


The Effects of Stigma on Determinants of Mental Health Help-Seeking Behaviors Among Male College Students: An Application of the Information-Motivation-Behavioral Skills Model

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Rita DiGiacchino DeBate, PhD, MPH, FAED, FAAHB¹,
Amy Gatto, MPH², and Gregor Rafal, BS³

Abstract

Considered a public health issue, the prevalence and severity of poor mental well-being on college campuses has continued to rise. While many college campuses offer mental health counseling services, and utilization rates are increasing, their proportional usage is low especially among males, who often deal with poor mental well-being by adopting unhealthy coping strategies. The purpose of this study was to use the Information-Motivation-Behavioral Skills (IMB) model to assess the relationship between the determinants as factors that may impact help-seeking behaviors in a large sample ($n = 1,242$) of male college students. Employing a cross-sectional study design, a 71-item online survey assessed information via total mental health literacy (MHL), motivation via attitudes toward mental health and subjective norms regarding mental health, and behavioral skills via intentions regarding help-seeking behaviors, and stigma. Results revealed correlations between information and motivation ($r = .363, p < .01$), information and behavioral skills ($r = .166, p < .01$), and motivation and behavioral skills ($r = .399, p < .01$). Multiple regression was used to determine stigma is a mediator for all relationships. These findings represent an opportunity to take a public health approach to male mental health through developing multilayered interventions that address information, motivation, behavioral skills, and stigma.

Keywords

college men, mental health, public health, intention to seek help

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The prevalence and severity of poor mental well-being on college campuses has continued to rise (American College Health Association, 2017; Blanco et al., 2008; Hunt & Eisenberg, 2010; Reetz, Bershad, LeViness, & Whitlock, 2016) with over half of college and university counseling center directors witnessing an increase in the severity of student mental health concerns (Reetz et al., 2016). Data from the Healthy Minds Study reveal 17% of undergraduate students experiencing positive screens for depression, 9% with major depression, and 10% for an anxiety disorder (Hunt & Eisenberg, 2010). In a comparison of college and non-college attending young adults, Blanco and colleagues (2008) observed nearly one-half of all college students meeting the *DSM-IV* criteria for at

least one mental disorder. Many college campuses offer mental health counseling services. While counseling center utilization has been increasing over the past half-decade (Xiao et al., 2017), proportionally utilization rates remain low (Gallagher, 2015; Lipson, Gaddis, Heinze,

¹College of Public Health, University of South Florida, Tampa, FL, USA

²Center for Student Well-Being, University of South Florida, Tampa, FL, USA

³University of South Florida, Tampa, FL, USA

Corresponding Author:

Rita DiGiacchino DeBate, PhD, MPH, FAED, FAAHB, Associate Vice-President Health & Wellness, Professor, College of Public Health, University of South Florida, Tampa, FL 33620, USA.
Email: rdebate@health.usf.edu



Beck, & Eisenberg, 2015) with fewer than one-quarter of college students experiencing poor mental well-being reporting receiving treatment (Eisenberg, Hunt, & Speer, 2012). Among college students, depression has been reported to be associated with the development of unhealthy behaviors such as binge drinking, physical inactivity, and poor diet, as well as further psychosocial concerns including increased stress, anxiety, loneliness, poor body image, interpersonal issues, other mental health symptoms, and discrimination (Schofield, 2016). If left untreated, mental disorders among this population have the potential to impact academic productivity and ultimately academic success (Hunt & Eisenberg, 2010).

Differences have been observed among males and females with regard to help-seeking behaviors. Males have been observed as less likely to be open to professional help (Coppens et al., 2013) as compared with females who are noted to be twice as likely to intend to seek treatment and to follow through in seeking treatment for depression and other mental health concerns (Eisenberg, Hunt, Speer, & Zivin, 2011; Reetz et al., 2016; Rickwood, Mazzer, & Telford, 2015; Thomas, Caputi, & Wilson, 2014). Rather than seek professional help, males have reported the most common source of support was family and friends (Eisenberg et al., 2011). Males have shown higher rates of unhealthy coping strategies, including use of sleeping pills, alcohol abuse, ignoring symptoms, and refusal to seek professional help (Cotton, Wright, Harris, Jorm, & McGorry, 2006). Chuck and colleagues (2009) indicated a cyclical pattern for depression in males, in which early symptoms built until they showed as external factors forcing men to seek either negative or positive coping strategies, with negative coping males developing greater depression symptoms. This pattern shows that prevention of depression should be focused on the early symptoms males' experience. Factors consistently noted related to the gender differences for help-seeking behavior were self-stigma, public stigma, social norms, and masculinity (Beatie, Stewart, & Walker, 2016; Pedersen & Paves, 2014; Rickwood et al., 2015; Spence, Owens-Solari, & Goodyer, 2016; Vogel, Heimerdinger-Edwards, Hammer, & Hubbard, 2011; Vogel et al., 2017). Oliffe and colleagues (2010) found that masculine ideals heavily impacted males' experiences with depression. Of particular note, these researchers found that depression and masculine norms function in a cycle where males with depression feel they cannot live up to masculine norms, which further increases their depression. Traditional masculine ideology has accounted for over a quarter of the variance in males' intention to seek help (Smith, Tran, & Thompson, 2008). Males have been observed with poor attitudes about seeking information related to counseling and mental health (Lannin, Vogel, Brenner, Abraham, & Heath, 2016).

There have been many studies assessing mental health help-seeking behaviors among college students, yet few have focused solely on male college students (Czyz, Horwitz, Eisenberg, Kramer, & King, 2013; Eisenberg et al., 2011; Golberstein, Eisenberg, & Downs, 2016; Hunt & Eisenberg, 2010; Lipson et al., 2015). Of those studies, many examined the general student population and had small samples of male students (Barksdale & Molock, 2009; Kane & Green, 2009; Kim, Saw, & Zane, 2015; Lannin et al., 2016; Ryan, Shochet, & Stallman, 2010), were conducted outside of the United States (Hussain, Guppy, Robertson, & Temple, 2013; Spence et al., 2016; Thomas et al., 2014), or did not examine demographic differences within the college male population (Kim, Park, La, Chang, & Zane, 2016; Ryan et al., 2010; Smith et al., 2008). Independently, the ability to recognize signs and symptoms of a mental health condition (Hom, Stanley, & Joiner, 2015; Reavley, McCann, & Jorm, 2012), attitudes toward help-seeking (Lannin et al., 2016), normative beliefs (Barksdale & Molock, 2009), stigma (Beatie et al., 2016; Pedersen & Paves, 2014; Rickwood et al., 2015; Spence et al., 2016; Vogel et al., 2011; Vogel et al., 2017), and intention to seek professional help for mental health concerns have been shown to influence males' professional help-seeking behaviors (Gulliver, Griffiths, & Christensen, 2010).

This study sought to examine the relationships between mental health literacy, mental health attitudes, subjective norms about mental health treatment, and stigma on intention to seek mental health services in a large sample of male students in the United States, independent of their mental health status. The study was conducted to answer two research questions: (a) What is the relationship between mental health literacy, mental health attitudes, subjective norms, and intention to seek care for mental health? and (b) What role, if any, does stigma play in those relationships?

Methods

Data for the present study were part of a larger study obtained via a cross-sectional study conducted at a large research university in the southern United States. With approximately 42,800 enrolled students in the Spring 2017 academic year (University of South Florida, 2017), the population for the current study comprised 19,400 males (45%). Inclusion criteria included the following: (a) ≥ 18 years of age; (b) enrolled in classes for the Spring 2017 semester; and (c) identified as male. Research integrity and compliance approval for this study was granted through the university's Institutional Review Board.

An email invitation to participate in the study was sent through the university registrar's office to all male students identified as meeting the inclusion criteria. The

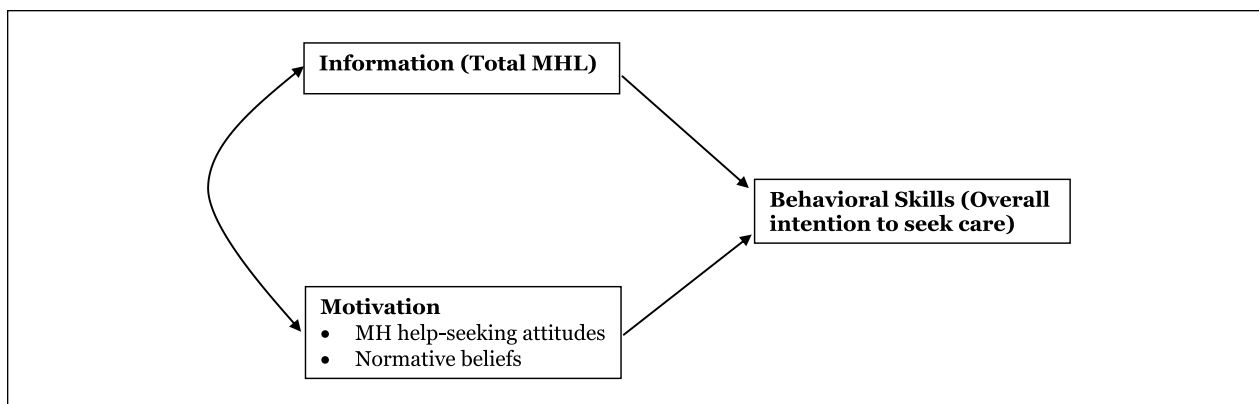


Figure 1. Information-Motivation-Behavioral Skills Model analysis for mental health literacy.

email invitation included a link to the online survey available via Qualtrics (Qualtrics, Provo, UT). Participants viewed, and agreed to, an informed consent prior to beginning the survey. As part of the study, participating students were entered into a drawing to receive one of three \$50.00 gift cards. Reminder emails were sent in the subsequent 3 weeks and data collection was finalized in the first week of February 2017.

Theoretical Framework

The Information-Motivation-Behavioral Skills (IMB) model specifies the relationships between the included constructs and the desired behavior by conceptualizing the psychosocial determinants and assessing their causal relationships (Fisher & Fisher, 1992; Fisher, Fisher, & Shuper, 2009; Fisher & Fisher, 1993). It has been used to improve HIV preventative behavior (Fisher & Fisher, 1992; Fisher & Fisher, 1993), condom use behaviors (Anderson et al., 2006), breast self-examination (Misovich, Martinez, Fisher, Bryan, & Catapano, 2003), and motorcycle safety (Murray, 2000). Information, motivation, and behavioral skills provide the foundation for the IMB with the idea that if individuals have the information, are willing to engage in the health behavior, and have the necessary behavioral skills, they are more likely to engage in the desired behavior. Based on the model, before engaging in the health behavior an individual must have information directly related to the health topic. For example, an individual would need to be able to recognize signs and symptoms of mental health disorders, hold positive beliefs regarding treatment, and be aware of mental health resources before seeking professional help (Jung, von Sternberg, & Davis, 2016).

For this study, information was defined as an individual's total mental health literacy. Motivation, both personal and social, to engage in the desired behavior is

another required component of the model. For this study, motivation included attitudes toward help-seeking and normative beliefs. The last prerequisite is an individual's behavioral skills, which includes objective skills and self-efficacy to engage in the behavior. For example, an individual would need to intend to seek professional help for behavioral, academic, or interpersonal issues as a precursor to seeking professional help. Behavioral skills included intention to seek professional help for a mental health concern in this study. Figure 1 illustrates the IMB constructs as they related to mental health literacy and help-seeking behaviors.

Measures for IMB Model

The 71-item online survey was developed using preexisting measures for mental health literacy (MHL), attitudes toward mental health, subjective norms regarding mental health, self-stigma, and intentions regarding help-seeking behaviors. Demographic variables were also assessed.

Information. General MHL was assessed using a modified version of the 26-item multicomponent Likert-type scale comprised of the following three sub-constructs: (a) knowledge of signs and symptoms of mental health issues; (b) mental health beliefs; and (c) knowledge of mental health resources (Jung et al., 2016). Reliability statistics from the original study and the current study are as follows: (a) knowledge of signs and symptoms ($\alpha = 0.76$ and 0.66 , respectively); (b) mental health beliefs subscale ($\alpha = 0.77$ and 0.72 , respectively); and (c) knowledge of mental health resources ($\alpha = 0.84$ and 0.79 , respectively). Response categories for knowledge of signs and symptoms and mental health belief included "strongly agree," "agree," "neutral," "disagree," and "strongly disagree," while knowledge of resources response

categories included “agree,” “partially agree,” “partially disagree,” and “disagree.” For analysis, each response was grouped into two categories—those who responded in agreement at any level were considered to have MHL (coded 1) and those who were neutral or disagreed at any level demonstrated no adequate MHL (coded 0). This followed the analysis technique used by Jung et al. (2016). Sum scores were calculated for overall MHL in addition to subscales, with higher scores indicating greater MHL, mental health knowledge, mental health beliefs, and knowledge of mental health resources. Mental health beliefs were reverse coded such that a higher sum score would reflect greater MH beliefs. The mental health knowledge scale included questions regarding signs and symptoms of mental health disorders, risk behaviors, and methods to improve a given concern. Mental health beliefs captured participants thinking about what a mental health disorder signifies, how a person can recover from a mental health concern, and how one gets a mental health disorder. Knowledge of resources assessed participants’ awareness of specific resources available for mental health disorders.

Motivation. Attitudes toward help-seeking were assessed via the Fischer and Farina (1995) 10-question short-form of their original Attitudes Toward Seeking Help Likert-type scale. The four response categories ranged from *disagree* (1) to *agree* (4) and were consolidated to agree or disagree for analysis. The 10 items were summed with a higher score showing more positive attitudes toward seeking professional mental healthcare. The original scale showed good reliability ($\alpha = 0.80$). This scale has been the subject of multiple psychometric studies in which it has been found to be a solid measurement (Elhai, Schweinle, & Anderson, 2008; Vogel, Wester, Wei, & Boysen, 2005). In this study, the scale yielded suboptimal reliability ($\alpha = 0.63$).

Subjective norms capture a person’s perception of how important referents view a behavior and how those influences act as a barrier or facilitator for the individual to perform the behavior. This construct was assessed using a subjective norms scale developed by Christopher (2005) based on the Theory of Planned Behavior. The scale was used by McGhee (2011) and found to be reliable in that study. The scale asks the same question “If I were experiencing a mental health problem, my _____ would think I should seek professional mental/emotional health services.” The underlined portion was filled in with a choice of one of four referents (e.g., parent, family, friends, professors), which yielded four questions. Answers were scored on a seven-point Likert scale and ranged from *strongly disagree* (1) to *strongly agree* (7). For analysis, response categories were collapsed into agree and disagree with neutral responses coded as

disagree. Scores were then summed and greater values indicated a greater influence of the participant’s social sphere. The original scale showed great reliability ($\alpha = 0.91$) and this study yielded good reliability ($\alpha = 0.72$).

As a result of collapsing all response categories to agree and disagree, a total motivation score could be calculated. Motivation was the sum of attitudes toward help-seeking and normative beliefs.

Behavioral skills. Participant’s intention to seek professional mental health services was assessed via the Intention of Seeking Counseling Inventory (ISCI; Cash, Begley, McCown, & Weise, 1975). Eight items particularly relevant to college students were added to the scale to yield a 25-item Likert-type scale that asked participants how likely they were to seek services for varying issues related to mental well-being. The Intention to Seek Help scale comprised three factors including: (a) intention to seek care for behavioral health issues (e.g., alcohol/drug, depression, traumatic experience, impulsive or disruptive behavior, and loss of touch with reality); (b) intention to seek care for mental health concerns associated with academics (e.g., test anxiety, procrastination, stress, concentration, general anxiety, sleep); and (c) intention to seek care for mental health concerns associated with interpersonal relationships (e.g., relationships, sexuality, dating, conflicts with parents). All factors were found to have good reliability ($\alpha = 0.89$, $\alpha = 0.84$, and $\alpha = 0.83$, respectively).

Self-stigma. A modified version of the Self-stigma of Seeking Help (SSOSH) Likert-type scale was used to measure the stigma males’ associate with seeking professional help (Vogel, Wade, & Haake, 2006). Answers were scored on a five-point Likert-scale and ranged from *strongly disagree* (1) to *strongly agree* (5). For analysis, some items were reverse coded and then answers were collapsed into two response categories—agreed or disagreed—with neutral items coded as disagreed. Employed in multiple studies (Cheng, McDermott, & Lopez, 2015; Vogel et al., 2017), reliability estimates for the original study revealed adequate reliability ($\alpha = 0.89$, average of the three original studies) with sufficient results for the current study ($\alpha = 0.76$).

Demographic variables included race, ethnicity, sexual orientation, academic probation, Grade Point Average (GPA), major of study, and year of birth. Categorization of majors into STEM and non-STEM majors followed criteria set by the Florida Board of Governors (2014).

Statistical Analysis

Sum scores were calculated for all constructs, and if applicable, sub-constructs. Descriptive statistics were

Table 1. Demographic Characteristics of Male Participants ($n = 1,242$).

	Total $f(\%)$
Participants	1,242 (100.0)
Ethnicity	
• Non-Hispanic	998 (80.5)
• Hispanic	241 (19.5)
Race	
• White	837 (64.9)
• Asian	218 (16.9)
• African American	100 (7.8)
• American Indian or Alaska Native	17 (1.3)
• Native Hawaiian or Pacific Islander	8 (0.6)
• Other	109 (8.5)
Level	
• Undergraduate	917 (73.8)
• Graduate	325 (26.2)
Course of study	
• STEM	528 (53.7)
• Non-STEM	455 (46.3)
GPA	
• 4.0–3.01	833 (77.8)
• 3.0–2.01	222 (20.7)
• 2.0–1.01	11 (1.0)
• < 1.01	5 (0.5)
Age	$M \pm SD$ 25.21 \pm 7.07

Note. STEM = Science, Technology, Engineering, & Mathematics; GPA = Grade Point Average.

run on all sum scores to ascertain mean (M), standard deviation (SD), and range. The relationship between each construct was investigated using the Pearson product-moment correlation coefficient and then partial correlations were used to explore relationships between constructs and a control variable. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Since the data were normally distributed, the Baron and Kenny approach (Baron & Kenny, 1986) was used to test for a mediation effect and a Sobel test was used to determine significance. Unstandardized beta coefficients were reported.

Results

Demographic Characteristics

The current study yielded a 9% response rate ($n = 1,744$). After removing incomplete surveys, the final sample ($n = 1,242$) was generated for analysis. As depicted in Table 1, the majority of participants self-reported as undergraduate, white, non-Hispanic, with a GPA greater than 3.1. The average age was 25 years old ($SD = 7.07$).

Table 2. Descriptive Measures of Mental Health Literacy, Psychosocial Factors, and Intention to Seek Care Among Male College Students.

Scale	M	SD	Range
MHL ^a	15.83	3.73	0–22
MH knowledge ^b	6.82	1.78	0–9
MH beliefs ^c	5.72	2.04	0–8
Knowledge of MH resources ^d	3.25	1.73	0–5
Motivation ^e	7.32	2.71	0–18
MH help-seeking attitudes ^f	3.01	1.52	0–5
Normative beliefs ^g	2.45	1.43	0–4
Self-stigma help-seeking ^h	1.02	1.38	0–5
Impact of care on self-confidence ⁱ	0.85	1.08	0–4
Intentions to seek care ^j	25.91	12.18	0–57
Behavioral health issue ^k	11.79	5.74	0–21
MH-academic ^l	7.87	4.38	0–18
MH-interpersonal ^m	6.33	4.18	0–18

Note. ^aHigher score indicates greater overall MHL. ^bHigher score indicates greater MH knowledge. ^cHigher score indicates positive MH beliefs. ^dHigher score indicates greater knowledge regarding MH resources. ^eHigher score indicates greater motivation to engage in mental health treatment. ^fHigher score indicates positive attitudes regarding help-seeking for MH concerns. ^gHigher score indicates greater social norms regarding MH. ^hHigher score indicates greater self-stigma associated with MH. ⁱHigher score indicates a bigger impact on self-confidence. ^jHigher score indicates a higher intention to seek care. ^kHigher score indicates greater intention to seek professional care for a MH issue. ^lHigher score indicates higher intention to seek professional care for MH related to academic factors. ^mHigher score indicates higher intention to seek professional care for MH associated with interpersonal issues. M = mean; SD = standard deviation; MH = mental health; MHL = mental health literacy.

Information, Motivation, and Help-Seeking Intentions

Generally speaking, results revealed moderate overall MHL among participants ($M = 15.83$, $SD = 3.73$). When analyzed by MHL sub-constructs, results revealed an average score of 6.82 ($SD = 1.78$) on a scale from 0 to 9 for knowledge of mental health signs and symptoms, a moderately high score of 5.72 ($SD = 2.04$) on a scale from 0 to 8 for beliefs pertaining to mental health, and moderate attitudes ($M = 3.01$, $SD = 1.52$, range = 0–5) regarding help-seeking. Additionally, results revealed low social norms ($M = 2.45$, $SD = 1.43$, range = 0–4), high stigma ($M = 1.02$, $SD = 1.38$, range = 0–5), and low impacts on self-confidence ($M = 0.85$, $SD = 1.08$, range = 0–4). Further, as depicted in Table 2, university males indicated low intentions to seek care for behavioral health issues ($M = 11.79$, $SD = 5.74$, range = 0–21), mental health issues associated with academics ($M = 7.87$, $SD = 4.38$, range = 0–18), and interpersonal mental health issues ($M = 6.33$, $SD = 4.18$, range = 0–18).

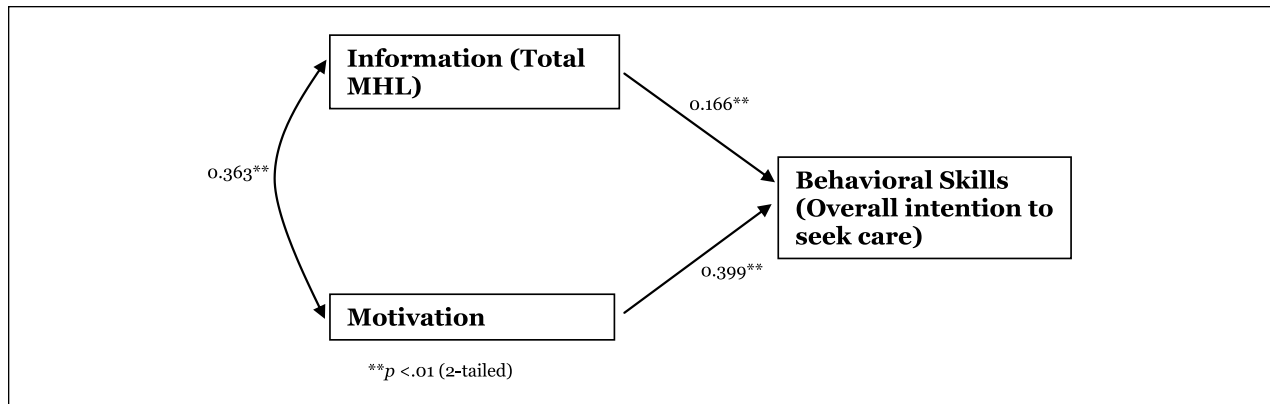


Figure 2. Information-Motivation-Behavioral Skills Model correlations for mental health literacy.

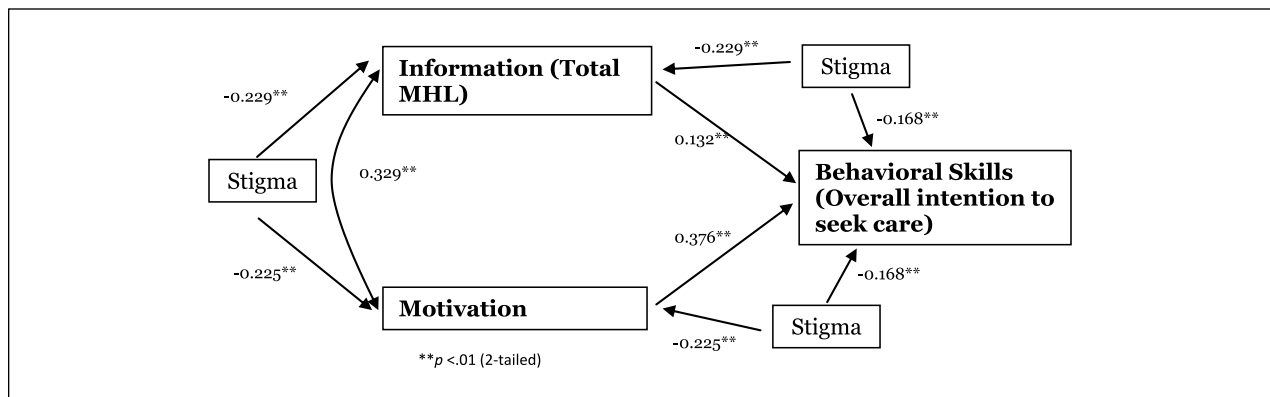


Figure 3. Information-Motivation-Behavioral Skills Model correlations for mental health literacy with stigma mediator.

Relationship Between IMB Constructs

To address the first research question, the relationships between the IMB constructs were assessed. Information, motivation, and behavioral skills were all positively correlated. There was a weak to moderate relationship between information and motivation ($r = .363$, $p < .01$) as high levels of information were associated with high levels of motivation. There was a weak positive relationship between information and behavioral skills ($r = .166$, $p < .01$) and a weak to moderate relationship between motivation and behavioral skills ($r = .399$, $p < .01$). Figure 2 illustrates the relationships.

To address the second research question, the effect of stigma on each IMB construct was assessed. Generally speaking, stigma mediated the relationship between information and motivation, motivation and behavioral skills, and information and behavioral skills. Figure 3 details the relationships between the variables. As depicted in Figure 3, weak negative correlations were observed between stigma and motivation ($r = -.225$, $p < .01$), stigma and information ($r = -.229$, $p < .01$), and stigma and

behavioral skills ($r = -.168$, $p < .01$). As a result of these findings and the weak direct relationships between IMB constructs, three separate mediation models were created to determine if stigma mediated the relationships between information, motivation, and behavioral skills.

Information and Motivation. First, partial correlation was used to explore the relationship between information and motivation controlling for stigma. There was a moderate relationship between the constructs, controlling for stigma ($r = .329$, $p < .01$). Then, two models were tested for information and motivation based on the causal pathways illustrated in Figure 1, with stigma as a mediator. The first model assessed the linear relationship between motivation (y) and information (x). In Step 1 of the mediation model, the regression of information on motivation, ignoring the mediator, was statistically significant, $b = .231$, $t(1188) = 13.434$, $p < .001$. Step 2 showed that the regression of motivation on stigma was also significant, $b = -.134$, $t(1243) = -8.153$, $p < .001$. Step 3 showed that stigma, controlling for motivation, was significant, $b = -.243$, $t(1180) = -5.276$, $p < .001$. In Step 4, controlling

for the mediator, information was still a statistically significant predictor of motivation, $b = .214$, $t(1180) = 12.175$, $p < .001$. A Sobel test was conducted and partial mediation was found in the model ($z = -5.06$, $p = .029$). The second model assessed the relationship between information (y) and motivation (x). In Step 1 the regression of motivation on information, ignoring stigma, was statistically significant, $b = .572$, $t(1188) = 13.434$, $p < .001$. Step 2 showed that the regression of information on stigma was also statistically significant, $b = -.087$, $t(1312) = -8.537$, $p < .001$. Step 3 showed that stigma, controlling for information, was significant, $b = -.400$, $t(1180) = -5.573$, $p < .001$. In Step 4, controlling for the mediator, motivation remained a statistically significant predictor of information, $b = .521$, $t(1180) = 12.175$, $p < .001$. Stigma was shown to be a mediator for information and motivation.

Information and Behavioral Skills. Partial correlation was used to determine the association of information and behavioral skills, controlling for stigma, and there was a weak positive association ($r = .132$, $p < .01$). To further explore this relationship, a mediation model was developed. In Step 1 of the mediation model, the regression of information on behavioral skills, ignoring the mediator, was statistically significant, $b = .548$, $t(1146) = 5.684$, $p < .001$. Step 2 showed that the regression of behavioral skills on stigma, the mediator, was also significant, $b = -.019$, $t(1197) = -5.898$, $p < .001$. Step 3 showed that stigma, controlling for information, was significant, $b = -1.229$, $t(1139) = -4.792$, $p < .001$. In Step 4, controlling for the mediator, information was still a statistically significant predictor of behavioral skills, $b = .455$, $t(1139) = 4.626$, $p < .001$. A Sobel test was conducted and partial mediation was found in the model ($z = -4.7$, $p < .001$).

Motivation and Behavioral Skills. To explore the relationship between motivation and behavioral skills, controlling for stigma, partial correlation was used. There was a moderate positive relationship between the constructs when controlling for stigma ($r = .376$, $p < .01$). As such, a mediation model was created. In Step 1, the regression of motivation on behavioral skills, ignoring the mediator, was statistically significant, $b = 2.084$, $t(1186) = 14.991$, $p < .001$. Step 2 showed that the regression of motivation on stigma was also significant, $b = -.019$, $t(1197) = -5.898$, $p < .001$. Step 3 showed that stigma, controlling for motivation, was significant, $b = -.703$, $t(1179) = -2.936$, $p < .001$. In Step 4, controlling for the mediator, motivation was still a statistically significant predictor of behavioral skills, $b = 1.983$, $t(1197) = 13.907$, $p < .001$. A Sobel test was conducted and partial mediation was found in the model ($z = 2.47$, $p = .0133$).

Discussion

This study sought to examine the relationships between mental health literacy, mental health attitudes, subjective norms about mental health treatment, and stigma on intention to seek mental health services among male students in the United States independent of their mental health status. Using the IMB model, the study examined the relationships between information (mental health literacy), motivation (mental health attitudes and subjective norms), and behavioral skills (intention to seek care for mental health), and the role, if any, of stigma in those relationships. There were three main findings: (a) generally speaking, college males have low intentions to seek care for issues related to mental health in addition to low mental health literacy, especially with beliefs regarding mental health, unfavorable attitudes regarding help-seeking, self-stigma, and normative beliefs with regard to seeking help for mental health issues; (b) there were weak positive relationships between information, motivation, and behavioral skills; and (c) stigma was found to mediate the relationships between IMB constructs thus explaining their weak relationships.

The first finding is not surprising and supports the work of others who have observed males with low help-seeking behaviors for concerns related to mental well-being (Eisenberg et al., 2011; Reetz et al., 2016; Rickwood et al., 2015; Thomas et al., 2014). The analysis also pointed to low mental health literacy, especially with moderate beliefs regarding mental health, unfavorable attitudes regarding help-seeking, self-stigma, and normative beliefs with regard to seeking help for mental health issues. Once more, findings support the work of others who explored determinants of mental health help-seeking among males (Beatie et al., 2016; Lannin et al., 2016; Pedersen & Paves, 2014; Rickwood et al., 2015; Spence et al., 2016; Vogel et al., 2011; Vogel et al., 2017).

Second, the current study revealed weak positive relationships between information, motivation, and behavioral skills. When stigma was identified as a mediator, it provided an explanation for the weak associations. This supports previous research that examined the relationship between mental health literacy, attitudes and normative beliefs, and intention to seek professional help for mental health concerns (Barksdale & Molock, 2009; Beatie et al., 2016; Thomas et al., 2014). It also supports research on the role of stigma in help-seeking behaviors among males (Cheng et al., 2015; Coppens et al., 2013; Lannin et al., 2016; Pedersen & Paves, 2014; Spence et al., 2016; Vogel et al., 2011). In order to improve help-seeking behaviors among male college students, it is not enough to independently address mental health literacy (information) and attitudes and normative beliefs (motivation) to improve intentions to seek professional help (behavioral skills). Stigma must be included as an integral part of interventions.

When taken together, findings suggest a public health multilayered approach that addresses stigma throughout may increase the likelihood of mental health help-seeking behaviors among male college students. The combination of a public health and multilayered approach does not dictate the use of specific interventions; rather it suggests multiple interventions for addressing mental health across a continuum of care (Jordans et al., 2010). More specifically, a public health approach comprises three tiers of intervention types. Tier 1 consists of primary prevention (i.e., strengthen resiliency), Tier 2 involves secondary prevention (i.e., targeted care for at risk individuals), and Tier 3 includes advanced care for severe mental health distress. Layered-care is considered a modified stepped-care approach, where students would not be required to have an initial treatment, but could have more specialized interventions determined by assessment, as opposed to the stepped-care hierarchy (Arthur, 2005). Subsequently, when using a public-health multilayered approach, multiple layers of interventions are developed for each tier considering a continuum of care, and stigma should be addressed in each tier. For example, if applying results of the current study through a public health multilayered approach to mental health among college students, universities can offer the following interventions across tiers that address identified predictors of intentions to seek care:

- Tier 1: Primary Prevention
 - Increase mental health literacy among male college students through e-training programs. Programs should be broader than solely providing information, as stigma, attitudes, and subjective norms should be addressed.
 - Increase attitudes, beliefs, normative beliefs, and values of mental health through male specific social marketing interventions. These interventions must account for stigma and should work to decrease it for male students.
 - Strengthen resiliency through trained peer mentors and online self-help resources.
- Tier 2: Secondary Prevention
 - Decrease self-stigma through the use of certified health and wellness coaches who are trained to provide care for mental health concerns related to academic and interpersonal issues (e.g., stress, test anxiety, procrastination, concentration, relationship issues, goal setting, etc.).
 - Reduce stigma and increase positive attitudes and normative beliefs toward help-seeking for academic and interpersonal related mental health issues through the use of health and wellness coaches, peer coaches, and self-help modules.
 - Strengthen resiliency and decrease self-stigma through male-specific group coaching.
- Tier 3: Tertiary Prevention
 - Train academic coaches and peer mentors in mental health first aid, thereby increasing identification for and facilitation of movement to seek counseling (if needed).
 - Create satellite counseling stations that decrease stigma related to entering a traditional university counseling center.

First, as social marketing programs are commonplace on university campuses, institutions can create campaigns addressing mental health attitudes with messages specific to males and further focus on removing stigma associated with seeking professional help for a mental health concern. Second, since students may seek help for academic concerns or concerns for themselves or others, universities can implement interventions which would train professional staff members and, potentially, peer advocates to refer students to mental health resources when appropriate. Last, a combination of the previous approaches can be used for a stepped approach to improve attitudes on campuses so that a social marketing program would address mental health attitudes regarding overall help-seeking. Wellness coaches, academic advocates, and other trained staff members would then meet with students about their concerns and connect them to appropriate mental health resources. Wellness coaches are not as stigmatized as professional counselors, as they address multiple components of wellness (Gibbs & Larcus, 2015), thus increasing the likelihood that male college students would utilize their services, potentially increasing the readiness of males to use counseling services in the future.

Limitations

Despite grounding the question and analysis in theory, a key component of the IMB is missing. This study included the information, motivation, and behavioral skills constructs, but did not collect information on professional help-seeking behavior and treatment. The IMB posits that information, motivation, and behavioral skills are precursors to the behavior, but this study does not provide evidence that changing intentions will impact professional help-seeking behavior. Further research should include students who have and have not sought professional help to predict the behavior. The reliability for the scales assessing knowledge of signs and symptoms of mental health disorders and attitudes toward help-seeking were lower than their respective original studies, so they may not have been the best fit for this data. While this cross-sectional study collected responses from a large sample of male university students, it was a convenience sample, which may not be representative of

the population. The survey was sent via email, and there may be differences among those who completed it and those who did not. Last, there was a low response rate. As a result, there are significant limitations to the generalizability of these findings.

Conclusions

Our findings suggest low intentions for mental health help-seeking among male college students. In addition, this study identifies positive relationships between mental health literacy, attitudes and subjective norms, and help-seeking intentions, but those relationships are mediated by stigma. These findings represent an opportunity to take a public health approach to male mental health through developing multilayered interventions that address stigma, in addition to information, motivation, and behavioral skills.


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ORCID iD

Amy Gatto  <https://orcid.org/0000-0003-2119-1005>

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