racial/ethnic identity. The Multi-Group Ethnic Identity Measure-Revised (MEIM-R; Phinney & Ong, 2007) was used to assess *racial/ethnic identity*. It consists of six items that are hypothesized to assess two factors, exploration (3-items) and commitment (3-items). Item scores for the MEIM-R subscales have demonstrated adequate to good internal consistency in previous research (αs > .70; Brown et al., 2014; Chakawa, Butler, & Shapiro, 2015). Respondents use a 5-point scale ranging from strongly disagree to strongly agree. Alpha values for item scores on the racial/ethnic identity subscales for the overall sample in the current study were good (αs > .88).

Acculturation. Participant's level of *acculturation* was measured using items adapted from the African American Acculturation Scale (AAAS; Reid, Brown, Peterson, Snowden, & Hines, 2009; Snowden & Hines, 1999) and the Pan-Acculturation Scale (PAN; Soriano & Hough, 2000). Items were adapted for the current study to be used across diverse ethnic groups and to provide specific activities in relation to cultural and racial/ethnic group orientation. The *acculturation* scale assesses affinity towards one's own racial/ethnic group culture (14-items) and affinity towards mainstream U.S. culture (14-items). Respondents were provided with a 4-point scale ranging from "strongly disagree" to "strongly agree." While alpha values are not available for the original AAAS, items scores on the original PAN yielded high alpha values in previous research (αs > 90; Soriano & Hough, 2000). The internal consistency of the item scores on the adapted acculturation subscales were also high in the current study (αs > .90).

Primary analyses used the following measure:

Prior help-seeking behavior from a professional. A dichotomous variable (yes/no) measuring *prior help-seeking behavior from a professional* for mental health problems was used as a control variable. This variable was formed based on the responses that participants provided to three items: 1) Have you ever experienced any mental health concerns? (Response options: "yes," "no," or "unsure"), 2) Did you obtain help for these mental health concerns? (Response options: "yes" or "no"), and 3) Please describe the source(s) of help that you received for the mental health concerns that you have experienced. Affirmative responses to the first two items and a description of a medical or mental health professional help-seeking source were coded as "yes." Negative responses to either of the first two items or a description of a non-medical or -mental health professional help-seeking source were coded as "no." Overall, 408 (23.8%) participants (racial/ethnic majority n = 342 [26.3%], racial/ethnic minority n = 63 [15.5%]) endorsed prior help-seeking behavior from a professional.

Data Analytic Strategy

All analyses were conducted using the *Statistical Package for the Social Sciences (SPSS), Version 23* (IBM Corp, 2014). A p value of $\leq .05$ was used to assess significance in all preliminary and primary analyses.

Data screening. Respondents outside the young adult age range (18-29 years old), as defined by Arnett, Žukauskienė, and Sugimura (2014), or who did not report their age were removed from the final sample. Post-hoc methods outlined by Meade and Craig (2012) were used to identify participants who may have engaged in careless responding and to potentially exclude them from subsequent analyses. Specifically, inspection of overall response time, testing for Mahalanobis distance multivariate outliers, and computation of the Even-Odd Consistency measure (as well as the alternative procedure of examining within-person variance responses

across scale items) were conducted. The Mahalanobis distance multivariate outlier approach is based on an examination of the distance between a respondent's response vector and the vector of sample means using a chi-square distribution with a conservative probability estimate ($p < .001$; Fidell & Tabachnick, 2003). The computation of the Even-Odd Consistency measure is based on a within-person correlation across subscales comprised of an even-odd split of unidimensional scales.

Screening for missing data was conducted using methods outlined by Acock (2005) and Dong and Peng (2013). Significance tests were conducted to determine the mechanisms of missingness (i.e., missing completely at random, missing at random, or missing not at random) using methods outlined by Garson (2015). All variables included in the current study were dummy coded (i.e., 0 = "not missing," 1 = "missing"). Using one-way chi square tests, auxiliary variables (i.e., observed variables in the dataset that were not included in the preliminary or primary analyses) were used to assess if missingness significantly ($p < .05$) correlated with observed variables in the dataset. Multiple imputation, which allows for the pooling of existing parameter estimates in order to obtain an improved parameter estimate in place of missing values (Acock, 2005), was used to account for missing data. The data screening results are presented in Appendix C. As a point of comparison to the imputed data, tables presenting the results of the primary analyses based on the original data are presented in Appendix D.

Preliminary analyses. Descriptive and inferential statistics were used to explore the utility of collapsing the original categories representing the race/ethnicity variable and the problem recognition, professional help-seeking intentions, and primary source of help variables for each vignette into broader categories. The purpose of these analyses was to identify categories that still reflect the relevant variables and are conceptually sound but improve the

interpretability of the data. These analyses were also used to address statistical issues related to very low category frequencies. Mann-Whitney tests and *t*-tests were conducted to explore the utility of collapsing racial/ethnic majority and minority groups across the two participating universities based on group similarities between sites on demographic characteristics (family income) and cultural variables (racial/ethnic identity and acculturation). Frequency distributions of endorsements for each category comprising the problem recognition variables across psychological disorders were inspected to examine the utility of collapsing the categories to succinctly reflect correct and incorrect recognition. Binary and multinomial logistic regression models were used to explore the utility of collapsing categories comprising the professional help-seeking intentions variables that relate to problem recognition in a similar manner for each psychological disorder. Frequency distributions of endorsements for each category comprising the primary source of help variables across psychological disorders were inspected to examine the utility of collapsing across conceptually similar categories.

Primary analyses. Three sets of analyses were conducted to address the study hypotheses. First, one-way chi-square (i.e., goodness-of-fit) tests were used to determine if the frequency of category endorsements for the problem recognition and help-seeking intention variables differed significantly within disorders. The proportions of respondents within each category for the problem recognition and the professional help-seeking intentions variable are presented for each psychological disorder. A range of χ^2 significance test results was reported for each analysis because a single pooled result is not produced for these statistics by SPSS for imputed data.

Next, a series of logistic regression models was used to examine the role of problem recognition in predicting help-seeking intentions across the specific disorders and whether this

relationship was moderated by race/ethnicity. The Hosmer-Lemeshow goodness-of-fit test was used to examine the fit of each logistic regression model to the data. Nagelkerke R^2 was used to determine how much of the variance in professional help-seeking intentions is accounted for by problem recognition and race/ethnicity for each psychological disorder. Instead of single values, a range of goodness-of-fit and Nagelkerke R^2 results are reported for each analysis because a single pooled result is not produced for these statistics by SPSS for imputed data. A logistic regression-based path analytic framework was used to probe the two-way interactions in the moderation models using the PROCESS macro for SPSS (Hayes, 2013; Hayes, 2016). The moderation effects were probed to determine how the specific pattern of effects of problem recognition on help-seeking intentions varied as a function of race/ethnicity. However, interactions were probed using the original data (i.e., non-imputed data) because the PROCESS macro does not integrate with the multiple imputation routine in SPSS.

Lastly, two-way cross-tabulations and the chi-square test for association were used to determine if the frequency of category endorsements for the primary source of help variable significantly differed by professional help-seeking intentions across each psychological disorder. Building on this, three-way cross-tabulations and the chi-square test for association were used to examine if the frequency of category endorsements for the primary source of help variable significantly differed by professional help-seeking intentions for each psychological disorder by the racial/ethnic majority and minority groups. Phi and Cramer's V were used to test the strength of these associations (< .10 = negligible association, .10 - .20 = weak association, .20 - .40 = moderate association, .40 - .60 = relatively strong association, .60 - .80 = strong association, and .80 – 1.00 = very strong association; Rea & Parker, 1992; Kotrlik, Williams, & Jabor, 2011). A

range of χ^2 significance test and effect size results were reported for each analysis because a single pooled result is not produced for these statistics by SPSS for imputed data.

Results

Preliminary Data Analyses

Racial/ethnic group categorization. From the ten possible response options for the original race/ethnicity variable (see Appendix B), participants were categorized into eight separate racial/ethnic categories for descriptive purposes (White/Caucasian/European American, Black/African American, Native American, Hispanic/Latin American, Arab/West Asian, South Asian, East Asian, Southeast Asian, and Mixed Race/Ethnicity; see Table 1). Of the nine people who selected and provided an open-ended response to the "other" option, two were White/Caucasian/European American, three were Black/African American, one was Arab/West Asian, and three were of Mixed Race/Ethnicity. Given that several separate racial/ethnic groups had very small group frequencies, participants were categorized into overall racial/ethnic majority (White/Caucasian/European American) and racial/ethnic minority (other seven categories) groups for all further analyses.

As shown in Table 1, the sample size for the racial/ethnic majority participants at the HBCU was extremely small. This precludes meaningful statistical comparisons of racial/ethnic majority participants across institutions. Thus, preliminary analyses intended to examine the utility of collapsing racial/ethnic majority and minority groups across the two participating universities focused solely on comparisons between the racial/ethnic minority groups across the two participating universities (see Table 2).

A Mann-Whitney test was used to compare overall racial/ethnic minority and racial ethnic majority groups between sites based on family income. The results suggest that the

underlying distributions of family income for minority participants from the PWI were more likely to represent significantly higher income values than the underlying distribution of family income for minority participants from the HBCU (see Table 2). Similarly, *t*-tests comparing these groups indicated that minority participants from the PWI endorsed significantly lower levels of racial/ethnic identity commitment and affinity towards their racial/ethnic group, but significantly higher levels of affinity towards mainstream culture than minority participants from the HBCU (see Table 2). However, statistically significant differences in racial/ethnic identity exploration were not found among minority participants between the two universities.

Overall, racial/ethnic minority participants from the two universities differed on some demographic characteristics (namely family income and cultural factors related to levels of acculturation and racial/ethnic identity commitment). Though participants from majority and minority groups were collapsed across universities for the remaining analyses, it should be noted that the minority group represents a group of participants who are heterogeneous on some demographic and cultural factors.

Problem recognition categorization. The frequency of endorsement for each category within the problem recognition variable for each psychological disorder (after accounting for "other" responses) across the final sample and by overall racial/ethnic majority and minority groups are presented in Table 3 and Table 4, respectively. A screening of the "other" option for the problem recognition variable revealed that most respondents who selected this option provided a response (e.g., "stress," "depression," "OCD," "schizo and paranoia," "ADHD") that fit into one of the existing categories, so their responses were matched and coded appropriately. Of the seven to sixteen (0.4% - 0.9%) participants who selected the other option across disorders,

only one to five (0.1% - 0.3%) provided an alternative response that did not fit into one of the existing categories (e.g., “I have no idea,” “nothing,” “anxiety,” “OCD of generalized anxiety disorder,” “crazy”). These responses remained coded as “other” and were not included in the remaining analyses using the problem recognition variable. Given that low group frequencies occurred within many of the problem recognition categories for each psychological disorder, especially when examined by race/ethnicity, categories were collapsed for all future analyses. Since the main purpose of utilizing the problem recognition variable was to determine if a psychological disorder was correctly recognized versus incorrectly recognized, specific information on the other problems that were incorrectly identified was not key. Thus, consistent with previous vignette-based mental health literacy research using inferential statistics (Reavley & Jorm, 2012; Wright et al., 2005), the problem recognition variable for each psychological disorder was represented by two categories: (1) correct recognition of the psychological disorder and (2) incorrect recognition of the psychological disorder.

Professional help-seeking intentions categorization. Group frequencies for the original categories of professional help-seeking intentions (“yes,” “no,” and “undecided”; see Appendix B) for each psychological disorder are presented for the final sample (see Table 3) and by overall racial/ethnic majority and minority groups (see Table 4). The key focus of the professional help-seeking intentions variable was to convey intentions to seek professional help or not seek professional help (similar to binary coding of comparable research, see Reavley et al., 2012 and Wright et al., 2005). A series of binomial and multinomial logistic regression models examining if certain professional help-seeking intentions categories relate to problem recognition in a similar manner for each psychological disorder are presented in Table 5. Overall, these analyses indicate that the “no” and “undecided” categories for professional help-seeking intentions related

to the “yes” category for professional help-seeking intentions in a similar manner for each psychological disorder. The significance tests revealed that the problem recognition variable related to the collapsed “no/undecided” and the separate “no” and “undecided” categories comprising the professional help-seeking intentions variable in a similar manner. Findings also indicated that when accounting for problem recognition alone (without any other predictor or control variables), recognition of SAD was not significantly related to professional help-seeking intentions for this disorder but that problem recognition and professional help-seeking intentions for the other five disorders were significantly related. Given the similar pattern of findings across the regression analyses, the response options for the professional help-seeking intentions variable was collapsed into two categories (“yes” and “no/undecided”) for the remaining analyses. Thus, a binomial logistic regression model was used to examine the relationship between problem recognition and professional help-seeking intentions for each psychological disorder and the moderating role of race/ethnicity.

Primary source of help categorization. Fourth, the frequency of endorsement was inspected for each primary source of help category (see Appendix B) across psychological disorders (after accounting for “other” responses) for the overall sample (see Table 3) and by overall racial/ethnic majority and minority groups (see Table 4). A screening of the “other” option for the primary source of help variable revealed that most respondents who selected this option provided a response (e.g., “husband,” “friend,” “parents,” “student counseling services,” “neurologist,” “job counselor,” and “relaxation like yoga instructor”) that fit into one of the existing categories, so their responses were matched and coded appropriately. Of the six to fifteen (0.3% - 0.8%) participants who selected the other option across disorders, only five to ten (0.3% - 0.6%) provided an alternative response that did not fit into one of the existing categories,

including responses comprised of multiple sources (e.g., “nothing,” “nobody,” “not sure,” “GP, counselor, kinesiologist/chiropractor,” “both psychologist and religious advisor,” and “social support and psychologist”).

These responses remained coded as “other” and were not included in the remaining analyses using the primary source of help variable. Lastly, some participants’ responses to the “other” option (e.g., “books,” “Bible,” “biking”) represented self-help strategies. However, because these strategies were rarely endorsed, this source of help was combined with the existing “social support” category to create an overall “social support or self-help strategies” category.

Low frequency counts (< 5; McHugh, 2013) were found for the “social worker” category and the “herbalist, chiropractor, acupuncturist, or massage therapist” category, especially when examining these variables by race/ethnicity. In response, the “social worker” and the “herbalist, chiropractor, acupuncturist, or massage therapist” categories were combined with conceptually similar categories to create broader groupings. Specifically, an overall “non-medical mental health professional” category was created and used in all subsequent analyses by collapsing the categories “psychologist, counselor, or psychotherapist” and “social worker.” A “complementary/alternative health provider or spiritual lifestyle professional” category was created and used for all further analyses by collapsing the categories “herbalist, chiropractor, acupuncturist, or massage therapist” and “religious or spiritual professional or advisor (e.g., minister, shaman, priest, rabbi).” The categories “general practitioner or family doctor,” “psychiatrist,” and “social support (e.g., family and/or friends)” were maintained as separate categories as they are conceptually distinct from the primary source of help categories with low frequencies and have frequencies greater than five.

Thus, the final five categories used to represent the primary source of help for psychological disorders were (a) “complementary/alternative health provider or spiritual lifestyle professional,” (b) “general practitioner or family doctor,” (c) “non-medical mental health professional,” (d) “psychiatrist,” and (e) “social support or self-help strategies.” Using these categories, group frequencies were more than adequate (> 5) for meaningful subsequent comparisons to be made.

Primary Analyses

Relationship between problem recognition and professional help-seeking intentions across psychological disorders.

Problem recognition. Inconsistent with the hypothesis, the range of results for the one-way chi-square (i.e., goodness-of-fit) tests indicated that significantly more participants correctly identified symptoms of all six psychological disorders than participants who did not correctly identify the psychological disorder (see Table 6). Rates of correct problem recognition were 76.27% for SAD, 53.10% for GAD, 83.05% for Major Depression, 70.72% for Schizophrenia, 84.23% for PTSD, and 87.84% for ADHD.

Professional help-seeking intentions. One-way chi-square tests were also used to determine if the proportion of respondents within each professional help-seeking intentions category for each disorder significantly differed. Inconsistent with the hypothesis, a significant difference was found for each disorder. Specifically, a significantly greater proportion of participants endorsed intentions to seek professional help for the symptoms described for each disorder (see Table 6) than those not intending to seek help. Professional help-seeking intentions were variable across disorders, with frequencies of 55.63% for SAD, 56.31% for GAD, 79.90% for Major Depression, 93.30% for Schizophrenia, 84.52% PTSD, and 73.59% for ADHD.

Association between problem recognition and professional help-seeking intentions across psychological disorders and the moderating role of race/ethnicity. A series of binomial logistic regression models was used to examine the role of problem recognition in predicting help-seeking intentions across the specific disorders and to determine whether this relationship is moderated by race/ethnicity, while controlling for prior help-seeking behavior from a professional (see Table 7). The effects of prior help-seeking behavior are reported in Table 7 but are not included in the body of the current paper since this was not a focal variable of interest.

The Hosmer–Lemeshow test was used to assess the goodness of fit for each binomial logistic regression model, with non-significant values indicating a good fit of the model to the data. The Hosmer–Lemeshow tests for all six logistic regression models were not statistically significant across the multiple imputations (SAD: $\chi^2[4] = 1.338 - 2.595$, *p*s = .628 - .855; GAD: $\chi^2[5] = 0.977 - 1.597$, *p*s = .902 - .964; Major Depression: $\chi^2[4] = 1.071 - 2.661$, *p*s = .616 - .899; Schizophrenia: $\chi^2[4] = 0.314 – 0.838$, *p*s = .933 - .989; PTSD: $\chi^2[4] = 0.584 - 1.857$, *p*s = .821 - .965; ADHD: $\chi^2[3] = 0.366 - .778$, *p*s = .855 - .958). These results indicate a goodness of fit for each model. The model for each psychological disorder explained a small amount of the variance (as measured by Nagelkerke R^2) in professional help-seeking intentions (SAD: 3.9% - 4.1%; GAD: 9.5% - 9.9%; Major Depression: 9.6% – 10.2%; Schizophrenia: 3.4% - 5.5%; PTSD: 8.8% - 9.8%; ADHD: 8.0% - 9.0%) and correctly classified the majority of cases (SAD: 57.6% – 58.1%; GAD: 62.7% – 63.0%; Major Depression: 79.7% - 80.0%; Schizophrenia: 93.0% - 93.5%; PTSD: 84.4% - 85.0%; ADHD: 75.2% - 75.7%) across the imputations.

Problem recognition was a significant predictor of professional help-seeking intentions for GAD, Major Depression, PTSD, and ADHD (see Table 7). Participants who incorrectly

recognized these disorders were 2.68 times less likely to endorse intentions to seek professional help for GAD, 3.80 times less likely for Major Depression, 3.98 times less likely for PTSD, and 4.24 times less likely for ADHD. The ability to correctly recognize symptoms of SAD and Schizophrenia was not a significant predictor of professional help-seeking intentions for either of these disorders for the overall sample. Based on the hypothesis, findings on the relationship between problem recognition and professional help-seeking intentions for SAD and Major Depression were unexpected.

Inconsistent with the hypothesis, race/ethnicity was only a significant predictor of professional help-seeking intentions for SAD and Major Depression. Participants from minority backgrounds were 1.42 times less likely to endorse intentions to seek help for SAD than were participants from majority backgrounds. Similarly, participants from minority backgrounds were 1.65 times less likely to seek help for symptoms related to Major Depression than were participants from majority backgrounds. Race/ethnicity did not predict professional help-seeking intentions for GAD, Schizophrenia, PTSD, or ADHD.

Race/ethnicity significantly moderated the relationship between problem recognition and professional help-seeking intentions for Schizophrenia, but not for the other five psychological disorders (see Table 7). The significant interaction between these variables indicates that the effect of problem recognition on professional help-seeking intentions for Schizophrenia depended on the effect of participants' (majority versus minority) racial/ethnic background. A probe of this interaction revealed that while problem recognition for Schizophrenia did not significantly relate to professional help-seeking intentions for Schizophrenia among majority participants, this association was significant for minority participants (see Table 8). Racial/ethnic background did not influence the relationship between problem recognition and professional

help-seeking intentions for GAD, Major Depression, Schizophrenia, PTSD, or ADHD (see Table 7) and the pattern of simple main effects for these psychological disorders were consistent across racial/ethnic groups (see Table 8).

Differences in the frequency of category endorsements for primary source of help across psychological disorders for the overall sample and by race/ethnicity. Lastly, two-way and three-way cross-tabulations and the chi-square test for association were used to determine if the frequency of category endorsements for the primary source of help variable differed significantly by professional help-seeking intentions across each psychological disorder for the overall sample and by each overall racial/ethnic majority and minority group. The range of results for the two-way cross tabulation and the chi-square test for association for SAD, GAD, Major Depression, Schizophrenia, PTSD, and ADHD revealed a statistically significant association between professional help-seeking intentions and the primary source of help variables (see Table 9). Significant differences in the preferred primary source of help based on professional help-seeking intentions for the overall sample were consistent with the hypothesized relationships between these variables. For each psychological disorder, the frequency of category endorsements for "general practitioner or family doctor," "non-medical mental health professional," and "psychiatrist" were higher among participants who indicated that they intended to seek professional help in comparison to those who indicated that they would not seek professional help or who were undecided. On the other hand, the frequency of category endorsements for "complementary/alternative health providers or spiritual lifestyle professional" and "social support or self-help strategies" were generally lower among participants who indicated that they intended to seek professional help in comparison to those who indicated that they would not seek professional help or who were undecided. Tests of the strength of the

association between professional help-seeking and preferred primary source of help were significant and moderate for SAD, GAD, Major Depression, Schizophrenia, PTSD, and ADHD (see Table 9).

Findings from the three-way cross-tabulation and the chi-square test for association across the multiple imputations showed that the frequency of category endorsements for primary source of help differed significantly for some disorders by professional help-seeking intentions between the overall racial/ethnic groups (see Table 10). Inconsistent with the hypothesis, findings were not significant overall for PTSD and for SAD, GAD, and Schizophrenia between majority and minority participants who endorsed intentions not to seek professional help or who were undecided.

The pattern of significant findings across the imputations (SAD: four out of five *p* values were significant; GAD: five out of five *p* values were significant) among participants who endorsed intentions to seek professional help for SAD and GAD was relatively similar (see Table 10). For both SAD and GAD, participants from minority backgrounds had a higher frequency of category endorsements for "complementary/alternative health provider or spiritual lifestyle professional" as a primary source of help compared participants from majority backgrounds. Minority participants also chose "general practitioner or family doctor," as a primary source of help for SAD and GAD at a lower frequency than majority participants. For SAD but not for GAD, participants from minority backgrounds selected "non-medical mental health professional" as a primary source of help at a higher frequency than participants from majority backgrounds. This same pattern was found for "psychiatrist" as a primary source of help for GAD. Participants from minority backgrounds had a higher frequency of category endorsements for "social support or self-help strategies" for GAD than participants from majority backgrounds.

Among participants who endorsed intentions to seek professional help for Major Depression, those from minority backgrounds had a higher frequency of category endorsements for "complementary/alternative health providers or spiritual lifestyle professional" and "social support or self-help strategies" than those from majority backgrounds (see Table 10). On the other hand, the frequency of category endorsements for "general practitioner or family doctor" was lower among minority participants compared to majority participants. For participants who endorsed intentions not to seek professional help or who were undecided about seeking professional help for Major Depression, statistically significant differences in the frequency of category endorsements were found across most of the multiple imputations (four out of five *p* values were significant). Participants from minority backgrounds had a higher frequency of category endorsements for "complementary/alternative health providers or spiritual lifestyle professional," "non-medical mental health professional," and "social support or self-help strategies" as a primary source of help compared to those from majority backgrounds. In turn, the frequency of category endorsements for "general practitioner or family doctor" and "psychiatrist" was lower among minority participants in comparison to majority participants.

The frequency of category endorsements for primary source of help for Schizophrenia were relatively similar across majority and minority participants who endorsed intentions to seek professional help (see Table 10). However, a higher proportion of participants from minority backgrounds chose "complementary/alternative health provider or spiritual lifestyle professional" as a primary source of help for Schizophrenia compared to majority participants. In turn, minority participants chose "non-medical mental health professional" as a primary source of help at a lower frequency than majority participants. Similar to findings for Major Depression, statistically significant differences in the frequency of category endorsements were found across

most of the multiple imputations (four out of five *p* values were significant) for participants who endorsed intentions not to seek professional help or who were undecided for Schizophrenia. Category endorsements for "complementary/alternative health providers or spiritual lifestyle professional," "non-medical mental health professional," and "social support or self-help strategies" as a primary source of help were higher among participants from minority backgrounds than those from racial/ethnic majority backgrounds. Alternatively, minority participants had a lower frequency of category endorsements for "general practitioner or family doctor" and "psychiatrist" than majority participants.

For participants who endorsed intentions to seek professional help for ADHD, those from minority backgrounds had a higher frequency of category endorsements for every primary source of help category except for "general practitioner or family doctor" in comparison to participants from majority backgrounds (see Table 10). This same pattern was found among participants who endorsed intentions not to seek professional help or who were undecided about seeking professional help for ADHD.

Tests of the strength of the association between the primary source of help variables for each disorder and race/ethnicity were significant, but weak to moderate, among participants who indicated that they would seek professional help for SAD, GAD, Major Depression, Schizophrenia, and ADHD. Associations were also significant, but weak to moderate, among participants who indicated that they would not seek professional help or who were undecided about seeking professional help for Major Depression (four out of five *p* values were significant), Schizophrenia (four out of five *p* values were significant), and ADHD (see Table 10). The strength of the association between primary source of help and race/ethnicity was non-significant and negligible to moderate for participants who indicated that they would seek professional help

for PTSD and among those who indicated that they would not seek professional help or who were undecided about seeking professional help for SAD, GAD, and PTSD (see Table 10).

Discussion

Unmet mental health needs among young adults have been linked to a reluctance to seek professional help and low mental health literacy (Gulliver et al., 2010; Vidourek et al., 2014). Although it is clear that racial/ethnic disparities in mental health care exist for young adults in the U.S. (Marrast, Himmelstein, & Woolhandler, 2016), these differences have been understudied in the mental health literacy literature. Using vignettes depicting six psychological disorders, the aim of the current study was to explore rates of problem recognition and professional help-seeking intentions among young adults, the relationship between these latter variables, and the moderating role of race/ethnicity. Preferred primary source of help based on intentions to seek professional help for each psychological disorder was also assessed for the overall sample and by race/ethnicity.

Mental Health Literacy: Problem Recognition and Professional Help-Seeking Intentions

Does the frequency of correct problem recognition differ significantly from the frequency of incorrect problem recognition? The majority of participants correctly recognized each psychological disorder, although significant differences were not anticipated for SAD, GAD, and Schizophrenia. The pattern of findings for SAD and GAD were somewhat similar to those from previous work conducted in the U.S (see Coles & Coleman, 2010). In the current study, approximately 76% of participants correctly identified SAD while only 53% correctly recognized GAD. Although SAD and GAD are both anxiety disorders, it may be that young adults are better able to recognize SAD since there is a close correspondence between the name of the disorder and the symptoms described (Coles & Coleman, 2010). Some young adults may

recognize symptoms of GAD as problematic but may not recognize the symptoms as stemming from a psychological disorder. For instance, over one-fifth of the sample selected "General Life Stress/Problems" to describe the problem depicted in the GAD vignette. Mental health literacy for anxiety disorders has been identified as particularly problematic. As illustrated in research conducted outside of the U.S., recognition of anxiety disorders can be low when young people are not cued by a list of response options (Furnham et al., 2014; Reavley & Jorm, 2011). It is possible that fewer participants in the current study would have correctly identified the anxiety disorders examined if they were asked to generate the names of the disorders without cues.

Similar to previous findings (see Coles & Coleman, 2010; Lauber et al., 2005; Reavley et al., 2012), problem recognition for Major Depression was relatively high (83%). As with the anxiety disorders, some studies that have required participants to generate the name of the disorder have found lower rates of correct recognition for Major Depression (Furnham et al., 2014; Stansbury et al., 2011). Yet, even in these cases, at least 50% of participants were able to correctly identify Major Depression. While some researchers have suggested that correct recognition for Major Depression may be due to a tendency to over-generalize the use of this term (Reavley & Jorm, 2011), findings from the current study suggest the opposite. The option "Major Depression" was not commonly selected to describe the other five disorders, indicating that participants in the sample had the ability to discriminately recognize Major Depression when given a list of possible response options.

Patterns of problem recognition for Schizophrenia, PTSD, and ADHD differed from previous vignette-based research, which to date has largely been conducted outside of the U.S. The current study showed that approximately 70% of participants correctly labeled the symptoms described in the Schizophrenia vignette, while 84% and 88% correctly labelled the symptoms in

the PTSD and ADHD vignettes, respectively. Previous studies show that young adults typically have difficulty identifying Schizophrenia and PTSD, with recognition ranging between 34% and 39% (Reavley & Jorm, 2011; Wright et al., 2005, Furnham et al., 2014). Rates of recognition for ADHD have been marginally better, with close to 52% of young adults correctly identifying this disorder (Furnham et al., 2014). Similar to findings for SAD, GAD, and Major Depression, comparisons with previous studies are limited in some cases by the question format used to assess for problem recognition. It may be that participants in the current sample would have had a lower rate of correct recognition for Schizophrenia, PTSD, and ADHD if they were tasked with identifying these disorders without any labeling aides.

Overall, the pattern of findings for problem recognition suggest that most young adults can discriminately recognize psychological problems and their correct name. The most recent National Institute of Mental Health 12-month prevalence estimates for these six psychological disorders for young and older adults are: 6.7% for both SAD and Major Depression, 3.1% for GAD, 1.1% for Schizophrenia, 3.5% PTSD, and 4.1% for ADHD (Kessler, Chiu, Demler, & Walters, 2005; Reiger et al., 1993). Aside from SAD, rates of correct recognition among the current sample were somewhat higher for disorders with higher prevalence rates, including Major Depression, PTSD, and ADHD. In comparison to "real life" situations where symptom presentation may be more dynamic and complex, it may be that the ability to accurately recognize psychological disorders was enhanced by clearly described symptoms in vignette form and the use of response options. Yet, these findings suggest that having access to listed symptoms and possible psychological disorders to help facilitate problem recognition could have ecological utility. Research by the Pew Research Center (Fox & Duggan, 2013) shows that up to 59% of U.S. adults look up health information online and approximately 35% use the internet to

learn about health conditions. Young adults are significantly more likely to engage in this behavior than older adults (Fox & Duggan, 2013). Websites that list symptom information to help aid in the recognition of specific disorders may be an important mental health literacy initiative that can assist young adults in one of the key first steps to accessing needed mental health services.

Does the frequency of intentions to seek professional help differ significantly from the frequency of intentions not to seek professional help or being undecided? Across disorders, a significantly higher proportion of participants endorsed intentions to seek professional help than those who endorsed intentions not to seek professional help or who were undecided. Although significant findings in professional help-seeking intentions were not expected for SAD and GAD, the proportion of participants who endorsed intentions to seek help was lower for these two disorders than the other four disorders. While previous research indicates that 64% of young people recommend professional help for SAD (Coles & Coleman, 2010), about 56% from the current study endorsed intentions to seek professional help for problems described in the SAD vignette. Professional help-seeking intentions for GAD were also low (~56%) in the current study but were similar to those from previous research (52%; Coles & Coleman, 2010). Variations between studies and, relatedly, expected findings may have been due to a focus on personal help-seeking in the current study versus recommendations to seek help. Although there are effective treatments for anxiety disorders (Otte, 2011; Ravindran & Stein, 2010), very few people suffering from an anxiety disorder seek professional help. SAD, in particular, may be associated with a unique pattern of treatment barriers that are rooted in symptoms of the disorder (e.g., fear of what others may say or think, including treatment providers; Olfson et al., 2000). Increased work to address low rates of professional help-seeking

intentions for SAD and GAD is needed, especially since anxiety disorders are the leading cause of mental illness in young adults (Kessler et al., 2005; Reavley & Jorm, 2011).

A high proportion (80%) of participants endorsed that they would seek professional help for the symptoms presented in the Major Depression vignette. Though research outside of the U.S. has found low to moderate professional help-seeking intentions or recommendations for depression (26-59%; Reavley & Jorm, 2011; Reavley et al., 2012; Stansbury et al., 2011; Wright et al., 2005), research in the U.S. has found higher rates among young (83%; Coles & Coleman, 2010) and older (91%; Schubert et al., 2014) adults. Major Depression is one of the more prevalent psychological disorders during young adulthood and has been identified as a leading cause of disability compared to other psychological disorders (World Health Organization, 2008). Findings showing that most young adults view symptoms of Major Depression as warranting professional help are particularly positive given the impact of this disorder.

Similar to previous work (see Reavley & Jorm, 2011), a large majority of participants endorsed intentions to seek professional help for Schizophrenia (93%). Young adults generally have the perception that Schizophrenia is difficult to treat (Furnham et al., 2014), which may be linked to thoughts about the severity of this disorder and the need for professional help-seeking. While professional help-seeking intentions for Schizophrenia were high, it is important to note that actual help-seeking for Schizophrenia is limited by a number of factors, including the frequency of low insight among individuals experiencing symptoms of Schizophrenia (i.e., anosognosia). Individuals with Schizophrenia and other types of psychotic disorders are often the last to become aware of the nature of the problems they are facing (Gerson et al., 2009; Jacob, 2016; Tanskanen et al., 2011). As a result, others in their environment have a large role in the treatment-seeking process (Gerson et al., 2009; Tanskanen et al., 2011).

Most PTSD research among young adults in the U.S. has focused on military populations (Fortney et al., 2016) and has shown that treatment seeking for PTSD is low among young adult veterans (Kulesza, Pedersen, Corrigan, & Marshall, 2015). However, approximately 85% of the current sample endorsed intentions to seek professional help for PTSD. Aside from differences based on military involvement, the discrepancy in findings may be based on intentions to seek help for a personally experienced problem versus intentions to seek professional help for a hypothetical situation. Population-based research among a community sample of young people in Germany suggests that similar to other disorders, a number of barriers exist to seeking treatment for PTSD, including the severity of symptoms or perceived ability to cope with traumatic events (Perkonigg et al., 2005). There may be some barriers related to the trauma (e.g., the desire to avoid re-visiting trauma-related experiences) that may affect help-seeking intentions for PTSD in unique ways compared to other psychological disorders (Sayer et al., 2009). Future work exploring professional help-seeking intentions for PTSD among civilian samples of young adults may help to clarify how professional help-seeking intentions for PTSD actually relate to service utilization for those who are suffering from the disorder.

The current study found that 74% of participants endorsed intentions to seek professional help for ADHD. Despite its marked psychosocial and functional impairments (Able, Johnston, Adler, & Swindle, 2007), rates of professional help-seeking intentions for ADHD among young adults have been understudied. While older research suggests that help-seeking for ADHD during adulthood is often due to concerns about comorbid conditions (e.g., anxiety or depression; Lamberg, 2003), more recent vignette-based work suggests that young adults are likely to recommend professional help for ADHD symptoms (Furnham et al., 2014). Findings also

indicate that young adults are aware of treatment options for ADHD, including stimulant prescription drugs (e.g., Adderall, Ritalin) and psychotherapy (Waite & Tran, 2010).

Though the majority of participants in the current study endorsed intentions to seek professional help, research suggests that young people are reluctant to seek help when faced with mental health concerns (Rickwood, Mazzer, & Telford, 2015). In fact, research indicates that 66% of young adults suffering from a psychological disorder do not receive needed services (SAMHSA, 2014). After making a decision to seek professional help, there may be a variety of other factors or barriers that interfere with the process of actually accessing help, such as stigma, self-reliance, lack of accessibility, mistrust of providers, minimizing symptoms, or a lack of awareness about available sources of professional help (Gulliver et al., 2010). While findings on professional help-seeking intentions from the current study are informative, they represent intentions and not actual help-seeking behavior. They also reflect intentions based on hypothethical situations and may not completely align with what young adults would do if actually faced with the problems described in the vignettes. However, these findings provide useful information on how young people view the need for professional services for a variety of psychological disorders.

The Association between Problem Recognition and Professional Help-Seeking Intentions and Accounting for Race/Ethnicity

Does problem recognition influence intentions to seek professional help? Correctly identifying a disorder was significantly associated with intentions to seek professional help for GAD, Major Depression, PTSD, and ADHD, but not for SAD or Schizophrenia. Contrary to expectations based on previous research, problem recognition was not significantly associated with professional help-seeking intentions for SAD but it was for Major Depression. Although

both accurate recognition and professional help-seeking intentions for GAD were low for the current sample, those who accurately identified GAD were over 2.5 times more likely to endorse intentions to seek professional help. Findings from the current study align with previous research (see Coles & Coleman, 2010 and Reavley & Jorm, 2011) regarding the role of mental health literacy in addressing unmet needs for GAD. In particular, mental health literacy initiatives focused on increasing young adults' ability to identify GAD and associated psychological distress may help address low rates of professional help-seeking for this disorder.

Participants who correctly recognized Major Depression, PTSD, and ADHD were almost four times more likely to endorse intentions to seek professional help in comparison to those who did not correctly recognize these disorders. Though this association has not been previously examined for PTSD and ADHD, findings for Major Depression were contrary to work among Australian youth (see Reavley & Jorm, 2012) which has shown a non-significant association between problem recognition and professional help-seeking intentions for Major Depression. In addition to population differences, Reavley and Jorm (2012) accounted for shared variance between problem recognition and other variables (age, sex, education level, and country of birth) when predicting help-seeking intentions. Thus, it is likely that recognizing Major Depression helps predict help-seeking intentions but that this variance may be shared with other factors. Results from the current study suggest that knowledge of PTSD and ADHD may translate into an increased likelihood that young adults will seek professional help for these disorders. Of course, professional help-seeking intentions and behaviors may differ when actually experiencing symptoms of these disorders. However, since problem recognition is one of the first steps in the help-seeking pathway (Vogel et al., 2006), the current results likely carry some validity in predicting a factor that has an important role in facilitating professional help-seeking behaviors.

Contrary to suggestions by Coles and Coleman (2010) and Reavley and Jorm, (2011), accurately recognizing SAD did not significantly relate to intentions to seek professional help. Research has shown that individuals with SAD rarely endorse a lack of awareness about having an anxiety disorder as a reason why they did not seek treatment (Olfson et al., 2000). Regardless of problem recognition, professional help-seeking intentions for SAD may be due to perceptions that the symptoms will wane on their own. Other components of mental health literacy may better predict professional help-seeking intentions for SAD. Examples include: knowledge regarding causes and risk factors of symptoms or psychological disorders, knowledge and beliefs about available professional health care options and self-help interventions, attitudes that facilitate recognition of problematic symptoms and appropriate help-seeking, and knowledge of how and where to find mental health information (Jorm et al., 1997). It is possible that personally experiencing SAD could contribute to a significant relationship between problem recognition and professional help-seeking intentions. Vignettes may not fully communicate the level of distress associated with SAD and may blur the distinction between social anxiety and typical feelings of apprehension in social situations.

The relationship between problem recognition and professional help-seeking intentions was also not significant for Schizophrenia. Even though recognition rates for Schizophrenia were moderate, professional help-seeking intentions for Schizophrenia may have been high due to perceptions about the atypicality and severity of the symptoms described. Research among young and older adults in Germany has shown that symptoms of Schizophrenia are viewed as particularly concerning compared to other disorders and, although less readily recognized, are often more frequently endorsed as warranting professional help (Angermeyer, Millier, Rémuzat, Refaï, & Toumi, 2013; Parcesepe, & Cabassa, 2013). Better understanding of how beliefs about

the severity of symptoms and need for treatment actually translate to professional help-seeking among young adults with Schizophrenia is needed. Beyond problem recognition, accounting for individual health beliefs (e.g., thoughts about how personal health status/conditions influence life experiences) may help explain some of the personal help-seeking behaviors that lead to professional help-seeking for Schizophrenia (Linden & Godemann, 2007).

The current study provides empirical evidence for the role of problem recognition in predicting professional help-seeking intentions for several disorders. Incorrect problem recognition may correspond to a misunderstanding of what symptoms represent (i.e., mental illness) or a minimization of the severity and impact of the symptoms, which then results in choosing not to seek professional help. Although other barriers to seeking professional help exist, a lack of mental health literacy has been identified as an early impediment in the help-seeking pathway (Coles, Heimberg, & Weiss, 2013; McGorry, 2005). Mental health literacy interventions that focus on the correct recognition of psychological disorders are particularly likely to contribute to increased intentions to seek professional help for GAD, Major Depression, PTSD, and ADHD. Other efforts may be needed to assist in increasing help-seeking intentions for SAD, such as psychoeducation around the deleterious impact of sustained, untreated symptoms of SAD and strategies to increase positive attitudes towards appropriate help-seeking.

Does race/ethnicity influence intentions to seek professional help? Contrary to expectations, participants from racial/ethnic minority backgrounds were significantly less likely to endorse intentions to seek professional help for only two disorders. Race/ethnicity was a significant predictor of intentions to seek professional help for SAD and Major Depression but did not predict professional help-seeking intentions for the other psychological disorders. It may be that racial/ethnic minority participants were less likely to perceive symptoms related to SAD

and Major Depression as pervasive or problematic and thus do not see these disorders or the associated symptoms as warranting professional assistance. As discussed above, SAD and Major Depression are among the most prevalent psychological disorders during adulthood. National data on the prevalence of SAD and Major Depression for separate racial/ethnic groups suggests that both disorders occur at a lower rate for individuals from African American, Asian American, and Latin American backgrounds compared to European Americans (Breslau et al., 2006; Grant et al., 2005; Hofmann, Asnaani, & Hinton, 2010). Hofmann and colleagues (2010) suggest that the lower rates of SAD and Major Depression among minority young adults may stem from early life experiences that promote the acquisition of protective factors (e.g., resilience). This may also translate into minority young adults having a reduced likelihood to consider professional help as necessary for managing symptoms of SAD and Major Depression.

Although the prevalence may be lower, SAD and Major Depression do occur among minority young adults. Research is needed to better understand the factors that contribute to racial/ethnic disparities in professional help-seeking intentions for SAD and Major Depression but not for GAD, Schizophrenia, PTSD, and ADHD. Targeted mental health literacy interventions focused on increasing knowledge about the risk factors and causes of SAD and Major Depression and also increasing attitudes that facilitate appropriate help-seeking for these disorders may be particularly relevant. It may be that after accounting for the recognition of psychological disorders (as well as previous help-seeking behavior), racial/ethnic disparities in treatment seeking are reduced for some disorders. Findings from the current study indicate that more work is needed to help increase understanding on patterns of professional help-seeking intentions across racial/ethnic groups.

Does race/ethnicity moderate the relationship between problem recognition and professional help-seeking intentions? Race/ethnicity significantly moderated the relationship between problem recognition and professional help-seeking intentions for Schizophrenia but not for the other psychological disorders. Specifically, problem recognition was significantly associated with intentions to seek professional help for Schizophrenia among participants from racial/ethnic minority backgrounds but not for those from majority backgrounds. Addressing disparities in professional help-seeking intentions for Schizophrenia by increasing the ability to recognize this disorder would likely have a positive impact, especially for minority young adults.

Findings from the current study indicate that the relationship between problem recognition and professional help-seeking intentions is similar across racial/ethnic groups for the majority of the psychological disorders examined. These findings provide evidence for the utility of mental health literacy interventions. Kutcher and colleagues (2016) suggest that in-person, school-based mental health literacy interventions may be particularly effective for young people. However, most of these interventions have been designed around the logistical conveniences of grade schools. Awareness campaigns that are coupled with screening and brief intervention (e.g., national screening days) are well-suited for college and university campuses (Wallenstein, Pigeon, Kopans, Jacobs, & Aseltine, 2007; Seigers & Carey, 2010). Several benefits of internet-based mental health literacy interventions have also been highlighted, including increased recognition, knowledge, and healthy attitudes towards mental illness and treatment seeking (Brijnath, Protheroe, Mahtani, & Antoniades, 2016).

Preferred Primary Source of Help

Does primary source of help differ by professional help-seeking intentions for the overall sample? Preferred primary source of help differed significantly by intentions to seek

professional help across disorders for the overall sample. As hypothesized, participants who endorsed intentions to seek professional help chose medical or mental health professional sources (e.g., general practitioners or family doctors, non-medical mental health professionals, or psychiatrists) at a higher frequency than participants who indicated that they would not seek professional help if faced with the problems presented in the vignettes or who were undecided. Also as hypothesized, those who indicated that they would not seek professional help or who were undecided chose non-medical or non–mental health professional sources (e.g., complementary/alternative health providers, spiritual lifestyle professionals, social support, or self-help strategies) at a higher frequency than participants who endorsed intentions to seek professional help.

Many of those who indicated that they would not seek professional help or who were undecided chose medical or mental health professionals as a primary source of help. This indicates that among young adults who may not have intentions to seek professional help, many may be aware of options that would be helpful and appropriate for the condition. In general, young adults are among the least likely adults to seek professional mental health services (Wilson, Bushnell, & Caputti, 2011). This may be due to beliefs the services are unhelpful and reduce self-autonomy (Wilson et al., 2011). Instead, young adults are often more likely to seek informal help from close friends and family members or rely on self-help strategies (Barksdale & Molock, 2008).

Vignette-based research among younger and older adults within and outside of the U.S suggests that across a variety of disorders, endorsing intentions to seek help from a general practitioner may be more common than seeking help from a mental health practitioner (Reavley & Jorm, 2011; Reavley et al., 2012; Schubert et al., 2014; Wright et al., 2005). However, the

majority of the current sample endorsed non-medical mental health professionals as a primary source of help at a higher frequency across disorder (excepting Schizophrenia and ADHD). A psychiatrist was most frequently endorsed for Schizophrenia and a general practitioner or family doctor was most frequently endorsed for ADHD. Findings from the current study may have been influenced by the access to on-campus counseling centers at the participating universities. Participants' awareness of these services may have contributed to preferences for mental health practitioners over general practitioners for help with psychological concerns.

The frequency of participants who chose "complementary/alternative health providers or spiritual lifestyle professionals" or "social support or self-help strategies" as preferred primary sources of help was slightly higher for the internalizing disorders compared to the other disorders. This pattern was particularly pronounced among those who indicated that they would not seek professional help or who were undecided. Lower endorsements for mental health practitioners as primary sources of help for internalizing problems likely ties into previous discussion on perceptions that symptoms of these disorders are not severe or chronic. Complementary/alternative health care or spiritual lifestyle support provided by non-mental health care providers may be selected over mental health professionals based on perceived personal benefit (Russinova, Wewiorski, & Cash, 2002). The preference for spiritual lifestyle professionals may have been particularly pronounced among the current sample, of whom the majority endorsed a religious/faith background. In order to identify ways to better address low service utilization for specific disorders, additional research is needed to better understand why young adults view some as warranting less formal methods of help over professional mental health service options.

The help-seeking pathway for many young adults exists outside of mental health service contexts. Changing beliefs and attitudes about seeking help for psychological disorders is more difficult than modifying knowledge on psychological disorders and sources of professional help (Rickwood, Cavanagh, Curtis, & Sakrouge, 2004). Since most individuals are willing to utilize traditional health care options in addition to preferred complementary/alternative health and spiritual lifestyle practices (Harrigan, 2011; Rüdell, Bhui, & Priebe, 2008), innovative methods are needed to reach young adults in settings where they are likely to seek help. To address mental health help-seeking in medical contexts, emphasis has increasingly been placed on integrated medical and mental health care (Manderscheid & Kathol, 2014). Findings support the importance of mental health care practitioners working closely with lay support systems (e.g., social groups and clubs), faith-based networks, traditional healers, and families to help improve mental health promotion and access to effective treatment (Rüdell et al., 2008). The growing importance of the internet as a source of health information among young adults calls for more ways to provide quality internet-based mental health resources (e.g., e-mental health/telehealth services; Younes, Chollet, Menard, & Melchior, 2015) in order to increase access to needed services.

Does primary source of help differ based on professional help-seeking intentions between racial/ethnic groups? As expected, preferred primary source of help differed significantly by professional help-seeking intentions between racial/ethnic majority and racial/ethnic minority participants for each psychological disorder except for PTSD. Participants from racial/ethnic majority backgrounds endorsed a preference for medical professionals and mental health professionals as a primary source of help at a higher frequency than young adults from racial/ethnic minority backgrounds. Alternatively, young adults from racial/ethnic minority backgrounds endorsed a preference for social support or complementary/alternative health

providers or spiritual lifestyle professionals as a primary source of help at a higher frequency than young adults from racial/ethnic majority backgrounds. The relatively low effect sizes among these findings suggest that the primary source of help chosen by those who share the same professional help-seeking intentions may not vary in a particularly meaningful way based on race/ethnicity. Still, there are some general findings worthy of highlighting.

Across psychological disorders, minority participants preferred to seek help from complementary/alternative health providers or spiritual lifestyle professionals (with the exception of GAD) and social support or self-help strategies (with the exception of SAD) at a higher frequency than majority participants did. Previous findings also show that individuals from minority backgrounds are more likely to turn to spiritual lifestyle professionals (Allen, Davey, & Davey, 2010; Ayalon & Young, 2005; Blank et al., 2002; Lee et al., 2009; Rüdell, et al, 2008), complementary/alternative health providers (Graham et al., 2005; Rüdell, et al, 2008), or social support (Lee et al., 2009; Rüdell, et al, 2008; Snowden, 2007) to address psychological concerns. Young adults from minority backgrounds may demonstrate a preference for complementary/alternative health providers or spiritual lifestyle professionals and social support based on trust and shared values. Of particular relevance to African American young adults (who comprised the majority of the study's racial/ethnic minority group), leaders within faith-based organizations may be a preferred primary source of help – especially for those in the southern U.S. (Taylor et al., 2000). Furthermore, minority young adults may have reservations about how professional mental health services will align with their cultural values and whether cultural factors will be understood by mental health care providers who may not share their background (Lee et al., 2009; Meyer & Takeuchi, 2014; Townes, Chavez-Korell, & Cunningham, 2009). Factors related to stigma may also be an issue (Cheng, Kwan, & Sevig, 2013; Masuda,

Anderson, & Edmonds, 2012; Masuda & Boone, 2011; Mendoza et al, 2015).

With the exception of PTSD, minority participants generally had lower rates of endorsements for general practitioners or family doctors as a primary source of help compared to majority participants. Findings from previous studies show that individuals from minority groups may be particularly concerned about receiving mental health care recommendations centered around psychopharmacologic treatments (Givens et al., 2007; Mills, 2012), which may help account for the observed preference for practitioners who are more likely to provide psychotherapeutic treatment. Along these lines, racial/ethnic minority participants had a higher frequency of category endorsements for ADHD in every primary source of help category except for "general practitioner or family doctor." Qualitative work among young adults with ADHD suggests that those from minority groups may be less likely to accept biomedical or illness-based explanatory models for ADHD compared to young adults from majority backgrounds (Waite & Tran, 2010). Instead, minority young adults are more likely to endorse causal attributions rooted in psychological explanatory models or learning/memory difficulties (Waite & Tran, 2010).

Regardless of racial/ethnic background, strategies to increase professional help-seeking intentions towards appropriate and effective sources of help are needed. As previously discussed, changing young adults' attitudes and behaviors on treatment seeking poses many challenges, which necessitates a move towards identifying and engaging in innovative ways to bring services to arenas where help-seeking is taking place. Follow-up research is needed to examine if other demographic factors, such as sex and socioeconomic status, account for differences in the sources of help that young adults consider when seeking help for psychological problems.

Limitations and Future Directions

Vignette studies may carry a number of limitations, such as a lack of clarity about how

vignettes are being interpreted across participants, difficulty with perspective taking, and the extent to which they reflect real life process (Hughes & Huby, 2004). However, vignette techniques can benefit social science research that involves the study of attitudes, beliefs, and perceptions (Atzmüller & Steiner, 2010). The purpose of the current paper was not to simulate the complete reality of professional help-seeking. As demonstrated, it was to extract certain elements that play a role in the help-seeking process and to examine how these elements relate to one another. Some of the comparisons made between the current study and previous work may have been limited in cases where different measures were used. Excepting the ADHD vignette, the current study used vignettes from previous research on mental health literacy. However, different vignettes have been used to portray the same disorder across several studies. Similarly, the current study examined participants' intentions to seek professional help if faced with the same described problem but some studies have asked participants' whether the person in the vignette seek help. Consistency in measurement is needed to better understand the trend in findings on mental health literacy.

Comparisons across studies were also limited by the age ranges that have been used in vignette-based mental health literacy studies. The current study used a sample of 18-29 year olds (similar to Coles & Coleman, 2010), accounting for the emerging adulthood stage of development. This stage has been identified as developmentally distinct in that it reflects a period of time where young people are tasked with adapting to transitional life situations (Arnett et al., 2014). Although research has found that help-seeking intentions may vary across stages of development (Alegría, Prihoda, Copeland, & Zeber, 2011; Rickwood et al., 2015), most prior work on mental health literacy has combined groups of young adolescents and young adults (e.g., 15-25 year olds) or collapsed groups across stages of adulthood (i.e., 18 years and older).

As done in the current study, research focused on addressing unmet mental health care needs may need to take a more focused approach on tailoring inquiries to fit unique concerns within developmental stages.

Although the use of university students allowed for more direct comparison between racial/ethnic majority and minority young adults with equal levels of education, the participants in the current study are part of an educated group that may not represent the general community of young adults. Research has shown that higher levels of education are linked to better problem recognition of mental health problems (Hanchate, Ash, Gazmararian, Wolf, & Paasche-Orlow, 2008) and, in-turn, an increased likelihood to seek professional help (Coles & Coleman, 2010). It may be that the rates of problem recognition and professional help-seeking intentions found in the current study are lower among the general community of young adults. It is also possible that the sample had increased knowledge on psychological content compared to the general population of young adults since they were drawn from an introductory psychology course. However, introductory-level psychology is a course that many high-school and post-secondary students have the opportunity to take as an elective. Also, since participants completed the study at different points in the semester (i.e., prior to, during, and after covering material on psychological disorders), the sample likely reflects some variability in educational exposure to psychological content.

Participants from the current study largely represented females and young adults from the Southern U.S. Findings on mental health literacy and beliefs about professional help-seeking intentions may differ among samples with a more balanced sex and regional representation. Also, the racial/ethnic minority group was highly represented by African American participants. Future research on mental health literacy would benefit from larger samples of racial/ethnic

minority groups to increase representation and the ability to explore differences between these groups. Notably, there was a tendency for participants from the HBCU to have a higher proportion of missing data than participants from the PWI. Towards the end of the data collection period, issues with being "kicked out of the survey" before survey completion were reported by some students from the HBCU. It is possible that the higher frequency of missing data from participants from the HBCU was due to survey administration issues and not solely the variables tested or a lack of interest in the survey material. However, the rate of missing data was relatively low and was accounted for using multiple imputation.

Conclusion

The current study extends previous research by examining the relationship between mental health literacy, particularly in regards to the recognition of psychological disorders and professional help-seeking intentions among a diverse sample of young adults in the U.S. Overall, findings from the current study showed that (a) problem recognition significantly predicted help-seeking intentions for several disorders and (b) race/ethnicity influenced professional help-seeking intentions and the relationship between problem recognition and professional help-seeking intentions for some disorders. These findings have strong implications for innovative ways to address unmet mental health care needs. However, increasing rates of service utilization goes beyond problem recognition. More work is needed to help explain the relationship between problem recognition, professional help-seeking intentions, and other behaviors that lead to service utilization across diverse racial/ethnic groups for various psychological disorders.

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Table 1

Final Sample Demographics

Demographic Variables	Overall Sample	PWI	HBCU
Race [*n* (%)]			
White/Caucasian/European American	1322 (74.6)	1318 (83.0)	4 (2.1)
Black/African American	263 (14.8)	95 (6.0)	168 (89.4)
Native American	5 (0.3)	5 (0.3)	0 (0.0)
Hispanic/Latin American	16 (0.9)	12 (0.8)	4 (2.1)
Arab/West Asian	5 (0.3)	5 (0.3)	0 (0.0)
East Asian	28 (1.6)	28 (1.8)	0 (0.0)
South Asian	5 (0.3)	5 (0.3)	0 (0.0)
Southeast Asian	7 (0.4)	7 (0.4)	0 (0.0)
Mixed Race/Ethnicity	114 (6.4)	103 (6.5)	11 (5.9)
Prefer not to Answer	7 (0.4)	6 (0.4)	1 (0.5)
Sex [*n* (%)]			
Male	359 (20.2)	318 (20.1)	41 (21.6)
Female	1417 (79.8)	1268 (79.9)	149 (78.4)
Age in Years [*M* (*SD*)]			
18-20	1396 (78.5)	1245 (78.4)	151 (79.5)
21-23	340 (19.2)	309 (19.5)	31 (16.3)
24-26	30 (1.7)	23 (1.5)	7 (3.7)
27-29	10 (0.6)	9 (0.6)	1 (0.5)
Family Income [*n* (%)]			
Under $10,000	80 (4.5)	42 (2.7)	38 (20.1)
$10,000-$19,000	48 (2.7)	31 (2.0)	17 (9.0)
$20,000-$29,000	49 (2.8)	28 (1.8)	21 (11.1)
$30,000-$39,000	48 (2.7)	33 (2.1)	15 (7.9)
$40,000-$49,000	50 (2.8)	38 (2.4)	12 (6.3)
$50,000-$59,000	80 (4.5)	68 (4.3)	12 (6.3)

(continued)

Table 1 (*continued)*

Demographic Variables	Overall Sample	PWI	HBCU
$60,000-$69,000	90 (5.1)	82 (5.2)	8 (4.2)
$70,000-$79,000	107 (6.0)	103 (6.5)	4 (2.1)
$80,000-$89,000	141 (8.0)	132 (8.3)	9 (4.8)
$90,000 or more	710 (40.1)	703 (44.4)	7 (3.7)
Prefer not to answer	369 (20.8)	323 (20.4)	46 (24.3)
Education Level [*n* (%)]			
Freshman	667 (37.6)	600 (37.8)	67 (35.3)
Sophomore	540 (30.4)	457 (28.8)	83 (43.7)
Junior	302 (17.0)	271 (17.1)	31 (16.3)
Senior	259 (14.6)	250 (15.8)	9 (4.7)
Post-baccalaureate/Graduate Student	6 (0.3)	6 (0.4)	0 (0.0)
Other, Not Specified	1 (0.1)	1 (0.1)	0 (0.0)
Religion/Faith [*n* (%)]			
Buddhist	8 (0.5)	7 (0.4)	1 (0.5)
Christian	1574 (88.8)	1401 (88.3)	173 (92.6)
Hindu	1 (0.1)	1 (0.1)	0 (0.0)
Jewish	11 (0.6)	11 (0.7)	0 (0.0)
Muslim	6 (0.3)	6 (0.4)	0 (0.0)
Pagan	1 (0.1)	1 (0.1)	0 (0.0)
Unaffiliated (e.g., Atheist)	129 (7.2)	126 (7.9)	5 (2.7)
Other, Not Specified	3 (0.2)	1 (0.1)	1 (0.5)
Prefer not to Answer	39 (2.2)	32 (2.0)	7 (3.7)
Marital Status [*n* (%)]			
Single	1707 (96.1)	1526 (96.2)	181 (93.9)
Living together	49 (2.7)	43 (2.7)	6 (4.6)
Married	12 (0.7)	12 (0.8)	0 (0.0)
Divorced	3 (0.2)	2 (0.1)	1 (0.5)

(continued)

Table 1 (*continued)*

Demographic Variables	Overall Sample	PWI	HBCU
Separated	1 (0.1)	1 (0.1)	0 (0.0)
Other, Not Specified	3 (0.2)	2 (0.1)	1 (0.5)

Note. PWI = Predominantly White Institution. HBCU = Historically Black College/University.

Table 2

Demographic and Cultural Differences between Racial/Ethnic Minority Groups across Universities

	PWI			HBCU						
	n	*Mean*	*SD*	*n*	*Mean*	*SD*	*U*	*SE*	*t*	*df*	*p*
Family Income[a]	259	-252.0		183	178.4		15,812.0	1307.3			.00
Racial/Ethnic Identity: Exploration	246	3.2	1.2	143	3.4	1.2			-1.73	301.96	.071
Racial/Ethnic Identity: Commitment	246	3.4	1.2	143	3.7	1.2			-2.13	387.00	.020
Acculturation: Affinity Towards Group	246	2.4	0.7	143	2.9	0.7			-6.24	387.00	.000
Acculturation: Affinity Towards Mainstream	246	2.9	0.6	143	2.7	0.7			3.75	387.00	.000

Note. PWI = Predominantly White Institution. HBCU = Historically Black College/University.

[a]A mean rank score was used for the independent samples Mann-Whitney test for family income.

Table 3

Descriptives for Initial Problem Recognition, Help-Seeking Intentions, and Primary Source of Help across Psychological Disorder Vignettes for the Overall Sample

Variables and Categories	SAD [*n* (%)]	GAD [*n* (%)]	Major Depression [*n* (%)]	Schizophrenia [*n* (%)]	PTSD [*n* (%)]	ADHD [*n* (%)]
Problem Recognition						
General life stress/problems	40 (2.3)	359 (20.5)	142 (8.1)	13 (0.7)	35 (2.0)	89 (5.1)
Major Depression	12 (0.7)	20 (1.1)	1460 (83.2)	110 (7.4)	8 (0.5)	9 (0.5)
Schizophrenia	3 (0.2)	4 (0.2)	4 (0.2)	1242 (70.8)	6 (0.3)	5 (0.3)
SAD	1337 (76.3)	31 (1.7)	3 (0.2)	73 (4.2)	23 (1.3)	5 (0.3)
GAD	235 (13.4)	936 (53.3)	50 (2.9)	21 (1.2)	59 (3.3)	32 (1.8)
PTSD	2 (0.1)	7 (0.4)	7 (0.4)	14 (0.8)	1483 (84.6)	3 (0.2)
OCD	4 (0.2)	279 (15.9)	6 (0.3)	12 (0.7)	8 (0.5)	14 (0.8)
ADHD	8 (0.5)	19 (1.1)	24 (1.4)	11 (0.6)	11 (0.6)	1536 (87.9)
Panic Disorder	49 (2.8)	65 (3.7)	5 (0.3)	59 (3.4)	101 (5.8)	12 (0.7)
Personality Disorder	49 (2.8)	17 (1.1)	8 (0.5)	130 (7.4)	4 (0.2)	19 (1.1)
Medical Problem	4 (0.2)	10 (0.6)	41 (2.3)	37 (2.1)	10 (0.6)	16 (0.9)
Other	8 (0.5)	7 (0.4)	4 (0.2)	12 (0.7)	6 (0.3)	7 (0.4)
Help-Seeking Intentions						
Yes	976 (56.0)	981 (56.4)	1398 (80.2)	1630 (93.4)	1482 (84.8)	1288 (73.9)
No	537 (30.8)	521 (29.9)	198 (11.4)	39 (2.2)	135 (7.7)	265 (15.2)

(*continued*)

Table 3 (*continued*)

Variables and Categories	SAD [*n* (%)]	GAD [*n* (%)]	Major Depression [*n* (%)]	Schizophrenia [*n* (%)]	PTSD [*n* (%)]	ADHD [*n* (%)]
Undecided	231 (13.2)	238 (13.7)	148 (8.5)	76 (4.4)	130 (7.4)	191 (11.0)
Primary Source of Help						
Religious or spiritual professional or advisor	59 (3.4)	67 (3.9)	63 (3.6)	27 (1.5)	45 (2.6)	32 (1.8)
General practitioner or family doctor	146 (8.4)	290 (16.7)	314 (18.0)	168 (9.6)	110 (6.3)	913 (51.4)
Psychologist, counselor, or psychotherapist	980 (56.2)	800 (46.1)	832 (47.7)	633 (36.3)	1104 (63.2)	395 (22.2)
Psychiatrist	210 (12.0)	311 (17.9)	405 (23.2)	870 (49.8)	389 (22.3)	271 (15.3)
Social Worker	16 (0.9)	7 (0.4)	8 (0.5)	10 (0.6)	14 (0.8)	15 (0.8)
Herbalist, chiropractor, acupuncturist, or massage therapist	8 (0.5)	59 (3.4)	16 (0.9)	12 (0.7)	15 (0.9)	17 (1.0)
Social support	318 (18.2)	190 (11.0)	100 (5.7)	21 (1.2)	64 (3.7)	124 (7.1)
Other	7 (0.4)	10 (0.6)	7 (0.4)	5 (0.3)	7 (0.4)	8 (0.5)

Note. N = 1,734-1,748. SAD = Social Anxiety Disorder. GAD = Generalized Anxiety Disorder. PTSD = Post-Traumatic Stress Disorder. OCD = Obsessive Compulsive Disorder. ADHD = Attention-Deficit/Hyperactivity Disorder.

Table 4

Descriptives for Initial Problem Recognition, Help-Seeking Intentions, and Primary Source of Help across Psychological Disorder Vignettes by Racial/Ethnic Group

Variables and Categories	SAD [*n* (%)]		GAD [*n* (%)]		Maj. Depression [*n* (%)]		Schizophrenia [*n* (%)]		PTSD [*n* (%)]		ADHD [*n* (%)]	
	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.
Problem Recognition												
General life stress/ problems	27 (2.1)	13 (3.0)	248 (18.9)	106 (24.7)	92 (7.0)	50 (11.6)	5 (0.4)	8 (1.9)	22 (1.7)	13 (3.0)	54 (4.1)	34 (7.9)
Major Depression	7 (0.5)	5 (1.2)	9 (0.7)	11 (2.6)	1137 (86.3)	316 (73.7)	91 (6.9)	38 (8.9)	1 (0.1)	8 (1.9)	4 (0.3)	5 (1.2)
Schizophrenia	3 (0.2)	0 (0.0)	2 (0.1)	2 (0.5)	1 (0.1)	3 (0.7)	968 (73.6)	268 (62.4)	1 (0.1)	4 (0.9)	2 (0.2)	3 (0.7)
SAD	1025 (78.2)	305 (70.9)	22 (1.7)	9 (2.1)	3 (0.2)	0 (0.0)	49 (3.7)	254 (5.6)	7 (0.5)	16 (3.7)	2 (0.2)	3 (0.7)
GAD	178 (13.6)	55 (12.8)	776 (59.0)	157 (36.6)	35 (2.6)	15 (3.5)	11 (0.8)	9 (2.1)	36 (2.7)	23 (5.4)	18 (1.3)	14 (3.3)
PTSD	0 (0.0)	2 (0.5)	1 (0.1)	6 (1.4)	4 (0.3)	3 (0.7)	7 (0.5)	7 (1.6)	1179 (89.7)	297 (69.1)	0 (0.0)	2 (0.5)
OCD	3 (0.2)	1 (0.2)	183 (13.9)	94 (21.9)	2 (0.2)	3 (0.7)	5 (0.4)	7 (1.6)	4 (0.3)	4 (0.9)	10 (0.8)	4 (0.9)

(continued)

Table 4 *(continued)*

Variables and Categories	SAD [*n* (%)]		GAD [*n* (%)]		Maj. Depression [*n* (%)]		Schizophrenia [*n* (%)]		PTSD [*n* (%)]		ADHD [*n* (%)]	
	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.
ADHD	5	3	13	6	14	10	5	6	6	5	1119	331
	(0.4)	(0.7)	(1.0)	(1.4)	(1.1)	(2.3)	(0.4)	(1.4)	(0.5)	(1.2)	(91.4)	(77.5)
Panic Disorder	29	20	42	23	3	2	47	11	52	48	7	5
	(2.2)	(4.7)	(3.2)	(5.3)	(0.2)	(0.5)	(3.6)	(2.6)	(4.0)	(11.2)	(0.5)	(1.2)
Personality Disorder	26	23	11	7	0	8	101	29	2	1	8	11
	(2.0)	(5.3)	(0.8)	(1.6)	(0.0)	(1.9)	(7.7)	(6.7)	(0.1)	(0.2)	(0.6)	(2.6)
Medical Problem	3	1	4	6	22	19	20	17	3	7	5	11
	(0.2)	(0.2)	(0.3)	(1.4)	(1.7)	(4.4)	(1.5)	(4.0)	(0.2)	(1.6)	(0.4)	(2.6)
Other	5	2	4	2	4	0	6	5	2	4	4	4
	(0.4)	(0.5)	(0.3)	(0.5)	(0.3)	(0.0)	(0.5)	(1.2)	(0.1)	(0.9)	(0.2)	(0.9)
Help-Seeking Intentions												
Yes	769	204	754	223	1087	307	1238	384	1137	339	995	289
	(58.6)	(48.2)	(57.6)	(53.0)	(82.8)	(72.7)	(94.3)	(90.8)	(86.6)	(79.8)	(75.9)	(68.2)
No	376	157	380	137	125	71	22	17	91	43	193	69
	(28.7)	(37.1)	(29.0)	(32.5)	(9.5)	(16.8)	(1.7)	(4.0)	(6.9)	(10.1)	(14.7)	(16.3)
Undecided	167	62	176	61	101	44	53	22	85	43	123	66
	(12.7)	(14.7)	(13.4)	(14.5)	(7.7)	(10.4)	(4.0)	(5.2)	(6.5)	(10.1)	(9.4)	(15.6)

(continued)

Table 4 *(continued)*

Variables and Categories	SAD [*n* (%)]		GAD [*n* (%)]		Maj. Depression [*n* (%)]		Schizophrenia [*n* (%)]		PTSD [*n* (%)]		ADHD [*n* (%)]	
	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.
Primary Source of Help												
Religious or spiritual professional or advisor	39 (3.0)	20 (4.7)	50 (3.8)	17 (4.0)	39 (3.0)	23 (5.4)	9 (0.7)	18 (4.3)	31 (2.4)	14 (3.3)	13 (1.0)	18 (4.2)
General practitioner or family doctor	122 (9.3)	23 (5.4)	246 (18.9)	43 (10.2)	257 (19.6)	56 (13.1)	131 (10.0)	37 (8.8)	82 (6.2)	28 (6.6)	745 (57.0)	150 (35.4)
Psychologist, counselor, or psychotherapist	738 (56.3)	237 (55.8)	606 (46.4)	189 (45.0)	628 (47.9)	201 (47.2)	490 (37.3)	138 (32.7)	845 (64.4)	253 (59.4)	266 (20.3)	118 (27.8)
Psychiatrist	166 (12.7)	44 (10.4)	221 (16.9)	90 (21.4)	312 (23.8)	91 (21.4)	660 (50.2)	208 (49.3)	296 (22.5)	92 (21.6)	184 (14.1)	78 (18.4)
Social Worker	10 (0.8)	6 (1.4)	5 (0.4)	2 (0.5)	5 (0.4)	3 (0.7)	7 (0.5)	3 (0.7)	4 (0.3)	9 (2.1)	7 (0.5)	5 (1.2)
Herbalist, chiropractor, acupuncturist, or massage therapist	5 (0.4)	3 (0.7)	40 (3.1)	19 (4.5)	7 (0.5)	9 (2.1)	7 (0.5)	5 (1.2)	6 (0.5)	9 (2.1)	11 (0.8)	6 (1.4)
Social support	227 (17.3)	88 (20.7)	132 (10.1)	55 (13.1)	57 (4.4)	41 (9.6)	9 (0.7)	10 (2.4)	47 (3.6)	16 (3.8)	78 (6.0)	45 (10.6)

(continued)

Table 4 (*continued*)

Variables and Categories	SAD [*n* (%)]		GAD [*n* (%)]		Maj. Depression [*n* (%)]		Schizophrenia [*n* (%)]		PTSD [*n* (%)]		ADHD [*n* (%)]	
	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.
Other	3 (0.2)	4 (0.9)	5 (0.4)	5 (1.2)	5 (0.4)	2 (0.5)	2 (0.2)	3 (0.7)	2 (0.2)	5 (1.2)	4 (0.3)	4 (0.9)

Note. Racial/ethnic majority n = 1,305-1,315. Racial/ethnic minority n = 420-426. SAD = Social Anxiety Disorder. GAD = Generalized Anxiety Disorder. Maj. Depression = Major Depression. PTSD = Post-Traumatic Stress Disorder. OCD = Obsessive Compulsive Disorder. ADHD = Attention-Deficit/Hyperactivity Disorder.

Table 5

Binomial and Multinomial Logistic Regression Models Depicting the Relationship between Problem Recognition, Race/Ethnicity, and Professional Help-Seeking Intentions across Psychological Disorders

Psychological Disorder	Professional Help-Seeking Intentions	
	Binomial Exponentiated B (95% CI) [Yes versus No/Undecided]	Multinomial Exponentiated B (95% CI) [Yes versus No, Yes versus Undecided]
SAD - Problem Recognition	1.165 (0.932, 1.457)	1.133 (0.809, 1.586)
		0.960 (0.670, 1.375)
GAD - Problem Recognition	2.633 (2.167, 3.201)**	1.634 (1.228, 2.176)**
		0.493 (0.361, 0.674)**
Major Depression - Problem Recognition	3.629 (2.757, 4.776)**	2.303 (1.531, 3.463)**
		0.470 (0.294, 0.753)*
Schizophrenia - Problem Recognition	2.323 (1.576, 3.426)**	1.678 (1.032, 2.728)*
		0.398 (0.179, 0.886)*
PTSD - Problem Recognition	4.170 (3.090, 5.628)**	2.998 (1.976, 4.549)**
		0.538 (0.321, 0.902)*
ADHD - Problem Recognition	4.217 (3.116, 5.707)**	2.913 (1.898, 4.471)**
		0.553 (0.350, 0.873)**

Note. N = 1,739-1,742. SAD = Social Anxiety Disorder. GAD = Generalized Anxiety Disorder. PTSD = Post-Traumatic Stress Disorder. ADHD = Attention-Deficit/Hyperactivity Disorder. The problem recognition variable is coded as 0 = "correct recognition" and 1 = "incorrect recognition." "Correct recognition" is the reference category for the problem recognition variable.

*$p \leq .05$, **$p \leq .01$.

Table 6

Frequency of Category Endorsements within the Problem Recognition and Professional Help-Seeking Intention Variables

Variables and Categories	SAD	GAD	Major Depression	Schizophrenia	PTSD	ADHD
Problem Recognition Options						
Correct	1355	943	1475	1256	1496	1560
Incorrect	421	833	301	520	280	216
χ^2 (*df*)	480.7 - 495.4**	6.1 - 8.4*	770.8 - 781.3**	300.6 - 312.3**	827.1-846.8**	1008.2-1029.2**
Help-Seeking Intentions						
Yes	988	1000	1419	1657	1501	1307
No/Undecided	788	776	357	119	275	469
χ^2 (*df*)	21.6 - 23.0**	27.3 -29.8**	627.9 - 639.8**	1314.6 -1342.3**	840.8 -851.9**	391.6 - 399.2**

Note. N = 1,740-1,753. SAD = Social Anxiety Disorder. GAD = Generalized Anxiety Disorder. PTSD = Post-Traumatic Stress Disorder. ADHD = Attention-Deficit/Hyperactivity Disorder. A range of χ^2 significance test results were reported for each analysis because a single pooled result is not produced for this statistic by SPSS for imputed data. Degrees of freedom were equal to one for all χ^2 significance tests. Adjusted standardized residuals are not reported because they are not produced by SPSS for imputed data.

*$p \leq .05$.**$p \leq .01$.

Table 7

Logistic Regression Models Predicting Professional Help-Seeking Intentions for Psychological Disorders from Problem Recognition and Race/Ethnicity

Psychological Disorder	*B (S.E.)*	*p*	Exponentiated *B* (95% CI)
Social Anxiety Disorder			
Prior Help-Seeking from a Professional	0.716 (.121)	.000	2.046 (1.614, 2.595)
Problem Recognition	0.106 (.137)	.440	1.112 (0.850, 1.454)
Race/Ethnicity	0.350 (.134)	.009	1.419 (1.091, 1.844)
Problem Recognition x Race/Ethnicity	0.068 (.268)	.800	1.071 (0.631, 1.816)
Generalized Anxiety Disorder			
Prior Help-Seeking from a Professional	0.696 (.125)	.000	2.006 (1.570, 2.563)
Problem Recognition	0.984 (.117)	.000	2.676 (2.123, 3.368)
Race/Ethnicity	0.104 (.186)	.573	1.110 (0.772, 1.596)
Problem Recognition x Race/Ethnicity	-0.318 (.241)	.187	0.728 (0.454, 1.167)
Major Depression			
Prior Help-Seeking from a Professional	0.720 (.172)	.000	2.055 (1.466, 2.881)
Problem Recognition	1.334 (.177)	.000	3.798 (2.682, 5.377)
Race/Ethnicity	0.499 (.166)	.003	1.647 (1.189, 2.281)
Problem Recognition x Race/Ethnicity	-0.424 (.294)	.149	0.654 (0.368, 1.164)
Schizophrenia			
Prior Help-Seeking from a Professional	-0.014 (.239)	.952	0.986 (0.617, 1.574)

(*continued*)

Table 7 *(continued)*

Psychological Disorder	*B (S.E.)*	*p*	Exponentiated *B* (95% CI)
Problem Recognition	0.466 (.254)	.067	1.593 (0.968, 2.622)
Race/Ethnicity	-0.112 (.331)	.734	0.894 (0.467, 1.711)
Problem Recognition x Race/Ethnicity	1.009 (.450)	.025	2.742 (1.134, 6.631)
Post-Traumatic Stress Disorder			
Prior Help-Seeking from a Professional	0.341 (.185)	.065	1.407 (0.979, 2.021)
Problem Recognition	1.381 (.204)	.000	3.981 (2.671, 5.933)
Race/Ethnicity	0.169 (.202)	.401	1.185 (0.797, 1.760)
Problem Recognition x Race/Ethnicity	-0.008 (.325)	.980	0.992 (0.524, 1.876)
Attention-Deficit/Hyperactivity Disorder			
Prior Help-Seeking from a Professional	0.472 (.144)	.001	1.603 (1.210, 2.124)
Problem Recognition	1.445 (.202)	.000	4.242 (2.853, 6.309)
Race/Ethnicity	0.192 (.145)	.185	1.212 (0.912, 1.612)
Problem Recognition x Race/Ethnicity	-0.169 (.327)	.605	0.844 (0.444, 1.606)

Note. $N = 1{,}691$-$1{,}697$. The prior help-seeking from a professional variable (included as a control) is coded as 0 = "yes" and 1 = "no." "Yes" is the reference category for the prior help-seeking from a professional variable. The problem recognition variable is coded as 0 = "correct recognition" and 1 = "incorrect recognition." "Correct recognition" is the reference category for the problem recognition variable. The race/ethnicity variable is coded as 0 = "racial/ethnic majority" and 1 = "racial/ethnic minority." "Racial/ethnic majority" is the reference category for the race/ethnicity variable. The dependent variable (professional help-seeking intentions) is coded as 0 = "yes" and 1 = "no/undecided." The Wald χ^2 statistic is not reported because it is not produced by SPSS for pooled imputed data.

Table 8

Follow-Up PROCESS Analyses Probing the Interaction between Problem Recognition and Race/Ethnicity when Predicting Professional Help-Seeking Intentions

Psychological Disorder	*B (S.E.)*	*Z*	*p*	CI
Social Anxiety Disorder				
Racial/Ethnic Majority	0.103 (.138)	0.744	.457	-0.168, 0.374
Racial/Ethnic Minority	0.109 (.227)	0.479	.632	-0.337, 0.555
Generalized Anxiety Disorder				
Racial/Ethnic Majority	0.987 (.119)	8.332	.000	0.755, 1.220
Racial/Ethnic Minority	0.657 (.216)	3.036	.002	0.233, 1.080
Major Depression				
Racial/Ethnic Majority	1.328 (.180)	7.373	.000	0.975, 1.681
Racial/Ethnic Minority	0.895 (.245)	3.652	.000	0.415, 1.375
Schizophrenia				
Racial/Ethnic Majority	0.446 (.258)	1.731	.084	-0.059, 0.951
Racial/Ethnic Minority	1.482 (.380)	3.905	.001	0.738, 2.226
Post-Traumatic Stress Disorder				
Racial/Ethnic Majority	1.368 (.208)	6.565	.000	0.960, 1.777
Racial/Ethnic Minority	1.342 (.261)	5.132	.000	0.829, 1.854
Attention-Deficit/Hyperactivity Disorder				
Racial/Ethnic Majority	1.416 (.206)	6.889	.000	1.013, 1.819
Racial/Ethnic Minority	1.290 (.259)	4.991	.000	0.784, 1.797

Table 9

Category Endorsements within the Primary Source of Help Variable across Psychological Disorders by the Overall Sample

Primary Source of Help	SAD [*n* (%)]		GAD [*n* (%)]		Major Depression [*n* (%)]	
	Yes	No/Undecided	Yes	No/Undecided	Yes	No/Undecided
Complementary/alternative health provider or spiritual lifestyle professional	30 (3.0)	41 (5.2)	38 (3.8)	94 (12.1)	47 (3.3)	37 (10.4)
General practitioner or family doctor	99 (10.0)	51 (6.5)	193 (19.3)	104 (13.4)	251 (17.7)	69 (19.3)
Non-medical mental health professional	638 (64.6)	376 (47.7)	519 (51.9)	308 (39.7)	723 (51.0)	133 (37.3)
Psychiatrist	142 (14.4)	74 (9.4)	214 (21.4)	105 (13.5)	352 (24.8)	58 (16.2)
Social support or self-help strategies	79 (8.0)	246 (31.2)	36 (3.6)	165 (21.3)	46 (3.2)	60 (16.8)
χ^2 (*df*)	170.316 – 174.218 (4), *ps* < .001		194.185 – 199.250 (4), *ps* < .001		128.300 - 145.267 (4), *ps* < .001	
Phi and Cramer's V	0.310 - 0.314, *ps* < .001		0.331 - 0.335, *ps* < .001		0.269 - 0.286, *ps* < .001	

(continued)

Table 9 *(continued)*

Primary Source of Help	Schizophrenia [*n* (%)]		PTSD [*n* (%)]		ADHD [*n* (%)]	
	Yes	No/Undecided	Yes	No/Undecided	Yes	No/Undecided
Complementary/alternative health provider or spiritual lifestyle professional	34 (2.1)	12 (10.1)	40 (2.7)	24 (8.8)	20 (1.5)	33 (7.0)
General practitioner or family doctor	158 (9.5)	11 (9.2)	85 (5.7)	30 (10.9)	725 (55.5)	185 (39.5)
Non-medical mental health professional	612 (36.9)	41 (34.5)	995 (66.2)	140 (51.1)	302 (23.1)	107 (22.8)
Psychiatrist	838 (50.6)	43 (36.1)	347 (23.1)	48 (17.5)	213 (16.3)	58 (12.4)
Social support or self-help strategies	15 (0.9)	12 (10.1)	35 (2.3)	32 (11.7)	47 (3.6)	86 (18.3)
χ^2 (*df*)	85.113 – 105.695 (4), *ps* < .001		93.055 – 113.116 (4), *ps* < .001		146.888 – 162.805 (4), *ps* < .001	
Phi and Cramer's V	0.219 – 0.241, *ps* < .001		0.229 – 0.252, *ps* < .001		0.288 - 0.303, *ps* < .001	

Note. N = 1,726-1,742. SAD = Social Anxiety Disorder. GAD = Generalized Anxiety Disorder. PTSD = Post-Traumatic Stress Disorder. ADHD = Attention-Deficit/Hyperactivity Disorder. Complementary/alternative health provider or spiritual lifestyle professional = "herbalist, chiropractor, acupuncturist, or massage therapist" or "religious or spiritual professional or advisor (e.g., minister, shaman, priest, rabbi). Non-medical mental health professional = "psychologist, counselor, or psychotherapist" or "social worker." A range of χ^2 significance test and effect size results were reported for each analysis because a single pooled result is not produced for these statistics by SPSS for imputed data. Each column presenting the frequency of endorsements for each primary source of help category based on overall professional help-seeking intentions for each psychological disorder totals 100%.

Table 10

Frequency of Category Endorsements within the Primary Source of Help Variable across Psychological Disorders by Race/Ethnicity

Primary Source of Help	Social Anxiety Disorder [*n* (%)]				Generalized Anxiety Disorder [*n* (%)]			
	Yes		No/Undecided		Yes		No/Undecided	
	Majority	Minority	Majority	Minority	Majority	Minority	Majority	Minority
Complementary/ alternative health provider or spiritual lifestyle professional	18 (2.3)	12 (5.6)	26 (4.7)	15 (6.4)	22 (2.9)	17 (7.2)	71 (12.6)	23 (10.9)
General practitioner or family doctor	86 (11.1)	13 (6.1)	38 (6.9)	13 (5.5)	173 (22.7)	20 (8.4)	78 (13.8)	27 (12.8)
Non-medical mental health professional	493 (63.6)	145 (68.1)	266 (48.2)	110 (46.6)	395 (51.8)	124 (52.3)	230 (40.7)	78 (37.0)
Psychiatrist	114 (14.7)	28 (13.1)	54 (9.8)	20 (8.5)	150 (19.7)	63 (26.6)	74 (13.1)	31 (14.7)
Social support or self-help strategies	64 (8.3)	15 (7.1)	168 (30.4)	78 (33.0)	23 (3.0)	13 (5.5)	112 (19.8)	52 (24.6)
χ^2 (*df*)	9.089 – 14.922 (4), *ps* = .005 - .059		1.512 - 3.257 (4), *ps* = .516 - .824		30.411 - 38.525 (4), *ps* < .001		2.562 – 3.947 (4), *ps* = .413 - .634	
Phi and Cramer's V	0.096 – 0.123, *ps* = .016 – .048		0.044 – 0.064, *ps* = .516 - .824		0.174 – 0.195, *ps* < .001		0.057 - 0.071, *ps* = .443 - .634	

(continued)

Table 10 *(continued)*

Primary Source of Help	Major Depression [*n* (%)]				Schizophrenia [*n* (%)]			
	Yes		No/Undecided		Yes		No/Undecided	
	Majority	Minority	Majority	Minority	Majority	Minority	Majority	Minority
Complementary/ alternative health provider or spiritual lifestyle professional	28 (2.6)	19 (5.9)	20 (8.6)	17 (13.6)	14 (1.1)	21 (5.2)	4 (5.2)	8 (19.1)
General practitioner or family doctor	209 (19.0)	42 (13.0)	53 (22.9)	15 (12.0)	122 (9.8)	36 (8.8)	9 (11.7)	2 (4.8)
Non-medical mental health professional	557 (50.8)	166 (51.4)	85 (36.6)	48 (38.4)	475 (38.0)	136 (33.5)	28 (36.4)	13 (31.1)
Psychiatrist	274 (25.0)	78 (24.1)	42 (18.1)	17 (13.6)	633 (50.6)	205 (50.5)	31 (40.2)	12 (28.6)
Social support or self-help strategies	28 (2.6)	18 (5.6)	32 (13.8)	28 (22.4)	7 (0.5)	8 (2.0)	5 (6.5)	7 (16.7)
χ^2 (*df*)	19.819 – 23.317 (4), *ps* < .001 - .001		7.744 – 14.488 (4), *ps* = .006 - .094		21.745 – 43.729 (4), *ps* < .001		8.929 – 15.822 (4), *ps* = .003 - .063	
Phi and Cramer's V	0.118 - 0.128, *ps* < .001		0.147 - 0.201, *ps* = .001 - .101		0.115 – 0.162, *ps* < .001		0.275 – 0.369, *ps* = .003 - .063	

(continued)

Table 10 (*continued*)

Primary Source of Help	Post-Traumatic Stress Disorder [*n* (%)]				Attention/Deficit Hyperactivity Disorder [*n* (%)]			
	Yes		No/Undecided		Yes		No/Undecided	
	Majority	Minority	Majority	Minority	Majority	Minority	Majority	Minority
Complementary/ alternative health provider or spiritual lifestyle professional	25 (2.2)	15 (4.2)	13 (7.3)	11 (11.6)	9 (0.9)	11 (3.6)	16 (5.0)	17 (11.6)
General practitioner or family doctor	63 (5.5)	21 (5.9)	19 (10.6)	10 (10.5)	603 (60.0)	123 (40.7)	152 (47.2)	33 (22.4)
Non-medical mental health professional	769 (67.0)	227 (64.2)	91 (50.8)	49 (51.6)	208 (20.7)	94 (31.1)	71 (22.0)	36 (24.5)
Psychiatrist	267 (23.2)	80 (22.6)	32 (17.9)	17 (17.9)	152 (15.1)	61 (20.2)	35 (10.9)	23 (15.6)
Social support or self-help strategies	24 (2.1)	11 (3.1)	24 (13.4)	8 (8.4)	33 (3.3)	13 (4.3)	48 (14.9)	38 (25.9)
χ^2 (*df*)	4.407 – 7.402 (4), *p*s = .116 - .354		0.730 – 4.965 (4), *p*s = .270 – .948		37.020 – 48.106 (4), *p*s < .001		29.283 – 31.251 (4), *p*s < .001	
Phi and Cramer's V	0.054 – .070, *p*s = .116 - .354		0.078 – 0.134, *p*s = .291 - .798		0.179 – 0.192, *p*s < .001		0.250 - .259, *p*s < .001	

Note. N = 1,717-1,733. Complementary/alternative health provider or spiritual lifestyle professional = "herbalist, chiropractor, acupuncturist, or massage therapist" or "religious or spiritual professional or advisor (e.g., minister, shaman, priest, rabbi). Non-

medical mental health professional = "psychologist, counselor, or psychotherapist" or "social worker." A range of χ^2 significance test and effect size results were reported for each analysis because a single pooled result is not produced for these statistics by SPSS for imputed data. Each column presenting the frequency of endorsements for each primary source of help category based on overall professional help-seeking intentions and racial/ethnic group for each psychological disorder totals 100%.

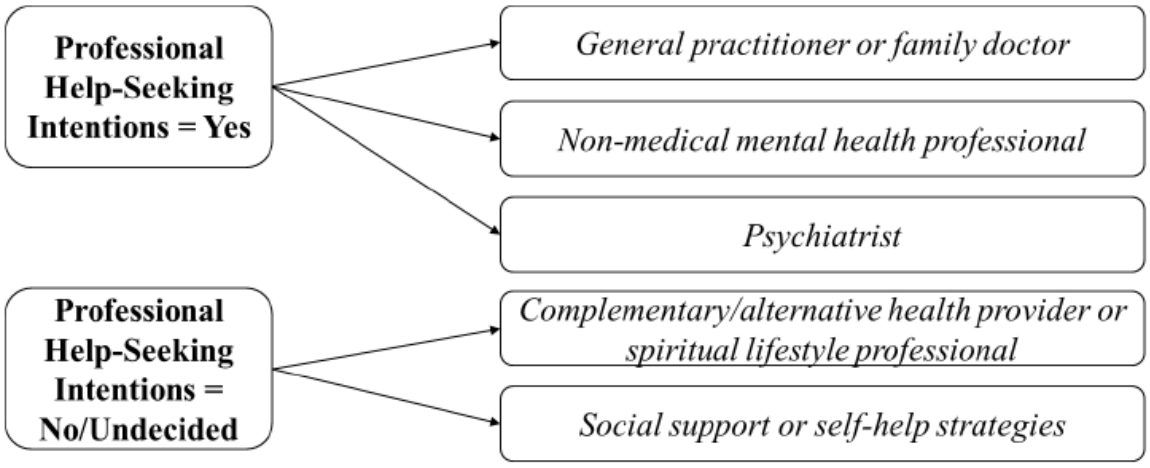

Figure 1. Depiction of the expected relationships between professional help-seeking intentions and primary source of help across psychological disorders (as presented in hypothesis 3a).

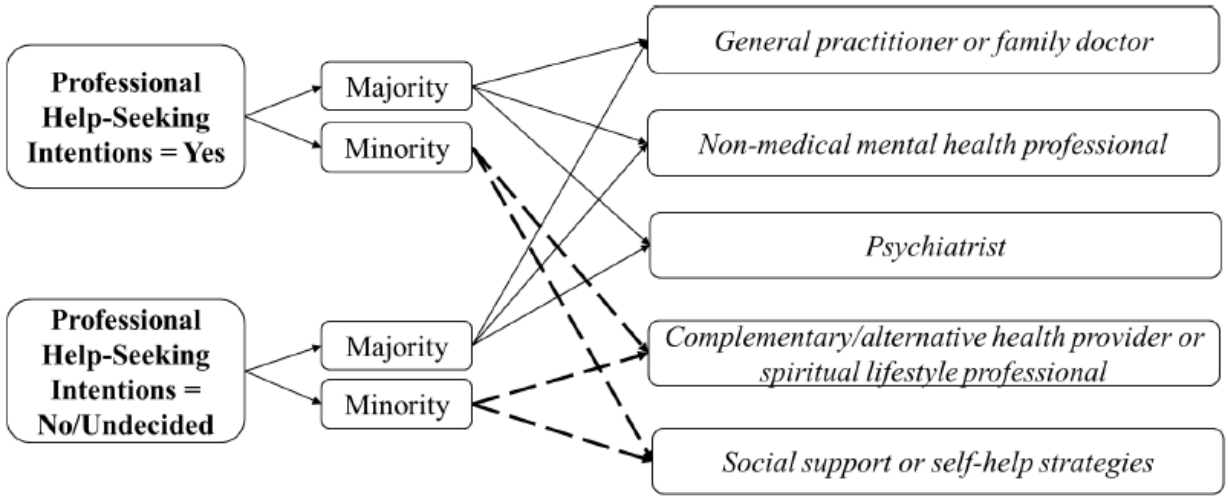

Figure 2. Depiction of the expected relationships between professional help-seeking intentions and primary source of help across psychological disorders by overall racial/ethnic group (as presented in hypothesis 3b).

Appendix A

Vignettes

Instructions: Please read the description below that describes problems that an individual named [insert name of person in vignette] is experiencing.

Social Phobia/Social Anxiety Disorder (SAD)

John (Jada) is a 21-year-old living at home with his parents and has made only one friend since starting college. He would really like to make more friends, but he is scared that he will do or say something embarrassing when he's around others. Although John's work is OK he rarely says a word in class and becomes incredibly nervous, trembles, blushes and seems like he might vomit if he has to answer a question or speak in front of the class. At home, John is quite talkative with his family, but becomes quiet if anyone he doesn't know well comes over. He never answers the phone and he refuses to attend social gatherings. He knows his fears are unreasonable but he cannot seem to control them and this really upsets him.

Generalized Anxiety Disorder (GAD)

Susan (Sam) is 25 years old and she is often worried. She worries a great deal about her job performance, her children's well-being, and her relationships with men. In addition, she worries about a variety of minor matters such as getting to appointments on time, keeping her house clean, and maintaining regular contact with family and friends. It takes Susan longer than necessary to accomplish tasks because she worries about making decisions. Susan has trouble sleeping at night and finds that she is exhausted during the day and irritable with her family.

Asthma

Tim (Tasha) is a 21-year-old who has a history of breathing problems. He often has bouts of coughing at night and doesn't sleep very well. His parents, professors, and coaches have noticed that these problems seem to be particularly bad during challenging situations, in the spring and fall, and during strenuous sports activities. Tim used to enjoy playing soccer but recently gave it up because of these problems. He feels badly about his breathing problems, which seem to be getting worse, and wishes he could "be just like others his age." He is involved in several hobbies, including sports and music, and shares these activities with several friends.

Major Depression

Mia (Matt) is 25 years old. She has been feeling unusually sad and miserable for the last few weeks. Even though she is tired all the time, she has trouble sleeping nearly every night. Mia does not feel like eating and has lost weight. She cannot keep her mind on her work and puts off making decisions. Even day-to-day tasks seem too much for her. This has come to the attention of her boss, who is concerned about Mia's lowered productivity.

Schizophrenia

Alex (Alicia) is a 21-year-old who lives at home with his parents. He has been attending his course irregularly over the past year and has recently stopped attending altogether. Over the past

six months he has stopped seeing his friends and begun locking himself in his bedroom and refusing to eat with the family or to have a bath. His parents also hear him walking about in his bedroom at night while they are in bed. Even though they know he is alone, they have heard him shouting and arguing as if someone else is there. When they try to encourage him to do more things, he whispers that he won't leave home because he is being spied upon by the neighbor. They realize he is not taking drugs because he never sees anyone or goes anywhere.

Post-Traumatic Stress Disorder (PTSD)

A 25-year-old woman named Lacy (Lance) owns a newsagent shop with her husband but has found work difficult since a man armed with a knife attempted to rob the cash register while she was working four months ago. She sees the intruder's face clearly in her nightmares. Since the event, Lacy is now experiencing disturbed sleep and vivid nightmares. She has been increasingly irritable, jumpy, on edge and tends to avoid going out, even to see friends. Prior to the attempted robbery, she had been highly sociable.

General Life Stress/ Problems

Twenty-one-year-old Mike (Mary) has several friends from his university neighborhood that he gets together with one or two times per week, and is involved in several hobbies, including sports and music. He usually gets along fairly well with his peers, but occasionally has some problems with needing to be in control in social situations. Mike is of average intelligence and does well academically, although he tends to be somewhat reluctant to participate in class unless called upon by the professor. Mike's friends and family note that he is sometimes moody, but this comes and goes.

Attention-Deficit/Hyperactivity Disorder (ADHD)

Karen (Kyle) is a 25-year-old business woman who is having trouble keeping up with her job assignments and responsibilities. She often day dreams, experiences multiple thoughts at the same time, is unable to complete tasks on time, frequently forgets to do things at work, and is unable to remain still during solitary activities (e.g., when watching a movie and reading a book). Her friends describe her as excessively talkative, disorganized, impatient, and careless. From childhood, her teachers noted that she was inattentive and messy and often did not turn in homework. She was able to do reasonably well in school despite her symptoms, but more recently, her job demands have overwhelmed her.

Appendix B

Questions and response options for the "problem recognition", "help-seeking intention", and "primary source of help" variables that follow each vignette are presented below. Questions and response options for the "race/ethnicity," "family income," "racial/ethnic identity," and "acculturation" variables are also presented below.

Problem Recognition

What do you think is wrong with [insert name of person in vignette]? Please select the item that you think best describes [insert "his" or "her"] problems.

- o Attention-Deficit/Hyperactivity disorder (ADHD)
- o General life stress/problems
- o Generalized Anxiety Disorder
- o Major Depression
- o Medical Problem
- o Obsessive compulsive disorder (OCD)
- o Panic Disorder
- o Personality Disorder
- o Post-traumatic stress disorder (PTSD)
- o Schizophrenia
- o Social Phobia/Social Anxiety Disorder
- o Other (Please specify in the box below):

Help-Seeking Intention

If you were faced with the same problems, would you seek professional help?

- o Yes
- o No
- o Undecided

Primary Source of Help

If you were to seek help for these problems, what is the first source of help that you would consider?

- o General practitioner or family doctor
- o Herbalist, Chiropractor, Acupuncturist, or Massage Therapist
- o Psychiatrist
- o Psychologist, counsellor, or psychotherapist
- o Religious or spiritual professional or advisor (e.g., minister, shaman, priest, rabbi)
- o Social support (e.g., family and/friends)
- o Social Worker
- o Other (Please specify in the box below):

Race/Ethnicity

What is your racial/ethnic background? (PLEASE SELECT ALL THAT APPLY)

- White/Caucasian/European American
- Black/African American
- Native American
- Hispanic/Latin American
- Arab/West Asian
- South Asian
- Southeast Asian
- East Asian
- Other (Please specify): _____
- Prefer not to answer

Family Income

Estimate of family's total household income

- Under $10,000
- $10,000 - $19, 999
- $20,000 - $29, 999
- $30,000 - $39, 999
- $40,000 - $49, 999
- $50,000 - $59, 999
- $60,000 - $69, 999
- $70,000 - $79, 999
- $80,000 - $89, 999
- $90,000 or more
- Prefer not to answer

Racial/Ethnic Identity

Use the numbers below to indicate how much you agree or disagree with each statement:

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

1. I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.
2. I have a strong sense of belonging to my own ethnic group.
3. I understand pretty well what my ethnic group membership means to me.
4. I have often done things that will help me understand my ethnic background better.
5. I have often talked to other people in order to learn more about my ethnic group.
6. I feel a strong attachment towards my own ethnic group.

Acculturation

The following statements describe behaviors that you may engage in based on the racial/ ethnic group(s) that you are a part of.

Please indicate how much you disagree or agree with each of the following statements using the following scale:

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

1. I frequently listen to music and radio stations led by others from my racial/ethnic group.

2. The way I think or see things is like others from my racial/ethnic group.

3. Most people in my neighborhood are from my racial/ethnic group.

4. The social organizations (e.g., church, clubs, sports teams) that I am a part of include mostly people from my racial/ethnic group.

5. Socially, I feel more at ease with people from my racial/ethnic group.

6. The parties, celebrations, and concerts that I usually attend mostly feature or include people from my racial/ethnic group.

7. Most of my friends are from my racial/ethnic group.

8. The food I eat is from my racial/ethnic group.

9. The way I talk (e.g., my accent, the slang or terms I use) is like others from my racial/ethnic group.

10. When I need help, I rely on my relatives or people from my racial/ethnic group.

11. Most of the people I go to school or work with are from my racial/ethnic group.

12. The values and traditions I follow are from my racial/ethnic group.

13. My role models are from my racial/ethnic group.

14. I watch television shows, plays, and/movies or read books that include mostly people from my racial/ethnic group.

The following statements describe behaviors that you may engage in based on mainstream U.S. culture.

Please indicate how much you disagree or agree with each of the following statements using the following scale:

1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Disagree

1. I frequently listen to music and radio stations led by those from mainstream U.S. culture.

2. The way I think or see things is like those from mainstream U.S. culture.

3. Most people in my neighborhood are from mainstream U.S. culture.

4. The social organizations (e.g., church, clubs, sports teams) that I am a part of include mostly people from mainstream U.S. culture.

5. Socially, I feel more at ease with people from mainstream U.S. culture.

6. The parties, celebrations, and concerts that I usually attend mostly feature or include people from mainstream U.S. culture.

7. Most of my friends are people from mainstream U.S. culture.

8. The food I eat is from mainstream U.S. culture.

9. The way I talk (e.g., my accent, the slang or terms I use) is like others from mainstream U.S. culture.

10. When I need help, I rely on people from mainstream U.S. culture.

11. Most of the people I go to school or work with are from mainstream U.S. culture.

12. The values and traditions I follow are from mainstream U.S. culture.

13. My role models are from mainstream U.S. culture.

14. I watch television shows, plays, and/movies or read books that include mostly people from mainstream U.S. culture.

Appendix C

Data Screening

Screening for target age range. Respondents' reported age was examined to identify participants 18-29 years old. From the initial sample of 2,019 respondents, 84 (4.16%) individuals did not specify their age, 2 (0.10%) were younger than 18 years old, and 17 (0.84%) were older than 29 years old. These 103 respondents (62 [*n* = 42 from the PWI and *n* = 18 from the HBCU] of whom spent less than 10 minutes on the survey) were dropped from the sample, leaving a remaining 1,916 respondents who fell within the target age range.

Screening for Careless Responding. The overall survey completion time was examined for each participant. Descriptive statistics revealed that 140 participants (7.31%; *n* = 92 [5.48%] from the PWI; *n* = 48 [20.17%] from the HBCU) spent less than 10 minutes on the survey, which was well below the previously tested and approximated threshold of at least 15 minutes needed to complete the survey. Most of the participants who had response times of less than 10 minutes had long strings of missing data or repeated responses (e.g., strings of "1"). Hence, these participants were dropped from the sample, resulting in a remaining sample size of 1,776 respondents. A visual inspection of the survey responses provided by participants who had completion times between 10 - 15 minutes indicated that most of them responded to the majority of items, including open-ended questions that required a written response. These participants (*n* = 270, 13.3%) were retained for subsequent screening procedures.

For the Mahalanobis distance multivariate outlier detection method, all four subscales (two from the racial/ethnic identity measure and two from the acculturation measure) were initially used. Seven of the multivariate outlier values were significant ($p < .001$), suggesting that seven participants engaged in careless responding. However, inspection of these responses did

not reveal a clear random or careless response pattern. These participants responded to every item in the survey (including open-ended questions that required a written response), completed the survey within a reasonable amount of time (12.48 – 29.52 minutes), and did not appear to have odd response patterns (e.g., long strings of the same response to different items). It is possible that the affinity towards mainstream U.S. culture subscale (the second subscale of the acculturation measure) tapped into different behaviors than those captured by the racial/ethnic identity subscales and the affinity towards one's own racial/ethnic group culture subscale (the first subscale of the acculturation measure). The affinity towards mainstream U.S. culture subscale measures behaviors that one engages in based on the dominant culture whereas the other three subscales measure behaviors that are focused on one's own racial/ethnic group. Thus, a follow-up analysis using only the three more conceptually similar subscales (both racial/ethnic identity subscales and only the affinity towards one's own racial/ethnic group culture) was conducted. The follow-up analyses with these three subscales resulted in no significant multivariate outliers across participants, indicating that the series of responses for these items seemed improbable based on the Mahalanobis distance measure.

Attempts to compute the Even-Odd Consistency measure in order to find a within-person correlation across the two subscales of the acculturation measure were not successful. Previous research indicates that the Even-Odd Consistency measure functions best when used with measures comprised of a large number of unidimensional and long scales (e.g., 5 scales comprised of 20 items) that have item scores with good to high internal consistency (DeSimone, Harms, & DeSimone, 2014; Meade & Craig, 2012). Since the acculturation measure used in the current study only contains two subscales, it was not possible to use the within-person correlation equation to calculate an individual reliability coefficient that was interpretable since

three subscales are required for this analysis. The only other measure from the larger study that included at least 6 items per scale (allowing for 3-items per Even-Odd Consistency measure after dropping the seventh item on each scale), was the DASS-21). Results from this reliability analysis indicated that 41% of the sample had a within-person correlation below .30 on the constructed Even-Odd Scale. Previous research indicates that 10%-12% of undergraduate students engage in careless responding (Kurtz & Parish, 2001; Meade & Craig, 2012), so the estimation of 41% suggests an over-identification of participants who could have engaged in random responding. Despite the DASS-21 item scores demonstrating good to high internal consistency for both the Even Scale and the Odd Scale (αs > .86), individual reliability was poor and may have been due to the small number and short length of the scales (three scales comprised of six usable items).

Given the inconclusive result of the Even-Odd Consistency measure using the DASS-21, the alternative procedure of examining within-person variance responses across scale items for the acculturation measure was used. An inspection of the frequency distributions revealed that approximately 23 participants (1.3% of the remaining sample) had a within person variance greater than one for the items comprising both acculturation subscales. As mentioned by Meade and Craig (2012), a limitation of using the consistency indices (particularly the procedure of examining within-person variance responses across scale items) is that probability values cannot be computed. Given the subjective nature of this approach, the within-person variance of the 23 participants was examined in combination with an examination of their Mahalanobis distance score to integrate an empirical basis for dropping cases. However, none of these participants had statistically significant Mahalanobis distance scores and their overall response patterns did not suggest careless responding (e.g., strings of missing data or repeated responses on different

items). Thus, the 23 participants were retained in the sample. Overall, the data screening procedures (specifically, survey completion time) resulted in a sample size reduction of 140 respondents, resulting in a final sample size of 1,776 participants (88% of the original sample).

Screening for missing data. Several participants did not respond to all of the variables included in the current study (see Table C1). The results from the tests of missingness indicated that all of the variables (excepting family income) were missing at random (i.e., the missing values were related to observed values or information from other variables). As shown in Table C1, academic institution was associated with missingness (0 = "no missing data," 1 = "missing data") for 27 of the 28 variables. Missing data for racial/ethnic background also varied significantly by two other auxiliary variables, sex (0 = "male," 1 = "female;" χ^2 [1, N = 1,776] = 4.37, p = .037) and citizenship status (0 = "yes," 1 = "no;" χ^2 [1, N = 1,774] = 4.24, p = .039). Additionally, problem recognition for SAD significantly varied by citizenship status (χ^2 [1, N = 1,774] = 5.24, p = .022). Sex and citizenship status were not significantly associated with missingness on any of the other variables.

Family income, which had a "prefer not to answer" option (see Table 1), was the only variable assumed to have data missing not at random (i.e., the missing data mechanism was related to the missing value). As shown through the tests of missingness, none of the three auxiliary variables (i.e., academic institution, sex, and citizenship status) significantly predicted missing data for family income. While it could be that the missing data for family could have been missing completely at random (i.e., the likelihood of missing data was not related to the observed data or the missing data), previous research suggests that missing data on variables assessing income level are likely to be missing not at random (Acock, 2005; Dong & Peng, 2013). However, family income was not a key variable of interest in the current study. It was

Table C1

Frequency of Missing Data for the Overall Sample and by Racial/Ethnic Group Listed in Survey Presentation Order

Variable	Overall Sample [*n* (%)]	PWI [*n* (%)]	HBCU [*n* (%)]	χ^2	*df*	*p*
Family Income	373 (30.0)	325 (20.6)	8 (4.2)	1.79	1	.181
Racial/Ethnic Background	11 (0.6)	8 (0.5)	3 (1.6)	3.18	1	.074
Problem Recognition - SAD	26 (1.5)	18 (1.1)	8 (4.2)	11.13	1	.001
Problem Recognition – GAD	22 (1.2)	9 (0.6)	13 (6.8)	54.60	1	.000
Problem Recognition – Depression	22 (1.2)	8 (0.5)	14 (7.4)	65.34	1	.000
Problem Recognition – Schizophrenia	23 (1.3)	9 (0.6)	14 (7.4)	61.40	1	.000
Problem Recognition – PTSD	22 (1.2)	9 (0.6)	13 (6.8)	54.60	1	.000
Problem Recognition – ADHD	33 (1.9)	13 (0.8)	20 (10.5)	87.67	1	.000
Help-Seeking Intentions – SAD	32 (1.8)	20 (1.3)	12 (6.3)	24.50	1	.000
Help-Seeking Intentions – GAD	36 (2.0)	19 (1.2)	17 (8.9)	51.31	1	.000
Help-Seeking Intentions – Depression	32 (1.8)	13 (0.8)	19 (10.0)	80.82	1	.000
Help-Seeking Intentions – Schizophrenia	31 (1.7)	15 (0.9)	16 (8.4)	55.28	1	.000
Help-Seeking Intentions – PTSD	29 (1.6)	12 (0.8)	17 (8.9)	70.87	1	.000
Help-Seeking Intentions – ADHD	32 (1.8)	13 (0.8)	19 (10.0)	80.82	1	.000
Primary Source of Help – SAD	32 (1.8)	22 (1.4)	10 (5.3)	14.41	1	.000

(*continued*)

Table C1 *(continued)*

Variable	Overall Sample [*n* (%)]	PWI [*n* (%)]	HBCU [*n* (%)]	χ^2	*df*	*p*
Primary Source of Help – GAD	42 (2.4)	25 (1.6)	17 (8.9)	39.93	1	.000
Primary Source of Help – Depression	31 (1.7)	15 (0.9)	16 (8.4)	55.28	1	.000
Primary Source of Help – Schizophrenia	30 (1.7)	14 (0.9)	16 (8.4)	58.06	1	.000
Primary Source of Help – PTSD	28 (1.6)	12 (0.8)	16 (8.4)	64.23	1	.000
Primary Source of Help – ADHD	35 (2.0)	17 (1.1)	18 (9.5)	62.00	1	.000
Depression Scale	59 (3.3)	32 (2.0)	27 (14.2)	88.78	1	.000
Anxiety Scale	59 (3.3)	31 (2.0)	28 (14.7)	86.32	1	.000
Stress Scale	65 (3.7)	35 (2.2)	30 (15.8)	78.54	1	.000
Ethnic Identity – Exploration	84 (4.7)	47 (3.0)	37 (19.5)	102.64	1	.000
Ethnic Identity – Commitment	84 (4.7)	47 (3.0)	37 (19.5)	102.64	1	.000
Acculturation – Affinity Towards Own Group	79 (4.4)	43 (2.7)	36 (18.9)	105.23	1	.000
Acculturation – Affinity Towards Mainstream Group	74 (4.2)	41 (2.6)	33 (17.4)	92.87	1	.000
Prior Professional Help-Seeking	59 (3.3)	31 (2.0)	28 (14.7)	86.32	1	.000

Note. $N = 1{,}776$. PWI $n = 1{,}586$. HBCU $n = 190$. PWI = Predominantly White Institution. HBCU = Historically Black College/University. Three hundred and sixty-nine participants chose "prefer not to answer" and four participants did not select a response for the family income variable. Seven participants chose "prefer not to answer" and four participants did not select a response for the racial/ethnic background variable.

only used to provide demographic information on the sample and assess racial/ethnic group similarities across institutions.

After conducting the preliminary analyses to determine the categorization of each variable that was used in the primary analyses, multiple imputation was used to account for missing data for all the variables included in the current study (as listed in Table C1). Given that missing data ranged between 0.6% and 2.4% for the overall sample, five imputations and 10 iterations were used for each imputation process. This number of imputations and iterations fit within recommended guidelines from Graham, Olchowski, and Gillreath (2007) and Dong and Peng (2013) for protecting against power falloff when using multiple imputation to account for missing data. During the multiple imputation process, each variable used in the primary analyses was used to help estimate missing data on other variables. Several auxiliary variables (academic institution, age, sex, level of difficulty paying bills, citizenship, permanent residence/immigration history, and primary language) were also included as estimators in the multiple imputation.

Appendix D

Table D1 (Can be Compared to Imputed Data Reported in Table 6)

Category Endorsements for Problem Recognition and Professional Help-Seeking Intention Variables based on the Original Data

Variables and Categories	SAD	GAD	Major Depression	Schizophrenia	PTSD	ADHD
Problem Recognition Options						
Correct	1337	937	1461	1244	1483	1537
	(463.5)	(60.5)	(585.0)	(369.5)	(608.5)	(667.5)
Incorrect	410	816	291	505	266	202
	(-463.5)	(-60.5)	(-585.0)	(-369.5)	(-608.5)	(-667.5)
χ^2 (*df*)	491.89 (1)**	8.35 (1)*	781.34 (1)**	312.25 (1)**	846.82 (1)**	1024.86 (1)**
Help-Seeking Intentions						
Yes	976	981	1398	1630	1482	1288
	(104.0)	(111.0)	(526.0)	(757.5)	(608.5)	(416.0)
No/Undecided	768	759	346	115	265	456
	(-104.0)	(-111.0)	(-526.0)	(-757.5)	(-608.5)	(-416.0)
χ^2 (*df*)	24.81 (1)**	28.32 (1)**	634.58 (1)**	1315.32 (1)**	847.79 (1)**	396.92 (1)**

Note. N = 1,740-1,753. SAD = Social Anxiety Disorder. GAD = Generalized Anxiety Disorder. PTSD = Post-Traumatic Stress Disorder. ADHD = Attention-Deficit/Hyperactivity Disorder. Adjusted standardized residuals appear in parentheses below group frequencies (*n*). Rates of correct problem recognition were 76.53% for SAD, 53.45% for GAD, 83.39% for Major Depression, 71.13% for Schizophrenia, 84.79% for PTSD, and 88.38% for ADHD. Rates of professional help-seeking intentions were 55.96% for SAD, 56.38% for GAD, 80.16% for Major Depression, 93.41% for Schizophrenia, 84.83% PTSD, and 73.85% for ADHD.

*$p \leq .05$, **$p \leq .01$.

Table D2 (Can be Compared to Imputed Data Reported in Table 7)

Logistic Regression Models Predicting Professional Help-Seeking Intentions for Psychological Disorders from Problem Recognition and Race/Ethnicity based on the Original Data

Psychological Disorder	*B (S.E.)*	Wald χ^2(df)	*p*	Exponentiated *B* (95% CI)
Social Anxiety Disorder				
Prior Help-Seeking from a Professional	0.710 (.122)	33.634 (1)	.000	2.035 (1.600, 2.587)
Problem Recognition	0.103 (.138)	0.554 (1)	.457	1.108 (0.845, 1.453)
Race/Ethnicity	0.351 (.136)	6.697 (1)	.010	1.421 (1.089, 1.855)
Problem Recognition x Race/Ethnicity	0.006 (.266)	0.001 (1)	.981	1.006 (0.597, 1.695)
Generalized Anxiety Disorder				
Prior Help-Seeking from a Professional	0.704 (.127)	30.534 (1)	.000	2.022 (1.575, 2.595)
Problem Recognition	0.987 (.118)	69.421 (1)	.000	2.684 (2.128, 3.385)
Race/Ethnicity	0.111 (.191)	0.339 (1)	.561	1.118 (0.768, 1.627)
Problem Recognition x Race/Ethnicity	-0.331 (.246)	1.802 (1)	.179	0.718 (0.443, 1.164)
Major Depression				
Prior Help-Seeking from a Professional	0.712 (.176)	16.380 (1)	.000	2.039 (1.444, 2.878)
Problem Recognition	1.328 (.180)	54.366 (1)	.000	3.773 (2.651, 5.369)
Race/Ethnicity	0.513 (.166)	9.579 (1)	.002	1.670 (1.207, 2.311)
Problem Recognition x Race/Ethnicity	-0.433 (.304)	2.024 (1)	.155	0.649 (0.357, 1.178)
Schizophrenia				
Prior Help-Seeking from a Professional	-0.079 (.245)	0.103 (1)	.748	0.924 (0.571, 1.495)

(*continued*)

Table D2 (*continued*)

Psychological Disorder	*B (S.E.)*	Wald χ^2(df)	*p*	Exponentiated *B* (95% CI)
Problem Recognition	0.446 (.258)	2.996 (1)	.083	1.562 (0.943, 2.587)
Race/Ethnicity	-0.103 (.344)	0.089 (1)	.765	0.902 (0.460, 1.770)
Problem Recognition x Race/Ethnicity	1.036 (.457)	5.145 (1)	.023	2.819 (1.151, 6.903)
Post-Traumatic Stress Disorder				
Prior Help-Seeking from a Professional	0.340 (.185)	3.388 (1)	.066	1.404 (0.978, 2.016)
Problem Recognition	1.368 (.208)	43.096 (1)	.000	3.928 (2.611, 5.911)
Race/Ethnicity	0.141 (.202)	0.487 (1)	.485	1.151 (0.775, 1.711)
Problem Recognition x Race/Ethnicity	-0.027 (.333)	0.006 (1)	.936	0.974 (0.506, 1.872)
Attention-Deficit/Hyperactivity Disorder				
Prior Help-Seeking from a Professional	0.466 (.146)	10.109 (1)	.001	1.593 (1.196, 2.123)
Problem Recognition	1.416 (.206)	47.455 (1)	.000	4.119 (2.754, 6.162)
Race/Ethnicity	0.182 (.149)	1.496 (1)	.221	1.200 (0.896, 1.607)
Problem Recognition x Race/Ethnicity	-0.125 (.330)	0.144 (1)	.704	0.882 (0.462, 1.685)

Note. N = 1,691-1,697. The prior help-seeking from a professional variable (included as a control) is coded as 0 = "yes" and 1 = "no." "Yes" is the reference category for the prior help-seeking from a professional variable. The problem recognition variable is coded as 0 = "correct recognition" and 1 = "incorrect recognition." "Correct recognition" is the reference category for the problem recognition variable. The race/ethnicity variable is coded as 0 = "racial/ethnic majority" and 1 = "racial/ethnic minority." "Racial/ethnic majority" is the reference category for the race/ethnicity variable. The dependent variable (professional help-seeking intentions) is coded as 0 = "yes" and 1 = "no/undecided."

Table D3 (Can be Compared to Imputed Data Reported in Table 9)

Category Endorsements within the Primary Source of Help Variable across Psychological Disorders by the Overall Sample based on the Original Data

Primary Source of Help	SAD [*n* (%)]		GAD [*n* (%)]		Major Depression [*n* (%)]	
	Yes	No/Undecided	Yes	No/Undecided	Yes	No/Undecided
Complementary/alternative health provider or spiritual lifestyle professional	29 (3.0)	38 (5.0)	36 (3.7)	88 (11.9)	45 (3.2)	33 (9.8)
General practitioner or family doctor	97 (9.9)	48 (6.3)	189 (19.3)	99 (13.4)	248 (17.8)	65 (19.3)
Non-medical mental health professional	630 (64.7)	363 (48.0)	507 (51.9)	296 (40.1)	709 (50.8)	126 (37.4)
Psychiatrist	140 (14.4)	69 (9.1)	210 (21.5)	100 (13.5)	349 (25.0)	56 (16.6)
Social support or self-help strategies	78 (8.0)	239 (31.6)	35 (3.6)	156 (21.1)	45 (3.2)	57 (16.9)
χ^2 (*df*)	170.931(4), $p < .001$		191.741(4), $p < .001$		131.099(4), $p < .001$	
Phi and Cramer's V	0.319, $p < .001$		0.335, $p < .001$		0.276, $p < .001$	

(*continued*)

Table D3 (*continued*)

Primary Source of Help	Schizophrenia [*n* (%)]		PTSD [*n* (%)]		ADHD [*n* (%)]	
	Yes	No/Undecided	Yes	No/Undecided	Yes	No/Undecided
Complementary/alternative health provider or spiritual lifestyle professional	29 (1.8)	8 (7.3)	38 (2.6)	21 (8.2)	19 (1.5)	29 (6.5)
General practitioner or family doctor	157 (9.7)	11 (10.1)	82 (5.6)	27 (10.5)	718 (55.8)	179 (40.1)
Non-medical mental health professional	601 (37.0)	38 (34.9)	981 (66.4)	133 (51.7)	296 (23.0)	102 (22.9)
Psychiatrist	828 (50.9)	41 (37.6)	343 (23.2)	46 (17.9)	208 (16.2)	55 (12.3)
Social support or self-help strategies	10 (0.6)	11 (10.1)	33 (2.2)	30 (11.7)	46 (3.5)	81 (18.2)
χ^2 (*df*)	94.286(4), $p < .001$		92.488(4), $p < .001$		145.265(4), $p < .001$	
Phi and Cramer's V	0.232, $p < .001$		0.226, $p < .001$		0.288, $p < .001$	

Note. N = 1,726-1,742. SAD = Social Anxiety Disorder. GAD = Generalized Anxiety Disorder. PTSD = Post-Traumatic Stress Disorder. ADHD = Attention-Deficit/Hyperactivity Disorder. Complementary/alternative health provider or spiritual lifestyle professional = "herbalist, chiropractor, acupuncturist, or massage therapist" or "religious or spiritual professional or advisor (e.g., minister, shaman, priest, rabbi). Non-medical mental health professional = "psychologist, counselor, or psychotherapist" or "social worker." Each column presenting the frequency of endorsement for each primary source of help category based on overall professional help-seeking intentions for each psychological disorder totals 100%.

Table D4 (Can be Compared to Imputed Data Reported in Table 10)

Frequency of Category Endorsements within the Primary Source of Help Variable across Psychological Disorders by Race/Ethnicity based on the Original Data

Primary Source of Help	Social Anxiety Disorder [*n* (%)]				Generalized Anxiety Disorder [*n* (%)]			
	Yes		No/Undecided		Yes		No/Undecided	
	Majority	Minority	Majority	Minority	Majority	Minority	Majority	Minority
Complementary/ alternative health provider or spiritual lifestyle professional	18 (2.3)	11 (5.4)	26 (4.8)	12 (5.6)	21 (2.8)	15 (6.8)	68 (12.5)	20 (10.6)
General practitioner or family doctor	85 (11.1)	11 (5.4)	37 (6.9)	11 (5.2)	170 (22.6)	18 (8.1)	75 (13.8)	24 (12.7)
Non-medical mental health professional	489 (63.7)	139 (68.5)	259 (48.1)	101 (47.4)	388 (51.7)	116 (52.3)	221 (40.6)	73 (38.6)
Psychiatrist	113 (14.7)	27 (13.3)	53 (9.9)	16 (7.5)	149 (19.8)	61 (27.5)	72 (13.2)	28 (14.8)
Social support or self-help strategies	63 (8.2)	15 (7.4)	163 (30.3)	73 (34.3)	23 (3.1)	12 (5.4)	109 (20.0)	44 (23.3)
χ^2, *df*)	11.193(4), $p = .024$		2.638(4), $p = .620$		33.239(4), $p < .001$		1.657(4), $p = .798$	
Phi and Cramer's V	0.123, $p = .005$		0.060, $p = .608$		0.193, $p < .001$		0.053, $p = .723$	

(continued)

Table D4 (*continued*)

Primary Source of Help	Major Depression [*n* (%)]				Schizophrenia [*n* (%)]			
	Yes		No/Undecided		Yes		No/Undecided	
	Majority	Minority	Majority	Minority	Majority	Minority	Majority	Minority
Complementary/ alternative health provider or spiritual lifestyle professional	27 (2.5)	18 (5.9)	18 (8.2)	14 (12.4)	13 (1.1)	16 (4.2)	3 (4.1)	5 (14.7)
General practitioner or family doctor	207 (19.1)	40 (13.0)	50 (22.8)	15 (13.3)	122 (9.9)	35 (9.2)	9 (12.2)	2 (5.9)
Non-medical mental health professional	551 (50.8)	156 (50.8)	81 (37.0)	44 (38.9)	469 (37.9)	127 (33.5)	27 (36.5)	11 (32.4)
Psychiatrist	272 (25.1)	76 (24.8)	40 (18.3)	15 (13.3)	629 (50.8)	197 (52.0)	31 (41.9)	10 (29.4)
Social support or self-help strategies	28 (2.6)	17 (5.5)	30 (13.7)	25 (22.1)	5 (0.4)	4 (1.1)	4 (5.4)	6 (17.6)
χ^2 (*df*)	19.845(4), $p < .001$		9.212(4), $p = .056$		20.187(4), $p < .001$		9.310(4), $p = .054$	
Phi and Cramer's V	0.121, $p < .001$		0.170, $p = .045$		0.121, $p < .001$		0.294, $p = .054$	

(*continued*)

Table D4 *(continued)*

Primary Source of Help	Post-Traumatic Stress Disorder [*n* (%)]				Attention/Deficit Hyperactivity Disorder [*n* (%)]			
	Yes		No/Undecided		Yes		No/Undecided	
	Majority	Minority	Majority	Minority	Majority	Minority	Majority	Minority
Complementary/ alternative health provider or spiritual lifestyle professional	24 (2.1)	14 (4.2)	13 (7.5)	8 (9.9)	9 (0.9)	10 (3.5)	15 (4.8)	14 (10.7)
General practitioner or family doctor	63 (5.5)	19 (5.7)	19 (11.0)	8 (9.9)	597 (60.1)	119 (41.2)	147 (47.4)	30 (22.9)
Non-medical mental health professional	760 (66.9)	216 (64.5)	87 (50.3)	44 (54.3)	205 (20.6)	89 (30.8)	68 (21.9)	33 (25.2)
Psychiatrist	265 (23.3)	77 (23.0)	31 (17.9)	15 (18.5)	150 (15.1)	58 (20.1)	34 (11.0)	20 (15.3)
Social support or self-help strategies	24 (2.1)	9 (2.7)	23 (13.3)	6 (7.4)	33 (3.3)	13 (4.5)	46 (14.8)	34 (26.0)
χ^2 (*df*)	4.906(4), $p = .297$		2.296(4), $p = .682$		38.576(4), $p < .001$		26.670(4), $p < .001$	
Phi and Cramer's V	0.054, $p = .357$		0.098, $p = .654$		0.178, $p < .001$		0.246, $p < .001$	

Note. $N = 1{,}717$-$1{,}733$. Complementary/alternative health provider or spiritual lifestyle professional = "herbalist, chiropractor, acupuncturist, or massage therapist" or "religious or spiritual professional or advisor (e.g., minister, shaman, priest, rabbi). Non-medical mental health professional = "psychologist, counselor, or psychotherapist" or "social worker." A range of χ^2 significance test results are reported for each analysis because pooled χ^2 and p values are not produced by SPSS for imputed data. Each column

presenting the frequency of endorsements for each primary source of help category based on overall professional help-seeking intentions and racial/ethnic group for each psychological disorder totals 100%.