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The Role of Threat-based Beliefs in

Mental Health Help-Seeking Processes for Depression

by

Jason I. Chen

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
with a concentration in Clinical Psychology
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Date of Approval:
May 20, 2016

Keywords: college, mental health promotion, stigma, treatment-seeking, mood disorders

Acknowledgments

This dissertation would not have been possible without the support of my major professor, dissertation committee members, colleagues at the USF Alliance and Suicide Prevention Lab, friends, and family. I have benefited greatly from all the advice, problem-solving, and other support I received for this dissertation.

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Abstract

Mental illness among college students is a significant public health concern. Among mental health issues, one of the most prevalent and impairing is depression. Although many students experience depression, the majority do not seek help. Past research has shown that stigma beliefs are associated with help-seeking, but interventions targeting stigma have been unsuccessful at increasing help-seeking prompting the need to explore alternative models. Currently, there has been little research evaluating the role of threat-based beliefs related to help-seeking processes. As well, it remains unclear how different threat-based beliefs may interact and be related to help-seeking intentions.

The purpose of these studies was to develop new measures that assess threat-based beliefs based on facilitating threats, as defined by perceived severity, mortality, loss of functioning, and loss of control threats and obstructing threats, as defined by general stigma, interpersonal rejection, and workplace rejection beliefs. As well, it was hypothesized that facilitating threats would be positively associated with help-seeking intentions and that this relationship would be moderated by obstructing threats such that higher levels of obstructing threats would attenuate the relationship between facilitating threats and help-seeking. Data were analyzed using structural equation modeling. The measurement development phase ($N = 240$) supported the proposed factor structure with the exclusion of the stigma and severity threat measures. When testing the moderation hypothesis ($N = 212$), results did not support the hypothesized relationships between facilitating threats, obstructing threats, and help-seeking

intentions. The implications of these results for future research, theory, and prevention program

directions are discussed.

Introduction

College student mental health has become an increasing area of focus in recent years. Past research suggests that college students are in a sensitive developmental stage, known as emerging adulthood, during which the majority of mental health issues develop (Kessler et al., 2005). In addition, college counseling centers have reported higher levels of symptom severity with increases in reports of depression, relationship issues, medication use, and academic distress over the past 13 years (Benton, Robertson, Tseng, Newton, & Benton, 2003). When considering the prevalence of mental health issues, national surveys have found high rates of anxiety, substance use, and high levels of stress (American College Health Association, 2013).

In terms of mental health issues experienced by college students, depression is among the most prevalent with a recent national survey finding that 31.3% of college students reported feeling levels of depression that impaired their functioning (American College Health Association, 2013). When considering the impact of depression among students, past research has shown that students with depression have higher rates of financial problems, perceived academic difficulties, substance use, and comorbid mental health conditions (Eisenberg, Golberstein, & Hunt, 2009; Lindsey, Fabiano, & Stark, 2009). If left untreated, past longitudinal research has found that individuals with untreated depression were less likely to achieve remission in the future, thus engagement in treatment may be important for decreasing the risk of long-term negative outcomes (Bukh, Bock, Vinberg, & Kessing, 2013).

Overall, these studies suggest significant mental health need for depression among college students. However, studies suggest that most college students do not seek help from mental health professionals (Blanco et al., 2008; Eisenberg, Golberstein, & Gollust, 2007; Oliver, Reed, Katz, & Haugh, 1999). This pattern of lower than expected treatment-seeking remains consistent among individuals experiencing life-endangering symptoms with only 52% of suicidal college students receiving mental health services in the past year (Downs & Eisenberg, 2011).

In order to address these issues with mental health treatment-seeking for depression, several interventions have been developed to target areas previously associated with treatment-seeking intentions such as attitudes towards treatment, mental health literacy, and stigma (Barney, Griffiths, Jorm, & Christensen, 2006; Carlton & Deane, 2000; Cellucci, Krogh, & Vik, 2006; Amelia Gulliver, Kathleen M Griffiths, & Helen Christensen, 2010; Kim & Park, 2009; Vogel, Shechtman, & Wade, 2010). A review of recent controlled trials has shown that treatment-seeking interventions targeting these variables among individuals experiencing depression and anxiety can significantly improve attitudes towards treatment but have small-to-null effects on treatment-seeking behaviors and intentions (Gulliver, Griffiths, Christensen, & Brewer, 2012). In addition, college students who do not seek treatment have predominantly reported positive attitudes and low stigma towards treatment (Eisenberg, Speer, & Hunt, 2012). Thus, the premises of current interventions to increase help-seeking may lack support. When asked about reasons that they do not seek treatment, these students endorsed beliefs associated with low perceived need for treatment, preference for self-management, and insufficient time (Eisenberg, et al., 2012). In considering the limited efficacy of treatment-seeking interventions targeting attitudes, mental health literacy, and stigma, the current literature suggests the need for exploring alternative models to conceptualizing mental health treatment-seeking processes.

Threat-based Approaches to Health Promotion

Due to the limited support for prior interventions targeting attitudes and stigma, exploration of alternative models may improve intervention strategies. Extensive research and theory support the importance of perceived threat for engaging in health behaviors. Perceived threat is defined as the extent to which an individual believes that a health issue, such as skin cancer or sexually transmitted diseases, may negatively impact his or her life and functioning (Strecher & Rosenstock, 1997). According to the Health Belief Model (HBM), this construct mediates the relationship between perceived susceptibility and severity of a health issue and health behavior engagement (Strecher & Rosenstock, 1997). Thus, individuals perceiving high severity and susceptibility to a given health issue would perceive greater threat leading to higher likelihood of engaging in health behaviors.

Utilization of HBM concepts have been thought to have strong utility for increasing treatment-seeking through improving a clinician's understanding of client decision making and motivational processes for engaging in mental health treatment (Gipson & King, 2012; Henshaw & Freedman-Doan, 2009). Recent literature has proposed that targeting perceived severity, susceptibility, and threat may improve treatment linkage by individuals who are identified through mental health screening (Gipson & King, 2012; Henshaw & Freedman-Doan, 2009). Specifically, Henshaw and Freedman-Doan (2009) proposed that clearly discussing the severity of a client's mental health symptoms may increase perceived need of treatment and, in turn, increase treatment adherence. Although the perceived threat has been proposed as an important component of treatment-seeking, the relationship between perceived threat and help-seeking has not been comprehensively evaluated in past studies using the HBM as a model (Carpenter, 2010).

Thus, exploration of similar constructs used in other health behavior models may shed light on the nature of perceived threat and health behavior relationships.

In comparison to HBM, fear appeal theories have focused on the negative emotional reaction associated with perceived threat (Witte & Allen, 2000). Within these theories, the fear reaction based on the appraisal of a health threat mediates the relationship between perceived threat and health behaviors. In applying fear appeal theories, past promotion campaigns have focused on increasing fear towards contracting a given disease and associated negative health consequences (e.g. lifelong impairment, death) based on the premise that increased fear will lead to greater health behavior engagement (Witte & Allen, 2000). Prior meta-analytic research has shown that fear-based health promotion campaigns have moderate-to-large effects on fearful emotions, perceived severity, and perceived susceptibility (Witte & Allen, 2000). Perceived fear, severity, and susceptibility had small but significant effects on targeted health attitudes, intentions, and behaviors (Witte & Allen, 2000). These small effects, although promising, suggest that other variables may be involved that moderate the relationship between fear arousal, threat, and health behaviors.

One model that explains psychological processes associated with the gap between perceived threat and health behavior is the Terror Management Health Model (TMHM) (Goldenberg & Arndt, 2008). This model is based on Terror Management Theory that proposes human beings have an inherent fear of mortality and engage in various defensive behaviors to decrease this fear (Solomon, Greenberg, & Pyszczynski, 1991). In applying this model to health behaviors, Goldenberg and Arndt (2008) proposed that the relationship between health threats and behavior is moderated by psychological defenses, psychological processes used to decrease anxiety associated with death, and self-efficacy. Thus when experiencing threatening information,

individuals will insulate themselves from mortality fears using defensive beliefs such as perceiving low susceptibility or lack of value for a health behavior. In terms of self-efficacy, high self-efficacy is proposed to be positively related with comfort with engaging in a health behavior and higher likelihood of behavioral engagement. For example, if individuals feel low self-efficacy towards change, they will be more likely to engage in defensive tactics due to increased discomfort with change behaviors, thus decreasing likelihood of behavior change. Prior studies have supported the relationships described by this model for a variety of health behaviors including tanning, breast cancer screening, and risky behaviors (Goldenberg, Routledge, & Arndt, 2009; Hirschberger, Florian, Mikulincer, Goldenberg, & Pyszczynski, 2002; Routledge, Arndt, & Goldenberg, 2004). For example, increased mortality salience has been associated with increasing intentions to engage in sun protection behaviors such as applying sunscreen (Routledge, et al., 2004).

Overall, the literature has shown that perceived threat and fear play important roles in health behavior engagement. Within the context of mental health promotion, past interventions have focused predominantly on factors such as attitudes, stigma, and knowledge but have not addressed variables associated with perceived threat and fear (Gulliver, et al., 2012). Although individuals may have more positive beliefs about treatment through such help-seeking interventions (Gulliver, et al., 2012), threat-based research suggests that the context of high perceived severity, susceptibility, and threat are necessary because, an individual may have positive attitudes, sufficient knowledge of treatment, and low levels of stigma but not perceive need for treatment without perceiving threat. As perceived threat may play a role in mental health help-seeking, further exploration of different aspects of threat is necessary to validate the role of threat-based processes in help-seeking processes for depression.

Threat and Depression

In contextualizing threat-based health behavior models to mental health concerns, various forms of threat may differentially affect engagement in depression treatment. Consequently, it is proposed that aspects of threat may be considered as facilitating threats, those which increase likelihood of treatment seeking, or obstructing threats, those which act as a barrier to treatment-seeking for depression. For example, an individual experiencing depressive symptoms may perceive distress that is threatening his or her functioning which would then serve as a facilitating threat. However, the individual's fear of stigma could impede treatment-seeking and serve as an obstructing threat. In considering these issues, the proposed model (see Figure 1) of a threat-based approach to mental health treatment-seeking includes both facilitating threats and obstructing threats.

Facilitating threats. Prior research has identified several aspects of threat that facilitate mental health treatment-seeking. These studies of facilitating threats in a broad range of populations have examined a number of threats such as a sense of threat from perceived severity (i.e. perceiving that symptoms are causing significant distress) and mortality as well as from perceived loss of functioning and control due to mental health symptoms (Biddle, Gunnell, Sharp, & Donovan, 2004; Rosenthal & Wilson, 2008; Vogel & Armstrong, 2010; Vogel & Wei, 2005; Wilson, Deane, Marshall, & Dalley, 2010). Specifically, the literature has shown that these facilitating threats are positively associated with mental health treatment-seeking such that higher levels of perceived severity and loss of functioning are positively associated with increased treatment-seeking (Dalgleish et al., 2001; Price, Choi, & Vinokur, 2002; Vogel & Armstrong, 2010; Vogel & Wei, 2005).

Perceived severity threat. Perceived severity is the overall judgment an individual makes concerning the seriousness of his or her symptoms (Stretcher & Rosenstock, 1997). Prior research has shown that perceived severity is a consistent predictor of mental health treatment-seeking (Biddle, et al., 2004; Klineberg, Biddle, Donovan, & Gunnell, 2010; Rosenthal & Wilson, 2008; Vogel & Wei, 2005; Wilson, et al., 2010). Specifically, studies with college-aged populations have found that self-reported severity of mental health symptoms was positively associated with treatment-seeking (Biddle, et al., 2004; Klineberg, et al., 2010; Rosenthal & Wilson, 2008).

In considering the relationship between perceived severity and treatment seeking, research suggests that when clinically significant mental health symptoms are not perceived as threatening, treatment-seeking is not facilitated (Biddle, et al., 2004; Fortune, Sinclair, & Hawton, 2008; Klineberg, et al., 2010; Spendelow & Jose, 2010). For example, individuals who engage in self-harm and do not seek help have frequently endorsed a lack of knowledge concerning the severity and negative consequences of self-harm behavior (Fortune, et al., 2008). In addition, studies show that participants consistently predict positive outcomes when rating vignettes portraying depression symptoms regardless of the level of severity portrayed. For a vignette portraying severe depression, participants on average predicted positive outcomes without intervention. In contrast, levels of help-seeking and seriousness were positively associated with vignette severity (Spendelow & Jose, 2010).

Overall, the literature suggests that perceived severity plays an important role in treatment-seeking. However, past research has shown that individuals continue to have difficulty with identifying long-term, negative consequences from mental health

symptoms, such as increased mortality rates, regardless of their perceived judgment of severity. Thus, further exploration of perceived mortality as a threat precipitated by mental health symptoms is necessary.

Perceived mortality threat. Perceived mortality threat, also known as mortality salience, is described by the THMH (Goldenberg & Arndt, 2008) as the conscious activation of cognitions related to one's own death that are triggered by health-related information (e.g. being reminded that not using sunscreen can cause skin cancer). In considering the relationship with treatment-seeking, the degree to which an individual perceives mortality threat may be associated with treatment-seeking intentions. Although prior epidemiological research has found that mental health issues are associated with decreased life expectancy, past studies suggest that individuals may not relate mental illness with decreased life expectancy which may explain why individuals do not generally demonstrate positive attitudes towards mental health treatment when experiencing mental health distress (Colton & Manderscheid, 2006).

Prior research has found that individuals have difficulty with identifying mental health symptoms as being associated with increased risk of mortality and thus do not take appropriate steps to engage in treatment (Klineberg, et al., 2010; Wilson, et al., 2010). In a study asking participants to identify depressive symptoms and provide advice to a hypothetical individual, the majority of participants were able to identify depression symptoms and recommend appropriate treatment referrals (Klineberg, et al., 2010). However, these same participants reported believing that the hypothetical individual described in the vignette would be unlikely to seek treatment, even though a sizeable proportion of participants (21.2%) endorsed believing that the individual would likely

consider or attempt suicide (Klineberg, et al., 2010). Similar research looking at individuals who have endorsed suicidal ideation has found that higher levels of suicidal ideation and symptom distress were associated with decreased help-seeking (Wilson, Deane, & Ciarrochi, 2005a; Wilson, et al., 2010). Thus, the higher the severity of suicidal ideation, the lower the likelihood was that an individual would seek treatment. Overall, these studies suggest that individuals have difficulty linking mental health symptoms to potential mortality threat.

In the context of the TMHM, the discrepancy between identified symptoms associated with mortality and treatment-seeking may be explained by world-view defenses that manage anxiety associated with reminders of mortality (Goldenberg & Arndt, 2008). At the extreme ends of mortality threat involving self-harm and severe symptoms, individuals may engage in stronger defenses to decrease this anxiety and consequently inhibit treatment-seeking intentions. However, these avoidance-based, cognitive processes may be superseded if thoughts related to mortality can be maintained in consciousness (Goldenberg & Arndt, 2008). Thus, it is possible that other reminders associated with changes in life status, such as loss of functioning, may potentially encourage treatment-seeking.

Loss of functioning threat. Loss of functioning is defined as a change in one's ability to engage in important life activities that may include completing responsibilities for work or enjoying time with friends and family (American Psychiatric Association, 2013). Within the context of current diagnostic guidelines, loss of functioning is a necessary component for identifying clinically significant distress (American Psychiatric

Association, 2013). Thus, concerns involving loss of functioning play an important role in determining need for treatment.

Prior research supports the role of loss of functioning as being associated with mental health distress across a variety of domains. Decreased functioning has been associated with increased depressive symptoms and psychological distress (Bookless, McFarlane, & Clayer, 2001; Lucas & Berkel, 2005). In a study with individuals who have depression, loss of functioning in terms of being unable to achieve goals and maintain social relationships was associated with higher levels of depression symptoms (Bookless, et al., 2001). For treatment-seeking samples at university counseling centers, difficulties with interpersonal functioning are strongly associated with higher levels of symptom severity (Lucas & Berkel, 2005). These findings suggest that loss of functioning is a significant threat to mental health. When considering the relationship with help-seeking, loss of functioning, as a sign of impairment from mental illness, may cue individuals to engage in mental health treatment in order to decrease the likelihood of potential negative consequences associated with this impairment (e.g. disrupting school achievement, negatively affecting friendships).

Loss of control threat. In addition to loss of functioning, loss of control, feeling as if one has lost control over one's ability to manage one's symptoms and life activities, may also play a role in mental health distress. For example, an individual who experiences depressive symptoms may feel more urgency to seek help when feeling overwhelmed and unable to control life circumstances. When considering loss of control, prior research shows that such losses are associated with increased mental health symptoms and negative health outcomes. In a study with individuals experiencing job

loss, loss of control fully mediated the relationship between financial strain from job loss and negative mental health outcomes (Price, et al., 2002). Similar relationships were found in employed individuals such that lower levels of control over one's job duties were associated with higher levels of depressive symptoms (F. W. Bond & Bunce, 2003).

When looking at mental health processes in other populations, a comparison study between Iran and the United States of America using a general population sample found that having an external locus of control, the perceived attribution of events to an external cause, in reference to life difficulties was positively associated with levels of perceived stress as well as symptoms of anxiety and depression (Ghorbani, Krauss, Watson, & LeBreton, 2008). In clinical populations, individuals with eating disorders reported feeling lower feelings of personal control than healthy volunteers (Dalgleish, et al., 2001). Similarly, longitudinal research with clinical populations who have been diagnosed with mood and psychotic disorders has shown that an external locus of control is prospectively associated with higher levels of depression and anxiety symptoms as well as lower levels of recovery from mental health symptoms (Harrow, Hansford, & Astrachan-Fletcher, 2009). Overall, the literature across populations suggests that feeling loss of control over life stressors has been consistently associated with greater distress from mental health symptoms. This increased distress may in turn prompt individuals to be more likely to seek treatment.

Obstructing Threats

Although facilitating threats play an important role in encouraging mental health help-seeking, the relationship between facilitating threats and help-seeking may be attenuated by other variables. These may be considered obstructing threats such that the perceived threat from other

variables may overpower the degree of perceived threat from severe symptoms thus decreasing likelihood of help-seeking. For example, an individual may be experiencing depressive symptoms that cause great distress but continue to not seek help in fear of negative judgment by others for seeking treatment.

In considering specific variables that may obstruct help-seeking, the Theory of Planned Behavior posits that negative subjective norms, the perceived social disapproval of engaging in a given behavior, are associated with lower likelihood of behavioral intentions and engagement (Ajzen, 1991). Within the context of mental health help-seeking, fears of negative judgment and loss of status may potentially act as obstructing threats to help-seeking. Prior literature has focused specifically on the roles of mental health stigma, interpersonal rejection, and exclusion from jobs and other important responsibilities as variables that are negatively associated with help-seeking (Eisenberg, Downs, Golberstein, & Zivin, 2009; Honey, 2004; Mojtabai, 2010; Vogel & Wester, 2003). For example, an individual experiencing depressive symptoms may avoid treatment and disclosure of symptoms if he or she believes that treatment will result in termination from work, exclusion by friends, and being seen as weak by others. Consequently, consideration of these obstructing threats as potential barriers to treatment may improve our understanding of help-seeking processes.

Stigma. Of these obstructing threats, mental health stigma is the most widely studied and has been proposed as a major impediment to help-seeking across several theoretical models of help-seeking (Cramer, 1999; Pescosolido, 1992). Two theoretical models that explain underlying processes related to stigma include the Identity Threat Model (Major & O'Brien, 2005) and Modified Label Theory (Link, Cullen, Struening, Shrout, & Dohrenwend, 1989).

The Identity Threat Model proposes that stigma is driven by three specific processes: collective representations, situational cues, and personal variables (Major & O'Brien, 2005). Collective representations consist of negative cultural stereotypes held by society (Major & O'Brien, 2005). For example, these may include commonly held societal beliefs involving individuals with mental disorders being seen as dangerous or unpredictable. Situational cues include environmental stimuli that may remind an individual of discriminating beliefs, such as exposure to specific media representations or public events (Major & O'Brien, 2005). For example, hearing about individuals with mental disorders perpetuating violence on the news may activate negative beliefs towards persons with mental disorders. Finally, personal variables consist of variables that may moderate the degree to which an individual feels stigmatized based on collective representations and situational cues. These include the degree to which an individual identifies with a stigmatized group as well as his or her sensitivity to being rejected as a member of a stigmatized group (Major & O'Brien, 2005). Within the context of mental health stigma, an individual with depression who does not identify depression as a core part of his or her identity may feel low levels of stigma when seeing negative media portrayals of depression.

In considering links to stigma-related behaviors, collective representations, situational cues, and personal variables are thought of as precursors to identity threat appraisals. Identity threat appraisal consists of the process wherein an individual determines the degree to which stigmatizing information threatens his or her identity (Major & O'Brien, 2005). For example, if someone were to be regularly exposed to negative cues involving mental disorders and be very sensitive to stigmatizing comments,

he or she may appraise comments made by a friend about mental illness and weakness as more threatening. These threat appraisals precipitate various responses including anxiety, positive coping responses, and withdrawal that may lead to more negative reactions to stigma in the future (Major & O'Brien, 2005).

Overall, the Identity Threat Model describes various mechanisms of stigma emphasizing the importance of collective beliefs and interpersonal processes for appraising and responding to stigma. However, the model is not specifically contextualized to issues of mental illness in that many of the characteristics described that identify a member of an ostracized group, such as physical features, are not readily apparent for individuals with mental disorders. In addition, mental health disorders are not always a static part of identity that is carried from birth such as skin color or gender. Thus, understanding mental health stigma processes may provide insight into additional precipitants of negative reactions to stigma and obstructions to engaging in behaviors such as help seeking.

Modified Labeling Theory (MLT) was developed specifically to address mechanisms specific to mental health stigma (Link, et al., 1989). This theory proposes several steps that lead to negative health outcomes for stigmatized individuals. Much like the Identity Threat Model, Modified Labeling Theory proposes that collective representations about mental illness play an important role in stigma-based appraisals. Specifically, the theory suggests that beliefs about what others think concerning discrimination and devaluation of individuals with mental disorders (e.g., "Mental illness means someone is lazy.") must first be internalized by the stigmatized individual before they can be activated by environmental cues (Link, et al., 1989). Following

internalization of these beliefs, the MLT proposes that individuals with mental disorders begin to identify as having a mental disorder through being labeled by a professional during initial treatment contact (Link, et al., 1989). Thus, it is through this labeling process that an individual begins to associate his or her identity with the previously internalized collective stigma beliefs concerning mental illness.

Once an individual becomes self-associated with a mental illness label, the MLT proposes three types of responses to avoid experiencing discrimination from other individuals. One type of response involves concealing one's mental illness such as avoiding self-disclosure of symptoms, limiting social interactions when experiencing symptoms, or attempts to self-medicate. Additional response types include avoiding individuals who are known to hold stigmatizing beliefs and educating other individuals in the hopes of addressing stigmatizing beliefs (Link, et al., 1989). These potential responses may lead to various negative consequences including decreased social interaction with others, stress associated with fear of disclosure, lack of help-seeking from formal and informal sources, and negative responses to attempts to address myths associated with mental illness (Link, et al., 1989). Finally, MLT suggests that stress related to adapting to mental health stigma is thought to increase likelihood of relapse of mental health symptoms and increase the likelihood of more negative consequences from stigma in the future (Link, et al., 1989).

In summary, the MLT provides a contextualized model of the internalization and long-term consequences of mental health stigma. In contrast to the Identity Threat Model, the MLT further describes how reactions to stigma and associated negative consequences may exacerbate future symptoms. Such processes may not be present for status-based

characteristics, such as being African American or female, as they do not generally occur in an episodic nature. Although the MLT provides clear rationale for the need for preventing negative outcomes associated with mental health stigma, the focus on official treatment contact as the critical trigger of labeling does not adequately explain the presence of negative beliefs about one's self due to having a mental illness, as the majority of individuals who are experiencing mental health distress and who have internalized stigmatized beliefs about themselves have not received mental health treatment (Blanco, et al., 2008; Eisenberg, et al., 2007; Oliver, et al., 1999). Incorporating the mechanism of self-identification with a group as described in the Identity Threat Model may improve the conceptual fit of this model for individuals who have not sought help.

Within the context of research on mental health stigma and help-seeking, stigma has been commonly studied from three perspectives: perceived stigma (i.e. societal beliefs concerning mentally illness), personal stigma (i.e. an individual's beliefs about mental illness), and self-stigma (i.e. an individual's negative beliefs about him or herself due for having a mental illness) (Link, et al., 1989; Sartorius, 1998; Vogel, Wade, & Haake, 2006). Perceived stigma is conceptualized as collective representations of stigmatizing beliefs in the MLT and Identity Threat Model (Link, et al., 1989; Major & O'Brien, 2005). Within these models, perceived stigma is a necessary precursor to the development of personal stigma beliefs or what are described as internalized representations (Link, et al., 1989; Major & O'Brien, 2005). Following identification with having a mental illness, personal stigma beliefs become applied to the self and result in

what is known as self-stigma (Link, et al., 1989; Vogel, et al., 2006). Thus, personal stigma is an important mechanism for the formation of self-stigma beliefs.

When considering help-seeking, prior research has found that high levels of self-stigma are associated with lower levels of help-seeking intentions and behavior (Vogel, et al., 2006). Although studies have shown relationships between self-stigma and help-seeking, the MLT has proposed that identification with mental illness is an important, catalyzing agent for application of personal stigma beliefs to the self. Prior research on self-stigma has focused on the degree to which participants *anticipate* experiencing self-stigma for having a mental illness in general college samples (Vogel, et al., 2006). Due to this limitation (i.e., assessing a hypothetical situation), it is unclear whether these self-stigma measures accurately represent self-stigmatizing beliefs. Consequently, personal stigma more directly describes existing negative beliefs towards mental illness that are associated with help-seeking.

Personal stigma. When considering aspects of stigma frequently experienced on college campuses, prior research has focused predominantly on personal stigma (Eisenberg, Downs, et al., 2009; Lally, O'Conghaile, Quigley, Bainbridge, & McDonald, 2013; Mojtabai, 2010). Personal stigma is defined as a person's general negative beliefs about individuals with mental illness (Griffiths, Christensen, Jorm, Evans, & Groves, 2004). For example, a personal stigma belief may involve a person believing that individuals with mental illnesses are incompetent or dangerous. A prior national study using college populations showed a negative relationship between personal stigma beliefs and help-seeking behavior (Eisenberg, Downs, et al., 2009). Specifically, Eisenberg and colleagues found that higher personal stigma scores were associated with lower

likelihood of having utilized medication or psychotherapy services within the year prior to the survey. Higher personal stigma scores were also associated with lower likelihood of having sought informal sources of mental health support (Eisenberg, Downs, et al., 2009).

In a study with British university students, Lally, O'Conghaile, Quigley, Bainbridge, and McDonald (2013) explored the relationship between aspects of stigma and help-seeking intentions using the same measure as Eisenberg, et al. (2009). They found similar results that showed higher levels of personal stigma were associated with lower help-seeking intentions after controlling for perceived stigma, history of mental health issues, and contact with an individual with mental health issues (Lally, et al., 2013). These studies showed that personal stigma is consistently, negatively associated with decreased likelihood of help-seeking in college populations (Eisenberg, Downs, et al., 2009; Lally, et al., 2013). However, these studies focused specifically on interpersonal aspects of personal stigma such as likelihood of befriending someone with mental illness (Eisenberg, Downs, et al., 2009; Lally, et al., 2013).

Other areas of personal stigma that have been absent include personal beliefs concerning discrimination against individuals with mental illness in work settings and a person's beliefs concerning the propensity of others with mental health problems towards violence and other behaviors. Thus, it is unclear how other aspects of personal stigma may be related to help-seeking. This is important because a recent international study has shown that different types of personal stigma are differentially associated with help-seeking intentions (Mojtabai, 2010). This study collected data from participants throughout the European Union as part of an international epidemiological study. Within

this study, personal stigma was evaluated by asking participants to rate their agreement with stigmatizing beliefs associated with mental health issues such as personal weakness and dangerousness (Mojtabai, 2010). In the context of MLT, beliefs concerning personal weakness may be understood as devaluing individuals with mental health issues. Beliefs concerning dangerousness may be understood as prompts for discriminating against individuals with mental health issues. Mojtabai (2010) found that personal stigma beliefs that label individuals with mental illnesses as being unpredictable and at fault for their illness were negatively associated with help-seeking. In contrast, negative personal beliefs involving persons with mental illness as being a danger to others and as having a poor prognosis for recovery were positively associated with help-seeking (Mojtabai, 2010). These results suggest that the potential role of stigma associated with dangerousness and stigma of poor prognosis for mental health recovery (without treatment) as mechanisms of increased help-seeking suggests the need for more extensive examination of other forms of personal stigma.

Although prior studies have shown that high levels of personal stigma beliefs are associated with decreased help-seeking intentions and behavior, Mojtabai's (2010) findings suggest that personal stigma may not function as a unitary construct. Currently, the definition of personal stigma may encompass different subcomponents (e.g. interpersonal, dangerousness), but the research reviewed has not consistently measured these subcomponents and has shown that certain types of stigmatizing beliefs, such as those associated with dangerousness and severity, may in fact facilitate help-seeking. In the context of obstructing threats, interpersonal rejection, as opposed to beliefs associated

with dangerousness, require further examination as an aspect of stigma that impedes help-seeking.

   Interpersonal rejection. Within the context of obstructing threats, personal beliefs about interpersonal rejection and negative self-judgments appear to impede help-seeking (Eisenberg, Downs, et al., 2009; Lally, et al., 2013; Mojtabai, 2010). An example of personal stigma beliefs regarding interpersonal rejection would be, "I believe that individuals with mental illness are bad friends." Although prior research supports the role of personal stigma beliefs regarding interpersonal rejection in help-seeking, the specific mechanisms of these processes remain poorly understood, as prior research has not evaluated interpersonal rejection in a comprehensive, theory-driven manner. Thus, much remains unknown as to how aspects of personal stigma beliefs involving interpersonal rejection act as help-seeking barriers.

   When considering the broader literature, the MLT posits that individuals internalize negative beliefs about mental illness and treatment (Link, et al., 1989). For example, individuals without mental illness have existing beliefs involving rejecting individuals with mental illness. Based on the MLT, once individuals identify as having a mental illness, they apply beliefs about devaluing individuals with mental illness to themselves leading to increased self-concealment to avoid rejection (Link, et al., 1989). Thus, these collective personal stigma beliefs about others are likely an important mechanism for internalization of beliefs that could later become self-stigmatizing if an individual is identified as having a mental illness (Link, et al., 1989). These personal stigma beliefs act as the basis of internal schemas for encouraging actions, such as avoiding treatment, to avoid being labeled as having mental illness. In other words,

avoiding actions that may get one labeled and stigmatized is seen as a way to avoid rejection.

Within stigma beliefs involving interpersonal rejection, there has been little research on other aspects of interpersonal rejection in terms of personal stigma beliefs. However, research on interpersonal relationships and mental health help-seeking supports an impeding effect of interpersonal rejection on help-seeking (Lucas & Berkel, 2005; Vogel & Wester, 2003). A major aspect of interpersonal rejection-related stigma involves fear of negative interactions due to self-disclosure and being identified as having a mental illness. In a study with university students, Vogel and Wester (2003) explored the relationship between willingness to self-disclose and help-seeking intentions. They found a positive relationship between help-seeking intentions and willingness to self-disclose. Thus, individuals who reported lower levels of self-disclosure endorsed lower help-seeking intentions (Vogel & Wester, 2003). When considering the context of the MLT, personal stigma beliefs about rejecting individuals with mental illness who self-disclose symptoms may act as the basis for informing behavioral schemas. Thus, when an individual identifies as having a mental illness, he or she may be reluctant to self-disclose due to existing beliefs about rejecting others who display signs of mental illness. For example, individuals may espouse negative beliefs towards self-disclosure, such as believing they would negatively judge someone who discusses mental health symptoms, leading to lower help-seeking intentions if experiencing mental health distress.

In addition to impeding initial help-seeking, a study with a treatment-seeking, university counseling center sample found that interpersonal problems were associated with higher likelihood of treatment drop-out after a single counseling session (Lucas &

Berkel, 2005). Individuals may have had existing beliefs concerning rejecting individuals with mental health issues that they applied to themselves when seeking help leading to termination of treatment due to fears of anticipated interpersonal rejection. In considering mental health issues with higher risk, such as suicidality, a study using a high school sample found that youth who have had past experience with suicidal peers are less likely to encourage suicidal peers to disclose mental health issues to others (Gould et al., 2004). This reluctance to encourage peers to disclose mental health distress may be associated with interpersonal rejection that was observed in peers who had previously disclosed symptoms. Based on the MLT, these social norms concerning interpersonal rejection of suicidal peers may have become internalized as personal stigma beliefs and acted as the basis of anticipated rejection when an individual identifies with having mental illness.

In summary, past research suggests beliefs about rejecting others with mental illness would likely obstruct help-seeking intentions. When considering the human necessity to avoid interpersonal rejection, Baumeister and Leary (1997) proposed the Belongingness Hypothesis that they based on prior attachment research. Their hypothesis states that individuals have an inherent need to belong and that this need is fulfilled through different types of social contact that serve specific functions. In terms of the characteristics necessary for a relationship that fulfills interpersonal needs, this hypothesis proposes two criteria: frequent, neutral-to-positive interactions and the development of a stable, emotional bond that will be sustained into the future (Baumeister & Leary, 1995). Through these two processes, individuals can develop positive relationships that facilitate personal and societal well-being.

Although interpersonal relationships play a clear role in personal well-being, there is the inevitable possibility that these relationships may be disrupted through rejection by others. Such disruption may precipitate negative consequences such as emotional and physical distress. To further describe reactions to interpersonal rejection, Smart Richman and Leary (2009) proposed a multimotive model that focuses on differentiating motivations for reacting to rejection drawn from prior experimental and correlational research. To start, the authors proposed that interpersonal rejection will lead to negative emotional reactions (e.g. feeling hurt, sad) and lower levels of self-esteem. Following the initial response, rejected individuals may engage in several types of negative evaluations of the rejection, such as appraising the rejection as being unfair or existing for a chronic duration of time. Such negative evaluations are thought to precipitate motivations to engage in social withdrawal behaviors (e.g. spending less time with friends) and aggressive behaviors (e.g. becoming angry or lashing out at others) leading to long-term negative physical and mental health consequences (Smart Richman & Leary, 2009).

Overall, past research suggests that interpersonal rejection can have a negative impact on personal well-being (Smart Richman & Leary, 2009). Thus, avoiding interpersonal rejection is an important aspect of fulfilling important personal needs. Self-Categorization Theory posits that individuals' beliefs and behaviors become polarized to conform with their respective ingroup such that they behave and espouse beliefs that separate them from a stigmatized outgroup (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). By engaging in behaviors that conform to their ingroup and avoiding outgroup behaviors, individuals avoid being associated with stigmatized others. For example, an individual may avoid engaging in activities with a friend who is experiencing depression

to avoid being stigmatized. Within the context of obstructing threats, personal stigma beliefs about rejecting individuals with mental illness represent attitudes that conform to society at large. Based on these personal stigma beliefs of interpersonal rejection, individuals may avoid seeking treatment due to fears of being associated with the stigmatized outgroup of individuals with mental illness to prevent mental health distress associated with interpersonal rejection (Baumeister & Leary, 1995; Smart Richman & Leary, 2009). This fear of interpersonal rejection is especially pertinent due to the inherent need for human relationships to support well-being posited by the Belongingness Hypothesis. Thus avoiding outgroup behaviors, such as seeking mental health, would be utilized to avoid interpersonal rejection.

   Workplace rejection. In addition to interpersonal rejection, personal stigma beliefs judging individuals with mental illness as less competent or trustworthy of important responsibilities may also impede help-seeking. Based on the MLT, internalization of social norms involving workplace rejection of individuals with mental illness provides the basis for behavior to avoid being perceived as having mental illness and subsequent workplace rejection (Link, et al., 1989). In contrast to interpersonal rejection and concerns involving loss of social support, beliefs about workplace rejection focus on interfering with an individual's sense of purpose and social role. Qualitative research has found that individuals with mental health issues value employment as a way to increase self-esteem, promote recovery, and help with symptom management (Dunn, Wewiorski, & Rogers, 2008). Prior quantitative research has found that individuals with mental health issues who are employed in the community have greater symptom improvement, life satisfaction, and satisfaction with mental health services (G. R. Bond et

al., 2001). Consequently, maintaining employment is an important aspect of facilitating recovery and maintaining treatment gains. Within the context of help-seeking, personal stigma beliefs involving workplace-based rejection may be applied to the self if experiencing mental health distress, leading to decreased help-seeking and disclosure of symptoms due to a desire to avoid future job loss, an important aspect of personal well-being.

When considering stigma experienced in workplace settings, there has been extensive research examining experiences of workplace rejection and mental health self-disclosure (Brohan et al., 2012; Krupa, Kirsh, Cockburn, & Gewurtz, 2009). Overall, these reviews showed evidence of stigma in the workplace and associated negative outcomes on employment success and personal well-being. Specifically, prior qualitative research with treatment-seeking individuals suggested that disclosure of mental health symptoms in the workplace is associated with undesirable changes to job responsibilities and higher frequency of being rejected by co-workers (Honey, 2004). Similarly, individuals with schizophrenia who are placed in supported working programs reported experiencing criticism from co-workers and being perceived as less competent regardless of past performance (Schulze & Angermeyer, 2003). When considering personal stigma beliefs, individuals may believe that mental illness results in decreased job competence. Thus, to avoid being identified as incompetent, individuals may be less likely to engage in mental health treatment.

To examine employer perspectives, Glozier (1998) conducted an experimental study that asked human resource officers to rate their likelihood of hiring a hypothetical individual and to infer their potential job performance. Participants were provided a

vignette that described an individual seeking employment and randomized to receive a vignette describing someone with either depression or diabetes. Glozier (1998) found that the participants were significantly less likely to employ an individual with depression in an executive, clerical, or manual job position than if the person had diabetes. In addition, the depression vignette target was seen as being significantly more likely to have poor job performance than the diabetes vignette (Glozier, 1998). In terms of personal stigma beliefs, individuals may internalize social norms concerning workplace discrimination of individuals with mental illness leading to personal stigma beliefs concerning rejecting co-workers with mental illness. These personal stigma beliefs would, in turn, decrease the likelihood of engaging in mental health treatment due to a desire for maintaining employment.

These studies suggest that individuals with mental health issues experience significant distress associated with workplace rejection. Within the context of help-seeking, individuals may avoid treatment and disclosure of illness due to internalized personal stigma beliefs that having mental health issues would lead them to be perceived as less competent and result in job loss. Although prior research supports the presence of workplace rejection and negative workplace consequences for individuals with mental health issues, there have been no studies to date on personal stigma related to workplace rejection and its relationship with help-seeking, suggesting the need for further study of this relationship.

In summary, past studies have found that beliefs involving workplace and interpersonal rejection may obstruct help-seeking processes. Furthermore, these fears may arise from observations of feedback received by co-workers with mental illness(Honey, 2004; Schulze &

Angermeyer, 2003). It is notable however that these stigma beliefs are predicated on fear of rejection and associated negative emotions. The multimotive model of interpersonal rejection identifies negative emotional reactions related to rejection as a key mechanism for formulating an individual's response to rejection (e.g. self-concealment) (Smart Richman & Leary, 2009). Thus, evaluation of negative emotional reactions associated with stigma-related beliefs may disentangle specific contributions of different obstructing threats to help-seeking (e.g. beliefs concerning friend rejection versus loss of job).

Obstructing Threats as a Moderator

As aforementioned, constructs associated with facilitating and obstructing threats have been shown to have significant associations with help-seeking. However, it remains unclear how these constructs may interact to either increase or decrease likelihood of help-seeking. Specifically, it is possible that obstructing threats may moderate the relationship between facilitating threats and MHHS, such that higher levels of obstructing threats may attenuate this relationship and decrease help-seeking.

When considering past theoretical models, the moderating effect of obstructing threats, such as stigma, has long been posited in theoretical models but has not been thoroughly evaluated. Within the HBM, cultural and societal factors, such as obstructing threats-related beliefs like stigma, have been proposed as potential moderators of the relationship between perceived threat of a given help-condition and help-seeking (Strecher & Rosenstock, 1997). Similarly, the Network-Episode Model (NEM) criticized prior models of MHHS due to their exclusive focus on individual decision-marking processes based upon rational decision making (Pescosolido, 1992). Specifically, the NEM proposes that the context of a given individual's social network, including their beliefs about mental health and treatment, can interact with an

individual's belief to encourage or discourage MHHS behavior (Pescosolido, 1992). In summary, past theoretical models identify societal beliefs, such as stigma, as variables that may attenuate drivers of individual decision making (e.g. loss of functioning) for MHHS. However, limited research has been done to explore these complex relationships.

In terms of past research, studies have provided initial support for the interactive relationship between perceived severity and stigma beliefs as predictors of MHHS. In a large international study with adult populations, negative mental health beliefs, such as fears of embarrassment from receiving mental health treatment, were generally identified as greater barriers to MHHS than structural barriers, such as high costs (Andrade et al., 2014). Negative mental health beliefs were associated with decreased likelihood of help-seeking behaviors except when symptom severity was high (Andrade, et al., 2014). Based on these findings, it appears that although negative mental health beliefs may decrease overall MHHS, such barriers may be overcome when severity is high. Similarly, research looking at the relationship between negative mental health treatment beliefs and functioning showed similar patterns. Specifically, stigmatizing beliefs were generally decreased when functioning was high (Fikretoglu & Liu, 2015). Thus, it is possible that these stigmatizing beliefs negatively impacted recognition of mental health issues as symptoms become more severe hampering perception of threat from mental illness and inhibiting help-seeking.

When considering potential implications for treatment outcome, research on youth anxiety treatment found that parent-reported attitudinal barriers such as stigma (e.g. shame about treatment) significantly moderated the relationship between treatment and change in anxiety symptoms (Salloum, Johnco, Lewin, McBride, & Storch, 2016). Specifically, higher levels of attitudinal barriers were associated with decreased change in anxiety symptoms post-treatment

(Salloum, et al., 2016). Although this study provided initial evidence of stigma-related beliefs as a moderator of treatment outcome, much remains unknown about how these beliefs may moderate the relationship with help-seeking among young adults experiencing depression.

Overall, past theoretical models have posited that social factors, such as constructs defined by obstructing threats, attenuate the relationship between facilitating threats and MHHS. However, there has been little research to date that has evaluated these relationships and no studies found that specifically probed the moderating relationships of obstructing threats-related beliefs. Consequently, the role of obstructing threats in the relationship between facilitating threats and MHHS remains a significant gap in the literature that negatively impacts the development of MHHS-enhancing intervention and prevention programming.

Hypotheses

Prior research suggests that obstructing and facilitating threats may play an important role in mental health help-seeking (Cramer, 1999; Gulliver, et al., 2012; Liao, Rounds, & Klein, 2005; Vogel & Armstrong, 2010). However, research to date has not explored these relationships within the context of mental health help-seeking for depression. Consequently, further evaluation of the relationship between facilitating threats, obstructing threats, and help-seeking intentions may inform future help-seeking interventions. Based on these proposed relationships between facilitating and obstructing threats and help-seeking processes, the following aim and hypotheses were developed (see Figure 1):

- Aim 1: To explore the relationship between types of threat and MHHS.
  - o Hypothesis 1: Facilitating threats, a latent variable defined by perceived severity, mortality, loss of functioning, and loss of control threat, will significantly, positively predict MHHS intentions for depression.

Hypothesis 2: The relationship between these facilitating threats and MHHS intentions for depression will be moderated by obstructing threats, a latent variable defined by personal stigma, interpersonal rejection stigma, and workplace stigma beliefs. Specifically, higher levels of obstructing threats will attenuate the relationship between facilitating threats and help-seeking intentions**.**

Study 1: Factor Structure Validity

Method

Participants

Participants consisted of undergraduate students recruited through the University of South Florida psychology department's online SONA participant pool (n = 108) and adult community members through Mechanical Turk (MTurk; n = 206). All participants were legal adults (i.e. 18+ years of age), had sufficient English language skills to read and comprehend the survey (i.e. literate and fluent), and resided in the United States. No other exclusion criteria were in place for the study. SONA participants were remunerated for their participation with extra credit based upon each instructor's respective course policies. MTurk participants were remunerated $0.25 for their participation.

After screening for response validity (i.e. validity check items and completion time; see Data Screening section for full details), a total of 240 participants had valid responses including 75 SONA and 165 MTurk participants. Participants had a mean age of 32.87 years (SD = 14.18). The majority of participants were female (66.5%), Caucasian (70.5%), and exclusively heterosexual (72.6%). Participants represented a broad range of college years including 35% who were not in college. In terms of mental health treatment history, 31.2% reported receiving a mental health diagnosis, and 33.9% reported receiving mental health treatment. Within their social networks, a sizeable minority of participants reported having family members (47.2%) and

friends (40.7%) who have received mental health treatment (See Tables 1 and 2 for full demographics information).

Measures

      Demographics assessment. Demographic variables were recorded using a demographics assessment measure consisting of questions concerning year in school, age, gender, sexual orientation, race/ethnicity, living arrangement (e.g. dormitory, off-campus), as well as personal and family history of mental health treatment, as prior research suggests these variables are associated with help-seeking (Biddle, Gunnell, Sharp, & Donovan, 2004; Eisenberg, Golberstein, & Hunt, 2009; Freyer et al., 2007; Milner & De Leo, 2010; Vogel, Wade, Wester, Larson, & Hackler, 2007; Yorgason, Linville, & Zitzman, 2008). To assess past mental health treatment, participants were asked, "Have <you, a friend, or a family member> ever received mental health treatment?" The perspective was changed to ask about personal, friend, and family mental health history respectively. Please see Appendix Ia for additional details.

      Facilitating threats.

      Perceived severity threat. Perceived severity threat was measured using an adaptation of the consequences subscale taken from the Revised Illness Perceptions Questionnaire (IPQ-R) (Moss-Morris et al., 2002) which was developed to measure the perceived severity construct of the HBM (Stretcher & Rosenstock, 1997). The content of this subscale focuses on indicators of perceived severity from illness and has been previously shown to be reliable and valid (Moss-Morris, et al., 2002). In order to provide a specific mental health diagnosis for consideration and decrease participant confusion, the consequences subscale was adapted to focus on perceptions about the severity of major depressive disorder (as opposed to the participant needing to have a mental illness to report on) to evaluate the aims of the current study. For example, the stem, "My

illness is a serious condition," was changed to, "Depression is a serious condition." Due to low

item-total correlation, item three was excluded from the scale prior to data analyses. This

subscale was rated on a 5-point Likert scale ranging from 1, "Strongly Disagree", to 5, "Strongly

Agree". Please see Appendix Ib for additional details.

Perceived mortality threat. Perceived mortality threat was evaluated using an adaptation

of the Death as Pain and Loneliness subscale of the Death Perspectives Scales that have been

shown to be reliable and valid measures of death-related beliefs (Spilka, Minton, Sizemore, &

Stout, 1977). The original subscale consisted of six items focused on a person's level of

agreement with statements about negative consequences associated with death. This subscale

was adapted to evaluate fears related to death as a result of mental illness. For example, the stem,

"Death as a last agonizing moment," was changed to, "Having depression would lead to a last

agonizing moment." The original scale was rated on a scale from 1, "Strongly Disagree", to 6,

"Strongly Agree". In addition, new items focused on concepts described in Terror Management

Theory such as existential fears (e.g. "Dying from depression would make my life seem

meaningless") and mortality salience (e.g. "Having depression would increase my likelihood of

dying young) were added to evaluate mortality threats more comprehensively (Goldenberg &

Arndt, 2008). Please see Appendix Ic for additional details.

Loss of functioning threat. Loss of functioning threat beliefs were evaluated using an

adaptation of the Role Limitations due to Emotional Problems and Social Function subscales of

the RAND Medical Outcomes Study: 36-item Short Form Survey Instrument (MOS: SF-36)

which have been shown to be reliable and valid measures of functioning (Hays & Morales, 2001;

Hays, Sherbourne, & Mazel, 1993; Vander Zee, Sanderman, Heyink, & de Haes, 1996). The

original Role Limitation and Social Functioning subscales contained three and two items

respectively. The proposed adapted scale contained five items. In order to evaluate the aims of the current study, adaptations were made to focus on fears of loss of functioning from major depressive disorder. For example, the stem, "During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?: Cut down the amount of time you spent on work or other activities," was changed to, "Depression would cause someone to cut down the amount of time he or she would spend on work or other regular daily activities." Responses to the Role Limitation subscale consist of a tallied index of "Yes" or "No" responses and are calculated as a total score after weighting each "No" to be zero and each "Yes" to be 100 (Hays, et al., 1993; Vander Zee, et al., 1996). The Social Functioning subscale is rated on the following scales: 1 "Not at All" to 5 "Extremely" and 1 "All of the Time" to 5 "None of the Time" respectively. Items were adapted to focus on mental illness. For example, "During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?" was changed to "How much of the time would depression interfere with a person's social activities (like visiting with friends, relatives, etc.)?" Each response for the Social Functioning subscale is weighted by a factor of 25 points based on each interval of the scale (e.g. "Not at All/None of the Time" was scored as zero, "Slightly/A little bit" was scored as 25) (Hays, et al., 1993; Vander Zee, et al., 1996).

Loss of control threat. Loss of control threat beliefs were evaluated using an adaptation of the General Self-Efficacy Scale that has been shown to be a reliable and valid measure of beliefs concerning one's ability to control and to manage life stressors across a wide variety of samples (Luszczynska, Gutiérez-Doña, & Schwarzer, 2005; Scholz, Doña, Sud, & Schwarzer, 2002; Schwarzer & Jerusalem, 1995). In order to contextualize the scale to the current study,

adaptations were made to focus on fears of loss of control from major depressive disorder. For example, the stem, "I can always manage to solve difficult problems if I try hard enough," was changed to, "Individuals with depression can always manage to solve difficult problems if they try hard enough." This scale consists of 10 items rated on a scale from 1, "Not at All True," to 4, "Exactly True." Items were reverse-scored such that higher scores indicated higher endorsement of loss of control-related threat. Please see Appendix Ie for additional details.

Obstructing threats.

Stigma. General personal stigma beliefs were measured using the devaluation subscale taken from the adapted version of Discrimination-Devaluation scale (aD-D) that was validated in university samples by Eisenberg, Downs, Golberstein, and Zivin (2009). The discrimination subscale was administered in this study due to the conceptual overlap with the interpersonal and workplace rejection items. The devaluation subscale of the aD-D is a 6-item, self-report measure evaluating stigma beliefs involving disregarding individuals who have utilized mental health treatment. This subscale is rated on a 6-point Likert scale ranging from 0, "Strongly Agree", to 5, "Strongly Disagree". Past research has found the aD-D to be a reliable and valid measure (Eisenberg, Downs, Golberstein, & Zivin, 2009).

In order to assess a broader sense of stigma beliefs against individuals with mental illness, the aD-D devaluation subscale was adapted to focus on beliefs about individuals experiencing major depressive disorder, as opposed to focusing solely on beliefs about persons who utilize mental health treatment. For example, "I would think less of a person who has received mental health treatment" was changed to "I would think less of a person who has depression." This adaptation more comprehensively evaluated mental health-related stigma, as treatment-seeking individuals are a smaller subset of the population. All items were reverse-scored before analyses

such that higher scores indicated greater levels of depression-related stigma. Please see Appendix If for additional details.

   Interpersonal rejection stigma. Interpersonal rejection beliefs regarding potential interactions with persons with mental illness were measured using items adapted from the Belonging Support subscale of the Interpersonal Support Evaluation List (Cohen & Hoberman, 1983). This subscale has been shown to be a reliable and valid measure across several studies (Brissette, Scheier, & Carver, 2002; Cohen & Hoberman, 1983; Shaw & Gant, 2002). This subscale was adapted to focus on interpersonal rejection beliefs about individuals with major depressive disorder. For example, "When I feel lonely, there are several people I can talk to" was changed to, "When someone who has depression feels lonely, there are several people he or she can talk to." Due to low item-total correlations, items two and three were excluded from the scale prior to data analyses. The adapted measure used the original rating scale that ranges from 0 "Definitely False" to 4 "Definitely True." Items were reverse-scored as necessary such that higher scores indicated greater interpersonal rejection. Please see Appendix Ig for additional details.

   Workplace rejection stigma. Workplace rejection stigma beliefs were measured using items adapted from the discrimination subscale of the aD-D (Eisenberg, Downs, et al., 2009). As previously stated, the aD-D has been previously shown to be a reliable and valid measure of discrimination beliefs applied to individuals who have mental health treatment (Eisenberg, Downs, et al., 2009). In order to assess a broader sense of stigma beliefs, the selected discrimination subscale items was changed to focus on major depressive disorder, as opposed to only individuals who have sought mental health treatment, as they are a smaller proportion of the population. For example, "Most employers will hire someone who has received mental health

treatment if he or she is qualified for the job" was changed to, "Most employers will hire someone who has depression if he or she is qualified for the job." Additional items focused on workplace rejection were derived from past qualitative research on workplace experiences reported by individuals with mental illness, as prior measures evaluating workplace rejection focused on specific stereotypes for racial/ethnic subgroups and lacked beliefs regarding perceptions of workplace reliability and competence (Eisenberg, Downs, et al., 2009; Honey, 2004; Schulze & Angermeyer, 2003). The workplace rejection stigma beliefs measure had 7 items in total. All items were rated on a 6-point Likert scale ranging from 0, "Strongly Agree," to 5, "Strongly Disagree," matching the range of the aD-D discrimination subscale items. All items were reverse-scored such that higher scores indicated greater workplace rejection. Please see Appendix Ih for additional details.

Procedure

Participants were recruited through the USF psychology department SONA participant pool and Mechanical Turk. Participants who elected to participate were directed towards an online informed consent form explaining the background of the study, procedures involved, potential risks and benefits, and confidentiality protections in place. Once consented, participants were directed to complete an online survey. Participants completed measures associated with facilitating and obstructing threats. In order to control order effects, the facilitating and obstructing threat items were randomized by block for each participant. In addition, validity check items asking participants to select a specific response for confirming participant attentiveness were placed throughout the survey. Validity item total scores were pro-rated based upon degree of survey completion.

Participants were not required to answer all survey questions to receive extra credit and were able to elect to stop at any time per IRB policies. At the end of the study, participants were directed to a debriefing form describing the goals of the study. Participants were provided contact information for local and national mental health resources (e.g. National Lifeline, Tampa Bay Crisis Center) depending on the sample (i.e. MTurk versus SONA) in case the survey elicited emotional distress. Contact information was also provided for the principal investigator to address any questions or concerns. No identifying data was collected for this study. All data was labeled with an anonymous code unrelated to participant data. Data were retained on a secured, password protected server with access granted only to authorized research staff.

Data Analyses

Descriptive statistics (e.g. means, standard deviations, ranges) were used for evaluating normality assumptions (e.g. skew, kurtosis). In addition, participants who failed quality control metrics were excluded from the study. Full scale and subscale reliability were assessed using Cronbach's alpha (Cronbach, 1951).

Once data processing was completed, confirmatory factor analyses (CFA) were run using the Mplus statistical analysis package (Muthen & Muthen, 1998-2012). Latent variables with only continuous variables, such as mortality threat and obstructing threats, were estimated using full information maximum likelihood estimation. For the facilitating threats CFA which contained categorical variables in the loss of functioning threat subscale, weighted least squares means and variance adjusted was used to account for non-normality.

Confirmatory factor analysis was used to evaluate mortality threat items adapted from the Death Perspectives Scale and newly developed items. As the new mortality items showed adequate fit and convergent validity with the adapted Death Perspective Scale, only the new

mortality items were retained for evaluating the facilitating and obstructing threat latent factor structures. For the facilitating and obstructing threat latent factors, initial confirmatory factor analyses were used for evaluating the respective model fits for each factor. Modification indices were employed if conceptually relevant to improve model fit.

Model fit was evaluated using metrics previously described in the literature (Hu & Bentler, 1998): maximum-likelihood chi-squared test (non-significant), the standardized root mean square residual (SRMSR; < .08), the root mean square error of approximation (RMSEA; < .06), and the Bentler Comparative Fit Index (CFI; >= .95).

Study 1: Factor Structure Validity

Results

Data Screening

Data were initially screened for valid response styles. Participants who failed validity checks and completed the survey in less than four minutes were excluded from analyses (n = 77). Participants who were retained for analyses correctly completed 100% of possible validity check items and had an average completion time of 50.27 minutes (SD = 572.80). One participant had an extreme completion time value due to losing access to the survey and had requested access to complete it. All items were within range of acceptable normality criteria based on measures of skew and kurtosis with the exception of the perceived severity and loss of functioning measure (See Table 3). The perceived severity threat measure was later discarded from final analyses due to limited variability (See results below for further details). Several of the loss of functioning items were negatively skewed and leptokurtic, but these findings were not unexpected due to the categorical nature of the measure. Internal consistencies were within the range of good reliability (αs = .76 - .90; See Table 3) with the exception of the loss of functioning threat subscale (α = .66). The lower reliability for the loss of functioning threat subscale was not unexpected, as the original scale was developed as an index.

Mortality Threat Confirmatory Factor Analysis

Confirmatory factor analyses (CFAs) for the adapted Death Perspectives scale and newly created mortality threat items indicated that a two-factor model with separate latent factors with

no cross-loadings across scales for the adapted Death Perspectives and newly developed items had superior fit when compared with a one factor model combining all items (CFI = .98; RMSEA = .05 [90% CI: .03 - .07]; SRMSR = .04; $\Delta\chi^2 (3) = 165.75$, $p < .001$; See Table 4). In addition, results supported convergent validity, as there was a strong relationship between the adapted and newly developed items ($\beta = .79$, $p < .001$). Based on the strong concurrent validity and better conceptual alignment of the new items with Terror Management Theory after consultation with a subject matter expert, only the new mortality threat items were retained for additional CFAs.

Facilitating Threats Confirmatory Factor Analysis

Based on the hypothesized model, a CFA was run to evaluate the fit of the second order Facilitating Threats latent variable as defined by perceived severity, mortality, loss of functioning, and loss of control threats. The initial model would not converge due to high multicollinearity between perceived severity threat and other component latent variables. Specifically, there were correlations with the mortality threat (partial-r = .69) and loss of functioning scales (partial-r = .88) as well as a high correlation with the higher order facilitating threats latent variable (partial-r = 1.99[1]). This was accompanied by an error message indicating that the latent positive matrix was not positive definite further supporting an issue with collinearity (Muthen & Muthen, 1998-2012). Due to the non-convergence of the model, fit indices should be interpreted with caution. It was determined that these issues were driven by limited variability in the perceived severity threat measure (M = 4.05, SD = .65). Thus, perceived severity threat was removed from the model.

After removing the perceived severity latent variable, the model continued to demonstrate poor fit (CFI = .86; RMSEA = .06 [90% CI: .05 - .07]; $\chi^2 (187) = 327.29$, $p < .0001$). Modeling

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[1] The correlation value is above one due to multicollinearity with other latent variables.

the perceived mortality threat as a separate latent variable resulted in non-convergence due to multicollinearity as evidenced by a covariance with itself of greater than one and moderate correlations with the loss of functioning threat scale (part-r = .53) and the higher order facilitating threats latent variable (part-r = .50). As well, the model continued to show poor fit (CFI = .89; RMSEA = .05 [90% CI: .04 - .06]; χ^2 (187) = 299.92, p < .0001) .This was accompanied by an error message indicating that the latent positive matrix was not positive definite further supporting an issue with collinearity (Muthen & Muthen, 1998-2012). Due to the non-convergence of the model, fit indices should be interpreted with caution. Consequently, perceived mortality threat was modeled as part of the higher order Facilitating Threats latent variable for all subsequent analyses.

Modification indices were evaluated and employed based upon the conceptual strength of suggested changes. The model that demonstrated the best fit included covariances between the perceived loss of control and loss of functioning latent variables as well as covariances between the loss of functioning items related to the severity and frequency of functional impairment related to depression. This model was within the range of adequate fit and showed significant improvement over the other tested models (CFI = .90; RMSEA = .05 [90% CI: .04 - .06]; χ^2 (185) = 282.07, p < .0001, $\Delta\chi^2$ (1) = 10.44, p < .005; See Table 5, Figure 2).

Obstructing Threats Confirmatory Factor Analysis

In order to evaluate the factor validity of Obstructing Threats, a CFA was run to determine the fit of the higher order latent variable as defined by the constituent perceived stigma, interpersonal rejection, and workplace rejection threat latent variables. Initial model fit was poor across all fit indices (CFI = .73; RMSEA = .22 [90% CI: .10 - .12]; SRMSR = .11; χ^2 (187) = 687.24, p < .0001). Conceptually relevant modification indices were used to improve fit

but did not result in significant changes in model fit. Additional analyses determined that poor

model fit was being driven by multicollinearity with perceived stigma and the other latent

variable as evidenced by a covariance with itself of greater than one and strong correlations with

the workplace threat (part-r = .72) and the higher order obstructing threats latent variable (part-r

= .89). As the original model ran successfully, an attempt was made to address collinearity issues

by fixing the variance for the latent stigma variable per analysis guidelines (Muthen & Muthen,

1998-2012). This however resulted in a model with significantly poorer fit ($\Delta\chi^2$ (3) = 133.76, p

< .005; See Table 6). Although normally distributed, subsequent screening showed that

multicollinearity was being driven by limited variability related to range restriction in the

perceived stigma latent variable that inflated correlations with other latent variables (M = 1.02,

SD = .91, Minimum-Maximum: 0 – 3.40). Consequently, the perceived stigma latent variable

was removed from subsequent CFAs.

After removal of the perceived stigma construct, the model would not converge due to

collinearity between the interpersonal and workplace rejection latent variables as evidenced by a

high correlation (part-r = 3.82[2]) between interpersonal rejection and the higher order obstructing

threats latent variable and a moderate correlation between the interpersonal and workplace

rejection latent variables (part-r = .54) . As well, the latent positive matrix was not definite

further supporting the role of collinearity (Muthen & Muthen, 1998-2012). Due to the non-

convergence of the model, fit indices should be interpreted with caution. To resolve collinearity,

these variables were combined into one latent construct, but model fit remained poor (CFI = .60;

RMSEA = .15 [90% CI: .13 - .16]; SRMSR = .10; χ^2 (90) = 543.40, p < .0001; See Table 6).

Additional modifications used to improve model fit included removal of items related to explicit

exclusion of individuals with depression from friendships due to low factor loadings.

[2] The correlation value is above one due to multicollinearity with other latent variables.

Specifically, Interpersonal items 1 and 4 were removed due to factor loadings of .21 and .23 respectively which are below the minimum recommended factor loading of .30. In addition, an item related to celebrating birthdays for individuals with depression was removed due to limited variability (M = .42, SD = .75, Minimum-Maximum: 0 – 3). The best fitting model included covariances added between items related to rejecting individuals with depression from participation in social activities as well as covariances between items related to perceived lack of competence and hiring decision making. Additional modification indices were considered but did not improve model fit (See Table 6). Thus, the most parsimonious model with the best fit was selected. The final Obstructing Threats model was within the range of adequate fit and significantly improved from prior models (CFI = .93; RMSEA = .08 [90% CI: .06 - .10]; SRMSR = .07; χ^2 (47) = 119.27, $p < .0001$, $\Delta\chi^2$ (1) = 17.02, $p < .005$; See Figure 3).

Study 1 Discussion

Overall, this study provided initial support for the hypothesized latent factor structures of facilitating and obstructing threats (Please see Figure 1). Items that were retained had adequate factor loadings supporting that these items reflected first-order latent variables. As well, the first-order variables for facilitating threats were significantly associated with the second order latent variables. Similarly, the collapsing of the first order variables for the obstructing threats latent variable suggested strong relationships between constituent items for obstructing threat. Thus, the proposed items and subcomponents reliably and validly measured these overarching latent constructs.

When considering facilitating threats, the higher order latent variable was significantly, positively associated with the respective loss of functioning, loss of control, and mortality threat first order latent variables. As well, the developed items that were retained for the final model fit well within their respective first order latent variables without any cross-loadings across latent variables suggesting that items were uniquely associated with each hypothesized sub-factor. Overall, these results suggest that the constituent items adequately reflected their respective first-order latent variables that in turn were associated with the facilitating threats latent variable. Although individual measures showed adequate internal consistency, difficulties involving the model failing to converge, collinearity between latent variables, and poor model fit arose as the result of subcomponents of the specific latent factors. In terms of the facilitating threats latent construct, one hypothesized subcomponent, perceived severity threat, had unexpectedly limited

variability associated with a ceiling effect and thus required removal from the model. When considering the literature at large, this finding is not entirely unexpected, as a past vignette-based survey with community samples showed that participants were able to acknowledge the seriousness of depression and that the likelihood of poor outcomes is relatively high without intervention with more than 70% of participants believing that the hypothetical depressed individual would get worse without treatment (Jorm et al., 1997). Follow-up from this original survey has shown significant increases in knowledge concerning the association between depression symptoms and negative consequences over the past two decades suggesting an increase in public beliefs concerning the seriousness of depression (Jorm, Christensen, & Griffiths, 2006; Schomerus et al., 2012). Consequently, the ceiling effect seen for the perceived severity latent variable may have been due to the majority of individuals acknowledging the serious nature of major depressive disorder. As well, longitudinal studies have also shown that attitudes towards individuals with depression and mental health treatment have become increasingly more positive (Mojtabai, 2007; Schomerus, et al., 2012). It is also possible that the changing societal climate resulted in more positive responses due to the influence of social desirability and fear of being negatively judged for having stigmatizing beliefs. Consequently, limited variability from a high percentage of individuals agreeing that depression is a serious illness may be related to improvement in societal knowledge and attitudes towards depression.

Contrary to what was hypothesized, there was poor model fit due to a significant relationship between the continuous items that focus on the frequency and level of impairment of the adapted loss of functioning scale. This relationship is congruent with past research that has shown that higher frequency of experiencing impairment is associated with greater levels of functional impairment (Kessler, Berglund, Demler, & et al., 2003). It is also possible that this

covariance was related to shared method variance, as these two items were the only continuous items in the adapted scale and both used Likert scaling (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Based on these findings, a covariance was added between the continuous items on the adapted loss of functioning scale as suggested by modification indices.

For the obstructing threats CFA, there was unexpectedly limited variability in the adapted stigma measure as the greater majority of participants reported low levels of stigma. This was incongruent with past studies showing adequate variability on a similar scale of general mental health stigma (Chen, 2013). However, the current scale was focused exclusively on stigma towards depression which may be associated with different levels of stigmatizing beliefs compared with general mental health issues. Based on prior longitudinal research, these findings may be related to societal changes involving decreases in stigma against depression, improved mental health literacy, and more positive attitudes towards mental health treatment (Mojtabai, 2007; Schomerus, et al., 2012). Findings from a large epidemiological study using a similar measure also showed limited variability for personal stigma beliefs towards mental health treatment (Eisenberg, Downs, et al., 2009). Thus, it is possible that self-reported stigma towards mental health issues, such as depression, is generally low. However, social desirability may also have played a role in participants reporting low stigma, as self-reported measures focus on explicit beliefs towards stigmatized groups. Use of implicit stigma measures may improve variability in participant responses and decrease social desirability biases (Nosek, Greenwald, & Banaji, 2005). Based on these data, this construct was removed from the model.

Contrary to what was hypothesized, model fit was poor due to a strong correlation between interpersonal and workplace rejection threats when modeled as separate latent variables However, this is congruent with past research suggesting that interpersonal factors play an

important role in workplace decisions. Specifically, extraversion which is defined by personality characteristics associated with positive emotionality, such as gregariousness and warmth, has been associated with greater likelihood of being hired (Costa & MacCrae, 1992; Tay, Ang, & Van Dyne, 2006). Similarly, research on friendship has shown that individuals who are higher in extraversion are more likely to experience lower levels of interpersonal rejection (Peter, Valkenburg, & Schouten, 2005). As past research has shown that individuals who are high on depressive symptoms have lower levels of extraversion, it is possible that participants responded similarly to interpersonal and workplace rejection items due to conceptualizing common personality characteristics related to depression that would precipitate interpersonal or workplace rejection. Overall, interpersonal and workplace rejection of depressed individuals may share similar underlying mechanisms supporting the one factor model found in this study. Model fit was best when interpersonal and workplace rejection threats were combined into a single variable and thus these variables were collapsed into one latent variable for the final obstructing threats model.

Contrary to what was hypothesized, model fit was poor due to a strong correlation between items on the workplace rejection threat scale that were focused on perceived lack of competence and hiring decision making. Prior meta-analytic studies have found that perceived competence, specifically perceptions of aptitude and past job experience are positively associated with perceived job performance and thus important indicators for employers in hiring decision making (Hunter, 1986; Quinones, Ford, & Teachout, 1995). Within the context of the current study, the significant relationship between perceived lack of competence and hiring items on the workplace rejection scale may be reflective of the evidence suggesting that perceived competence and hiring are significantly related across studies focused on the general population.

In addition, vignette-based studies have shown that employers report being less likely to hire individuals with depression due to perceptions of poor job competence (Glozier, 1998). Thus, the covariance that was added between items related to perceived competence and job hiring is reflective of findings in the broader research literature.

Although the data showed initial support for the reliability and validity of the facilitating and obstructing threats constructs, several limitations were present that may affect interpretation of study results. All data were collected via self-report measures, and thus the presence of self-report biases cannot be eliminated. Through the online, anonymous data collection format, biases related to demand characteristics or potential discomfort were minimized. In addition to self-report bias, the use of self-report measures presents the potential for inflation of statistical relationships via shared method variance (Williams, Cote, & Buckley, 1989). However, the size of effects between the observed variables and the hypothesized latent variables was larger than what would be considered attributable to shared method variance ($r = > .20$) based on past research (Spector, 2006). Due to the current methodology, it is not possible to completely control for the role of shared method variance.

In terms of other methodological concerns, all data were cross-sectional, so it was not possible to evaluate the stability of these constructs over time. As well, all data collection was completed via online surveys, so it is possible that participant responses may have been affected by distraction from the survey. However, rigorous methods of data quality control were implemented based on current guidelines for online research (Gosling & Mason, 2015). The use of these quality control methods resulted in the exclusion of a sizable portion of the sample (~25%) from data analyses. As many of these individuals also did not have complete data or

valid response patterns, it is difficult to identify specific characteristics that define invalid responders for this study.

Overall, despite these limitations, this study supported the reliability and validity of the respective facilitating and obstructing threats latent factor structures as well as their component sub-items. Although several modifications to the model were necessary to improve model fit, these changes to the model were conceptually supported by past research suggesting relationships between specific types of beliefs (e.g. workplace and interpersonal rejection) and historical changes in mental health beliefs (e.g. stigma). These study findings provided initial support for the validity and reliability of the newly developed facilitating and obstructing threat measures and associated subcomponents. In addition, these data also assisted with further refinement of the measures by identifying items and constructs for removal. As well, analyses identified additional relationships between first order latent variables and associated items. Although there was initial evidence for the hypothesized latent factor structure, further research is necessary to establish concurrent validity with a relevant construct, such as mental health help-seeking intentions. Using these latent variable models and adapted items, Study 2 explored relationships between these latent variables and formal mental health help-seeking intentions.

Study 2: Moderation Analyses

Method

Participants

Participants consisted of 293 undergraduate students recruited through the University of South Florida psychology department's online SONA participant pool. Based on power analyses, the recruited sample was adequately powered for detecting good fit (Bollen, 2005). All participants were legal adults (i.e. 18+ years of age), had sufficient English language skills to read and comprehend the survey (i.e. literate and fluent), and resided in the United States. No other exclusion criteria were in place for the study. SONA participants were remunerated for their participation with extra credit based upon each instructor's respective course policies.

After screening for response validity (i.e. validity check items and completion time; see Data Screening section for full details), a total of 212 participants had valid responses. Participants had a mean age of 20.89 years (SD = 4.96). The majority of participants were female (87.7%), Caucasian (63.3%), non-Hispanic/Latino/a (79.2%), and exclusively heterosexual (74.5%). Participants represented a broad range of years in college with 91.5% of the sample being in years one through four. Participants lived predominantly off-campus (67.5%). In terms of mental health treatment history, 20.8% reported receiving a mental health diagnosis, and 24.2% reported receiving mental health treatment. Within their social networks, a sizeable minority of participants reported having family members (39.9%) and friends (36.2%) who have received mental health treatment (See Tables 7 and 8 for full demographics information).

Measures

Demographics assessment. Demographic variables were recorded using the same demographics assessment measure as Study 1(See Appendix IIa and Study 1 for full details).

Facilitating threats.

Perceived mortality threat. Perceived mortality threat was evaluated using a six-item measure that was created during the measurement development phase of this project (See Appendix IIb; Study 1 for full details). All items were rated on a scale from 1, "Strongly Disagree", to 6, "Strongly Agree" with higher values showing greater perceived mortality threat from depression.

Loss of functioning threat. The loss of functioning threat beliefs scale was adapted and evaluated for reliability/validity in the measurement development phase of this study (See Appendix IIc; Study 1 for full details) When considering the scale as a whole, higher values indicated greater perceived loss of functioning related to depression.

Loss of control threat. Loss of control threat beliefs were evaluated using the loss of control threat scale that was adapted from the General Self-Efficacy Scale during the measurement development phase of this project (Luszczynska, Gutiérez-Doña, & Schwarzer, 2005; Scholz, Doña, Sud, & Schwarzer, 2002; Schwarzer & Jerusalem, 1995). The measurement development study supported the reliability and validity of the adapted scale (See Appendix IId and Study 1 for full details). The adapted scale consists of 10 items rated on a scale from 1, "Not at All True," to 4, "Exactly True." Items were reverse-scored such that higher scores indicated higher endorsement of loss of control-related threat.

Obstructing threats.

Interpersonal rejection stigma. Interpersonal rejection stigma beliefs regarding potential interactions with individuals with depression were measured using a 12-item scale adapted from the Belonging Support subscale of the Interpersonal Support Evaluation List, the discrimination subscale of the adapted discrimination-devaluation scale (aD-D), and workplace rejection experiences reported in the qualitative research literature (Brissette, Scheier, & Carver, 2002; Cohen & Hoberman, 1983; Eisenberg, Downs, et al., 2009; Honey, 2004; Shaw & Gant, 2002). Specifically, adaptations were made to focus on interpersonal rejection across different settings in reference to an individual experiencing depression (e.g. "When someone who has depression feels lonely, there are several people he or she can talk to," "Most employers will hire someone who has depression if he or she is qualified for the job."). Although this latent variable was originally hypothesized as being composed of two separate, first-order latent variables (interpersonal rejection and workplace rejection), results from the measurement development phase showed superior model fit, reliability, and validity when combining these aspects of rejection into one latent variable due to the strong correlation between these constructs. These findings were reflective of the broader literature suggesting that interpersonal factors play a strong role in perceptions of an individual across work and social settings (Costa & MacCrae, 1992; Peter, et al., 2005; Tay, et al., 2006).

When considering conceptual subdomains of interpersonal rejection, there were five items focused on general interpersonal interactions and seven items focused on workplace interactions (See Study 1 for full details). All items were scored such that higher scores indicated greater levels of interpersonal rejection stigma towards individuals with depression (See Appendix IIe).

Help-seeking intentions. Professional help-seeking intentions were evaluated using the formal sources subscale of the General Help-Seeking Questionnaire (GHSQ). The GHSQ has previously been shown to be a reliable and valid measure (Wilson, Deane, & Ciarrochi, 2005b). In terms of reliability, the GHSQ has been found to have strong internal consistency (Wilson, et al., 2005b). When considering validity, the GHSQ has been shown to have a medium-sized effect association with future help-seeking behavior (Wilson, et al., 2005b). As well, this scale has been associated with treatment-related variables such as past treatment quality (medium effect) and perceived barriers to treatment (small effect) (Tuliao & Velasquez, 2014; Wilson, et al., 2005b). The formal sources subscale contains 6 items that are rated from 1, "Extremely unlikely", to 7, "Extremely likely", for a variety of MHHS professional referral sources. Participants rated their intentions for three items describing formal sources of help in response to personal-emotional problems and suicidal problems respectively. In order to evaluate help-seeking intentions that are focused on depression, the wording of the items for personal-emotional problems was adapted so that participants rated their intentions in relation to seeking help for depression as opposed to general personal-emotional problems (See Appendix IIf).

Procedure

Participants were recruited through the USF psychology department SONA participant pool. Participants who elected to participate were directed towards an online informed consent form explaining the background of the study, procedures involved, potential risks and benefits, and confidentiality protections in place. Once consented, participants were directed to complete an online survey. Participants completed measures associated with facilitating and obstructing threats. In order to control order effects, the facilitating and obstructing threat items were randomized by block for each participant. In addition, validity check items asking participants to

select a specific response for confirming participant attentiveness were placed throughout the survey. Validity item total scores were pro-rated based upon degree of survey completion.

Participants were not required to answer all survey questions to receive extra credit and could elect to stop at any time per IRB policies. At the end of the study, participants were directed to a debriefing form describing the goals of the study. Participants were provided contact information for local and national mental health resources (e.g. National Suicide Prevention Lifeline, Tampa Bay Crisis Center, USF Counseling Center) in case the survey elicited emotional distress. Contact information was also provided for the principal investigator to address any questions or concerns. No identifying data was collected for this study. All data were labeled with anonymous codes unrelated to participant data. Data were retained on a secured, password protected server with access granted only to authorized research staff.

Data Analyses

Descriptive statistics (e.g. means, standard deviations, ranges) were used for evaluating normality assumptions (e.g. skew, kurtosis). In addition, participants who failed quality control metrics were excluded from the study. Full scale and subscale reliability were assessed using Cronbach's alpha (Cronbach, 1951).

Once data processing was completed, confirmatory factor analyses were run using the M*plus* statistical analysis package (Muthen & Muthen, 1998-2012). Confirmatory factor analysis was used to evaluate fit for the measurement model including the obstructing threats, facilitating threats, and MHHS latent variables. Initial model specification for the obstructing and facilitating threats latent variables were based upon findings from the measurement development phase of this project. Due to the presence of categorical-response items in the perceived loss of functioning scale, the robust weighted least squares mean variance (WLSMV) was used based

upon guidelines from the literature and M*plus* user guide (Finney & DiStefano, 2006; Muthen & Muthen, 1998-2012) Modification indices were employed if conceptually relevant to improve model fit. Following confirmation of the measurement model, a main effects model was tested for obstructing threats and facilitating threats. In addition to evaluation of model fit, individual paths were evaluated for statistical significance and size of effect.

After running the main effects model, the moderation model was tested using the XWITH function in M*plus* that creates and models a latent variable interaction at varying levels of the moderator and provides a graphical depiction of associated interaction effects through the LOOP PLOT function. As latent variable interactions are often non-linear in nature and have unknown distributions, traditional structural equation modeling strategies that assume multivariate normality and known distributions cannot be used (Klein & Moosbrugger, 2000). M*plus* utilizes the *Integration* analysis type that uses numerical integration to model the distribution of the latent variable interaction effect and associated standard errors (Muthen & Muthen, 1998-2012). The program then estimates coefficients using a special form of maximum likelihood estimation that adjusts for the non-linear distributions associated with interaction effects and is robust to non-normal variables (Muthen & Muthen, 1998-2012).

Due to the nature of these analyses, traditional chi-square fit indices cannot be calculated, and comparing fit with the measurement model or direct model is not possible (Muthen & Muthen, 1998-2012). Thus, the focus on this model is to evaluate the significance of direct and moderation effects for the hypothesis that obstructing threats would moderate the relationship between facilitating threats and MHHS intentions. The LOOP PLOT function was used to evaluate the significance of the interaction effect at different levels of the moderating variable based on the presence of overlap in the 95% confidence interval between levels (Muthen &

Muthen, 1998-2012). As M*plus* cannot conduct simple slope analyses, the significance of each slope based upon the level of a moderator was evaluated using previously published guidelines (Preacher, Curran, & Bauer, 2006). Change in R^2 was calculated to determine the size of the interaction effect as compared with the direct model (Maslowsky, Jager, & Hemken, 2014; Muthen & Muthen, 1998-2012).

Overall model fit was evaluated using metrics previously described in the literature (Hu & Bentler, 1998): maximum-likelihood chi-squared test (non-significant), the standardized root mean square residual (SRMSR; < .08), the root mean square error of approximation (RMSEA; < .06), and the Bentler Comparative Fit Index (CFI; >= .95).

Study 2: Moderation Analyses

Results

Data Screening

Data were initially screened for valid response styles. Participants who failed validity checks (n = 81) were excluded from analysis. Participants who were retained for analyses correctly completed 100% of possible validity check items and had an average completion time of 10.47 minutes (SD = 10.29). A small proportion of the sample had missing data on at least one item (n = 15; 7.1%). Missing data were handled using pair-wise deletion methods which is the recommended missing data procedure recommended for latent variable models containing both continuous and categorical variables (Muthen & Muthen, 1998-2012). No significant differences were found between participants with and without missing data.

All individual item responses to the facilitating and obstructing threat measures were within range of acceptable normality criteria with the exception of dichotomous scale items for the loss of functioning threat subscale (See Table 9). Internal consistencies were within the range of good reliability (αs = .80 - .91; See Table 9) with the exception of the loss of functioning threat subscale (α = .68). The lower reliability for the loss of functioning threat subscale was not unexpected, as the original scale was developed as an index.

Measurement Model

Confirmatory factor analyses were run to clarify the optimal measurement model that included the facilitating threats, obstructing threats, and mental health help-seeking (MHHS) latent

variables and associated item factor loadings. The initial model with no modifications had poor fit (CFI = .85; RMSEA = .04 [90% CI: .03 - .05]; $\chi2$ (688) = 913.77, p < .0001; See Table 10). This poor model fit appeared to be driven by a low factor loading for interpersonal rejection item six (0.23) and low correlated errors between several items (Workplace items seven and eight; interpersonal rejection items five and eight; interpersonal rejection items five and nine; all correlations with interpersonal rejection item six). No further relevant modification indices were identified.

After removing interpersonal rejection item six and the identified low correlated errors, model fit was significantly improved but remained poor (CFI = .86; RMSEA = .04 [90% CI: .03 - .05]; χ^2 (655) = 857.92, p < .0001; See Table 10). All factor loadings were above the recommended cut-off of .30 and ranged from .38 to .88. Due to the removal of interpersonal rejection item six, the models were no longer nested and could not be directly compared for improved relative fit using χ^2 change.

A review of modification indices showed no applicable modifications present. As residual variances were all greater than zero and factor loadings were above recommended cut-offs, highly correlated items were reviewed within each latent factor to determine whether correlated errors were necessary. Correlated errors were added for the following item pairs based on a correlation of .7 or higher: depression MHHS item six and suicidal ideation MHHS item seven, depression MHHS item seven and suicidal ideation MHHS item seven, loss of control items three and four, and loss of functioning items one and two. These modifications resulted in a significantly improved relative fit, but global fit remained poor (CFI = .86; RMSEA = .04 [90% CI: .03 - .05]; χ^2 (652) = 844.67, p < .0001; $\Delta\chi^2$ (3) = 64.56, $p < .001$; See Table 10, Figure 4). Model fit was determined to be acceptable based upon research showing that a focus on

comparative fit ($\Delta\chi^2$) and indices less susceptible to bias (RMSEA) may be used to determine adequate fit when sample size is relatively low and the number of variables is high (Hermida, Luchman, Nicolaides, & Wilcox, 2015; Kenny & McCoach, 2003; Herbert W. Marsh, Hau, & Wen, 2004). In addition, all factor loadings were above the recommended cut-off of .30 and ranged from .38 to .88, residual variances were within normal limits, and no conceptually relevant modification indices were identified. Based on these results, it appeared that poorer than expected fit was driven by small, non-significant relationships between MHHS intentions and facilitating threats (β = -.14, *p* = .15), and MHHS intentions and obstructing threats (β = .04, *p* = .62; See Table 11 for full correlation table).

Main Effects Model

Due to the potential for alternative models and the recommended evaluation of main effects as an initial step in moderation analyses (A. F. Hayes, 2013a; Kline, 2015), a main effects model was tested. This model has similar fit to the measurement model (CFI = .86; RMSEA = .04 [90% CI: .03 - .04]; χ^2 (652) = 844.67, *p* < .0001; See Figure 5). The measurement and main effects models could not be compared, as they are not nested and have the same degrees of freedom. RMSEA, CFI and χ^2 values appeared similar across models. No significant relationships were found between MHHS intentions and facilitating threats (β = -.68, *p* = .14, R^2 = .02; Hypothesis 1) or obstructing threats (β = .62, *p* = .16, R^2 = .00). In total, the model explained 12 percent of the variance in MHHS intentions. These results do not support a significant main effect for obstructing threats. As well, findings did not support the hypothesized positive relationship between facilitating threats and MHHS intentions.

Moderation Analysis

In order to test the proposed hypothesis, a separate model was run including an interaction effect between the facilitating threats and obstructing threats latent variables (See Figure 6). Due to the nature of moderation analyses in structural equation modeling, the moderation and main effects models could not be compared via fit indices. As well, standard global fit indices are not currently available for latent variable interaction models (Muthen & Muthen, 1998-2012).

When considering main effects, there were no significant relationships between MHHS intentions and facilitating threats ($\beta = -.05$, $p = .87$, $R^2 = .00$; Hypothesis 1) or obstructing threats ($\beta = -.05$, $p = .85$, $R^2 = .01$). The interaction effect was significantly associated with MHHS intentions ($\beta = .19$, $p < .005$, $R^2 = .06$; Hypothesis 2). However, the overall model did not explain additional variance over the main effects model ($R^2 = .07$, $\Delta R^2 = -.05$), thus the interaction effect was not explored further based upon statistical guidelines (A. F. Hayes, 2013b).

Study 2 Discussion

The current study focused on evaluating main effects and interaction relationships for the hypothesized latent variables with MHHS intentions. It was hypothesized that facilitating threats would be positively associated with MHHS intentions, and that this relationship would be moderated by obstructing threats. Specifically, higher levels of obstructing threats would attenuate the facilitating threats-MHHS intentions relationship. Contrary to what was hypothesized, the current analyses did not support significant, main effects for either of the latent predictor variables. In addition, although the interaction effect was significant, it explained less variance than the main effects model and could not be interpreted further.

Inconsistent with hypotheses, facilitating threats were not significantly, positively associated with MHHS intentions. It is possible that the facilitating threats construct does not play a role in MHHS processes. Although this is in contrast to past research showing that perceived consequences of a disorder are an important aspect of treatment seeking for physical health issues and suicidality (Carpenter, 2010; Cellucci, et al., 2006; Cigularov, Chen, Thurber, & Stallones, 2008), the current finding may suggest that such relationships are not present in help-seeking processes for depression. One potential explanation is based on the Cycle of Avoidance model which hypothesizes that a major barrier to help-seeking among individuals experiencing mental health distress is a continued increase in their threshold for triggering help-seeking (Biddle, Donovan, Sharp, & Gunnell, 2007). Specifically, this model proposes that the threshold for help-seeking changes due to normalizing of symptoms and thus minimizing of

perceptions of symptom distress when approaching a help-seeking threshold (Biddle, et al., 2007). Initial evaluation of this model found that individuals were able to normalize mental health distress even when extreme consequences were experienced, such as inpatient hospitalization for a suicide attempt (Biddle, et al., 2007). Similarly, other studies have found acknowledging that one is having symptoms of depression as opposed to normalizing symptoms as just general life stress was an important aspect of seeking mental health treatment (Farmer, Farrand, & O'Mahen, 2012). Specifically, participants in this study noted that recognizing their symptoms of depression helped them to notice the impact of depression on their lives as opposed to avoiding the symptoms, which then facilitated the decision to seek help (Farmer, et al., 2012). Thus, appraisal of depression symptoms as atypical and as bad enough so as to require help-seeking may be a necessary step before MHHS can be increased by facilitating threats.

Qualitative research evaluating the Cycle of Avoidance model has shown that patients receiving professional feedback that they do in fact have symptoms may help to overcome this normalization and avoidance process that changes the threshold for help-seeking (Biddle, et al., 2007). This fits with past research on depression screening that has shown associations with symptom improvement are only present when mental health staff feedback and assistance were present (U.S. Preventive Services Task Force, 2009). Notably, this review of the literature showed that feedback from screening alone without additional staff input was insufficient for improving care outcomes, but that the availability of mental health staff to explain the screening feedback was necessary for facilitating care and ultimately decreasing symptoms of depression (U.S. Preventive Services Task Force, 2009). As well, active assistance with linkage to care by staff when providing feedback may have also assisted with limiting an individual's urge to shift their help-seeking threshold (U.S. Preventive Services Task Force, 2009). Thus, it appears that

individuals may engage in avoidance even when provided feedback unless further assistance in appraising their symptoms as atypical and requiring treatment is available.

Another possible explanation for the non-significant relationship between facilitating threats and MHHS intentions was the presence of mortality threat items. Past research utilizing Terror Management Theory models has shown that although individuals report an initial increase in intentions towards health behaviors after being exposed to a mortality threat, these intentions later decrease due to engagement of psychological defenses focused on avoiding mortality-related fear such as avoiding thoughts about death or engaging in distraction (Goldenberg & Arndt, 2008; Solomon, et al., 1991). Although only a portion of the facilitating threats items focused on mortality threat, it is possible that these were sufficient to activate an individual's cognitive defenses against thoughts of death and increase behavioral avoidance of mortality-related content leading to decreased help-seeking intentions. Literature on coping strategies and acceptance and commitment therapy has shown similar cognitive avoidance processes when individuals are faced with other distressing emotions and situations (S. C. Hayes et al., 2004; Litman, 2006). However, it should be noted that the presentation of facilitating and obstructing threats questionnaires was counterbalanced by block across participants that should have attenuated such effects. Future research should also work to further define the specific appraisal beliefs (e.g. "My symptoms suggest I am suffering from depression that is serious." "I need additional help to manage these symptoms.") that may mediate the relationship between facilitating threats and MHHS intentions. As well, public health campaigns focused on improving awareness of the impact of depression symptoms should consider use of active strategies emphasizing symptom severity and need for treatment while limiting reminders of

mortality (e.g. "Untreated depression will decrease your life span.") to motivate individuals at-risk of depression for treatment engagement.

Although a significant interaction effect was seen between facilitating and obstructing threats, this relationship unexpectedly did not increase explanatory power over the main effects model. Thus, the results did not support the moderation hypothesis. Based on these findings, it is possible that the relationship between facilitating threats and MHHS intentions is not moderated by obstructing threats. This finding is in contrast to the Network-Episode Model that proposes specific interactions between an individual and their social network results in different help-seeking related decisions depending on the specific types of support and beliefs present (Pescosolido, 1992). As well, results contradict the Health Belief Model (HBM) that proposes cultural factors, such as stigma-related beliefs, as moderating the relationship between perceived threat of a health condition and health behavior change (Rosenstock, Strecher, & Becker, 1988; Strecher & Rosenstock, 1997). Although past findings have supported the individual role of several components of the HBM, there has been little to no research that has tested the full range of proposed moderation and mediation relationships theorized (Carpenter, 2010). Future research should focus on designs with adequate power to test multiple relationships to better delineate the unique variance explained by specific pathways of the HBM.

When considering clinical implications, the lack of a clinically significant interaction effect may explain the limited behavior change seen in gatekeeper programs that are focused on increasing positive beliefs towards suicide prevention (including knowledge about the seriousness of suicide and associated stigma) to increase referral to treatment of suicidal youth by school staff (Wyman et al., 2008). Specifically, the absence of an additive effect from targeting these variables on intentions to refer suicidal individuals may have, in turn, led to

limited effects on referral behaviors. Thus, prevention programming focused on increasing knowledge about the severity of depression and decreasing stigma to increase MHHS intentions should acknowledge that these variables may have solely unique relationships with behavior change.

Alternatively, the lack of a significant interaction effect could suggest that a main effects model would better explain relationships between facilitating threats, obstructing threats, and MHHS intentions. However, results from this study do not support significant main effects for either facilitating threats or obstructing threats. Thus, it does not appear that the main effects model is a tenable explanation for the lack of support for the moderation effect model in this study.

It is also possible that another variable may moderate the relationship between facilitating threats and MHHS intentions. Recent research with young adult populations found that the relationship between perceived susceptibility, a precursor variable to perceived severity, and MHHS intentions was significantly moderated by perceived benefits, such that this relationship was only positive when perceived benefits were high (O'Connor, Martin, Weeks, & Ong, 2014). As perceived benefits were not measured in this study, it is difficult to say whether this may have impacted the size of the interaction effect.

Another possible explanation is that there was significant multicollinearity between the facilitating threats, obstructing threats, and their associated interaction effect such that the variance explained was attenuated. Although latent variable approaches can often decrease these effects through accounting for measurement error, models may become especially susceptible to multicollinearity when sample sizes and variance explained are relatively small (Grewal, Cote, & Baumgartner, 2004). As interaction effect values are composed of the constituent predictor

variables, correlations between predictor variables and the interaction term are expected (Jaccard, Wan, & Turrisi, 1990). Although facilitating threats and obstructing threats were significantly associated in the moderation analysis model ($\beta = .81$, $p < .001$), no significant correlations were found between the interaction term and facilitating threats ($r = .00$, $p = 1.00$) or obstructing threats ($r = .00$, $p = 1.00$).

An alternative explanation for the decrease in variance explained is the presence of common method variance. As the study utilized self-report measures for all variables of interest, it is likely that measurement error was correlated across the facilitating threats, obstructing threats, and interaction term latent variables. Past research has found that the presence of correlated measurement error can attenuate the strength of the interaction effect (Siemsen, Roth, & Oliveira, 2010). Although structural equation modeling can often limit the effect of common method variance through accounting for measurement error, past simulation research has shown that the attenuation of interaction terms may become more pronounced with the presence of non-normal variables (H. W. Marsh, Wen, & Hau, 2004). Thus, it is possible that the inclusion of categorical variables within the loss of functioning latent variable, a constituent component of the facilitating threats and interaction term latent variables, may have reduced the reliability of the interaction effect and decreased the variance explained.

Future research may wish to further explore relationships between facilitating threats, obstructing threats, and MHHS intentions. Specifically, identifying other potential mediators and moderators of relationships supported in theoretical models may help to further disentangle MHHS processes. As many depression-focused prevention programs target public literacy regarding symptoms and stigma (Dumesnil & Verger, 2009), such programs may wish to

consider targeting additional variables such as perceived benefits of treatment to further enhance outcomes.

When considering the non-significant relationship between obstructing threats and MHHS intentions, this finding did not support a main effect for obstructing threats that was evaluated when exploring alternatives to the moderation effect model. This finding suggests that perceived interpersonal and workplace rejection beliefs do not play a role in MHHS processes. This finding is in contrast with prior research implicating anticipated rejection from others as a frequent barrier to help-seeking (Eisenberg, Downs, et al., 2009; Amelia Gulliver, Kathleen M. Griffiths, & Helen Christensen, 2010; Honey, 2004; Mojtabai, 2010; Vogel & Wester, 2003). Based on these studies and the inconsistent measurement of anticipated rejection within these studies, the current study proposed a latent variable focused on interpersonal and workplace rejection. However, a recent systematic review has found discrepancies between quantitative and qualitative research findings regarding the relationships between anticipated mental health stigma and help-seeking. Specifically, anticipated stigma was not consistently associated with help-seeking when looking across quantitative studies (Clement et al., 2015). In contrast, anticipated stigma remained a frequently endorsed barrier to help-seeking across qualitative studies (Clement, et al., 2015). Thus, it is possible that although anticipated stigma appears to be reported as a barrier, it may not play a consistent, direct role in MHHS decision making processes. This would fit with prior research showing that the relationship between perceived stigma and willingness to seek treatment is fully mediated by self-stigma and attitudes towards treatment (Vogel, Wade, & Hackler, 2007).

Another possible explanation is that the obstructing threats items were ambiguous regarding the perceived perpetrator of rejection. Past epidemiological research with adult

samples has consistently shown that perceived social support is negatively associated with

MHHS behavior (Maulik, Eaton, & Bradshaw, 2009; Thoits, 2011). Thus, it appears that the

presence of social support may negatively impact MHHS processes. When considering the

specific types of relationships involved, past research with college samples has shown that the

presence of "warm and trusting relationships" is negatively associated MHHS behavior (Downs

& Eisenberg, 2011). In light of this research, it is possible that some participants approached the

obstructing threats questions with different referents (e.g. distant versus close social

relationships) leading to different associations with MHHS intentions. For example, if

individuals were considering individuals from distant relationships as perpetrators of rejection,

the association between obstructing threats and MHHS may have become attenuated, as these

individuals may not have been perceived as significantly impacting one's well-being. In contrast,

if participants referred to individuals from close social relationships, there would potentially be

an increased in MHHS intentions based on the previously cited research. As the frame of

reference used by each participant is unknown, it is possible that the different referents identified

across participants as the source of rejection may have decreased the consistency of the

relationship between obstructing threats and MHHS intentions limiting the ability of this study to

detect an effect.

Future studies should further evaluate potential mediating variables between anticipated

rejection for depression and help-seeking. As well, refinement of measurements to focus on

specific perpetrators of rejection may help to disentangle inconsistent findings from the literature

regarding the role of perceived stigma. Prevention programming focused on decreasing public

stigma should consider actively targeting self-stigma and attitudes towards treatment, as these

constructs may be important mechanisms of MHHS. In addition, awareness programming

challenging stigma should encourage peers to not only provide emotional support but also encourage engagement in depression screening and treatment. Encouraging strategic peer support would fit with prior prevention programming strategies focused on increasing lay resources in social networks through training gatekeepers to identify signs of mental health distress, provide support, and encourage referral to treatment (LivingWorks Education, 2014; Quinnett & Bratcher, 1996). However, past research on the efficacy of gatekeeper programs has shown no effect on MHHS-related behaviors (Wyman, et al., 2008). Thus, prevention programs should be mindful of the specific social support behaviors recommended in their materials.

General Discussion

The goals of this series of studies were to evaluate the initial reliability and validity of a new set of latent constructs focused on facilitating threats and obstructing threats (Study 1) as well as to test whether the relationship between facilitating threats and MHHS intentions was moderated by obstructing threats (Study 2). Due to the limited evidence for the use of current MHHS models to increase help-seeking (Eisenberg, et al., 2012; Gulliver, et al., 2012), this project sought to address current gaps in the literature regarding the role of threat-based beliefs related to depression that may facilitate, through increasing perceived need/urgency (e.g. "Having depression would decrease my life expectancy."), or obstruct MHHS through higher levels of feared rejection (e.g. "Individuals with depression are irresponsible.). Understanding such beliefs in young adulthood is especially important as many mental health disorders develop during this developmental stage (Kessler, et al., 2005). As the majority of college students experiencing significant mental health distress do not seek treatment leading to increased risk of negative health outcomes (Adams, Wharton, Quilter, & Hirsch, 2008; Blanco, et al., 2008; Eisenberg, et al., 2007; Eisenberg, Golberstein, et al., 2009; Oliver, et al., 1999; Primack, Land, Fan, Kim, & Rosen, 2013), improving our understanding of MHHS processes may inform future intervention/prevention programming to address this critical public health concern.

Study 1 focused on developing the facilitating and obstructing threats latent constructs and evaluating the degree to which the study data fit the proposed constructs to inform MHHS processes. Study 1's findings provided preliminary support for the reliability and factor validity

of the hypothesized latent constructs after several modifications. Specifically, these results provided evidence that the facilitating threats latent variable was defined by the loss of functioning, loss of control, and mortality threat first-order latent variables. One novel aspect of this study was the concurrent measurement of these constructs that has been cited as a notable gap in research on health behavior models (Carpenter, 2010). Through this study design, Study 1 was able to show initial support for the respective roles of these first-order latent variables and their association with a common, threat-based, conceptual factor focused on aspects of depression-related impairment.

Similarly, Study 1's findings provided initial support that the obstructing threats latent construct was defined by items focused on interpersonal and workplace rejection. Although initially hypothesized as separate, first-order constructs, the data supported the combination of these latent constructs. Conceptually, these findings suggest that there is commonality in stigma-related beliefs across interpersonal contexts (i.e. work and friendships). This common factor appears to be defined by interpersonal rejection-oriented beliefs and suggests that workplace rejection beliefs may be better explained as being driven by perceptions of an individual with depression's perceived sociability as opposed to job skills. Future research is necessary to better understand whether beliefs related to other interpersonal contexts (e.g. family, school) also reflect a core latent variable of general interpersonal rejection beliefs.

Unexpectedly, the severity and stigma measures had limited variability in participant responses. Notably, participants had a narrow range of responses, such that the overwhelming majority endorsed believing depression was a severe illness and had low levels of associated stigmatizing beliefs. These findings may reflect improvements in societal beliefs regarding the seriousness of depression symptoms and stigma beliefs. As Study 1 developed novel, latent

constructs focused specifically on depression, further research is necessary to know whether such patterns of variability found for depression-related beliefs generalize to other mental health disorders.

Although Study 2 results did not support the hypothesized relationships between facilitating threats, obstructing threats, and MHHS intentions, this study evaluated previously posited relationships that have not been studied adequately in the literature. In terms of the non-significant relationship between facilitating threats and MHHS intentions, it appears that acknowledgment of severity-related beliefs for depression was insufficient to increase MHHS intentions. This is in contrast to prior models of health behavior change that theorized perceived severity and threat as important predictors of help-seeking (Strecher & Rosenstock, 1997). Thus, other variables associated with engaging in treatment such as recognition of depression symptoms as problematic may be a necessary precursor to changing MHHS intentions (Biddle, et al., 2007). As well, results may be due to the dynamic relationship between perceived severity of depression symptoms and MHHS that becomes attenuated as individuals avoid acknowledgment of depression symptoms (Biddle, et al., 2007). Future research should further explore the role of severity-related depression beliefs in these processes and whether they contribute to circumventing avoidance behaviors.

Findings regarding direct or moderation effects for obstructing threats suggest this variable does not play a significant role in MHHS intentions. This is in contrast to prior theoretical models that have proposed stigma beliefs as a major barrier to MHHS (Ajzen, 1991; Pescosolido, 1992; Strecher & Rosenstock, 1997). However, as past research has focused on general mental health stigma (e.g., "I would think less of a person who has received mental health treatment.), the focus on interpersonal contexts in depression suggests that such beliefs

may have a different role in MHHS processes (Biddle, et al., 2007; Eisenberg, Downs, et al., 2009; Pescosolido, 1992; Strecher & Rosenstock, 1997). Although past theoretical models have proposed that stigma-related beliefs moderate the relationship between severity beliefs and help-seeking, little research to date has tested this relationship, and no studies to date have directly explored whether aspects of physical health behavior models, such as the Health Belief Model (HBM), translate to mental health issues (Henshaw & Freedman-Doan, 2009; Strecher & Rosenstock, 1997).

One set of potential explanations for the limited utility of the HBM is the lack of perceived acuity and non-specific nature of mental health symptoms. When considering physical health, delay in help-seeking for heart attacks has been a major public health concern as individuals report an average delay of up to six hours after experiencing acute cardiac symptoms (Goldberg et al., 2002). This large, epidemiological study found that presence of chest pain, a symptom that is specifically associated with having a heart attack and causes significant discomfort, was associated with decreased delay in help-seeking (Goldberg, et al., 2002). In contrast, shortness of breath, a symptom that is not specific to having a heart attack, was associated with increased delay in help-seeking (Goldberg, et al., 2002). Thus, these findings suggest that the degrees to which a symptom is specific to a given disease and is associated with acute discomfort may facilitate help-seeking.

Within the context of depression, past epidemiological research has found a median delay of eight years between onset of symptoms and initial help-seeking (Wang et al., 2005). In terms of explaining this delay, Mojtabai et al. (2011) found that the most commonly reported barriers were a lack of perceived need for treatment and the belief that one could, "handle it on their own (Mojtabai et al., 2011)." In addition, research using vignettes with community samples has found

that many individuals have difficulty with recognizing that someone has depression (Klineberg, et al., 2010). Participants in this study also frequently recommended that individuals wait to see if symptoms would improve when symptoms were mild (Klineberg, et al., 2010). This is especially concerning as the majority of individuals with depression experience symptoms in the mild-to-moderate range (Kessler, et al., 2003). Based on these findings, it appears the non-specificity of symptoms and lack of perceived need for assistance in depression may limit the ability of the HBM to explain MHHS processes.

The findings of Study Two suggest the need to consider revision of these theoretical models and their understanding of relationships between perceived severity beliefs, stigma-related beliefs, and MHHS. In addition, results suggest that interactions between perceptions of severity and anticipated rejections are complex and require in-depth exploration. Researchers and clinicians should be cautious when considering severity and stigma-oriented approaches in research paradigms and prevention programming as the evidence base on the role of these constructs remains unclear. Future research should further explore how anticipated interpersonal rejection beliefs interact with other mental health beliefs (e.g. perceived severity, recognition of symptoms) and, in turn, predict MHHS processes to inform the continuing development of help-seeking models and enhance prevention programming.

In regards to potential alternate explanations for Study 2 results, the lack of support for a main effects or moderation model may be driven by being underpowered to detect significant effects. However, as the main and moderation effects respectively explained very little variance in MHHS intentions, the presence of adequate power would not counteract the lack of clinical significance in these effects. Although there was initial support for the reliability of the developed measures, it is possible that the hypothesized moderation effect was not supported,

because the proposed constructs and their interaction term are not associated with MHHS processes. Thus, physical illness-oriented models, such as the Health Belief Model, that posit an interaction between facilitating and obstructing threat beliefs in predicting health behaviors may not translate to MHHS (Strecher & Rosenstock, 1997).

Alternatively, the adapted items for the proposed constructs may have unexpectedly tapped into constructs other than the proposed facilitating and obstructing threats latent variables. For example, the non-significant relationship between facilitating threats and MHHS intentions may be due to the similarity between self-efficacy and the proposed sub-constructs of loss of functioning, loss of control, and mortality threat from depression. Based on meta-analytic research on fear-based promotion campaigns, individuals endorsed higher levels of intentions to engage in behavioral change when experiencing high levels of threat accompanied by high levels of self-efficacy (Witte & Allen, 2000).

As loss of control, loss of functioning, and mortality threat latent variables were adapted from scales focused on loss of functioning, low self-efficacy, and existential terror, lower endorsement of these variables may have allowed participants to feel sufficient self-efficacy to consider mental health treatment which is congruent with the direction of effect for this relationship. However, the small, non-significant relationship between facilitating threats and MHHS may have been driven by the lack of a pure focus on self-efficacy for treatment. It is possible that a measure with a stronger focus on self-efficacy for depression treatment would show a positive association with MHHS intentions. If self-efficacy were associated with MHHS processes, low self-efficacy may be especially challenging in MHHS for depression, as social cognitive theories have posited that low self-efficacy is a driving mechanism for the development and maintenance of depressive symptoms (Bandura, 1989, 2001; Bandura,

Pastorelli, Barbaranelli, & Caprara, 1999). Thus, individuals perceiving anticipated decreases in self-efficacy associated with depression may, in turn, endorse lower MHHS intentions further decreasing self-efficacy and leading to increased symptoms of depression. Future research may wish to further explore these relationships and potentially revise the conceptualization of the facilitating threats construct.

For both studies, several limitations were present that may inform future research designs. All data were collected using self-report measures and thus were subject to demand characteristics, social biases, and shared method variance (Kazdin, 2003; Williams, et al., 1989). However, participants were administered the survey online and were not provided with details concerning the hypothesized relationships to attenuate demand characteristics. Although the online modality of the survey further reinforced anonymity of response, it is possible that participants did not pay full attention to the survey. The use of rigorous response validity screening may have mitigated such effects, but it is not possible to conclusively account for the presence of distractions during the survey. In addition, all the measures were newly developed, though adapted from existing measures, and have had limited psychometric evaluation. Future research should continue to develop methods to mitigate biases associated with self-report measures. As well, further psychometric studies are needed to understand the properties of the facilitating and obstructing threats measures.

In terms of other aspects of study design, both studies were cross-sectional, thus precluding causal inference for the hypothesized relationships (A. F. Hayes, 2013a; Kazdin, 2003). Longitudinal approaches may help to further evaluate the directionality of hypothesized relationships and explore how perceptions of facilitating and obstructing threats develop over time. To manage issues of self-report bias, one potential approach could be the use of implicit

assessment methods, such as the implicit association test, that have been shown in past research to control for such biases and have stronger predictive validity than self-report measures (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). However, as it is not possible to identify which specific components of implicit beliefs contribute to a given outcome association, self-report measures remain necessary to understand specific internal cognitions associated with a given behavior (Fiedler, Messner, & Bluemke, 2006).

In terms of external validity, the sample had limited diversity in terms of gender and racial/ethnic background which negatively impacted generalizability of results. Specifically, samples for both studies were predominantly female, Caucasian, exclusively heterosexual, and undergraduate students enrolled in psychology courses. Notably, an overwhelming majority of participants in Study 2 were female. Past research has found that women are significantly more likely than men to have positive beliefs regarding treatment and higher MHHS intentions which may have impacted the findings of the current study (Deane, Wilson, & Ciarrochi, 2001; Klineberg, et al., 2010; Mackenzie, Gekoski, & Knox, 2006; Milner & De Leo, 2010). However, recent meta-analytic research on gender differences in attitudes towards mental health treatment only found a small-to-medium effect for women having more positive beliefs (Nam et al., 2010). In addition, this relationship was found to be moderated by racial group such that the gender effect was larger among Caucasians than Asians or Asian Americans (Nam, et al., 2010). As the current study was underpowered to explore gender or racial ethnic differences, future studies should consider recruiting larger numbers of participants with diverse backgrounds to account for attrition and enhance external validity.

Although both studies met target recruitment goals derived from power analyses, the current series of studies was underpowered to detect good model fit due to the number of invalid

surveys. This was especially true for Study Two which had a sizable proportion of participants who failed validity screening. It is possible with larger samples that several of the analyses would be powered to improve model fit and to detect relationships with small effect sizes (Hermida, et al., 2015; Kenny & McCoach, 2003). However, in light of the small effect sizes for hypothesized relationships, having adequate power for model fit would be unlikely to change the low clinical significance of these effects.

When considering other aspects of statistical validity, current guidelines were used for evaluating model fit and hypothesized relationships. However, the nature of several analyses prohibited direct comparison of model fit due to evaluating non-nested models and the specific estimation algorithms required for modeling latent variable interactions and categorical variables (Bollen, 2005; Finney & DiStefano, 2006; Muthen & Muthen, 1998-2012). Thus, the strategies available for evaluating relative model fit were limited.

In considering the low variability in the severity threat and stigma measures that resulted in their exclusion from subsequent analyses, future research may wish to further evaluate the structure of depression-related severity and stigma beliefs. Although it is possible that low variability may be a result of changing public perceptions (Mojtabai, 2007, 2010; Schomerus, et al., 2012), these findings may also be driven by the focus of the developed measures on depression. The majority of depression severity measures focused on current symptoms versus an individual's beliefs regarding the effects of depression (Wahl et al., 2014). Thus, it is not possible to compare how the severity threat measure reflects broader research regarding depression-related beliefs. Future research may wish to evaluate perceived seriousness of symptoms across several different mental health disorders to better define the construct.

Despite these limitations, this series of studies had several strengths. Overall, these studies facilitated the development of novel measures that are reliable and valid measures for evaluating beliefs related to MHHS processes in depression which have thus far not been explored in the literature. Notably, rigorous analytical methods were used for defining and modifying the proposed latent constructs to maximize the fit between the data and conceptual grounding of the study. As well, the use of conservative, multicomponent data screening methods to maximize response validity assisted with excluding participants with response biases that would have negatively impacted study results. This series of studies also addressed a significant gap in the literature regarding the lack of understanding of how subcomponents of health utilization models relate to each other through concurrent measurement of multiple constructs theorized to relate to MHHS processes (Carpenter, 2010). Such measures may be used to evaluate facilitating and obstructing threats related to depression in future research.

In terms of the obstructing and facilitating threats, the latent constructs developed for the current study were uniquely focused on aspects of depression unlike many current measures that focus on mental health disorders or treatment in general (Eisenberg, Downs, et al., 2009; Vogel, Bitman, Hammer, & Wade, 2013; Vogel, et al., 2006; Xu et al., 2015). Such conceptual refinement allowed for a more direct evaluation of unique severity and interpersonal rejection beliefs associated with depression. This is especially important as past research with community samples regarding beliefs and actions related to major depressive disorder and schizophrenia support the presence of different perceptions based on the identified disorder (Angermeyer, Matschinger, & Riedel-Heller, 1999). Further research is needed on the degree to which mental health beliefs vary based on specific mental health issues. In addition, this study provided initial support for the facilitating and obstructing threats latent constructs and suggests that the role of

threat-based beliefs in MHHS processes may not translate from physical health-related help-seeking models. Although many MHHS models exist, the majority focus on specific aspects of MHHS processes, such as stigma, social networks, or attitudes, without integrating concepts from other fields such as those described in the Health Belief Model (Henshaw & Freedman-Doan, 2009; Rosenstock, et al., 1988; Stretcher & Rosenstock, 1997). As well, there is limited information on decision making processes regarding MHHS and whether these are unique to specific symptoms. The current findings suggest that much remains unknown regarding how these aspects of MHHS interact and how they relate to MHHS intentions and behavior. Further research and theory-development is necessary to improve our understanding of these processes to enhance MHHS processes and promote well-being.

Tables and Figures

Table 1.

Study 1 Sample Demographics

Variable	Mean (SD)
Age	32.87 (14.18)
	n (%)
Gender (Female)	157 (66.5%)
Race	
Caucasian	167 (70.5%)
African American/Black	17 (7.2%)
Asian	13 (5.5%)
Arabic/Middle Eastern	2 (0.8%)
Bi/MultiRacial	14 (5.9%)
Other/Missing	24 (10.1%)
Ethnicity	
Hispanic/Latino	28 (11.8%)
Sexual Orientation	
Exclusively Heterosexual	172 (72.6%)
Bisexual	14 (5.9%)
Exclusively Homosexual	5 (2.1%)
Other	46 (19%)
Mental Health Treatment History	
Personal MH Diagnosis	74 (31.5%)
Personal MH Treatment History	79 (33.9%)
Friend MH Diagnosis	90 (38.3%)
Friend MH Treatment History	90 (40.7%)
Family MH Diagnosis	115 (48.9%)
Family MH Treatment History	110 (46.4%)

Table 2.

*Study 1 College/Living
Characteristics*

Year in College	n (%)
Year 1	24 (10.1%)
Year 2	42 (17.7%)
Year 3	33 (13.9%)
Year 4	41 (17.3%)
Year 5	6 (2.5%)
Year 6 or more	8 (3.4%)
Not in College	83 (35%)
Living Arrangement	
Off-campus	202 (85.2%)
On-campus	26 (11%)
Other/Missing	9 (3.8%)

Table 3.

Study 1 Item-level Descriptive Statistics

Item	N	M	SD	Min	Max	Skewness	Kurtosis
Severity Threat Scale (α = .79)							
Depression is a serious condition.	236	4.56	0.72	1	5	-2.18	6.23
Having depression would have major consequences on a person's life.	237	4.44	0.75	1	5	-1.65	3.78
Having depression would not have much effect on a person's life. (Reverse Scored)	237	4.34	0.99	1	5	-1.77	2.80
Having depression would strongly affect the way others see a person	235	3.68	0.99	1	5	-0.50	-0.32
Having depression would cause serious financial consequences.	237	3.49	1.05	1	5	-0.25	-0.51
Having depression would cause difficulties for individuals who are close to him or her.	237	4.09	0.85	1	5	-1.18	2.09
Adapted Mortality Threat Scale (α = .78)							
Having depression would lead to a last agonizing moment.	237	3.16	1.40	1	6	0.11	-0.75
Having depression would lead to dying after a difficult time of isolation.	237	2.92	1.43	1	6	0.30	-0.80
Having depression would lead to the final misery.	237	2.89	1.50	1	6	0.36	-0.91
Having depression would lead to the fate of falling by the wayside.	237	3.14	1.48	1	6	0.09	-1.06
Having depression would lead to the ultimate anguish and torment.	236	3.02	1.54	1	6	0.25	-1.09
Having depression would lead to a lonely experience at the time of dying.	237	3.17	1.62	1	6	0.31	-1.02
New Mortality Threat Scale (α = .79)							
Having depression would increase my likelihood of dying young.	237	3.81	1.50	1	6	-0.41	-0.81
Dying from depression would make my life seem meaningless.	237	3.70	1.64	1	6	-0.32	-1.14
Having depression would increase my risk of serious illnesses such as cancer or heart disease.	237	3.81	1.54	1	6	-0.39	-0.88
Dying from depression would mean no one would remember me.	237	2.16	1.40	1	6	1.12	0.27
Having depression would decrease my life expectancy.	237	3.86	1.53	1	6	-0.46	-0.87
Having depression would make it difficult for my life to have value.	237	3.59	1.59	1	6	-0.17	-1.02
Loss of Functioning Threat Scale (α = .66)							
Depression would cause someone to cut down the amount of time he or she spends on work or other regular daily activities.	237	90.72	29.08	0	100	-2.82	6.03

Table 3 (Continued).
Study 1 Item-level Descriptive Statistics

	N	Mean	SD	Min	Max	Skew	Kurt
Depression would cause someone to accomplish less than he or she would like.	237	94.51	22.82	0	100	-3.94	13.60
Depression would cause someone to do work or other regular daily activities less carefully than usual.	236	78.39	41.25	0	100	-1.39	-0.07
To what extent would depression interfere with a person's normal social activities with family, friends, neighbors, or groups?	237	76.48	20.53	0	100	-0.71	0.62
How much of the time would depression interfere with a person's social activities (like visiting with friends, relatives, etc.)?	237	65.51	21.94	0	100	-0.47	0.05
Loss of Control Threat Scale (α = .90)							
Individuals with depression can always manage to solve difficult problems if they try hard enough. (Reverse Scored)	237	2.58	0.78	1	4	0.20	-0.49
If someone opposes a person with depression, the person with depression can find the means and ways to get what he or she may want. (Reverse Scored)	237	2.71	0.75	1	4	-0.02	-0.42
Individuals with depression are certain that they can accomplish their goals. (Reverse Scored)	237	3.09	0.70	1	4	-0.28	-0.44
Individuals with depression are confident that they could deal efficiently with unexpected events. (Reverse Scored)	237	3.14	0.68	1	4	-0.35	-0.21
Thanks to their resourcefulness, individuals with depression can handle unforeseen situations. (Reverse Scored)	237	2.95	0.77	1	4	-0.25	-0.47
Individuals with depression can solve most problems if they invest the necessary effort. (Reverse Scored)	236	2.43	0.88	1	4	0.19	-0.67
Individuals with depression can remain calm when facing difficulties because they can rely on their coping abilities. (Reverse Scored)	237	2.90	0.86	1	4	-0.21	-0.85
When individuals with depression are confronted with a problem, they can find several solutions. (Reverse Scored)	237	2.74	0.80	1	4	-0.05	-0.57
If individuals with depression are in trouble, they can think of a good solution. (Reverse Scored)	237	2.83	0.76	1	4	-0.16	-0.43
Individuals with depression can handle whatever comes their way. (Reverse Scored)	237	3.07	0.76	1	4	-0.41	-0.33
Stigma Threat Scale (α = .80)							
I would think less of a person who has depression. (Reverse Scored)	237	0.68	0.97	0	5	1.63	2.64
I believe that someone who has depression is just as trustworthy as the average person.	236	1.22	1.17	0	5	1.05	0.79

Table 3 (Continued).
Study 1 Item-level Descriptive Statistics

	N	M	SD	Min	Max	Skew	Kurt
	237	0.97	1.20	0	5	1.33	1.39
I feel that having depression is a sign of personal failure.							
I think less of a person who has depression. (Reverse Scored)	236	0.64	0.92	0	4	1.36	0.98
I would treat someone who has depression just as I would treat anyone else.	237	1.36	1.34	0	5	0.71	-0.54
Once I know a person has depression, I will take that person's opinions less seriously. (Reverse Scored)	237	0.88	1.08	0	5	1.47	2.25
Interpersonal Threat Scale (α = .76)							
When someone who has depression feels lonely, there are several people he or she can talk to. (Reverse Scored)	237	1.27	0.73	0	3	0.17	-0.21
Individuals with depression often meet or talk with family or friends. (Reverse Scored)	237	1.89	0.66	0	3	-0.50	0.78
Individuals with depression feel like they're not always included by their circle of friends.	236	2.14	0.65	0	3	-0.52	0.89
There are several different people individuals with depression enjoy spending time with. (Reverse Scored)	237	1.38	0.68	0	3	-0.12	-0.31
If someone with depression wanted to go on a trip for a day (e.g. to the mountains, beach, or country), he or she would have a hard time finding someone to go with him or her. (Reverse Scored)	237	1.38	0.71	0	3	0.02	-0.24
If someone with depression decides one afternoon that he or she would like to go to a movie that evening, he or she could easily find someone to go with him or her. (Reverse Scores)	237	1.41	0.63	0	3	0.04	-0.23
Most of the people whom someone with depression knows do not enjoy the same things that he or she does.	237	1.19	0.72	0	3	0.32	0.08
Individuals with depression don't often get invited to do things with others.	234	1.46	0.76	0	3	0.06	-0.34
If someone with depression wanted to have lunch with someone, he or she could easily find someone to join him or her. (Reverse Scored)	237	1.41	0.64	0	3	0.38	-0.03
No one I know would throw a birthday party for someone with depression.	237	0.52	0.75	0	3	1.48	1.83
Workplace Rejection Threat Scale (α = .81)							
Individuals with depression cannot maintain jobs.	237	2.93	1.64	1	7	0.50	-0.71
Individuals with depression cannot handle job stress.	237	3.67	1.79	1	7	0.07	-1.13
Individuals with depression are irresponsible.	237	1.99	1.20	1	6	1.25	0.97
Individuals with depression are less competent than others.	236	2.13	1.49	1	7	1.41	1.39
I would hire someone who has a depression if he or she is qualified for the job. (Reverse Scored)	237	2.62	1.73	1	7	0.95	-0.08
I would pass over the application of someone who has a depression in favor of another applicant.	237	2.70	1.69	1	7	0.75	-0.43

Table 4.

Fit indices for the Mortality Threat Confirmatory Factor Analyses

Model	χ^2	df	$\Delta\chi2$	RMSEA	SRMSR	CFI
One Factor Model (Both measures combined)	249.94	54	N/A	0.12	0.08	0.89
Two Factor Model 1 (Separate measures)	162.00	53	87.95**	0.09	0.06	0.94
Two Factor Model 2a (Added covariance between new items 3 and 5)	106.72	52	55.28**	0.07	0.04	0.97
Two Factor Model 2b (Added covariance between new items 1 and 5)[a]	**84.19**	**51**	**22.53****	**0.05**	**0.04**	**0.98**

**$p < .005$ level compared with prior model.

a. The final selected model is highlighted in bold.

Table 5.

Fit indices for the Facilitating Threats Confirmatory Factor Analyses

Model	χ^2	df	$\Delta\chi^2$	RMSEA	CFI
Model 1 (No modifications)	715.62	296	N/A	0.08	0.68
Model 2a (Removing Severity)	327.29	187	N/A	0.06	0.86
Model 2b (Added covariance between Loss of Control and Loss of Functioning scales)	290.88	186	10.44**	0.05	0.90
Model 2c (Added covariance between Loss of Functioning Items 4 and 5) [a]	**282.07**	**185**	**10.44****	**0.05**	**0.90**

**p < .005 level compared with prior model.

a.   The final selected model is highlighted in bold.

Table 6.

Fit indices for the Obstructing Threats Confirmatory Factor Analyses

Model	χ^2	df	$\Delta\chi^2$	RMSEA	SRMSR	CFI
Model 1a (No modifications)	687.24	187	N/A	0.11	0.11	0.73
Model 1b (Fixed Stigma variance)	821.00	190	133.76**	0.12	0.21	0.66
Model 2 (Removing Stigma)	383.09	89	N/A	0.12	0.08	0.74
Model 3 (Interpersonal and Workplace combined, Interpersonal items 2-3 removed)	543.4	90	N/A	0.15	0.1	0.6
Model 4a (Added covariances between Workplace items [6-7, 1-2], Interpersonal items 1-4 removed)	313.66	63	N/A	0.13	0.09	0.77
Model 4b (Added covariances between Interpersonal 5-6 and Workplace items 3-5)	243.37	61	70.29**	0.11	0.08	0.83
Model 4c (Added covariance between Interpersonal items 6-9)	210.82	60	32.55**	0.1	0.07	0.86
Model 4d (Added covariance between Interpersonal items 5-8)	181.41	59	29.41**	0.09	0.07	0.89
Model 4e (Added covariance between Interpersonal items 5-9)	133.14	48	48.27**	0.09	0.07	0.91
Model 4f (Removed covariance between Workplace items 3-5 due to low correlation, Added covariance between Interpersonal items 7-8; Final Model) [a]	**119.27**	**47**	**13.87****	**0.08**	**0.07**	**0.93**
Model 4g (Removed covariance between Interpersonal items 5-9 due to low correlation)	135.23	48	15.96**	0.09	0.07	0.91

***p < .005 level compared with prior model.

a. The final selected model is highlighted in bold.

Table 7

Study 2 Sample

Demographics

Variable	Mean (SD)
Age	20.89 (4.96)
	n (%)
Gender (Female)	186 (87.7%)
Race	
Caucasian	114 (63.3%)
African American/Black	17 (9.4%)
Asian	23 (12.8%)
Arabic/Middle Eastern	7 (3.9%)
Bi/MultiRacial	19 (10.6%)
Other/Missing	32 (15.1%)
Ethnicity	
Hispanic/Latino	44 (20.8%)
Sexual Orientation	
Exclusively Heterosexual	158 (74.5%)
Bisexual	8 (3.8%)
Exclusively Homosexual	5 (2.4%)
Other	41 (19.2%)
Mental Health Treatment History	
Personal MH Diagnosis	44 (20.8%)
Personal MH Treatment History	51 (24.1%)
Friend MH Diagnosis	78 (36.8%)
Friend MH Treatment History	76 (35.8%)
Family MH Diagnosis	75 (35.4%)
Family MH Treatment History	83 (39.2%)

Table 8

Study 2 College/Living

Characteristics

Year in College	n (%)
Year 1	56 (26.5%)
Year 2	37 (17.5%)
Year 3	56 (26.5%)
Year 4	44 (20.9%)
Year 5	12 (5.7%)
Year 6 or more	6 (2.8%)
Living Arrangement	
Off-campus	143 (67.5%)
On-campus	65 (30.7%)
Other/Missing	4 (1.9%)

Table 9

Study 2 Item-level

Descriptives

Construct	Item	N	M	SD	Min	Max	Skewness	Kurtosis
Mortality Threat (α = .80)[a]	Having depression would increase my likelihood of dying young.	212	3.86	1.47	1	6	-0.31	-0.79
	Dying from depression would make my life seem meaningless.	212	3.47	1.71	1	6	-0.02	-1.33
	Having depression would increase my risk of serious illnesses such as cancer or heart disease.	212	3.85	1.39	1	6	-0.40	-0.48
	Dying from depression would mean no one would remember me.	212	1.90	1.31	1	6	1.59	1.85
	Having depression would decrease my life expectancy.	211	3.80	1.43	1	6	-0.32	-0.70
	Having depression would make it difficult for my life to have value.	211	3.38	1.72	1	6	-0.01	-1.34
Loss of Control (α = .91)[b]	Individuals with depression can always manage to solve difficult problems if they try hard enough (reverse scored).	212	2.42	0.81	1	4	0.14	-0.43
	If someone opposes a person with depression, the person with depression can find the means and ways to get what he or she may want (reverse scored).	212	2.75	0.78	1	4	0.06	-0.68
	Individuals with depression are certain that they can accomplish their goals (reverse scored).	211	3.09	0.74	1	4	-0.36	-0.47
	Individuals with depression are confident that they could deal efficiently with unexpected events (reverse scored).	211	3.22	0.70	1	4	-0.42	-0.60
	Thanks to their resourcefulness, individuals with depression can handle unforeseen situations (reverse scored).	212	3.01	0.73	1	4	-0.09	-0.89
	Individuals with depression can solve most problems if they invest the necessary effort (reverse scored).	211	2.29	0.84	1	4	0.42	-0.31
	Individuals with depression can remain calm when facing difficulties because they can rely on their coping abilities (reverse scored).	211	2.85	0.82	1	4	-0.04	-0.90
	When individuals with depression are confronted with a problem, they can find several solutions (reverse scored).	212	2.84	0.77	1	4	0.08	-0.90
	If individuals with depression are in trouble, they can think of a good solution (reverse scored).	212	2.91	0.72	1	4	-0.01	-0.72
	Individuals with depression can handle whatever comes their way (reverse scored).	210	3.04	0.77	1	4	-0.38	-0.40
Loss of Functioning (α = .68)	Depression would cause someone to cut down the amount of time he or she spends on work or other regular daily activities.[c]	212	89.62	30.57	0	100	-2.62	4.90

Table 9.

Study 2 Item-level Descriptives

		N	M	SD	Min	Max	Skew	Kurtosis
	Depression would cause someone to accomplish less than he or she would like.[c]	212	89.15	31.17	0	100	-2.54	4.47
	Depression would cause someone to do work or other regular daily activities less carefully than usual. [c]	212	73.58	44.19	0	100	-1.08	-0.85
	To what extent would depression interfere with a person's normal social activities with family, friends, neighbors, or groups?[d]	212	77.00	20.19	0	100	-0.80	0.74
	How much of the time would depression interfere with a person's social activities (like visiting with friends, relatives, etc.)?[e]	212	70.28	20.40	25	100	-0.33	-0.34
Interpersonal/Workplace Rejection (α = .80)[f]	If someone with depression wanted to go on a trip for a day (e.g. to the mountains, beach, or country), he or she would have a hard time finding someone to go with him or her (reverse scored).[f]	212	1.79	0.73	0	3	0.06	-0.61
	Most of the people whom someone with depression knows do not enjoy the same things that he or she does.[f]	211	1.14	0.72	0	3	0.25	-0.07
	Individuals with depression don't often get invited to do things with others. [f]	212	1.20	0.77	0	3	0.22	-0.29
	If someone with depression wanted to have lunch with someone, he or she could easily find someone to join him or her (reverse scored).[f]	212	1.32	0.66	0	3	0.24	0.04
	Individuals with depression cannot maintain jobs.[g]	212	3.17	1.68	1	7	0.19	-1.09
	Individuals with depression cannot handle job stress.[g]	211	3.97	1.77	1	7	-0.19	-0.99
	Individuals with depression are irresponsible. [g]	212	2.21	1.38	1	7	1.07	0.35
	Things run more smoothly at work when individuals with depression are not involved.	211	2.98	1.77	1	7	0.59	-0.63
	Individuals with depression are less competent than others. [g]	212	2.20	1.49	1	7	1.18	0.58
	I would hire someone who has a depression if he or she is qualified for the job (reverse scored). [g]	211	2.68	1.70	1	7	0.84	-0.13
	I would pass over the application of someone who has a depression in favor of another applicant. [g]	212	2.74	1.65	1	7	0.49	-0.90
Menteal Health Help-Seeking (α = .81)[h]	If you were experiencing depression, Mental health professional (e.g. psychologist, social worker, counselor)	212	5.21	1.69	1	7	-0.82	-0.19
	If you were experiencing depression, Phone helpline (e.g. Lifeline, 911)	212	3.07	1.96	1	7	0.62	-0.87
	If you were experiencing depression, Doctor/GP	212	4.36	1.90	1	7	-0.34	-1.08

Table 9.

Study 2 Item-level
   Descriptives

		N	M	SD	Min	Max		
	If you were experiencing suicidal thoughts, Mental health professional (e.g. psychologist, social worker, counselor)	211	5.43	1.89	1	7	-1.18	0.32
	If you were experiencing suicidal thoughts, Phone helpline (e.g. Lifeline, 911)	210	3.75	2.33	1	7	0.14	-1.52
	If you were experiencing suicidal thoughts, Doctor/GP	209	4.14	2.27	1	7	-0.16	-1.46

a. The scale ranged from 1, "Strongly Disagree," to 6, "Strongly Agree."

b. The scale ranged from 1, "Not at All True," to 4, "Strongly True."

c. Responses for this question were scored as 0 for Yes and 100 for No.

d. The scale ranged from 0, "Not at All," to 100 "Extremely."

e. The scale ranged from 100, "All the Time," to 0 "None of the Time." (reverse-scored from original response scale).

f. The scale ranged from 0, "Definitely False," to 4, "Definitely True."

g. The scale ranged from 1, "Strongly Disagree," to 7, "Strongly Agree."

h. The scale ranged from 1, "Extremely Unlikely," to 7, "Extremely Likely."

Table 10.

Study 2 Measurement Model Fit Indices

Model	χ^2	df	$\Delta\chi2$	RMSEA [95% CI]	CFI
Model 1 (Based on Model from Study 1)	913.77	688	N/A	0.04 [.03 - .05]	0.85
Model 2 (Removed Interpersonal item 6 due to low factor loading and associated correlations and low correlations between items)	857.92	655	Could not be calculated.	0.04 [.03 - .05]	0.86
Model 3 (Added correlations between highly correlated items: MDDHS7 with SIHS7, MDDHS6 with SIHS6, Control Items 3 and 4, Functioning Items 1_1 and 1_2)[a]	**844.67**	**652**	**64.56*****	**0.04 [.03 - .05]**	**0.86**

***$p < .005$ level compared with prior model.

a. The final selected model is highlighted in bold.

Table 11.

SEM-Derived Factor Score Correlation Table

	1	2	3	4	5	6
1. Mortality[a]	-					
2. Loss of Control[b]	.31***	-				
3. Loss of Functioning[c]	.57***	.56***	-			
4. Facilitating Threats	.77***	.41***	.75***	-		
5. Obstructing Threats[d]	.66***	.35***	.64***	.86***	-	
6. MHHS Intentions	-0.11	-0.06	-0.1	-0.14	0.04	-

*p < .05, ** p < .01, *** p < .001

[a] Perceived Mortality Threat

[b] Perceived Loss of Control Threat

[c] Perceived Loss of Functioning Threat

[d] Note: The interpersonal and workplace rejection latent variables were collapsed based on findings from Study 1.
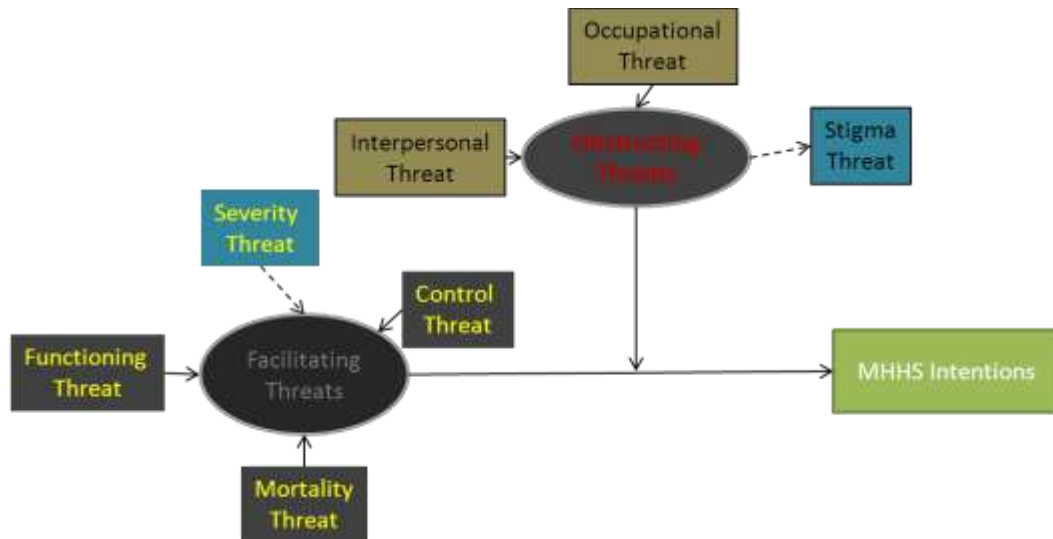
Figure 1. Proposed model. This figure describes the hypothesized relationships between

facilitating threats, obstructing threats, negative emotional reactions, and help-seeking

intentions.

a. Constructs that are highlighted in teal and connected with dotted line paths were later
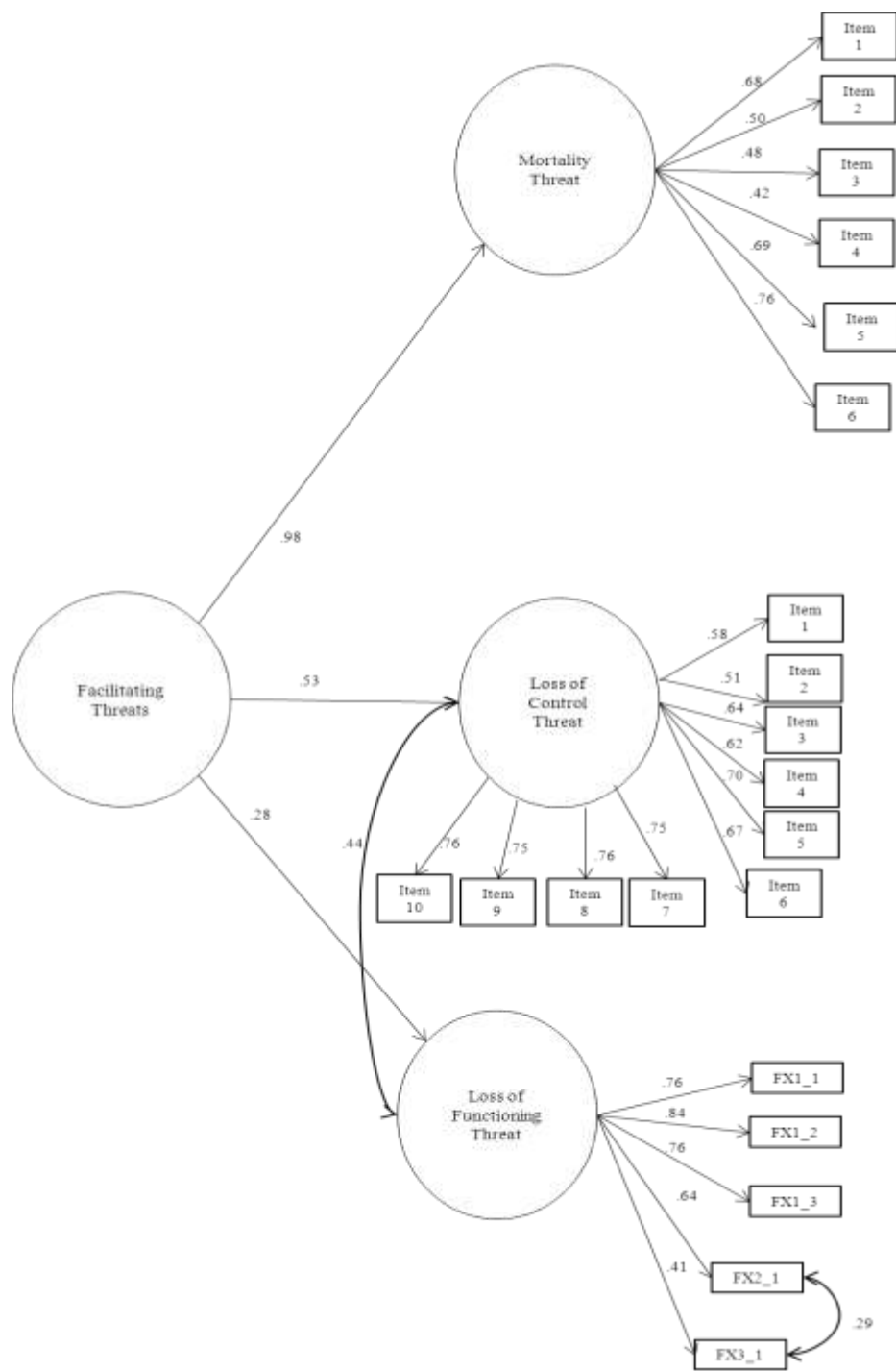
removed from the model due to limited variability.

Figure 2. Facilitating threats final model.

    a.   All path coefficients are standardized coefficients.

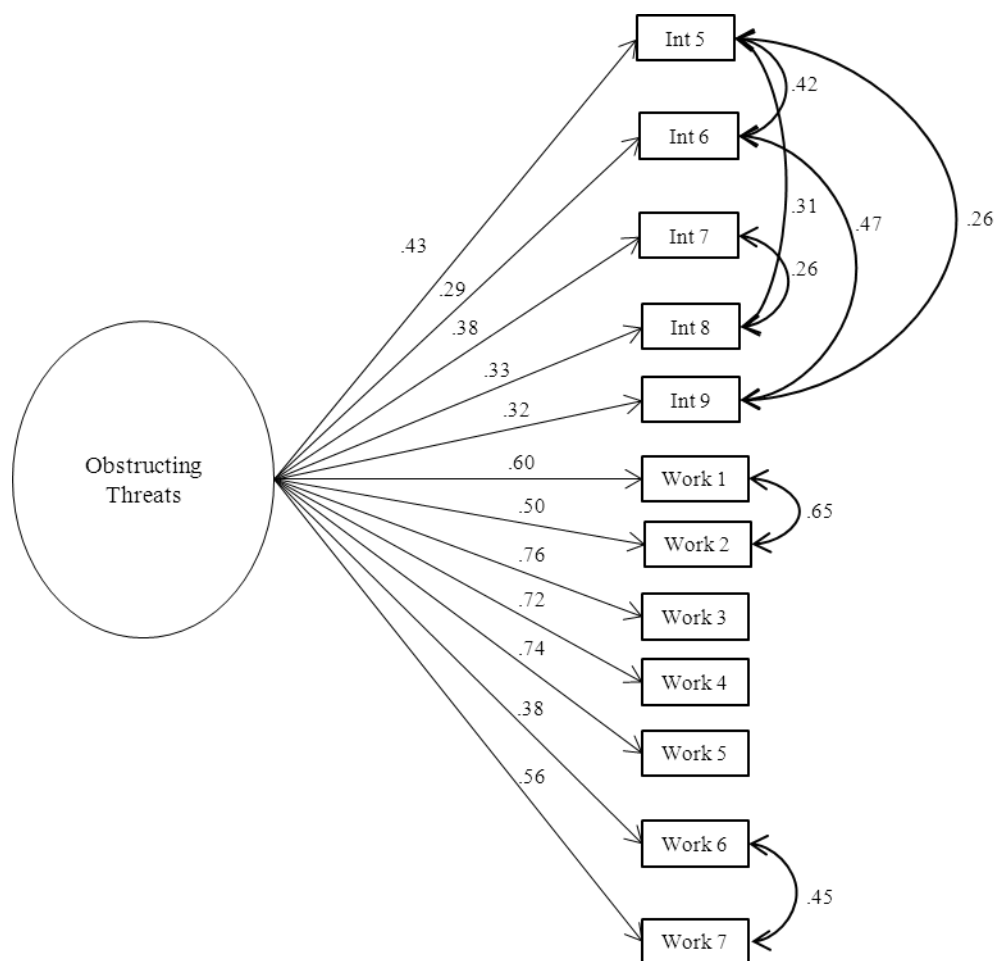   b.   All paths were significant at the *p* < .005 level.

Figure 3. Obstructing threats final model.

    a. All path coefficients are standardized coefficients.

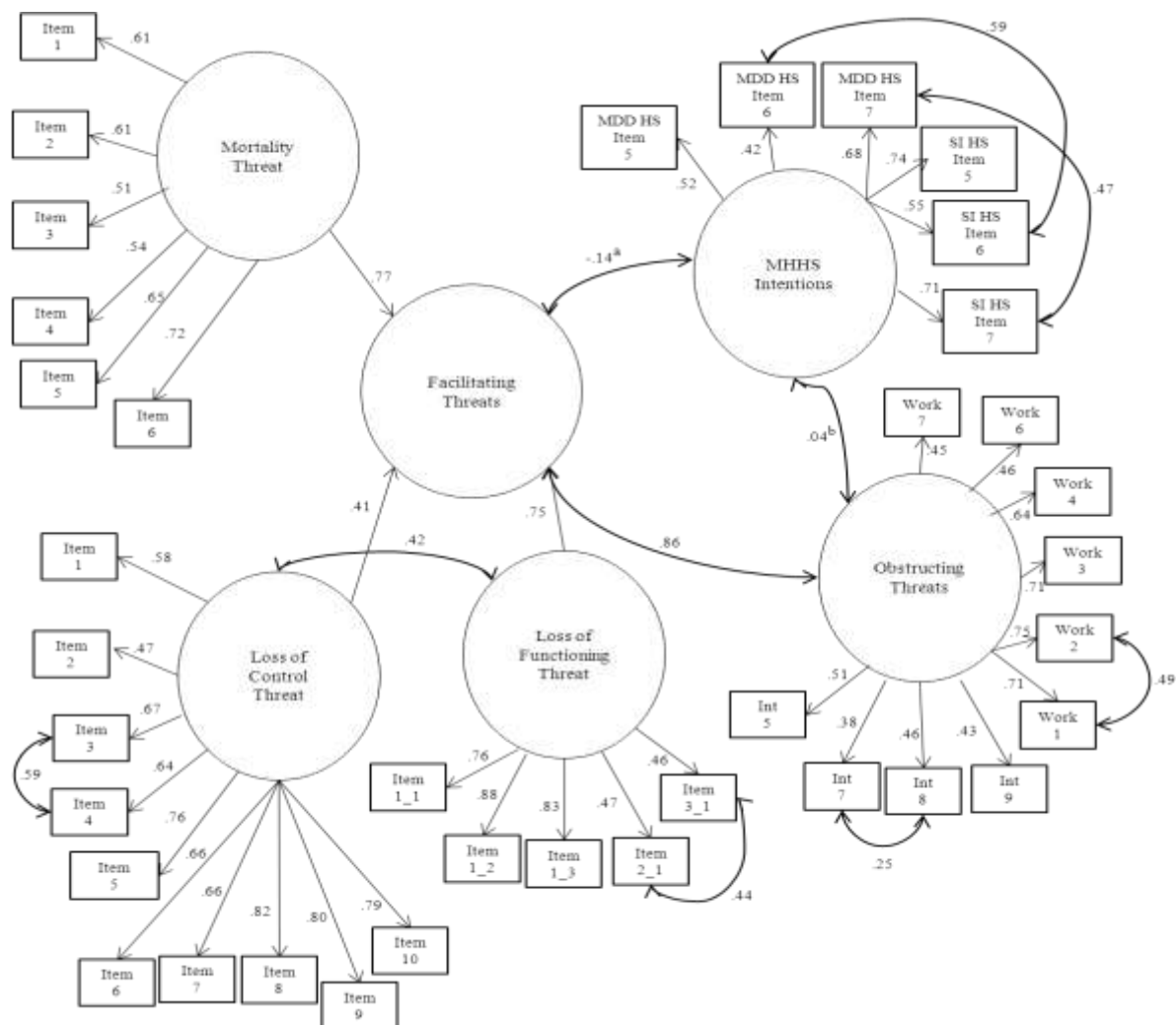   b. All paths were significant at the *p* < .001 level.

Figure 4. Study 2 confirmatory factor analysis for the measurement model.

a. All path coefficients are standardized coefficients.

b. The path between facilitating threats and MHHS intentions was not significant ($p = .15$).

c. The path between obstructing threats and MHHS intentions was not significant ($p = .62$).

d. All other paths were significant at the $p < .001$ level.

e. Int = Interpersonal rejection.

f. Work = Workplace rejection.

g. MDD = Major depressive disorder.
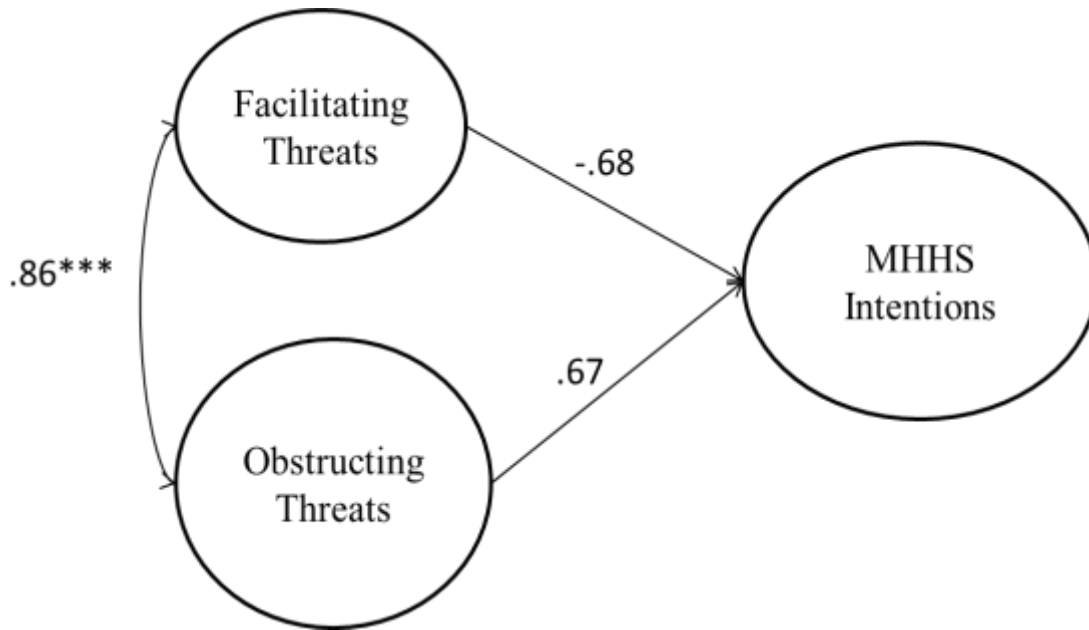
h. SI = Suicidal ideation.

Figure 5. Main effects model for facilitating and obstructing threats (simplified for ease of

interpretation). *** $p < .001$.

a. All path coefficients are standardized coefficients.

b. The path between facilitating threats and MHHS intentions was not significant

    ($p = .14$, $R^2 = .02$).

c. The path between obstructing threats and MHHS intentions was not significant
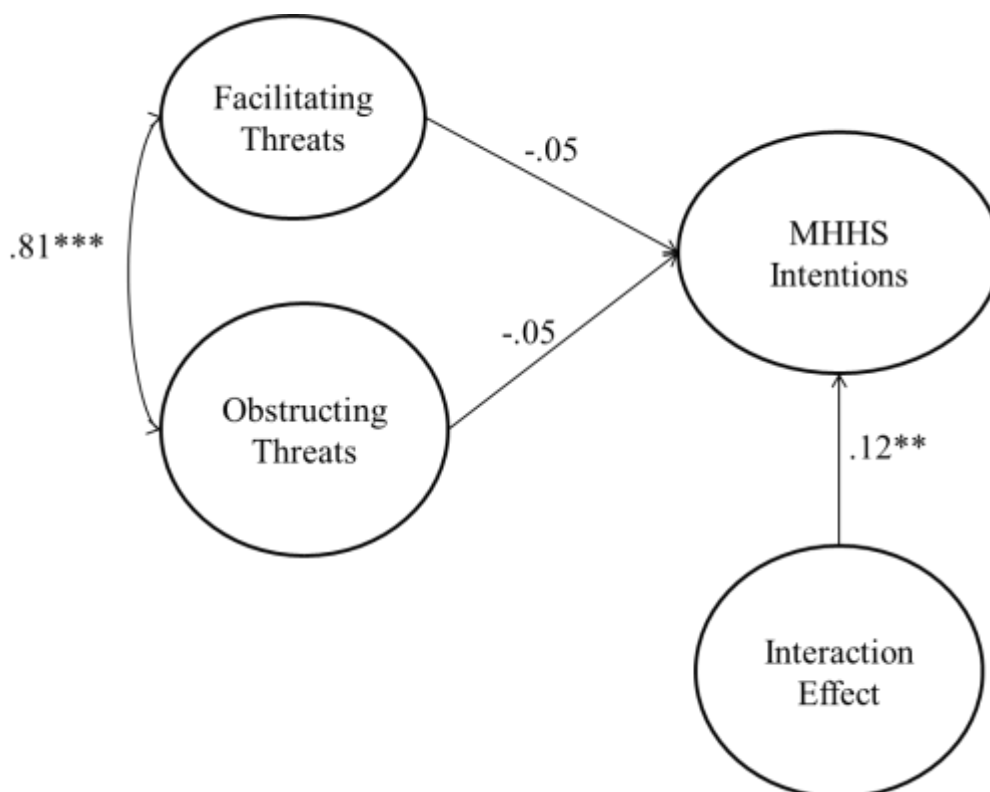
    ($p = .16$, $R^2 = .00$).

Figure 6. Moderation model for facilitating and obstructing threats (simplified for ease of

interpretation). **p < .01, *** *p* < .001.

    a. All path coefficients are standardized coefficients.

    b. The path between facilitating threats and MHHS intentions was not significant

       ($p = .87$, $R^2 = .00$).

    c. The path between obstructing threats and MHHS intentions was not significant

       ($p = .85$, $R^2 = .01$).

    d. The path between the interaction effect and MHHS intentions was significant

       ($p < .01$, $R^2 = .06$).

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Appendices

Appendix Ia

Demographics Assessment

Demographics

- What is your age in years? _____

- What is your gender? _____Male _____Female _____Neither of these describes me

- Please indicate the number from the scale below that best describes your sexual

  orientation _____

Exclusively Heterosexual (Straight)						Exclusively Homosexual (Gay/Lesbian)
1	2	3	4	5	6	7

- What is your racial/ethnic heritage?

    o White/Anglo or European American

    o Black/African American, Caribbean

    o Asian, Asian American, Pacific Islander

    o Hispanic/Latino(a)

    o Native American

    o Arabic/Middle Eastern

    o Bi-racial _____

    o Other _____

- Year in college: 1   2   3   4   5   6 or more   Not in College

- Where do you currently live?

    o   On-campus residence hall

    o   Fraternity or sorority house

    o   Off-campus apartment

    o   Other apartment situation

    o   Individually-owned house or condo

    o   At home with family

    o   Other _____

- Have you ever been formally diagnosed with a mental disorder?   Yes   No

    o   If so, which disorder? _____

- Have you ever received treatment for a mental disorder?   Yes   No

    o   What kind of treatment have you received?

        ▪   Medication

        ▪   Psychotherapy/Counseling

        ▪   Crisis Line

        ▪   Minister or Religious Leader

        ▪   I did not receive/seek treatment.

        ▪   Other treatment _____

        ▪   Don't know/Don't remember

    o   On a scale from 1 to 7 with 1 being "Very Poor" and 7 being "Excellent", how

        would you rate the quality of your past treatment experience? _____

- Do you have any family members who have ever been diagnosed with a mental disorder?

  Yes   No

  - If so, which disorder? _____

- Have any of your family members ever received treatment?   Yes   No

  - What kind of treatment have they received?

    - Medication

    - Psychotherapy/Counseling

    - Crisis Line

    - Minister or Religious Leader

    - They did not receive/seek treatment.

    - Other treatment _____

    - Don't know/Don't Remember

  - On a scale from 1 to 7 with 1 being "Very Poor" and 7 being "Excellent", how

    would you rate the quality of their past treatment experiences? _____

- Do you have any friends who have ever been diagnosed with a mental disorder?

  Yes No

  - If so, which disorder? _____

- Have any of your friends ever received treatment?   ?   Yes   No

  - What kind of treatment have they received?

    - Medication

    - Psychotherapy/Counseling

    - Crisis Line

- - Minister or Religious Leader

  - I did not receive/seek treatment.

  - Other treatment _____

  - Don't know/Don't Remember

- On a scale from 1 to 7 with 1 being "Very Poor" and 7 being "Excellent", how would you rate the quality of their past treatment experiences? _____

Appendix Ib

Adapted Perceived Severity Threat Scale

On a scale from 1 "Strongly Disagree" to 5 "Strongly Agree," please indicate how strongly you agree or disagree with the following statements.

- Depression is a serious condition.

- Having depression would have major consequences on a person's life.

- Having depression would not have much effect on a person's life.

- Having depression would strongly affect the way others see a person.

- Having depression would cause serious financial consequences.

- Having depression would cause difficulties for individuals who are close to him or her.

Appendix Ic

Adapted Perceived Mortality Threat Scale

On a scale from 1 "Strongly Disagree" to 6 "Strongly Agree," please indicate how strongly you agree or disagree with the following statements.

Adapted Items from the Death as Pain and Loneliness subscale of the Death Perspectives Scales

(Spilka, Minton, Sizemore, & Stout, 1977).

- Having depression would lead to a last agonizing moment.

- Having depression would lead to dying after a difficult time of isolation.

- Having depression would lead to the final misery.

- Having depression would lead to the fate of falling by the wayside.

- Having depression would lead to the ultimate anguish and torment.

- Having depression would lead to a lonely experience at the time of dying.

Newly Developed Items from the Terror Management Health Model

(Goldenberg & Arndt, 2008)

- Having depression would increase my likelihood of dying young.

- Dying from depression would make my life seem meaningless.

- Having depression would increase my risk of serious illnesses such as cancer or heart disease.

- Dying from depression would mean no one would remember me.

- Having depression would decrease my life expectancy.

- Having depression would make it difficult for my life to have value.

Appendix Id

Adapted Loss of Functioning Threat Scale

For the following item, please respond with either "Yes" or "No" for each item.

- Depression would cause someone to cut down the amount of time he or she spends on work or other regular daily activities.

    o Yes

    o No

- Depression would cause someone to accomplish less than he or she would like.

    o Yes

    o No

- Depression would cause someone to do work or other regular daily activities less carefully than usual.

    o Yes

    o No

Please rate the following question on a scale ranging from 1 "Not at All" to 5 "Extremely".

- To what extent would depression interfere with a person's normal social activities with family, friends, neighbors, or groups?

Please rate the following question on a scale ranging from 1 "All the Time" to 5 "None of the Time."

- How much of the time would depression interfere with a person's social activities (like visiting with friends, relatives, etc.)?

Appendix Ie

Adapted Loss of Control Scale

On a scale from 1 "Not at All True" to 4 "Exactly True," please indicate how true are each of the following statements.

- Individuals with depression can always manage to solve difficult problems if they try hard enough.

- If someone opposes a person with depression, the person with depression can find the means and ways to get what he or she may want.

- Individuals with depression are certain that they can accomplish their goals.

- Individuals with depression are confident that they could deal efficiently with unexpected events.

- Thanks to their resourcefulness, individuals with depression can handle unforeseen situations.

- Individuals with depression can solve most problems if they invest the necessary effort.

- Individuals with depression can remain calm when facing difficulties because they can rely on their coping abilities.

- When individuals with depression are confronted with a problem, they can find several solutions.

- If individuals with depression are in trouble, they can think of a good solution.

- Individuals with depression can handle whatever comes their way.

Appendix If

Adapted Version of the Devaluation Subscale of the Discrimination-Devaluation Scale

(Personal Stigma)

On a scale from 0 "Strongly Agree" to 5 "Strongly Disagree", please indicate how strongly you agree or disagree with the following statements.

- I would think less of a person who has depression.

- I believe that someone who has depression is just as trustworthy as the average person.

- I feel that having depression is a sign of personal failure.

- I think less of a person who has depression.

- I would treat someone who has depression just as I would treat anyone else.

- Once I know a person has depression, I will take that person's opinions less seriously.

Appendix Ig

Adapted Interpersonal Rejection Stigma Scale

On a scale from 0 "Definitely False" to 4 "Definitely True", please indicate how strongly you agree or disagree with the following statements.

- When someone who has depression feels lonely, there are several people he or she can talk to.

- Individuals with depression often meet or talk with family or friends.

- Individuals with depression feel like they're not always included by their circle of friends.

- There are several different people individuals with depression enjoy spending time with.

- If someone with depression wanted to go on a trip for a day (e.g. to the mountains, beach, or country), he or she would have a hard time finding someone to go with him or her.

- If someone with depression decides one afternoon that he or she would like to go to a movie that evening, he or she could easily find someone to go with him or her.

- Most of the people whom someone with depression knows do not enjoy the same things that he or she does.

- Individuals with depression don't often get invited to do things with others.

- If someone with depression wanted to have lunch with someone, he or she could easily find someone to join him or her.

- No one I know would throw a birthday party for someone with depression.

Appendix Ih

Adapted Workplace Rejection Stigma Scale

On a scale from 1 to 7, please indicate how strongly you agree or disagree with the following

statements.

- Individuals with depression cannot maintain jobs.

- Individuals with depression cannot handle job stress.

- Individuals with depression are irresponsible.

- Things run more smoothly at work when individuals with depression are not involved.

- Individuals with depression are less competent than others.

- I would hire someone who has a depression if he or she is qualified for the job.

- I would pass over the application of someone who has a depression in favor of another

  applicant.

Appendix IIa

Demographics Assessment

Demographics

What is your age in years? _____

- What is your gender? _____Male _____Female _____Neither of these describes me

- Please indicate the number from the scale below that best describes your sexual orientation _____

Exclusively Heterosexual (Straight)						Exclusively Homosexual (Gay/Lesbian)
1	2	3	4	5	6	7

- What is your racial/ethnic heritage?
    - White/Anglo or European American
    - Black/African American, Caribbean
    - Asian, Asian American, Pacific Islander
    - Hispanic/Latino(a)
    - Native American
    - Arabic/Middle Eastern
    - Bi-racial _____
    - Other _____

- Year in college: 1   2   3   4   5   6 or more

- Where do you currently live?
    - On-campus residence hall
    - Fraternity or sorority house
    - Off-campus apartment
    - Other apartment situation
    - Individually-owned house or condo
    - At home with family
    - Other _____

- Have you ever been formally diagnosed with a mental disorder?   Yes   No
    - If so, which disorder? _____
- Have you ever received treatment for a mental disorder?   Yes   No
    - What kind of treatment have you received?
        - Medication

- - Psychotherapy/Counseling
  - Crisis Line
  - Minister or Religious Leader
  - I did not receive/seek treatment.
  - Other treatment _____
  - Don't know/Don't remember
  - On a scale from 1 to 7 with 1 being "Very Poor" and 7 being "Excellent", how would you rate the quality of your past treatment experience? _____

- Are you currently receiving counseling or therapy? Yes   No

- Are you currently taking any psychiatric medications (e.g. antidepressants, anxiety medication, ADHD medication)? Yes   No

- Do you have any family members who have ever been diagnosed with a mental disorder? Yes   No
  - If so, which disorder? _____

- Have any of your family members ever received treatment?   Yes   No
  - What kind of treatment have they received?
    - Medication
    - Psychotherapy/Counseling
    - Crisis Line
    - Minister or Religious Leader
    - They did not receive/seek treatment.
    - Other treatment _____
    - Don't know/Don't Remember
  - On a scale from 1 to 7 with 1 being "Very Poor" and 7 being "Excellent", how would you rate the quality of their past treatment experiences? _____

- Do you have any friends who have ever been diagnosed with a mental disorder? Yes No
  - If so, which disorder? _____

- Have any of your friends ever received treatment?   ?   Yes   No
  - What kind of treatment have they received?
    - Medication
    - Psychotherapy/Counseling
    - Crisis Line
    - Minister or Religious Leader
    - I did not receive/seek treatment.
    - Other treatment _____
    - Don't know/Don't Remember
  - On a scale from 1 to 7 with 1 being "Very Poor" and 7 being "Excellent", how would you rate the quality of their past treatment experiences? _____

Appendix IIb

Adapted Perceived Mortality Threat Scale

On a scale from 1 "Strongly Disagree" to 6 "Strongly Agree," please indicate how strongly you agree or disagree with the following statements.

- Having depression would increase my likelihood of dying young.

- Dying from depression would make my life seem meaningless.

- Having depression would increase my risk of serious illnesses such as cancer or heart disease.

- Dying from depression would mean no one would remember me.

- Having depression would decrease my life expectancy.

- Having depression would make it difficult for my life to have value.

Appendix IIc

Adapted Loss of Functioning Threat Scale

For the following item, please respond with either "Yes" or "No" for each item.

- Depression would cause someone to cut down the amount of time he or she spends on work or other regular daily activities.

    o Yes

    o No

- Depression would cause someone to accomplish less than he or she would like.

    o Yes

    o No

- Depression would cause someone to do work or other regular daily activities less carefully than usual.

    o Yes

    o No

Please rate the following question on a scale ranging from 1 "Not at All" to 5 "Extremely".

- To what extent would depression interfere with a person's normal social activities with family, friends, neighbors, or groups?

Please rate the following question on a scale ranging from 1 "All the Time" to 5 "None of the Time."

- How much of the time would depression interfere with a person's social activities (like visiting with friends, relatives, etc.)?

Appendix IId

Adapted Loss of Control Scale

On a scale from 1 "Not at All True" to 4 "Exactly True," please indicate how true are each of the following statements.

- Individuals with depression can always manage to solve difficult problems if they try hard enough.

- If someone opposes a person with depression, the person with depression can find the means and ways to get what he or she may want.

- Individuals with depression are certain that they can accomplish their goals.

- Individuals with depression are confident that they could deal efficiently with unexpected events.

- Thanks to their resourcefulness, individuals with depression can handle unforeseen situations.

- Individuals with depression can solve most problems if they invest the necessary effort.

- Individuals with depression can remain calm when facing difficulties because they can rely on their coping abilities.

- When individuals with depression are confronted with a problem, they can find several solutions.

- If individuals with depression are in trouble, they can think of a good solution.

- Individuals with depression can handle whatever comes their way.

Appendix IIe

Obstructing Threats Scale

Interpersonal Rejection Threat Items

On a scale from 0 "Definitely False" to 4 "Definitely True", please indicate how strongly you agree or disagree with the following statements.

- When someone who has depression feels lonely, there are several people he or she can talk to.

- There are several different people individuals with depression enjoy spending time with.

- If someone with depression wanted to go on a trip for a day (e.g. to the mountains, beach, or country), he or she would have a hard time finding someone to go with him or her.

- If someone with depression decides one afternoon that he or she would like to go to a movie that evening, he or she could easily find someone to go with him or her.

- Most of the people whom someone with depression knows do not enjoy the same things that he or she does.

- Individuals with depression don't often get invited to do things with others.

- If someone with depression wanted to have lunch with someone, he or she could easily find someone to join him or her.

- No one I know would throw a birthday party for someone with depression.

Workplace Rejection Items

On a scale from 1 "Strongly Disagree" to 7 "Strongly Agree", please indicate how strongly you agree or disagree with the following statements.

- Individuals with depression cannot maintain jobs.

- Individuals with depression cannot handle job stress.

- Individuals with depression are irresponsible.

- Things run more smoothly at work when individuals with depression are not involved.

- Individuals with depression are less competent than others.

- I would hire someone who has a depression if he or she is qualified for the job.

- I would pass over the application of someone who has a depression in favor of another applicant.

Appendix IIf

General Help-Seeking Questionnaire: Formal Sources Subscale

Personal/Emotional Problems Subscale

If you were having a personal or emotional problem, how likely is it that you would seek help from the following people? On a scale from 1 to 7, please rate your response.

- Mental health professional (e.g. psychologist, social worker, counselor) ___
- Phone helpline (e.g. Lifeline, 211) ___
- Doctor/GP ___

Suicidal Ideation Subscale

If you were experiencing suicidal thoughts, how likely is it that you would seek help from the following people? On a scale from 1 to 7, please rate your response.

- Mental health professional (e.g. psychologist, social worker, counselor) ___
- Phone helpline (e.g. Lifeline, 211) ___
- Doctor/GP ___

Appendix IIIa

Study 1 IRB Approval Letter

USF
UNIVERSITY OF
SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

January 20, 2015

Jason Chen
Psychology
4202 East Fowler Avenue
PCD4118G
Tampa, FL 33620

RE: **Exempt Certification**
IRB#:   Pro00020260
Title: Multiple Aspects of Mental Health Beliefs

Dear Mr. Chen:

On 1/20/2015, the Institutional Review Board (IRB) determined that your research meets criteria for exemption from the federal regulations as outlined by 45CFR46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF IRB policies and procedures.

Please note, as per USF IRB Policy 303, "Once the Exempt determination is made, the application is closed in eIRB. Any proposed or anticipated changes to the study design that was previously declared exempt from IRB review must be submitted to the IRB as a new study prior to initiation of the change."

If alterations are made to the study design that change the review category from Exempt (i.e., adding a focus group, access to identifying information, adding a vulnerable population, or an

intervention), these changes require a new application. However, administrative changes, including changes in research personnel, do not warrant an amendment or new application.

Given the determination of exemption, this application is being closed in ARC. This does not limit your ability to conduct your research project. Again, your research may continue as planned; only a change in the study design that would affect the exempt determination requires a new submission to the IRB.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

Kristen Salomon, Ph.D., Vice Chairperson
USF Institutional Review Board

Appendix IIIb

Study 2 IRB Approval Letter

USF
UNIVERSITY OF
SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813)974-7091

May 21, 2015

Jason Chen
Psychology
4202 East Fowler Avenue
PCD4118G
Tampa, FL 33620

RE: **Exempt Certification**
IRB#:   Pro00022345
Title: Student Mental Health Beliefs

Dear Dr. Chen:

On 5/20/2015, the Institutional Review Board (IRB) determined that your research meets criteria for exemption from the federal regulations as outlined by 45CFR46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Approved Items:

Protocol Version 5-11-2015

Consent Version 5-11-2015

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF IRB policies and procedures.

Please note, as per USF IRB Policy 303, "Once the Exempt determination is made, the

application is closed in eIRB. Any proposed or anticipated changes to the study design that was previously declared exempt from IRB review must be submitted to the IRB as a new study prior to initiation of the change."

If alterations are made to the study design that change the review category from Exempt (i.e., adding a focus group, access to identifying information, adding a vulnerable population, or an intervention), these changes require a new application. However, administrative changes, including changes in research personnel, do not warrant an amendment or new application.

Given the determination of exemption, this application is being closed in ARC. This does not limit your ability to conduct your research project. Again, your research may continue as planned; only a change in the study design that would affect the exempt determination requires a new submission to the IRB.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John A Schinka, Ph.D.

John Schinka, Ph.D., Chairperson
USF Institutional Review Board