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# Information seeking and concern for mental well-being

Cynthia K. Lindley  
*Purdue University*

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Maria K. Venetis

Chair

Steve R. Wilson

John O. Greene

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Approved by Major Professor(s): Maria K. Venetis

Approved by: Marifran Mattson

Head of the Departmental Graduate Program

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INFORMATION SEEKING AND  
CONCERN FOR MENTAL WELL-BEING

A Thesis  
Submitted to the Faculty  
of  
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by  
Cynthia K. Lindley

In Partial Fulfillment of the  
Requirement for the Degree  
of  
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West Lafayette, Indiana

For my wonderfully supportive Jake as well as the friends (from Texas to Indiana) and family who have provided so much inspiration and help along the way.

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## ABSTRACT

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Mental health concerns among college students are quite prevalent, but the help-seeking practices of this population are hindered by a variety of barriers. Help-seeking for mental health concerns in its earliest (and most common) form is ultimately information-seeking, which has been identified as a process with specific predictors that has the potential to lend structure to the myriad help-seeking barriers and facilitators. In an effort to apply and extend the Theory of Motivated Information Management (TMIM; Afifi & Weiner, 2004), the current study asked college students experiencing concerns for their mental well-being to report details of their circumstances. The results demonstrate some support for the TMIM in this context as well as the impact of important characteristics of mental health and interpersonal issues on the information-seeking process.

## LITERATURE REVIEW

The presence of mental illness is widespread among the United States population, especially for college-aged adults. Mental health throughout the United States receives great attention as events like suicides and public shootings highlight the rare, yet critical consequences of under-treated severe cases of mental health disorders (Blanco et al., 2008). The National Institute of Health reports that 26.2% of American adults suffer from mental illness in a given year (Kessler, 2005). These rates appear to be higher in young adults: nearly 50% of the college-aged population, approximately 18-24 years old, has a diagnosable mental disorder (Blanco et al., 2008). In addition to being widespread, mental illness among college students appears to be growing in both prevalence and severity (Hunt & Eisenberg, 2010). Equally relevant to this population is the fact that most disorders develop during adolescence, and 75% by age 24 (Kessler et al., 2005).

Considering that the severity of mental health issues increases over time, the earlier in onset that disorders can be diagnosed and treated, the better for the patient (Hunt & Eisenberg, 2010). However, in order to receive appropriate treatment, individuals suffering must first reach out to someone for information about or help with their concerns, whether it is as informal as a friend or relative or as formal as a physician or counselor. Thus, it is important to explore and understand help-seeking behaviors of individuals with relatively newly-developed disorders. Specifically, it would be valuable

to understand how young adults with mental illness determine the seriousness of their condition as well as whether to seek treatment.

While research has examined barriers and facilitators to help-seeking (Greene et al., 2012; Hunt & Eisenberg, 2010), this perspective tends to emphasize influences and circumstances external to the individual and provides a rather broad, disorganized view of factors relevant to the situation at hand. Focusing instead on the inherently communicative nature of the situation, research should also consider how an individual's thoughts about his/her mental health are handled as the need for information about mental illness arises. Pertinent to such an investigation is the consideration of relevant processes of disclosure, help-seeking, and information management.

### **Mental Health Experience in Young Adults**

Despite elevated, similar prevalence in student and nonstudent populations (Blanco et al., 2008), college students are a valuable population for studying this age group considering the large amount of stress imposed by academic experiences that may exacerbate their illness (Levin, 2007; Zivin, Eisenberg, Gollust, & Golberstein, 2009). The most common disorders among college students reported by Blanco et al. (2008) are substance use disorders (29.15%) and personality disorders (i.e., antisocial, avoidant, dependent; 17.68%), followed by anxiety disorders (11.94%), and mood disorders (i.e., major depressive, bipolar; 10.62%). The importance of mental health in college students is evident in the impact it has on academic performance. Symptoms of depression, anxiety, and eating disorders are associated with lower GPAs in college student populations, particularly when depressive and anxiety symptoms co-occur (Eisenberg, Golberstein, & Hunt, 2009).

Among the college-aged population, three-fourths with a psychological disorder do not receive treatment for their condition (Blanco et al., 2008). Between 18.45% and 21.49% (college- and non-attending) of young adults with a diagnosis of alcohol or drug use disorder, mood disorder, or anxiety disorder reported utilizing treatment from mental health services for the disorder in the past year (Blanco et al., 2008). In this investigation researchers determined diagnosis through structured interviews by standards set in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. This text is the American Psychiatric Association publication of officially recognized disorders for use by professional psychiatrists in diagnosing and understanding current characteristics and trends of mental illness. Less than half of all students with mood disorders seek treatment (Blanco et al., 2008), which is especially alarming when one considers the rates of suicidal thoughts within this population—10% admitting to having seriously considered suicide in the past year (American College Health Association, 2008). Only 24% of depression diagnoses, and 20% of students with anxiety disorders, report receiving treatment (American College Health Association, 2008; Blanco et al., 2008). While substance-use disorders are the most common type of disorders among this population, they are the least frequently treated, 5.36% of all cases in the student population and 9.82% for non-college attending young adults (Blanco et al., 2008).

A qualitative study by Biddle, Donovan, Sharp, and Gunnell (2007) seeking to explain why young adults have an overall tendency to not pursue help for mental health issues revealed that there is a perceived continuum from “normally distressed” to “severely distressed.” The threshold separating “normal” and “mentally ill” is not always easy to recognize, and the two states of mind can be difficult to distinguish for

individuals experiencing psychological distress (Biddle et al., 2007). Failing to seek help or postponing help-seeking often occurred for the mentally distressed by attempting to “normalize” the distress being experienced and convincing themselves that it was temporary or not severe (Biddle et al., 2007).

The *DSM-IV*, which clinically classifies disorders, recognizes that exact boundaries for mental illness are not adequate due to the abstract nature of mental disorders. Despite this, the publication clearly highlights that distress falls somewhere between normal and abnormal, and that dysfunction plays an important role in characterizing it as a disorder (American Psychiatric Association, 2000). The challenge facing individuals experiencing psychological distress is quite similar to the challenge practitioners face in clinically diagnosing disorders. While financial constraints and limited time are additional barriers to care, denial that the distress might be a real illness may more readily serve as an obstacle to being diagnosed and treated (Biddle et al., 2007). Young adults often do not seek help for their mental health issues and deny the presence or seriousness of mental health problems; they do not think that treatment would improve their condition, either assuming their problems will improve without help or preferring to solve their problems on their own (Eisenberg, Golberstein, & Gollust, 2007; Vanheusden et al., 2008).

### **Stigmatization of Mental Health**

Numerous barriers to help-seeking for mental health issues have been identified, and they include efficacy (perceived ability to successfully seek and acquire help), expected negative outcomes, lack of time, privacy concerns, minimal emotional openness, and financial constraints (Greene et al., 2012; Hunt & Eisenberg, 2010). Many

of these concerns are hinged on stigma, the discrediting of a person tied to negative attitudes about a particular circumstance that often lead to negative behaviors toward and by individuals in the associated circumstances (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003). Mental illness has a long history of stigma, having improved since the 1950's, yet continuing to manifest as social avoidance (Phelan, Link, Stueve, & Pescosolido, 2000). This avoidance, or social rejection, that results from stigmatizing mentally ill individuals is often studied through discriminatory practices like refusing to help or hire individuals with mental illness (Corrigan et al., 2003).

Some level of stigma is expected to occur within everyone, as stigmatized perceptions are inherent in the socialization process (Corrigan et al., 2003). A study on public conceptions of mental illness compared descriptions in 1950 to descriptions in 1996, coding interviews for the extent to which the term "mentally ill" included "specific symptoms and manifestations of mental illness" and "broader syndromes and problem categories" (Phelan, Link, Stueve, & Pescosolido, 2000, p. 192). It was found that public definitions of mental illness have broadened since 1950, incorporating more disorders beyond those characterized by psychotic symptoms (psychosis), or being out of touch with reality. Despite a decrease in the percentage of people considering mental illness to mean "psychotic," 35% of participants still mentioned characteristics of psychosis in their descriptions of mental illness, and 20% defined mental illness exclusively by psychosis.

This demonstrates that the public continues to conceptualize mental illness in extreme, stigmatized terms. Further, this distinction is significant because when psychosis was involved in descriptions, perceptions of danger were mentioned twice as much in 1996 as in 1950. Additionally, the 1996 mental illness descriptions include

mention of social deviance and mental deficiency/cognitive impairment more than twice as frequently as in the 1950 descriptions. Negative stereotypes of mentally ill individuals as violent or dangerous actually increased by two-and-a-half-times. These findings demonstrate that while stereotyping mentally ill individuals as out of touch with reality has slightly decreased, there is still a large portion of the public classifying mental illness in socially deficient ways. Individuals with mental illness may experience a reduction in social status, discrimination by others, personal shame due to the expectation of discrimination, and lifestyle changes such as being medicated or having to incorporate regular therapy sessions into one's schedule (Phelan & Link, 2009). The inequitable treatment of individuals with mental illness has important implications for people who are suffering from mental health issues, but who have yet to seek treatment.

The experience and anticipation of stigma has been well established in the study of mental illness (Corrigan et al., 2003), specifically identifying three types of stigma: personal stigma, public stigma, and self-stigma (Eisenberg, Downs, Golbergstein, & Zivin, 2009). *Personal stigma* refers to an individual's stereotyping and prejudicial attitudes about a particular group, which is then aggregated collectively on a societal level to create *public stigma*. For example, personal stigma exists when an individual regards persons with mental illness as less competent while public stigma refers to the general view of society towards persons with mental illness. As a result of personal stigma and perceptions of public stigma individuals develop varying degrees of *self-stigma*, or the internalization of the stereotypes and prejudices after identifying oneself as part of the stigmatized group (Eisenberg, Downs, et al., 2009).



Stigmatizing attitudes are associated with lower rates of help-seeking (Hunt & Eisenberg, 2010). Eisenberg, Downs, et al. (2009) found that among those who may have mental illness, perceptions of personal stigma, i.e., how an individual would view others with mental illness, was significantly associated with less help-seeking (including both perceiving a need for help and the utilization of psychotropic medication, therapy, and non-clinical support). However, one's perception of how society may perceive and stigmatize the mental illness was not associated with help seeking. A separate investigation of perceived public stigma revealed that perceived stigma was associated with a lack of perceived need for help in young adults (aged 18-22), potentially the result of individuals in this age group likely experiencing symptoms for the first time, therefore resisting the implicit label of mental illness (Golberstein, Eisenberg, & Gollust, 2008). That is, when young adults view "being mentally ill" as being associated with negative traits and characteristics that warrant and elicit discrimination (either as personal attitudes or perceptions of others' attitudes), they are hesitant to risk being labeled as "mentally ill" even when experiencing symptoms of mental illness. While the impact of public stigma on help-seeking behaviors and attitudes is contested in the literature, it nonetheless has important implications for college-student populations.

As discussed, public stigma pertains to the ways in which the general public tends to receive individuals with mental illness and is composed of stereotyping, prejudice, and discrimination (Corrigan et al., 2003). The most common and yet subtle form of discrimination is social distance or avoidance, a practice that increases in frequency when individuals are perceived as being responsible for the onset of their condition (Corrigan et al., 2003). The threat of social distancing is particularly relevant to college students,

taking into account how important social connections are in young adulthood, and especially college-related networking. There may be a hesitation to seek help for fear of being stigmatized, particularly among the population of those experiencing substance abuse disorders (and who may receive blame for their illness). While perceptions of public stigma are likely to be important based on their potential to hinder social opportunities (Corrigan, 2004), self-stigma may also influence help-seeking.

Self-stigma occurs when an individual identifies oneself as belonging to a stigmatized group and engages in self-directed prejudice based on attitudes held toward that group (Corrigan et al., 2003). For example, societal perceptions of people with mental illness as being less competent can lead an individual to considering oneself less competent once he/she is diagnosed with a mental illness. Corrigan (2004) reports that self-stigma results in an overall decrease in self-esteem, self-efficacy, and confidence in one's future. This process occurs in the same way that other forms of stigma manifest: beginning with stereotyping, followed by prejudice, and exhibited in discriminatory practices. In line with Corrigan's (2004) illustration of how self-discrimination due to self-stigma occurs, a college student might be diagnosed with a disorder, perceive themselves as unintelligent, and no longer attend classes with a "why bother?" attitude. While self-stigma is important to consider and explore, its presence requires that a person be identified by self or others as part of the stigmatized group, a characteristic which is not necessarily relevant to the current population of interest, considering the varying levels of stigma for different disorders, and the potential lack of diagnosis among college students (Golberstein et al., 2008). More immediately relevant to this population are the concepts of public and personal stigma, as peer and personal attitudes toward mental

illness are present in everyone (Corrigan, 2004). In addition to these various perspectives potentially impacting academic efforts, dismal regard for one's ability and future may deter help-seeking behaviors.

### **Help-Seeking Practices**

The concept of help-seeking includes a variety of behaviors that range widely in their levels of formality. An ambitious effort to conceptualize help-seeking and relevant factors defines the term as “communicating with other people to obtain help in terms of understanding, advice, information, treatment, and general support in response to a problem or distressing experience” (Rickwood, Deane, Wilson, & Ciarrochi, 2005, p. 4). Considering help-seeking as a means of coping, this perspective places emphasis on social skills, interpersonal processes, and close relationships. The authors further characterize help-seeking sources as either informal, meaning friends and family, or formal, referring to clergy members, youth workers, teachers, and health professionals. There is a variety of literature that ties into help-seeking by this definition: from disclosure of mental health problems and information-seeking about mental health issues to receiving treatment for mental illness (Biddle et al., 2007; Greene, 2009; Rickwood et al., 2005). Vital to each of these investigations is the way in which individuals regard potential sources of help or support and the barriers and facilitators of help-seeking behaviors with differing levels of scope, as broad as societal characteristics (e.g., cost, accessibility) and as small-scale as relationship-specific traits (e.g., acceptance, support).

As previously reviewed, structural barriers at the societal level, such as lack of time and finances, are issues college students face when considering whether or not to seek help in the face of psychological distress (Biddle et al., 2007), but stronger

influences seem to be occurring on a more local level. The primary barriers identified by Rickwood et al. (2005) include lack of emotional competence (one's ability to identify, describe, understand, and constructively manage emotions), help-negation (the tendency to perceive "help" as unhelpful), and negative attitudes and beliefs about professional help-seeking. While these factors are quite general, they assist in classifying some of the more specific mechanisms that prevent individuals from seeking help and tie well to barriers identified in more specific processes related to help seeking, including disclosure, information seeking, and finally the support acquisition itself, which is often the focus of help-seeking literature. Each process is discussed in further detail below.

To begin, illness disclosure offers potential insight into individuals' considerations and experiences when talking about mental health issues. Based on the tenets of uncertainty and privacy management, disclosure is preceded by a tension between wanting to both keep information to oneself and share personal information (Greene, 2009; Petronio, 2013). Withholding information protects the privacy and ownership of personal details, but disclosing may help the individual cope by eliciting support (Greene et al., 2012). Research on eating disorders and disclosure for the sake of support acquisition has indicated that individuals expect the information to be received with denial, avoidance, inadequate support provision, and stigmatization (Akey, Rintamaki, & Kane, 2013).

Synthesizing disclosure research in a unified theoretical framework, the Disclosure Decision-Making Model (Greene, 2009) reveals that disclosure of one's mental health is hindered by the perception of stigma, anticipated negative response, and low disclosure efficacy (Greene et al., 2012). While disclosure is an important means of

inspecting help-seeking behavior and the factors which influence it, this perspective historically requires the presence of a diagnosis and approaches disclosure as a single, pre-planned event.

For individuals who have yet to receive a diagnosis and therefore who cannot prematurely prepare for a specific disclosure, seeking help for mental health concerns might be better conceptualized as an information-seeking process. Experiencing mental illness symptoms for the first time—as is highly probable among college student populations (Golberstein et al., 2008)—is likely a source of uncertainty, which in some way needs to be managed. Often in the face of uncertainty, individuals turn to a variety of sources to provide information that will either increase or reduce their level of uncertainty (Afifi, 2010). However, it is also possible that individuals will avoid certain sources of information in an effort to manage their uncertainty in a personally desired manner (Afifi & Weiner, 2004). Considering that the first three elements of the definition of help seeking have been identified as understanding, advice, and information (Rickwood et al., 2005) indicates there is clear relevance for information-seeking processes in the research of help-seeking for mental health problems. Responses from interpersonal sources might then potentially lead to the latter two elements of the definition of help-seeking: treatment and general support (Rickwood et al., 2005). Further support for the significance of information-seeking processes in this context can be found in the help-seeking trends among college-aged populations.

When young adults do seek help, they tend to turn to close friends or relatives. In a study of adult help-seeking behaviors in the face of mental health problems, young adults were less likely to consult their General Practitioner (34.53%) and most likely to

seek informal sources (67.74%) for help (Oliver, Pearson, Coe, & Gunnell, 2005). When asked “Have you discussed with anyone in the past few weeks any concerns about the effect on your health of stress or strain in your life,” around 60% of men and 70% of women who experience moderate to severe psychological distress reported consulting friends or relatives (Oliver et al., 2005). These findings are sensible when one considers the broad facilitators of help seeking identified by Rickwood et al. (2005), which include emotional competence, positive beliefs about and past experiences with help seeking, mental health literacy, and social influences.

Considering the high rates of mental illness accompanied by elevated stress levels and the behavioral tendencies to seek help from friends and relatives of this population, it can be presumed that help-seeking may be highly related to information-seeking. Information-seeking may at times be synonymous with help-seeking in circumstances of mental health concern (Gould et al., 2002); for example, if someone is feeling excessively depressed by personal standards, he/she may approach a counselor to gain information about depression and help with managing those feelings. To better understand the process behind this population’s information-seeking behaviors, the theory of motivated information management will be applied (Afifi & Weiner, 2004).

### **The Theory of Motivated Information Management**

Based on classic models of information management from communication and psychological perspectives, the Theory of Motivated Information Management (TMIM) explains and predicts the process of information-seeking in response to uncertainty (Afifi, 2009). One of the purported strengths of the TMIM is its ability to fit a variety of contexts (Afifi, 2010). Each test of the theory has succeeded in shedding light on the

information-seeking and information-management processes of topics that are otherwise difficult to analyze. The TMIM has been applied to an array of interpersonal topics, including parent-child discussions of sensitive topics (Afifi & Afifi, 2009; Fowler & Afifi, 2011), sexual health (Afifi & Weiner, 2006; Chang, 2014), and family health history (Hovik, 2014).

Historically, two requirements for the application of the TMIM to a topic are that the subject is of great importance and yet is infrequently chosen for discussion (Afifi & Afif, 2009; Fowler & Afifi, 2011). Infrequency of discussing mental health issues is apparent by the low rates of help-seeking and hesitant disclosures previously discussed. The importance of mental health is obvious, impacting “educational, economic, and social outcomes” (Zivin et al., 2009, p. 180) and ultimately quality and length of life. The TMIM connects levels of uncertainty discrepancy (the difference between one’s actual and desired uncertainty about a situation) to behaviors of information-seeking through a process involving three phases: interpretation, evaluation, and decision (Afifi, 2009).

**Interpretation.** The first phase entails the recognition that present levels of uncertainty are inconsistent with desired levels of uncertainty on a particular topic of personal importance, a state which leads to an emotional response (Afifi, 2009). This uncertainty discrepancy is often based in some way on the knowledge the person has, or is lacking, about the subject at hand, whether it is information that is unavailable, inconsistent, or insecure (Hovick, 2014). Although further development of the theory has led to the acknowledgement that it is possible that a variety of emotions might arise in response to uncertainty, anxiety is the only one thus far identified and is emphasized as playing a key motivational role in uncertainty management (Chang, 2014). Specifically,

anxiety is expected to partially mediate the relationship between uncertainty discrepancy and information-management strategies. Anxiety influences thoughts about information-seeking, including perceptions of the expected outcomes; of the efficacy an individual has to seek information and handle what my result from doing so; and of the target's ability to provide needed information (Afifi & Weiner, 2004).

Personal stigma may impact the extent to which one perceives there is an actual problem as well as intentions to reveal this possibility, as there will be resistance to the risk of becoming part of a group for which one holds negative stereotypes and prejudicial attitudes. While the TMIM predicts that an uncertainty discrepancy leads to anxiety, it may be possible that individuals will not identify the presence of an uncertainty discrepancy, but still may feel quite anxious about their mental well-being. To investigate the potential for this, an additional measure of more generalized anxiety will be implemented in the current study. Ultimately, the process is motivated by a desire to manage one's information in a way that will reduce uncertainty discrepancy and related anxiety, bringing about the evaluation phase.

**Evaluation.** The second phase of the information-seeking process is the evaluation phase, in which the individual anticipates possible outcomes and considers various forms of efficacy relevant to information seeking (Afifi, 2009). Outcome assessment includes the cost and benefit of an action's expected consequence, the importance of the utility of that outcome, and the likelihood of that anticipated outcome (Afifi & Weiner, 2004). For example, college students experiencing uncertainty about their mental health may consider the consequences—whether he/she will be accepted or stigmatized—of asking a friend for information about mental illness, if the information



gained would help him/her significantly, and how likely it is that these expectations are to occur.

Integral to the evaluation phase is the information-seeker's communication efficacy, coping efficacy, and target efficacy. These terms are defined as the information seeker's confidence to communicate about the uncertainty-causing issue, to cope with possible outcomes of the interaction, and confidence that the target can supply helpful and truthful information, respectively (Afifi, 2010). All efficacy variables are affected by outcome expectancies and the emotion being experienced (Afifi, 2010). Perceived public stigma may impact what one expects to result from a conversation about mental health concerns, both in the way of revealing this to another person and what one might discover about one's mental health from the conversation. Self-stigma manifests in the form of reduced confidence in one's future, self-esteem, and self-efficacy (Corrigan et al., 2003), constructs delineated by the TMIM through target efficacy, coping efficacy, and communication efficacy. The results of this evaluation should determine the choice made in the final phase.

Given prior research regarding the help-seeking behaviors of young adults, outcome expectancies and efficacy may be better when considering whether to talk to a target with which one is in a closer relationship. As previously covered, young people tend to prefer close friends and family when considering whether to talk to someone about stress affecting their lives, but are least likely among adults to talk to their General Practitioner (Oliver et al., 2005). This is theorized to be in part because young adults tend to not have as strong a relationship with their general practitioner, compared to older adults. Previous research on privacy management reveals that closeness is an indicator of

sharing information (Afifi & Olson, 2005), and help-seeking research demonstrates that established relationships are more common sources of help for mental health concerns (Rickwood et al, 2005), both of which are likely due to the facts that we can anticipate outcomes of conversation with someone with whom we are closer and that we are more confident and comfortable in our ability to know what to say to those individuals.

**Decision.** The third and final phase of the theory requires that a decision be made between three possibilities: avoiding information, seeking information, or reassessing whether an uncertainty discrepancy is truly present (Afifi, 2009). In some cases, seeking information may reduce the negative emotion being experienced by either increasing or decreasing uncertainty, dependant on the individual's needs. Alternatively, for others, approaching someone with their concerns may lead to more negative emotions, encouraging avoidance (Afifi & Weiner, 2004). Finally, the very process of considering information-seeking may lead to a cognitive reappraisal of the situation in such a way that the negative emotion has been reduced by way of adjusting the desired uncertainty level, the meaning of uncertainty, or the importance of the subject (Afifi & Weiner, 2004).

The possibilities that one might either avoid a diagnosis or deny the presence of major problems demonstrate two of the three decisions that the TMIM proposes for information management: avoiding relevant information and cognitive reappraisal. The third option is demonstrated in research reporting facilitators to help-seeking: having positive past experiences with both help-seeking and social support and receiving encouragement from others (Gulliver, Griffiths, & Christensen, 2010). These demonstrate the facilitative role that the TMIM assigns to positive outcome expectancy and efficacy.

It is likely that greater stigma plays a deleterious role in affecting decisions to seek information from close others through its impact on perceiving a problem, outcome expectancies, and efficacy. While the TMIM includes the cognitive processes for both the potential seeker and the target, the target's cognitive processes are beyond the scope of this investigation and, therefore, the details of this portion of the theory are not expounded upon here.

### **Current Research**

This review provides useful support for the application of the TMIM to the realm of college students seeking to discuss their mental health concerns in an effort to further understand (non-)help-seeking behaviors. It has been established that college students face mental health issues frequently, and often with denial, demonstrating the uncertainty embedded in the experience for this population. Additionally, the barriers college students face to discussing their mental health with others indicate key constructs of the TMIM, namely the integral efficacy and outcome expectancies components. The current study seeks to expand not only the context of application for the TMIM, but to also directly incorporate the relevant construct of stigma, examining the impact that various forms of stigma may have on important features of information processing. Additionally, prior tests of the TMIM have failed to examine the influence of closeness on information-seeking behaviors, often due to the elevated closeness of the relationships being observed (Afifi & Afifi, 2009). Thus, the current study seeks to inspect the relationship closeness may have with TMIM constructs. Of the three possible outcomes of the TMIM, only information-seeking will be assessed.

Given the outlined correspondence between college student mental health research and the TMIM, the current study seeks to explore and expand understandings of college student mental health help-seeking behavior and, thus, proposes the following hypotheses, modeled in Figure 1:

H1: As individuals' mental health uncertainty discrepancy increases, their anxiety increases.

H2a: As individual's anxiety increases, their outcome expectancy decreases.

H2b: As individuals' anxiety increases, their efficacy decreases.

H3: As individuals' outcome expectancy increases, their efficacy increases.

H4: As individuals' efficacy increases, their information-seeking tendency increases.

H5a: As individuals' closeness with the target increases, their outcome expectancy increases.

H5b: As individuals' closeness with the target increases, their efficacy increases.

Considering the inconsistent findings of perceived public stigma and help-seeking, it is questionable whether there are other factors mitigating its influence, such as the belief that treatment will or will not help; alternatively, it may be that the opinion of "most people" is not significant in determining help-seeking, but that the view of important others is (Eisenberg, Downs et al., 2009). Each of these explanations is partly explained by the outcome expectancy measures of the TMIM, which evaluate how the potential target of conversation will respond and whether the response will be helpful or harmful. Public stigma focuses on how others view and behave toward a particular group, so will likely impact the expectations an individual has of the outcome of a conversation

that potentially puts them in a stigmatized group. However, personal stigma refers to one's own views of the group, so will have less to do with the outcome expectancies, which focus on others' reactions, and more to do with internal processes that occur earlier on in the information management process. Holding negative views of a particular group will likely result in less of a tendency to consider the possibility that one might belong to that group, which has important implications for personal stigma. While partially accounted for by the TMIM, it would be valuable to explore to what extent stigma influences the information-seeking process. Thus, the following hypotheses are proposed:

H6: Higher amounts of perceived public stigma will be associated with less positive outcome expectancies.

H7: Higher amounts of personal stigma will be associated with lower reports of uncertainty discrepancy and related anxiety.

When symptoms are more severe and problematic, people tend to seek more professional help (Oliver et al., 2005), so it may be expected that information seeking will be higher for those who find their mental well-being is highly interfering. However, this was not always the case for more informal sources of support. Greater severity of or interference from mental health issues may motivate an individual to seek help by way of perceiving a greater need for help, considering that the lack of this recognition is a common barrier to help (Biddle et al., 2007). Beyond the direct impact on help-seeking, little appears to indicate what mechanism produces the effect. It is possible that people feel more hopeful about the outcomes of seeking information, given that the situation is quite bad, or that they have more to say and therefore greater efficacy about talking to someone about their concerns as compared to someone who does not quite feel right, but

also lacks many details to give when considering what to say to someone in such a conversation. Alternatively, higher amounts of interference from mental health issues may result in lower information seeking in accordance with circumstances where people wish to avoid bad news (Afifi & Weiner, 2004). The following research question is proposed in an effort to explore these possibilities:

RQ1: How will interference be related to information seeking?

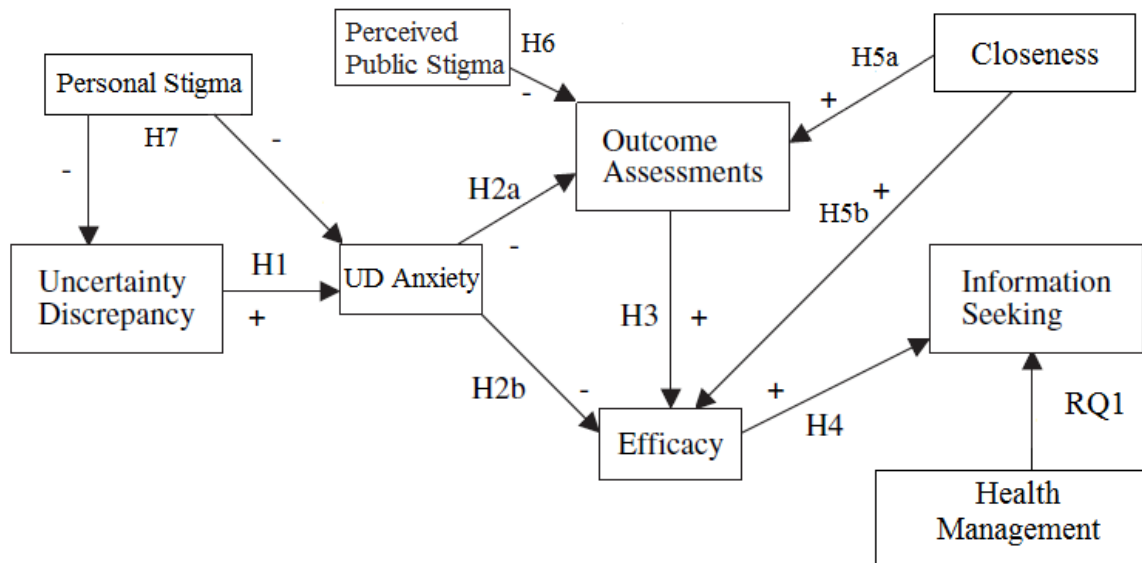


Figure 1. Hypothesized TMIM+ model with predicted relationship valence.

## METHODS

Participants enrolled in the study online through the communication department's research participation system, and completed the survey online (see Appendix A). As all measures were self-report, in accordance with prior applications of the TMIM (Afifi & Afifi, 2009; Afifi & Weiner, 2004; Hovik, 2014), completion of the survey in person was not necessary. Online access to the survey allowed for a sense of comfort, anonymity, and convenience that minimized self-presentation bias and maximized the opportunity for participants.

### **Participants**

Due to the high rates of mental illness evident in college-student populations coupled with the age of onset for mental illness occurring around this time for many adults and the added stress of academic life, a university student body was targeted for this investigation. Undergraduate students were recruited from the Brian Lamb School of Communication online research participation system. Consistent with prior research on information management and the use of structural equation modeling, the intended sample size was between 150 and 200 participants (e.g., Chang, 2014; Holbert & Stephensen, 2002). Of the 335 participants who began the survey, 216 qualified for the study. Two participants were removed due to unengaged responses and 17 were removed due to missing data and lack of completion. The final sample size included 197

participants. Of these, 136 were female (69%) and 59 were male (30%) with only two participants (1%) reporting they preferred not to answer. The average age of the sample was 20.54 ( $SD = 2.42$  years) with a range of 17 to 38. Demographic data indicated that the majority of the sample identified as Caucasian/white ( $n = 149, 75.6\%$ ), Asian ( $n = 34, 17.3\%$ ), Black/African-American ( $n = 4, 2\%$ ), Native American/Alaskan Native ( $n = 1, 0.5\%$ ) and Other ( $n = 6, 3\%$ ); three participants (1.5%) preferred not to answer.

**Target Characteristics.** Participants were asked to think of a person with whom they interact regularly (i.e., talk to at least weekly) and to report the initials of this person and the nature of the relationship (Afifi, Dillow, & Morse, 2004). To assess the nature of the relationship, participants were asked whether the person is a relative, friend, or other (asked to fill-in) as well as to rate how close they consider their relationship with this person. The most common relationship between the participant and the selected target of conversation was friend ( $n = 95, 48.2\%$ ), romantic partner ( $n = 63, 32\%$ ), relative ( $n = 39, 18.3\%$ ), and other ( $n = 3, 1.5\%$ ), the latter of which was identified as “roommate” for all three such responses.

## **Measures**

Considering that all measures had been previously validated and confirmed to be reliable in prior research, confirmatory factor analysis (CFA) conducted in AMOS 22 determined the measurement models for each latent construct. In addition to ensuring adequate model fit provided by CFA statistics, SPSS 22 was used to calculate Cronbach’s alpha for each proposed scale. Development and finalization of the measurement models was conducted in accordance with recommendations by Kline (2011) and Hoyle (2012).



To start, a model was created with the latent construct and all items used to measure the construct. If the overall model fit was not adequate, re-specification was necessary, starting with inspection of factor loadings and modification indices. The modification indices produced in the analysis provided specific suggestions for improving  $\chi^2$  by allowing parameters to be freely estimated between variables whose relationships were not initially estimated. Modification of a theoretical model should never be conducted without theoretical rationale (Hoyle, 2012; Kline, 2011), so circumstances in which this occurred include very low factor loadings ( $\lambda < .50$ ), excessive covarying between observed variables, or covarying error terms of observed variables where justifiable. The elimination of an observed variable or introduction of a covariance was done one at a time in an effort to preserve and maximize the accuracy of the scale in the process of achieving good model fit. The standards for good fit include  $\chi^2$ , which should be low with a non-significant  $p$ -value at the 0.05 level, the RMSEA, which should be less than 0.06 although below 0.08 would be acceptable, and the CFI, which should be greater than 0.95 although 0.90 would be acceptable (Kline, 2011). The recommendation for reliability according to Cronbach's alpha is greater than 0.70, but preferably greater than 0.80. In addition to being described below, model fit, reliability values, means, and standard deviations for all measurement models are available in Table 1.

Table 1

*Descriptive Statistics and Confirmatory Factor Analyses Model Fit*

<u>Latent Construct</u>	<u>M</u>	<u>SD</u>	<u><math>\alpha</math></u>	<u><math>\chi^2</math></u>	<u>DF</u>	<u>RMSEA</u>	<u>CFI</u>
Health Management	3.72	0.74	0.80	2.17	1	0.77	1
Uncertainty Discrepancy	1.04	1.85	-	-	-	-	-
U.D. Anxiety	3.28	1.42	0.89	0	0	-	1
Closeness	5.05	1.39	0.85	2.48	2	0	1
Outcome Expectancy	5.28	1.24	0.93	0	0	-	1
Efficacy	5.26	1.22	0.92	13.64	8	0.06	0.99
Information Seeking	4.90	1.09	0.70	-	-	-	-
General Anxiety	2.29	0.65	0.80	2.82	2	0.05	0.99
Public Stigma	3.74	0.98	0.83	4.98	3	0.06	0.99
Personal Stigma	4.84	0.94	0.75	0	0	-	1

**Test of Eligibility.** Prior to beginning the study, participants were briefly assessed for study eligibility with the following question: “Have you ever been (or are you currently) concerned about your mental well-being? This might include feeling that strain or stress impacts your quality of life or being diagnosed with a mental illness.” Possible responses included “No, I have not experienced concern about my mental well-being,” and “Yes, I have been concerned about my mental well-being (past or present).” Similar to Oliver et al. (2005), this word choice seeks to avoid negative associations with the term “mental health.” Participants who answered “no” were thanked for their time and not assessed any further. Participants who answered “yes” proceeded with the remainder of the survey.

**Mental Well-Being.** Next, participants were asked to “Please describe what led you to be concerned about your mental well-being (symptoms, thoughts, feelings, etc.)” and “If there were a diagnosis for what you have experienced, or are experiencing, what

do you think it might be? Click all that apply.” Possible diagnoses included, “a. Substance dependence/abuse (alcohol, nicotine, drugs) b. Mood disorder (bipolar, depression) c. Anxiety (panic, social anxiety, phobia) d. Personality disorder (avoidant, obsessive-compulsive) e. Other: \_\_\_\_\_ f. Unsure.” Table 2 displays the participants’ expected diagnosis of their mental health concerns. The total percentage of participants reporting each disorder is greater than 100, as participants were permitted to select more than one possible diagnosis. The most commonly reported diagnosis was Anxiety Disorder ( $n = 103$ , 52.3%), Mood Disorder ( $n = 81$ , 41.1%), Personality Disorder ( $n = 30$ , 15.2%), Other ( $n = 14$ , 17.1%), and Substance Disorder ( $n = 9$ , 4.6%); 38 (19.3%) participants were unsure. Text responses when “Other” was selected included Attention Deficit Disorder, Bulimia, Hyperactivity, Seasonal Affective Disorder, and Stress, none of which were reported by more than six participants.

Table 2

*Participant Reports of Expected Diagnosis*

<u>Diagnosis</u>	<u>Frequency</u>	<u>Percentage</u>
Substance Disorder	9	4.6
Mood Disorder	81	41.1
Anxiety Disorder	103	52.3
Personality Disorder	30	15.2
Other	14	17.1
Unsure	38	19.3

In an effort to assess the extent to which one’s mental health is being managed, an adaptation of Venetis, Magsamen-Conrad, Checton, and Greene (2014)’s scale was used, modifying the five items to concern mental well-being and including, “I am handling my mental well-being well,” and “I have trouble dealing with my mental well-being” with responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and higher scores

indicating better management. The initial measurement model for the latent variable Health Management including all items did not achieve acceptable fit ( $\chi^2 (5) = 43.044, p = .000$ ). The lowest loading factor, HM5 ( $\lambda_5 = 0.46$ ) was removed and the errors for the two reverse-scored items, HM2 and HM4, were allowed to covary. Thus, the final measurement model included items 1-4 with a good fit:  $\chi^2 (1) = 2.168 (p = .141)$ , RMSEA = .077, CFI = 1.0. The final factor loadings were acceptable:  $\lambda_1 = 0.88, \lambda_2 = 0.55, \lambda_3 = 0.68, \lambda_4 = 0.61$ . The scale was fairly reliable ( $\alpha = 0.79, M = 3.78, SD = 0.74$ ).

**Uncertainty discrepancy about personal mental health.** The initial latent construct for Uncertainty Discrepancy attempted to combine measures used in various investigations of the TMIM (Afifi & Afifi, 2009; Afifi & Weiner, 2006). However, the three items failed to load reliably on uncertainty discrepancy, likely due to the Likert-type nature of two of the items (in contrast to the difference score of one) as well as the phrasing of these answers (described below). Thus, two of the items were removed from the analysis and only the index score was used to evaluate uncertainty discrepancy, as used in previous TMIM studies (Afifi & Afifi, 2009; Chang, 2014; Hovick, 2013). The index score was calculated by subtracting the answer to “How much do you *know* about your mental well-being?” from “How much do you *want to know* about your mental well-being?” with responses ranging from 1 (*nothing*) to 7 (*everything*). While the possible range was from -6 to +6, the actual range was -5 to +6 ( $M = 1.04, SD = 1.85$ ).

**Anxiety about uncertainty discrepancy.** Three items adapted from Afifi and Afifi (2009) were used to assess anxiety regarding uncertainty discrepancy, including “When you compare how much you want to know and how much you actually know about your mental well-being, how anxious does it make you?” and “How anxious does it

make you to think about how much/how little you know about your mental well-being?”

and “The size of the similarity/difference between how much you know and how much

you would like to know about your mental well-being is \_\_\_\_\_” with responses

ranging from 1 (*not at all anxiety-producing*) to 7 (*extremely anxiety-producing*).

Additionally, participants had the opportunity to report other emotions with an open-

ended item, “Please list the other emotions you feel when you think about the difference

between how much you know and how much you want to know about your mental well-

being concern?” With only three indicators, the measurement model for the latent

variable Uncertainty Discrepancy Anxiety was just-identified, meaning its estimated

parameters and the distinct sample moments were equal, resulting in a CFA that fit

perfectly, thereby preventing probability of fit from being calculated. Thus, Outcome

Expectancy fit follows:  $\chi^2(0) = 0$  ( $p = n/a$ ), RMSEA =  $n/a$ , CFI = 1.0. The factor loadings

were good:  $\lambda_1 = 0.88$ ,  $\lambda_2 = 0.88$ ,  $\lambda_3 = 0.82$ . The scale was adequately reliable ( $\alpha = 0.89$ ,

$M = 3.28$ ,  $SD = 1.42$ ).

**Closeness.** Closeness was assessed with an adaptation of Rubin’s Love scale (1970) as used by Solomon and Knobloch (2004) and Theiss and Solomon (2006) as part of a measure of Intimacy. Of the nine items samples include, “I feel that I could confide in this person about virtually anything,” and “I would do anything for this person” with responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), higher scores indicating greater closeness. The initial measurement model of Closeness, which included all factors, did not achieve acceptable fit ( $\chi^2(27) = 228.712$ ,  $p = .000$ ), so the lowest loading factors as well as those covarying excessively were dropped (items 1, 2, 6, 7, and 8), leaving items 3, 4, 5, and 9 in the final measurement model. The final model fit well:

$\chi^2(2) = 2.477$  ( $p = .290$ ),  $RMSEA = .000$ ,  $CFI = 1.0$ . The final factor loadings were good:  $\lambda_{C3} = 0.88$ ,  $\lambda_{C4} = 0.72$ ,  $\lambda_{C5} = .70$ ,  $\lambda_9 = 0.80$ . The scale was adequately reliable ( $\alpha = 0.85$ ,  $M = 5.05$ ,  $SD = 1.39$ ).

**Outcome expectancy.** Three items adapted from Afifi and Afifi (2009) assessed outcome expectancy. Items include “Talking to this person directly about this issue would produce \_\_\_\_\_,” “Asking this person what s/he thinks about this issue would produce \_\_\_\_\_,” and “Approaching this person to ask about his/her beliefs about this issue would produce \_\_\_\_\_” with responses ranging from 1 (*A lot more negatives than positives*) to 7 (*A lot more positives than negatives*), higher scores indicating more positive outcome expectancy. Open-ended items to explore outcome expectancy include, “What benefits do you think might result from talking to this person about this issue? These can be any positive outcomes (such as, this person would make you feel better, offer insight, or your relationship would be made closer)” and “What drawbacks do you think might result from talking to this person about this issue? These can be any negative outcomes (such as, the topic would upset this person, this person would not be able to help, or this person would treat you differently in future interactions).” With only three indicators, the measurement model for the latent variable Outcome Expectancy was just-identified, meaning its estimated parameters and the distinct sample moments were equal, resulting in a CFA that fit perfectly, thereby preventing probability of fit from being calculated. Thus, Outcome Expectancy fit follows:  $\chi^2(0) = 0$  ( $p = n/a$ ),  $RMSEA = n/a$ ,  $CFI = 1.0$ . The factor loadings were good:  $\lambda_1 = 0.93$ ,  $\lambda_2 = 0.91$ ,  $\lambda_3 = 0.88$ . The scale was quite reliable ( $\alpha = 0.93$ ,  $M = 5.28$ ,  $SD = 1.24$ ).

**Efficacy.** The TMIM proposes three components of efficacy involved in the information-seeking process, all of which were assessed by adapting measures from Afifi and Afifi (2009) and Hovick (2014). Communication efficacy included three items: “I am able to ask this person what s/he thinks about my mental health,” “I know what to say to get information from this person about my mental health,” and “I am confident I can approach this person to talk about my mental health” with responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Target efficacy, concerned with the ability and completeness of the information provider, included four items: “this person has valuable information about my mental health,” “this person is able to provide me with information about my mental health,” “this person would be completely honest about my mental health,” and “this person would be forthcoming about mental health,” with responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Coping efficacy was measured with three items: “How well would you cope with this person’s reaction to your mental health concerns,” “How well would you cope with whatever you discover about your mental health,” and “How well would you cope if this person could not provide any information about your mental health,” with responses ranging from 1 (*could not cope*) to 7 (*could cope perfectly well*). Higher scores indicate a greater sense of efficacy. The initial measurement model of Efficacy, which included all factors, did not achieve acceptable fit ( $\chi^2(35) = 398.23, p = .000$ ). Coping efficacy loaded quite low while item 4 of target efficacy covaried with many other items and did not load as highly as the others. This weakness of coping efficacy has occurred in prior tests of the TMIM (Afifi & Weiner, 2006), often when outcomes are expected to be relatively positive, which was the case in the current population. Thus, the final model for efficacy included six items: three

items pertaining to communication efficacy and three items pertaining to target efficacy. Similar wording in target efficacy items 1 and 2 justified allowing these errors to covary to achieve good model fit. The final model fit was acceptable:  $\chi^2(8) = 13.63$  ( $p = .092$ ), RMSEA = .06, CFI = .994. The factor loadings were acceptable:  $\lambda_{\text{COM1}} = 0.91$ ,  $\lambda_{\text{COM2}} = 0.89$ ,  $\lambda_{\text{COM3}} = 0.85$ ,  $\lambda_{\text{TAR1}} = 0.70$ ,  $\lambda_{\text{TAR2}} = 0.69$ ,  $\lambda_{\text{TAR3}} = 0.71$ . The scale was quite reliable ( $\alpha = 0.91$ ,  $M = 5.26$ ,  $SD = 1.22$ ).

**Information seeking behavior.** The outcome of interest was assessed with adapted measures from Afifi and Afifi (2009), Chang (2014), and Hovick (2014). Participants were asked about their behavioral intentions with two items, including, “I intend to approach this person directly about my mental well-being concerns,” with responses ranging from 1 (*strongly disagree*) to 6 (*strongly agree*)—omitting the availability of a neutral (neither agree nor disagree) response—and “Rate how you intend to behave in the interaction with this person about your mental well-being concerns according the following key: 1 = I will probably openly discuss all aspects of the issue; 2 = I will probably openly discuss certain aspects of the issue, but talk around other aspects; 3 = I will probably openly discuss certain aspects of the issue, but refuse to talk about other aspects; 4 = I will probably talk around all aspects of the issue; 5 = I will probably try to change the topic; 6 = I will probably directly refuse to talk about all aspects of the issue. The second item was reverse coded, so that a greater score indicated more direct and open information seeking. To obtain additional information regarding topic avoidance, the following open-ended question was asked, “What, if anything, would you not be willing to talk about?” Having only two indicators, the latent variable Information Seeking would be under identified in an attempt to conduct a CFA, so only



Cronbach's alpha was used to assess this scale. This scale was fairly reliable ( $\alpha = 0.70$ ,  $M = 4.90$ ,  $SD = 1.09$ ).

**General anxiety.** As an alternative measure of anxiety, the Anxiety portion of the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) was used, which contains seven items. Sample items include, "I feel tense or 'wound up,'" and "I get a sort of frightened feeling as if something awful is about to happen" with responses ranging from 0 (*not at all*) to 3 (*most of the time*), higher scores indicating greater amounts of anxiety. The initial measurement model of General Anxiety, which included all factors, did not achieve acceptable fit ( $\chi^2 (14) = 40.366$ ,  $p = .000$ ), so the lowest loading factors, items 1, 4, and 6, were removed, leaving items 2, 3, 5, and 7 in the final model, which achieved good fit:  $\chi^2 (2) = 2.82$  ( $p = .244$ ), RMSEA = .046, CFI = .997. The final factor loadings were acceptable:  $\lambda_{GA2} = 0.70$ ,  $\lambda_{GA3} = 0.63$ ,  $\lambda_{GA5} = 0.65$ ,  $\lambda_{GA7} = 0.86$ . The scale was adequately reliable ( $\alpha = 0.79$ ,  $M = 2.28$ ,  $SD = 0.65$ ).

**Perceived public stigma.** Using a version of the Discrimination-Devaluation scale adapted by Eisenberg, Downs et al. (2009), perceived public stigma was measured through 12 items with which participants rate their level of agreement using a 1 (*strongly disagree*) through 6 (*strongly agree*) scale. Sample items include, "Most people would willingly accept someone who has received mental health treatment as a close friend," "Most people believe that a person who has received mental health treatment is just as intelligent as the average person," and "Most people believe that someone who has received mental health treatment is just as trustworthy as the average person." Higher scores indicate a more positive perspective (less public stigma). The initial measurement model of Public Stigma, which included all factors, did not achieve acceptable fit ( $\chi^2 (54)$

= 243.626,  $p = .000$ ); the lowest loading factors, items 1, 5, 6, 7, 9, 11, and 12, were removed, while allowing items 2 and 3 to covary as well as items 8 and 10 due to measurement similarity. The final model included items 2, 3, 4, 8, and 10 and achieved good fit:  $\chi^2(3) = 4.983$  ( $p = .173$ ), RMSEA = .058, CFI = .994. The final factor loadings were acceptable:  $\lambda_{\text{PUB2}} = 0.69$ ,  $\lambda_{\text{PUB3}} = 0.67$ ,  $\lambda_{\text{PUB4}} = 0.68$ ,  $\lambda_{\text{PUB8}} = 0.72$ ,  $\lambda_{\text{PUB10}} = 0.70$ . The scale was adequately reliable ( $\alpha = 0.83$ ,  $M = 3.74$ ,  $SD = 0.97$ ).

**Personal stigma.** Using an adapted version of the perceived stigma scale employed by Eisenberg, Downs et al. (2009), personal stigma was measured through three items, including, “I would willingly accept someone who has received mental health treatment as a close friend,” “I would think less of a person who has received mental health treatment,” and “I believe that someone who has received mental health treatment is just as trustworthy as the average person.” As with the perceived stigma measure, participants rate their level of agreement with each statement from 1 (*strongly disagree*) to 6 (*strongly agree*). High scores indicate less personal stigma. With only three indicators, the measurement model for the latent variable Personal Stigma was just-identified, resulting in a CFA that fit perfectly, thereby preventing probability of fit from being calculated. Thus, Personal Stigma fit follows:  $\chi^2(0) = 0$  ( $p = n/a$ ), RMSEA =  $n/a$ , CFI = 1.0. The factor loadings were acceptable:  $\lambda_1 = 0.98$ ,  $\lambda_2 = 0.57$ ,  $\lambda_3 = 0.63$ . The scale was fairly reliable ( $\alpha = 0.75$ ,  $M = 4.83$ ,  $SD = 0.94$ ).

**Classification and general information seeking.** Once participants completed the primary measures of interest, a short demographic questionnaire was given, including questions related to age, gender, and ethnicity. While the current study sought to explore information seeking in interpersonal relationships, it is evident that numerous sources of

information may be sought and relevant to help seeking behaviors. Based on data collected by Reavley, Cvetkovski, and Jorm (2011), participants were asked about general information-seeking behavior with the question “Have you sought advice, insight, or information related to your mental well-being from any of the following sources? Please select all that apply” and options including, “a. The internet, b. Fiction book, c. Nonfiction book, d. Newspaper or magazine, e. Television, f. Radio, g. Pamphlet/leaflet/brochure, h. Spoken to relative or friend, i. Spoken to a professional (e.g., counselor, therapist, general practitioner), j. Other (please specify): \_\_\_\_\_, or k. No.” After reporting general information seeking behavior participants were asked “Have you spoken to the person you previously identified about your concern for your mental well-being?” Participants who answered “no” were thanked for their time and informed of their completion of the study while those who answered “yes” were directed to the final set of questions regarding this communication.

Table 3 displays the information-seeking patterns of participants. The total percentage is greater than 100, as participants were permitted to select more than one source of information. The most reported source of information seeking was the internet ( $n = 135$ , 68.5%), an informal other (i.e., relative or friend;  $n = 127$ , 64.5%), a professional (i.e., counselor, therapist, general practitioner;  $n = 77$ , 39.1%), a newspaper/magazine ( $n = 33$ , 15.7%), television ( $n = 31$ , 15.7%), a brochure/pamphlet ( $n = 25$ , 12.7%), a non-fiction book ( $n = 21$ , 10.7%), a fiction book ( $n = 19$ , 9.6%), radio ( $n = 4$ , 2%), and other ( $n = 3$ , 1.5%); 19 (9.6%) participants reported that they had not sought any information about their mental well-being concern. Text responses when “Other” was selected included Church, Medication, and Psychiatrist.

Table 3

*Information Seeking Patterns*

<u>Source</u>	<u>Frequency</u>	<u>Percentage</u>
Internet	135	68.5
Fiction	19	9.6
Non-Fiction	21	10.7
News Paper/Magazine	33	16.8
Television	31	15.7
Radio	4	2.0
Brochure/Pamphlet	25	12.7
Informal (i.e., relative/friend)	127	64.5
Professional (i.e., counselor, therapist)	77	39.1
Other	3	1.5

**Previous discussion.** To further understand and explore the characteristics relevant to disclosing and seeking information in a personal relationship related to one's mental well-being participants were instructed to "think about past conversations you have had about your mental well-being with the person you identified previously." Questions regarding these conversations include, "Who initiated the first conversation?" with the possible answers, "a. I initiated the conversation about my mental well-being, b. The other person initiated the conversation, c. I don't remember who initiated the conversation, d. I have not spoken with this person about my mental well-being." The latter option simply seeks to account for the possibility that participants proceeded with the previous discussion survey by mistake. Additionally, participants were asked, "How long ago did the first conversation with this person about your mental well-being occur?" with the possible answers, "a. Within the past month, b. More than a month ago, but less than 3 months ago, c. More than 3 months ago, but less than 6 months ago, d. More than 6 months ago, but less than 1 year ago, e. More than 1 year ago," and "How many conversations have you had with this person about your mental well-being?" with the

possible answers, “a. Between 1 and 2, b. Between 3 and 5, c. Between 6 and 10, d. More than 10,” and “Prior to *the first* conversation you had with this person did you talk to anyone else about your mental well-being?” with a “yes” or “no” answer.

Participants reported whether they had previously spoken to the target about their mental well-being with 131 (67%) reporting that they had and 64 (33%) reporting that they not spoken to the target. Table 4 provides details regarding the 131 participants’ previous conversations. Participants reported the number of past conversations with four available options: one to two conversations ( $n = 39$ , 29.8%), three to five ( $n = 54$ , 41.2%), six to ten ( $n = 13$ , 9.9%), more than 10 ( $n = 25$ , 19.1%). Participants reported how long ago the first conversation occurred with five options: within the past month ( $n = 20$ , 15.3%), one to three months ago ( $n = 21$ , 16%), three to six months ago ( $n = 19$ , 14.5%), six to 12 months ago ( $n = 15$ , 11.5%), more than a year ago ( $n = 56$ , 42.7%). Participants reported who initiated the first conversation: 81 (61.8%) were participant-initiated, 16 (12.2%) were target-initiated, and 34 (26%) were unknown. Sixty-one participants (46.9%) reported they had a conversation with another (in addition to the target), 69 (53.1%) had not had any conversations about the mental illness uncertainty, and one participant did not respond.

Table 4  
*Previous Conversation Characteristics*

	<u>Frequency</u>	<u>Percent</u>
Previous Conversations		
1 – 2	39	29.8
3 – 5	54	41.2
6 – 10	13	9.9
10+	25	19.1
Time of Conversation		
Within the past month	20	15.3
1 – 3 months ago	21	16
3 – 6 months ago	19	14.5
6 – 12 months ago	15	11.5
More than 1 year ago	56	42.7
Conversation Initiation		
Participant	81	61.8
Target	16	12.2
Unknown	34	26.0
Conversation with Another		
Yes	61	46.9
No	69	53.1

## RESULTS

Prior to hypothesis testing, correlations examined relationships among variables and participant characteristics. Table 5 contains correlations of the composite variables of interest and relevant demographic variables. In accordance with previous tests of the TMIM, structural equation modeling (SEM) was employed to analyze relationships between variables and ultimately test hypotheses. The statistical software AMOS 22 was used to test the structural model. Model predictors were perceived stigma, personal stigma, uncertainty discrepancy, anxiety, outcome expectancy, closeness, and efficacy, and model outcome was information seeking intention/behavior. Alternative models were also considered.

Table 5  
*Correlations of Information Seeking Variables and Demographics*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	1											
2. Gender	-0.06	1										
3. Uncertainty Discrepancy	-0.17*	0	1									
4. Health Management	-0.07	0	-0.26**	1								
5. U.D. Anxiety	-0.07	0	0.35**	-0.38**	1							
6. Closeness	-0.04	0.13	0.07	-0.12	0.11	1						
7. Outcome Expectancy	0.04	0.13	-0.09	0.17*	-0.11	0.17*	1					
8. Efficacy	0.04	0.10	-0.13	0.15*	-0.07	0.29**	0.62**	1				
9. General Anxiety	-0.17*	.16*	0.24**	-0.41**	0.39**	0.30**	-0.06	0.02	1			
10. Public Stigma	0.12	0.05	-0.11	0.15*	-0.15*	0.01	0.22**	0.13	-0.13	1		
11. Personal Stigma	-0.07	-0.15*	-0.09	-0.08	0.06	-0.19**	-0.18*	-0.19**	-0.18*	-0.22**	1	
12. Information Seeking	0	.15*	-0.15*	0.02	-0.09	0.34**	0.58**	0.69*	0.11	0.11	-0.20**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).



As stated previously for the measurement models, tests to evaluate whether the data fits the model well include the  $\chi^2$ , which should be low with a non-significant  $p$ -value at the .05 level, the RMSEA, which should be less than .06 although .08 would be acceptable, and the CFI, which should be greater than .95 although .90 would be acceptable (Kline, 2011). In addition to these indices, the Tucker Lewis Index (TLI), which should be greater than 0.95, was also considered prior to moving forward with the full SEM as well as the reduced  $\chi^2$  (CMIN/DF in AMOS), which is calculated by dividing  $\chi^2$  by the degrees of freedom and aims to estimate fit while accounting for sample size and complexity. While an acceptable reduced  $\chi^2$  has not been globally agreed upon, Hu and Bentler (1989) have suggested that a value below 2 or 3 should be considered adequate, with a value closer to 1 preferable. All measures were inspected for collinearity, homoscedasticity, and normality prior to analysis. Having met all necessary assumptions, the default Maximum Likelihood estimation for the SEM was determined to be appropriate. In an effort to test hypothesized relationships rigorously, a fully latent structural regression model was tested to begin. It is important to note that the model was identified, meaning the parameters being estimated were fewer than the number of individual sample moments. Identification is necessary for structural equation modeling to run. A two-step process for SEM is recommended for assessment of both the measurement model portion and then structural portion of the model (Kline, 2011; Mueller & Hancock, 2007).

### **Testing the Model**

The initial model included all latent variables and the indicators retained in the individual CFAs with covariances between the latent variables. This first step seeks to

reduce the discrepancies within the measurement model prior to investigating the structural portion of the model. The model did not achieve absolute fit, although the parsimonious and incremental indices were adequate ( $\chi^2 (395) = 527.037, p = .000$ , RMSEA = 0.041, 90%CI[0.031, 0.05], CFI = 0.961). Inspection of the residual covariance matrix revealed that Closeness\_5 had highly covarying residual terms with many other variables in the model: three were greater than two in absolute value, which indicate poor fit (Byrne, 2001). Given that closeness had four indicators and the minimum necessary is two with three preferred, this indicator (Closeness\_5) was removed from the model. While model fit improved slightly, the confirmatory factor analysis still did not achieve good fit with the removed indicator ( $\chi^2 (366) = 474.562, p = .000$ , RMSEA = 0.039, 90%CI[0.028, 0.049], CFI = 0.967). Re-inspection of the residual covariance matrix revealed that Public\_Stigma\_10 had highly covarying residual terms with many other variables in the model: two were greater than two in absolute value. With five indicators for the factor Public Stigma, this fifth indicator was dropped from the model. Once again, the elimination of this variable improved the model fit slightly, but did not achieve an acceptable measure of absolute fit ( $\chi^2 (338) = 419.049, p = .002$ , RMSEA = 0.035, 90%CI[0.022, 0.046], CFI = 0.974). Public\_Stigma\_3 and Personal\_Stigma\_3 had highly covarying residuals, which is likely caused by item similarity except for beginning with “most people” and “I;” as a result, these error terms were allowed to covary, improving model fit once again ( $\chi^2 (337) = 407.951, p = .005$ , RMSEA = 0.033, 90%CI[0.019, 0.044], TLI = 0.973, CFI = 0.977, CMIN/DF = 1.211). Only one residual covariance exceeded two in absolute value: between Uncertainty\_Discrepancy and Uncertainty\_Anxiety\_2, which only just exceeded the

threshold (-2.058). While absolute fit was not achieved, approximate fit indices were deemed acceptable for movement to the second stage of the SEM (Mueller & Hancock, 2007).

In the second stage of the SEM only covariances were retained for exogenous variables to allow the covariances to be estimated, a necessary constraint in SEM. The endogenous covariances were replaced with predicted paths according to the hypothesized model. As expected from the first step of the analysis, the absolute fit was not achieved ( $\chi^2(356) = 479.103, p = .000, RMSEA = 0.042, 90\% CI[0.032, 0.051], CFI = 0.961, TLI = 0.955, CMIN/DF = 1.346$ ). While the approximate fit indices were acceptable, there appeared to be room for improvement. Inspection of the residual covariance matrix revealed that indicators of Health Management had highly covarying residual terms with Uncertainty Discrepancy, indicating a relationship between these constructs. Contrary to expectation, the relationship between Health Management and Information Seeking was not significant ( $\beta = -.104, p = .10$ ). Given the exploratory nature of Health Management's influence on information seeking, paths were added to the original model from Health Management to Uncertainty Discrepancy and Uncertainty Discrepancy Anxiety while the path to information seeking was removed. Once again, absolute fit was not achieved, but approximate fit indices were acceptable ( $\chi^2(355) = 448.007, p = .001, RMSEA = 0.037, 90\% CI[0.025, 0.047], TLI = 0.966, CFI = 0.97, CMIN/DF = 1.262$ ). Unstandardized and standardized parameter estimates for this final model are listed in Table 6 while standardized parameter estimates are addressed according to their associated hypotheses below.

Table 6

*Regression Weights for Hypothesized Relationships in Full TMIM+ Model*

	<u>Standardized</u>	<u>Unstandardized</u>	<u>p</u>
Personal Stigma on Uncertainty Discrepancy	-0.11	0.28	0.134
Health Management on Uncertainty Discrepancy	-0.33	-0.83	***
Personal Stigma on UD Anxiety	0.01	-0.02	0.844
Uncertainty Discrepancy on UD Anxiety	0.27	0.18	***
Health Management on UD Anxiety	-0.34	-0.56	***
Public Stigma on Outcome Expectancy	-0.23	0.27	0.004
UD Anxiety on Outcome Expectancy	-0.14	-0.14	0.063
Closeness on Outcome Expectancy	0.23	0.21	0.004
UD Anxiety on Efficacy	-0.05	-0.04	0.44
Outcome Expectancy on Efficacy	0.63	0.50	***
Closeness on Efficacy	0.20	0.15	0.003
Efficacy on Info Seeking	0.84	1.03	***

The resulting path model is given in Figure 2 with standardized parameter estimates. Uncertainty discrepancy about mental well-being predicted uncertainty discrepancy anxiety significantly ( $\beta = 0.27, p < .001$ ), supporting H1. Uncertainty discrepancy anxiety approached significance in predicting outcome expectancy ( $\beta = -0.13, p = .06$ ), but did not significantly predict efficacy ( $\beta = -0.04, p = .44$ ). Therefore, while H2a received support, H2b was not supported. Outcome expectancy significantly predicted efficacy ( $\beta = 0.62, p < .001$ ), supporting H3. Efficacy significantly predicted information seeking ( $\beta = 0.83, p < .001$ ), supporting H4. Closeness significantly predicted outcome expectancy ( $\beta = 0.23, p = .004$ ) as well as efficacy ( $\beta = 0.20, p = .003$ ), supporting H5a and H5b. Personal stigma did not significantly predict uncertainty discrepancy ( $\beta = -0.112, p = .13$ ) or uncertainty discrepancy anxiety ( $\beta = 0.01, p = .84$ ), demonstrating no support for H6. Public stigma significantly predicted outcome

expectancy ( $\beta = -0.23, p = .004$ ), supporting H7. The research question asked how health management is related to information seeking. However, health management, did not have a significant relationship with information seeking directly ( $\beta = -.104, p = .10$ ;  $r(195) = .004, p = .726$ ), although it did appear to impact the interpretation of mental well-being concern. The added paths from health management to uncertainty discrepancy ( $\beta = -0.326, p < .001$ ) and health management to uncertainty discrepancy anxiety ( $\beta = -0.335, p < .001$ ) were significant. Better management of one's mental well-being was associated with less uncertainty discrepancy and lower levels of anxiety.

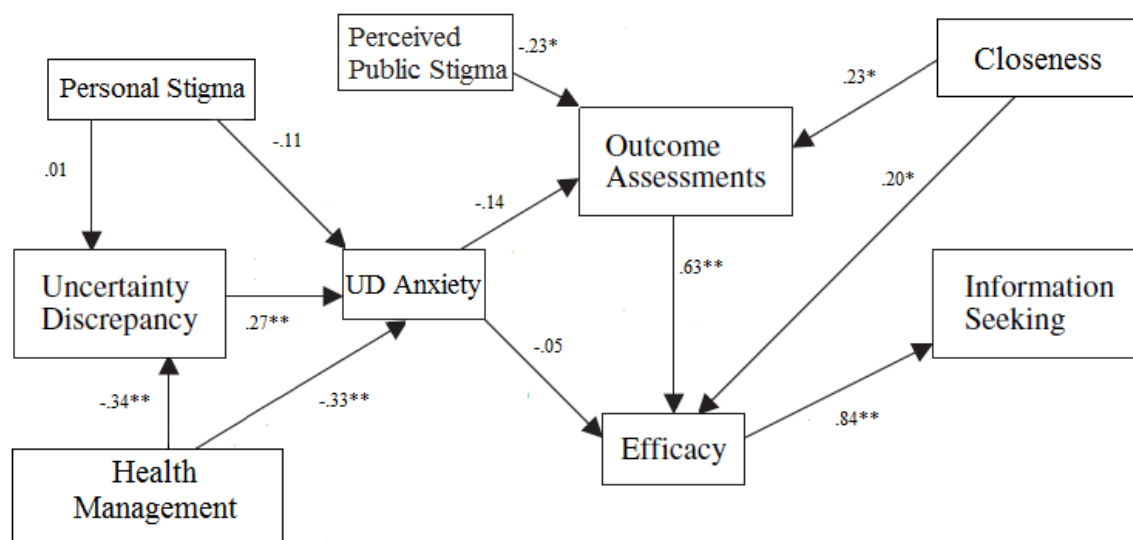


Figure 2. Retained Structural Model with Parameter Estimates.

Note: Asterisks indicate path coefficient significance at  $**p < .001$  or  $*p < .01$ .

### Alternative Models

Because absolute fit could not be achieved with all of the variables of interest, I also examined a model containing the TMIM constructs exclusively. The first step of the SEM achieved approximate fit once the errors for Target\_Efficacy\_1 and Target\_Efficacy\_2 were permitted to covary, although absolute fit was not achieved ( $\chi^2$

(80) = 111.174,  $p = .012$ , RMSEA = 0.045, 90% CI[0.022, 0.063], CFI = 0.985, TLI = .980 CMIN/DF = 1.39). The second step of the SEM performed comparably: The structural model did not achieve absolute fit, although goodness-of-fit indices were acceptable ( $\chi^2$  (85) = 123.096,  $p = .004$ , RMSEA = 0.048, 90% CI[0.027, 0.066], CFI = 0.982, TLI = 0.977, CMIN/DF = 1.448). The CFI indicates that this model has quite good incremental fit, meaning its difference from the null model is substantial, and the parsimonious fit, indicated by the RMSEA and CMIN/DF, are also acceptable (Mueller & Hancock, 2007).

Another model considered in the current investigation was one including general anxiety rather than uncertainty anxiety to inspect whether this characteristic predicted aspects of information seeking any better than anxiety related specifically to uncertainty discrepancy. The model achieved acceptable fit ( $\chi^2$  (383) = 543.187,  $p = .000$ , RMSEA = 0.046, 90% CI[0.037, 0.055], TLI = 0.941 CFI = 0.948, CMIN/DF = 1.418). Although the CFI is below the preferred .95, it is above the permissible .90 and is approaching the .95 mark, and the TLI is approaching the recommended .95 mark. Thus, the parameter estimates are given in Table 7 and standardized estimates are explored below.

Table 7

*Regression Weights for Hypothesized Relationships in General Anxiety Model*

	<u>Standardized</u>	<u>Unstandardized</u>	<u>p</u>
Personal Stigma on Uncertainty Discrepancy	-0.11	-0.28	.129
Health Management on Uncertainty Discrepancy	-0.33	-0.84	***
Personal Stigma on General Anxiety	-0.24	-0.15	.004
Uncertainty Discrepancy on General Anxiety	0.09	0.02	.267
Health Management on General Anxiety	-0.46	-0.30	***
Public Stigma on Outcome Expectancy	-0.24	-0.28	.003
General Anxiety on Outcome Expectancy	-0.15	-0.38	.064
Closeness on Outcome Expectancy	0.26	0.24	.002
General Anxiety on Efficacy	0.01	0.01	.942
Outcome Expectancy on Efficacy	0.63	0.51	***
Closeness on Efficacy	0.19	0.14	.006
Efficacy on Info Seeking	0.84	1.03	***

In the General Anxiety model uncertainty discrepancy did not predict general anxiety, ( $\beta = .085, p = .267$ ), which is not surprising, given the specificity of the TMIM in predicting anxiety specific to the sense of uncertainty discrepancy (Afifi & Weiner, 2004). General anxiety did not predict outcome expectancy ( $\beta = -0.146, p = .064$ ) or efficacy ( $\beta = 0.005, p = .942$ ). The evaluation and decision phases of the TMIM performed similarly in this model as the initial model with outcome expectancy significantly predicting efficacy ( $\beta = 0.63, p < .001$ ) and efficacy significantly predicting information seeking ( $\beta = 0.835, p < .001$ ). Also in line with the initial model, closeness significantly predicted outcome expectancy ( $\beta = 0.26, p = .002$ ) as well as efficacy ( $\beta = 0.19, p = .006$ ). Personal stigma did not significantly predict uncertainty discrepancy ( $\beta = -0.11, p = .129$ ), just as in the initial model, but it did have a significant relationship with general anxiety ( $\beta = -0.24, p = .004$ ). Public stigma significantly predicted outcome

expectancy ( $\beta = -0.24, p = .003$ ). Health management significantly predicted uncertainty discrepancy ( $\beta = -0.327, p < .001$ ) and general anxiety ( $\beta = -0.46, p < .001$ ).

### **Open-Ended Responses**

To supplement the quantitative analysis, four open-ended questions were asked, beginning with emotions experienced in the face of uncertainty discrepancy, which was answered by 99 participants. The next open-response questions pertained to positive and negative outcomes of speaking with the target about the participant's mental well-being concern. Advantages to talking with the target were reported by 104 participants (53%) while drawbacks were reported by 86 participants (44%). Finally, the nature of topic avoidance was assessed in an effort to add richness to the outcome of interest, information seeking. A total of 101 participants (51%) answered the question about topic avoidance, 40 of which simply reported that they would not avoid any topic. Answers of this nature were as brief as "nothing" and as direct as "I am an open book to this person," demonstrating that at least 20% of the total participants did not intend to conceal any particular subjects regarding their mental well-being. In contrast, six participants reported that they would avoid the subject with this person entirely, an example of which is "I would not be willing to talk to this person about my mental well-being." The remaining 55 participants fell between these two extremes, reporting both specific and general details they would avoid. Select examples of participant responses are listed in Table 8. While open-coding of the data upon establishment of interrater reliability would allow for the most valuable insight to be gained from this material, such an analysis is beyond the scope of the current investigation.



Table 8.  
*Select Examples from Answers to Open-Ended Questions*

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<u>Emotions</u>	<p>“Concern, contempt, unease, fear”</p> <p>“Stressed, confused, worrisome, angry”</p> <p>“I have researched it a lot, so I do not feel like I am uninformed.”</p>
<u>Advantages</u>	<p>“This person helps me focus on the big picture when I get caught on the small, insignificant details. She points me toward my faith and helps me feel better. We have grown closer through vulnerability with each other.”</p> <p>“Knowing that someone else understands would be helpful and nice for them to check up on me.”</p> <p>“This person struggles with similar issues and can help me not feel so alone.”</p>
<u>Drawbacks</u>	<p>“It would be awkward and I would get lectured.”</p> <p>“He might not take them seriously or begin to think that I am too much of a burden to handle and want to end the relationship.”</p> <p>“She could push me to find answers from a medical professional if I do not want to do that. She could also push me to talk to my family about mental health which is something we do not discuss.”</p>
<u>Avoided Topics</u>	<p>“Detailed accounts of my past relationship history that may be part of my emotional baggage.”</p> <p>“Personal issues involving my family.”</p> <p>“My history of self abuse.”</p>

## DISCUSSION

This study applies the Theory of Motivated Information Management (Afifi & Weiner, 2004) to the context of predicting mental-health information seeking behaviors. This study also extends the scope of the model to account for potential barriers and facilitators of help-seeking, ultimately attempting to predict information seeking behavior based on relevant situation characteristics such as outcome expectancy and efficacy. The broad conclusion of this study is that some aspects, namely the interpretation and decision phases, of the Theory of Motivated Information Management extend to the context of mental well-being concerns. The majority of the hypothesized relationships were found to be significant, although many important relationships failed to emerge within the data.

### **Performance of the TMIM**

Despite support for interpretation and decision phases, some relationships between key aspects of the TMIM were not nearly as evident in the context of mental health as they have been in prior studies of the theory. It was quite clear that participants experienced a wide range of uncertainty discrepancy regarding their mental health and that this discrepancy in uncertainty was associated with elevated levels of anxiety. The TMIM predicted that anxiety experienced as a result of an uncertainty discrepancy would influence both outcome expectancy and efficacy (Afifi & Weiner, 2004), which has been

previously supported (Afifi & Afifi, 2009; Afifi & Weiner, 2006; Chang, 2014; Hovick, 2014). However, anxiety did not have a significant relationship with efficacy, indicating that perhaps something else motivates the evaluation phase of the information seeking process in this context. Despite the lack of evidence for the influence of anxiety on efficacy, the impact on outcome expectancy approached significance. The magnitude of this relationship has been comparable in previous tests of the TMIM (Afifi & Afifi, 2009; Afifi & Weiner, 2006). The evaluation and decision phases of the TMIM received support. Specifically, having more positive outcome expectations was associated with a greater sense of efficacy and, in turn, a greater sense of efficacy was strongly associated with more direct information seeking. The clear connection between the aspects of evaluation and the ability to predict information seeking from efficacy is quite consistent with the TMIM literature (Afifi & Afifi, 2009; Afifi & Weiner, 2006; Chang, 2014; Hovick, 2014), demonstrating that the evaluation and decision phases of the TMIM function predictably in the context of mental health.

### **Barriers and Facilitators Explored**

As an important aspect concerning mental health, personal stigma was explored and expected to influence uncertainty discrepancy and related anxiety, but it did not appear to influence either of these TMIM variables significantly. One possible reason for this might be a selection bias, for it was rationalized that having a negative view of people with mental health issues may prevent an individual from associating oneself with the stigmatized group. That is, individuals with very negative personal stigma would not have signed up for the study because they did not consider themselves as having any mental well-being concerns. It is also important to note that personal stigma tends to be

reported more positively (Eisenberg, Downs et al., 2009), likely due in part to self-presentation bias, so the variable's performance could be impacted by this common occurrence. While prior research has demonstrated that personal stigma influences professional help-seeking directly (Eisenberg, Downs et al., 2009), the mechanisms through which this occurs warrant further investigation.

Additionally relevant to this context and the evaluation phase of the information seeking process was the participant's perception of public stigma. When a participant had a more positive view of public stigma (that is, perceived others as not having very negative views of people with mental health issues), the participants tended to have more positive outcome expectations for a conversation about their mental well-being concerns. Confirmation of the role public stigma plays in the information seeking process has important implications for how we talk about mental illness. For many, the first step towards getting help when experiencing mental health concerns is gathering information (Rickwood et al., 2005), yet this important step may be dismissed because of the way individuals assume others think. Previous work on stigma and help-seeking found personal stigma to have a negative association with help-seeking while public stigma did not (Eisenberg, Downs et al., 2009; Golberstein et al. 2008). While these prior studies investigated professional sources of help-seeking, the current study remained within an informal, interpersonal context, yet found similar support, given the lack of association between public stigma and information seeking. However, the aforementioned studies inspected direct effects, finding no impact from public stigma, while the current study supports an indirect association by way of its influence on outcome expectancy. It is likely that personal and public stigma both play a role in the process of help-seeking,

depending perhaps on the type and context of that help. In future work, it would be beneficial to distinguish between and measure both informal and professional sources of help while accounting for personal and perceived public stigma.

Another influence on the evaluation phase not outlined by the TMIM was the closeness between the potential information seeker and the potential target of conversation which this study sought to inspect. While a previous TMIM study measured closeness (Afifi & Afifi, 2009), the constraints of that study, which requested a parent and child participate together, confounded this variable somewhat. The parent-child dyads elected to participate in the study, so were quite close already, minimizing the opportunity to adequately assess this trait's influence on relevant factors. The current study sought to alleviate this somewhat by simply identifying a target that is spoken with regularly. While closeness tended to be high ( $M = 5.05$  with a range of 1 to 7), there was still enough variation to detect effects. Closeness predicted more positive outcome expectations and a greater sense of efficacy, as theorized. This demonstrates more specifically the way facilitators to help-seeking might manifest, considering that most individuals in this age group tend to seek help from close others rather than more formal support sources (Oliver et al. , 2005). Being closer to a potential conversation target leads to more optimistic outcome expectancy and a greater sense of efficacy in support of the Disclosure Decision-Making Model (Greene, 2009), which likely contribute to Rickwood et al.'s (2005) help-seeking facilitators: Positive beliefs about and past experiences with help seeking and emotional competence.

The final variable added to the TMIM model was health management, originally expected to influence information seeking, although in an unknown direction. Two

competing possibilities were proposed: (1) individuals with greater health management may perceive less information need and may be less inclined to seek information; (2) managing one's health more poorly may hinder someone from seeking information out of fear that they might receive confirmation of a real problem. One open-ended response regarding drawbacks of talking to the target lends support for the latter possibility: "She'd think I was crazy; it might actually be a problem. I can't actually afford to get professional help if I need it." While it is possible that health management may be functioning as a facilitator and a barrier of information seeking for different groups, the current investigation cannot say definitively. It is also possible that health management simply has no direct relationship with information seeking, which would support the findings of Biddle et al. (2007), who report that seeking professional help was not associated with severity due to denial. This lends support for the notion that health management may be more relevant to an earlier stage of the information seeking process. With evidence for its impact on the interpretation phase rather than the decision phase of the TMIM, the model was adjusted and revealed that health management did have a significant relationship with uncertainty discrepancy and related anxiety. Specifically, the more poorly an individual's health management, the greater that person's uncertainty discrepancy. Likewise, the more poorly managed an individual's health the more uncertainty discrepancy anxiety the individual experienced.

### **Qualitative Supplements**

Prior research on the TMIM has been exclusively quantitative (Afifi & Afifi, 2009; Afifi & Weiner, 2006; Chang, 2014; Hovick, 2014), limiting the extent to which insight might be gained from details of particular model constructs. The current study

sought to expand our understanding of TMIM variables, namely, the specific outcomes that are expected from seeking information, the emotions inspired by the experience of uncertainty discrepancy, and the topics that would be avoided if the conversation were to take place. While the current study investigated these trends to an extent, the extent of this analysis is beyond the scope of the current manuscript.

### **Limitations and Future Research**

A variety of limitations of the current study have been identified and should be considered for future research. As with all self-reported measures, the data suffers from common method variance. All items were presented at the same time and in the same order for all participants in an online format, which likely contributes partially to bias (Podaskoff et al., 2003). Additionally, the participants of the study were predominantly female and white, which limits the generalizability of the findings to a broader population of college students. Additionally, the majority of the participants had already spoken to the target about their mental well-being, so responses are likely more retrospective and influenced by the prior experiences. Considering that many participants reported they had also spoken to another about their concern, the frequency and nature of these interactions is unknown. The salience, recency, and pleasantness of particular interactions might influence some participant answers in undetectable ways. Behavioral intention may be influenced by a variety of factors that cannot be taken into account with the variables measured, particularly when some participants' reports of intentions are influenced by recall of behavior in past conversations. Additionally family history of mental health issues was not accounted for in the current study, but may be an important factor when considering the norms that this sets for individuals with regard to comfort discussing the

subject and what needing help looks like, both of which have been shown to influence help-seeking (Vanheusden et al., 2008).

This test of the TMIM only used one measurement of uncertainty discrepancy and that item was a difference score. While the intention was to incorporate items from prior tests of the TMIM to build a more well-rounded measure of uncertainty discrepancy (Afifi & Weiner, 2004), the phrasing of the two additional items resulted in these items measuring a sense of uncertainty rather than the discrepancy between one's uncertainty and one's desired uncertainty. This produced an unreliable measure and as a result the items were dropped from the analysis. In future investigations of uncertainty discrepancy, items should be carefully evaluated so that a more valid and reliable scale with multiple indicators might be used to accurately assess this construct.

Future research should also inspect the motivation for outcome expectancy and efficacy in this context. The TMIM highlights an important process with regard to interpreting one's source of uncertainty discrepancy and the key characteristics that influence decision-making. However, it does not appear that information-seeking is motivated by uncertainty discrepancy anxiety, begging the question, what does motivate information-seeking in the context of mental health? While help-seeking and information-seeking are clearly connected, it is possible that support acquisition might inform this particular aspect of the process when the topic concerns mental health. It would also be advantageous for future research to limit the sample to a group who has not yet spoken with the target, as an uncertainty discrepancy may simply be recalled by some participants while it is present in others, changing the nature of construct assessment.



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## APPENDICES

## Appendix A: Information-Seeking Survey

1. Have you ever been (or are you currently) concerned about your mental well-being? This might include feeling that strain or stress impacts your quality of life or being diagnosed with a mental illness.
  - a. No, I have not experienced concern about my mental well-being.
  - b. Yes, I have experienced concern about my mental well-being (past or present).

[Participants who select B or C proceed to question 2]

2. Please describe what led you to be concerned about your mental well-being (symptoms, thoughts, feelings, etc.)
- 

3. If there were a diagnosis for what you have experienced, or are experiencing, what do you think it might be? Click all that apply.

a. Substance dependence/abuse (alcohol, nicotine, drugs) b. Mood disorder (bipolar, depression) c. Anxiety (panic, social anxiety, phobia) d. Personality disorder (avoidant, obsessive-compulsive) e. Other f. Unsure

Please specify further if applicable: \_\_\_\_\_

The following items ask how you manage the state of your mental well-being.

4. I am handling my mental well-being well.

<i>Strongly</i>					<i>Strongly</i>
<i>Disagree</i>					<i>Agree</i>
1	2	3	4		5

5. I have trouble dealing with my mental well-being.

<i>Strongly</i>					<i>Strongly</i>
<i>Disagree</i>					<i>Agree</i>
1	2	3	4		5

6. I can cope with my mental well-being.

<i>Strongly</i>					<i>Strongly</i>
<i>Disagree</i>					<i>Agree</i>
1	2	3	4		5

7. I am not managing my mental well-being well. R

<i>Strongly</i>					<i>Strongly</i>
<i>Disagree</i>					<i>Agree</i>
1	2	3	4		5

8. I have learned to live with my mental well-being.

*Strongly*  
*Disagree*  
1                      2                      3                      4                      5  
*Strongly*  
*Agree*

The following sets of questions ask you to think about your mental well-being concern. Please select the item that best describes how you feel.

1. How much do you *know* about your mental well-being? (Index)

*Nothing*                      *Everything*  
1                      2                      3                      4                      5                      6                      7

2. How much do you *want to know* about your mental well-being? (Index)

*Nothing*                      *Everything*  
1                      2                      3                      4                      5                      6                      7

3. How confident are you about your mental well-being?

*Nothing*                      *Everything*  
1                      2                      3                      4                      5                      6                      7

4. How much information do you have about your mental well-being?

*Nothing*                      *Everything*  
1                      2                      3                      4                      5                      6                      7

The following sets of questions ask you to think about your mental well-being concern. Please select the item that best describes how you feel.

5. When you compare how much you want to know and how much you actually know about your mental well-being, how anxious does it make you?

*Not at all*                      *Extremely*  
*anxiety-*                      *anxiety-*  
*producing*                      *producing*  
1                      2                      3                      4                      5                      6                      7

6. How anxious does it make you to think about how much/how little you know about your mental well-being?

*Not at all*                      *Extremely*  
*anxiety-*                      *anxiety-*  
*producing*                      *producing*

1                      2                      3                      4                      5                      6                      7

7. The size of the similarity/difference between how much you know and how much you would like to know about your mental well-being is \_\_\_\_\_.

*Not at all  
anxiety-  
producing*

1

2

3

4

5

6

*Extremely  
anxiety-  
producing*

7

8. Please list the other emotions you feel when you think about the difference between how much you know and how much you want to know about your mental well-being concern?

---

For the following statements, think about an individual with whom you interact on a regular basis (i.e., talk to at least weekly).

1. Please record the initials of this individual in the following space: \_\_\_\_\_.
2. What is the nature of your relationship with the person whose initials you reported above?
  - a. Relative (parent, sibling, cousin, etc.)
  - b. Friend
  - c. Other (please specify) \_\_\_\_\_.

Now, please answer these questions about your **overall relationship** with this person.

3. I feel that I could confide in this person about virtually anything.

*Strongly  
Disagree*

1

2

3

4

5

6

*Strongly  
Agree*

7

4. I would do anything for this person.

*Strongly  
Disagree*

1

2

3

4

5

6

*Strongly  
Agree*

7

5. If I couldn't be with this person, I would feel miserable.

*Strongly  
Disagree*

*Strongly  
Agree*

1                    2                    3                    4                    5                    6                    7

6. If I am lonely, my first thought is to seek this person out.

*Strongly  
Disagree*

1                    2                    3                    4                    5                    6

*Strongly  
Agree*

7

7. One of my primary concerns is this person's welfare.

*Strongly  
Disagree*

1                    2                    3                    4                    5                    6

*Strongly  
Agree*

7

8. I would forgive this person for practically anything.

*Strongly  
Disagree*

1                    2                    3                    4                    5                    6

*Strongly  
Agree*

7

9. I feel responsible for this person's well being.

*Strongly  
Disagree*

1                    2                    3                    4                    5                    6

*Strongly  
Agree*

7

10. I would enjoy being confided in by this person.

*Strongly  
Disagree*

1                    2                    3                    4                    5                    6

*Strongly  
Agree*

7

11. It would be hard for me to get along without this person.

*Strongly  
Disagree*

1                    2                    3                    4                    5                    6

*Strongly  
Agree*

7

Throughout the survey you will see the term 'mental well-being concern'. This might refer to feeling that stress or strain impacts your quality of life or more specific concerns about your mental health.

Think about the possibility of talking with the person you identified previously about your mental well-being, and select the response that most suits you.

1. Talking to this person directly about this issue would produce \_\_\_\_\_.

*A lot more  
negatives  
than  
positives*

1

2

3

4

5

6

*A lot more  
positives  
than  
negatives*

7

2. Asking this person what s/he thinks about this issue would produce \_\_\_\_\_.

*A lot more  
negatives  
than  
positives*

1

2

3

4

5

6

*A lot more  
positives  
than  
negatives*

7

3. Approaching this person to ask about his/her beliefs about this issue would produce \_\_\_\_\_.

*A lot more  
negatives  
than  
positives*

1

2

3

4

5

6

*A lot more  
positives  
than  
negatives*

7

4. What benefits do you think might result from talking to this person about this issue? These can be any positive outcomes (such as, this person would make you feel better, offer insight, or your relationship would be made closer).
- 

5. What drawbacks do you think might result from talking to this person about this issue? These can be any negative outcomes (such as, the topic would upset this person, this person wouldn't be able to help, or this person would treat you differently in future interactions).
- 

Think about the possibility of talking with the person you identified previously about your mental well-being, and select the response that most suits you.

6. I am able to ask this person what s/he thinks about my mental well-being.

*Strongly*

*Strongly*

*disagree* 1 2 3 4 5 6 *agree*  
7

7. I know what to say to get information from this person about my mental well-being.

*Strongly disagree* 1 2 3 4 5 6 *Strongly agree*  
7

8. I am confident I can approach this person to talk about my mental well-being.

*Strongly disagree* 1 2 3 4 5 6 *Strongly agree*  
7

9. This person has valuable information about my mental well-being.

*Strongly disagree* 1 2 3 4 5 6 *Strongly agree*  
7

10. This person is able to provide me with information about my mental well-being.

*Strongly disagree* 1 2 3 4 5 6 *Strongly agree*  
7

11. This person would be completely honest about my mental well-being.

*Strongly disagree* 1 2 3 4 5 6 *Strongly agree*  
7

12. This person would be forthcoming about my mental well-being.

*Strongly disagree* 1 2 3 4 5 6 *Strongly agree*  
7

For the following statements, think about the possibility of talking with this person, and select the response that most suits you.

1. How well would you cope with this person's reaction to your mental well-being concerns?

*Could not cope*  
1                      2                      3                      4                      5                      6                      *Could cope perfectly well*  
7

2. How well would you cope with whatever you discover about your mental well-being?

*Could not cope*  
1                      2                      3                      4                      5                      6                      *Could cope perfectly well*  
7

3. How well would you cope if this person could not provide any information about your mental well-being?

*Could not cope*  
1                      2                      3                      4                      5                      6                      *Could cope perfectly well*  
7

The following questions ask about your intended behavior when it comes to talking to this person about your concerns for your mental well-being. Please select the item that best describes you.

1. I intend to approach this person directly about my mental well-being concerns.

<i>Strongly disagree</i>						<i>Strongly agree</i>
1	2	3	4	5	6	7

2. Rate how you intend to behave in the interaction with this person about your mental well-being concerns according the following key:  
 1 = I will probably openly discuss all aspects of the issue.  
 2 = I will probably openly discuss certain aspects of the issue, but talk around other aspects.  
 3 = I will probably openly discuss certain aspects of the issue, but refuse to talk about other aspects  
 4 = I will probably talk around all aspects of the issue.  
 5 = I will probably try to change the topic.  
 6 = I will probably directly refuse to talk about all aspects of the issue.
3. What, if anything, would you not be willing to talk about?
- 

Choose one response from the four given for each item. Answer with your initial response and avoid thinking too long about your answers.



1. I feel tense or “wound up.”

0	1	2	3
Not at all	From time to time, occasionally	A lot of the time	Most of the time

2. I get a sort of frightened feeling as if something awful is about to happen.

0	1	2	3
Not at all	A little, but it doesn't worry me	Yes, but not too badly	Very definitely and quite badly

3. Worrying thoughts go through my mind.

0	1	2	3
Only occasionally	From time to time, but not too often	A lot of the time	A great deal of the time

4. I can sit at ease and feel relaxed.

0	1	2	3
Definitely	Usually	Not often	Not at all

5. I get a sort of frightened feeling like “butterflies” in the stomach.

0	1	2	3
Not at all	Occasionally	Quite often	Very often

6. I feel restless as if I have to be on the move.

0	1	2	3
Not at all	Not very much	Quite a lot	Very much indeed

7. I get sudden feelings of panic.

0	1	2	3
Not at all	Not very often	Quite often	Very often indeed

The following statements refer to mental health generally. Please indicate whether you agree or disagree with the following statements with 1 indicating that you strongly disagree and 6 indicating that you strongly agree.

1. Most people would willingly accept someone who has received mental health treatment as a close friend.
2. Most people believe that a person who has received mental health treatment is just as intelligent as the average person.
4. Most people believe that someone who has received mental health treatment is just as trustworthy as the average person.
5. Most people would accept someone who has fully recovered from a mental illness as a teacher of young children in a public school.
6. Most people feel that receiving mental health treatment is a sign of personal failure.\*
7. Most people would not hire someone who has received mental health treatment to take care of their children, even if he or she had been well for some time.\*
8. Most people think less of a person who has received mental health treatment.\*
9. Most employers will hire someone who has received mental health treatment if he or she is qualified for the job.
10. Most employers will pass over the application of someone who has received mental health treatment in favor of another applicant.\*
11. Most people in my community would treat someone who has received mental health treatment just as they would treat anyone.
12. Most young adults would be reluctant to date someone who has been hospitalized for a serious mental disorder.\*
13. Once they know a person has received mental health treatment, most people will take that person's opinions less seriously.\*

Please indicate whether you agree or disagree with the following statements.

1. I would willingly accept someone who has received mental health treatment as a close friend.
2. I would think less of a person who has received mental health treatment.\*
3. I believe that someone who has received mental health treatment is just as trustworthy as the average person.

The following questions ask about demographic characteristics for classification purposes only.

1. Please report your age.
  - a. \_\_\_\_\_
2. Please select your gender.
  - a. Female
  - b. Male
  - c. Other
  - d. Prefer not to answer
3. Please report your ethnicity.
  - a. African American
  - b. Asian
  - c. Native American

- d. Pacific Islander
- e. White
- f. Other: \_\_\_\_\_.
- g. Prefer not to answer.

1. Have you sought advice, insight, or information related to your mental well-being from any of the following sources? Please select all that apply.
  - a. The internet
  - b. Fiction book
  - c. Nonfiction book
  - d. Newspaper or magazine
  - e. Television
  - f. Radio
  - g. Pamphlet/leaflet/brochure
  - h. Spoken to relative or friend
  - i. Spoken to a professional (e.g., counselor, therapist, general practitioner)
  - j. Other (please specify): \_\_\_\_\_
  - k. No.

1. Have you spoken to *the person you previously identified* about your concern for your mental well-being?
  - a. Yes
  - b. No

[Participants who select A proceed with the following previous discussion survey while participants who select B will proceed to the conclusion of the survey]

## Appendix B: Previous Discussion Survey

For the following questions, think about past conversations you have had about your mental well-being with the person you identified previously.

1. Who initiated *the first* conversation?
  - a. I initiated the conversation about my mental well-being.
  - b. The other person initiated the conversation.
  - c. I don't remember who initiated the conversation.
  - d. I have not spoken with this person about my mental well-being.

[Participants who select D proceed to the conclusion of the survey]

2. How long ago did *the first* conversation with this person about your mental well-being occur?
  - a. Within the past month
  - b. More than a month ago, but less than 3 months ago
  - c. More than 3 months ago, but less than 6 months ago
  - d. More than 6 months ago, but less than 1 year ago
  - e. More than 1 year ago
3. How many conversations have you had with this person about your mental well-being?
  - a. Between 1 and 2
  - b. Between 3 and 5
  - c. Between 6 and 10
  - d. More than 10
4. Prior to *the first* conversation you had with this person did you talk to anyone else about your mental well-being?
  - a. Yes.
  - b. No.