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Perceptions of Help-Seeking Likelihood for Depression: Examining the Relative Predictive Value of Ethnicity and Barriers to Care

Linda Esperanza Guzman
University of Arkansas, Fayetteville

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Citation

Perceptions of Help-Seeking Likelihood for Depression:
Examining the Relative Predictive Value of Ethnicity and Barriers to Care

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts in Psychology

by

Linda Esperanza Guzman
The University of North Carolina at Greensboro
Bachelor of Arts in Psychology, 2013

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This thesis is approved for recommendation to the Graduate Council.

_____
Ana J. Bridges, Ph.D.
Thesis Director

_____
Lindsay S. Ham-Holm, Ph.D.
Committee Member

_____
William H. Levine, Ph.D.
Committee Member

Abstract

Latinx and non-Latinx White adults 18 years of age and older experience depression at proportional rates. However, Latinxs seek specialized care for depression at lower rates than non-Latinx Whites, suggesting these groups experience barriers in accessing care differently. This study sought to test the theoretical steps of help-seeking as informed by the Gaining Access and Treatment Equity model (GATE model; Bridges, 2018). According to the GATE model, successful help-seeking means navigating a series of barriers: sequentially, these are perceived need, attitudinal barriers, and structural barriers. Participants ($N = 987$) were either Latinx ($n = 437$) or non-Latinx White ($n = 550$) undergraduate students enrolled in general psychology courses. Participants were randomized to read one of eight vignettes describing a woman with depression and were asked to rate how likely the character would be to seek mental health services. The character's perceived need for services, attitudinal barriers, and structural barriers for seeking specialized care were manipulated. High perceived need versus low perceived need was hypothesized to better predict help-seeking. Low attitudinal versus high attitudinal barriers was hypothesized to better predict help-seeking. Low external versus high attitudinal barriers was hypothesized to better predict help-seeking. Hypotheses were tested using independent sample t-tests. The three hypotheses were supported. Logistic regression revealed structural barriers served as the strongest predictor for likelihood of seeking care. Structural barriers moderated the relationship between perceived need and perceived likelihood of seeking care, such that help-seeking was more likely to occur when structural barriers were low and perceived need was high. The same moderation effect was true for attitudinal barriers, such that perceived help-seeking was more likely in the context of low attitudinal barriers when perceived need was high. Participants' ethnicity did not moderate the relationship between perceived need and

perceived likelihood of seeking care. This work highlights the importance of addressing

structural barriers to reduce disparities in accessing treatment for depression.

Keywords: Depression, Latinx, Treatment Access, Mental Health, Barriers

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Introduction

Perceptions of Help-Seeking Likelihood for Depression:

Examining the Relative Predictive Value of Ethnicity and Barriers to Care

Disparities in access to mental health treatment for depression have been documented in the general US population. To illustrate, Waitzfelder et al. (2018) found that two-thirds of adults meeting criteria for major depressive disorder did not access mental health services. These disparities are magnified when access to mental health services is examined across ethnic group membership. A meta-analysis conducted by Mendelson, Rehkopf, and Kubzansky (2008) found Latinxs and non-Latinx Whites did not differ in their prevalence rates of depression. The ethnic groups did differ, however, in the reported number of depressive symptoms experienced. In their sample, Latinxs reported higher rates of depressive symptoms compared to non-Latinx Whites. Young, Klap, Sherbourne, and Wells (2001) found that even though the prevalence rate of depression was identical between Latinx and non-Latinx White ethnic groups, Latinxs accessed mental health care services at lower rates than non-Latinx Whites. These findings suggest that accessing mental health services for depression, in general, is a struggle. This is concerning given that unaddressed severe depression detrimentally impacts quality of life.

The National Institute of Mental Health (NIMH, 2019) reported the prevalence rate of depression was highest for persons ages 18-25 years of age. The same source reported 17.3 million adults aged 18 years or older experienced at least one major depressive episode in their lifetime, making depression the second most prevalent form of mental illness in the United States after anxiety. An average of 8.7% of women and 5.3% of men experienced depression in 2017 (NIMH, 2019). In the United States, depression is the leading cause of disability for individuals ages 15-44 years old, resulting in 386.6 million disability days per year, more than any other

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physical or mental health condition (Merikangas, 2007). In 2010, the estimated economic burden of depression on working adults in the US was $98.9 billion (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). A large portion of the cost was related to direct work activities such as absenteeism or reduced productivity.

While individual bouts of depression may remit on their own, without treatment, depressive episodes tend to recur. A study that investigated the remittance rate of a waitlist compared to a primary-care sample treated for depression found that about half of untreated cases remitted within a year (Whiteford et al., 2013). Remission was defined as an individual receiving a rescinded diagnosis, obtaining a Beck Depression Inventory (BDI; Beck and Steer, 1988) score lower than 10, or obtaining a Hamilton Depression Rating Scale (HAMD; Frank et al., 1991) score of lower than 7 after a 12-month period.

Effective treatments for depression include either psychotherapy, psychopharmacology, or a combination of both (American Psychiatric Association, 2010). One commonly used treatment is cognitive behavioral therapy (CBT), which focuses on teaching skills to challenge thoughts and behaviors that contribute to depressive symptoms (Beck, 1976). Wampold, Minami, Baskin, and Tierney (2002) sought to compare CBT to other forms of psychotherapy for depression by comparing $n = 9$ bona-fide therapies (non-cognitive and non-behavioral) to CBT, and $n = 11$ non-bona fide therapies to CBT. Bona-fide therapies were described as following a standardized treatment manual which was delivered face-to-face by a mental health professional with some graduate training. Wampold and colleagues (2002) found CBT to be superior to non-bona fide treatments ($d = 0.49$), but equivalent to other bona-fide treatments ($d = 0.03$). Another meta-analysis compared depression outcomes for CBT compared with other psychotherapies ($n = 46$) and found that CBT was not significantly more effective than behavior activation therapy

($n = 8$; $g = -0.02$), psychodynamic psychotherapy ($n = 5$; $g = 0.25$), or interpersonal therapy ($n = 5$; $g = -0.09$) (Cuijepers et al., 2013). A separate study found that a combination of CBT and pharmacotherapy was superior to pharmacotherapy alone ($n = 25$; $d = 0.31$) (Cuijpers, Dekker, Hollon, & Andersson, 2009). Increasing access to psychological treatments, alone or in combination with pharmacological treatments, has the potential to alleviate the economic burden and improve the quality of life among those affected with depression.

Despite the high prevalence rates of depression, the high likelihood of depression symptoms not remitting within a year, and the effectiveness of available treatments, many people do not access care. As mentioned, disparities in accessing care have been found to vary by ethnic group membership. Alegría and colleagues (2008) found that although rates of depression were similar between non-Latinx Whites (11.2%) and Latinxs (10.8%), 63.7% of Latinxs compared to 40.2% of non-Latinx Whites did not access care for depression within a 12-month period. One study found that Latinxs were less likely to fill an antidepressant prescription than non-Latinx Whites (Harman, Edlund, & Fortney, 2004). Another study found that Latinxs were more likely to receive inadequate treatment for depression than non-Latinx Whites (Simpson, Krishnan, Kunik, & Ruiz, 2007). These studies highlight the disparities in access to treatments and subsequent treatment retention in Latinx samples.

Regardless of ethnic group membership, meeting diagnostic criteria as defined by the *Diagnostic and Statistical Manual of Mental Disorders, 5th edition* (DSM-5; American Psychiatric Association, 2013) does not dictate that a person will seek mental health services. Other factors must, therefore, be examined to understand how people come to seek care. I review a theoretical model to explain help-seeking behavior and its components below.

Gaining Access and Treatment Equity Model

Why is it that many people do not seek needed mental health treatment, and why might it be that rates of treatment-seeking differ by demographic characteristics? The Gaining Access and Treatment Equity (GATE) model (Bridges, 2018) provides a theoretical framework for understanding why individuals may not access needed care. The GATE model proposes barriers to treatment access and equitable health outcomes arise from four components: lack of perceived need, attitudinal barriers, structural barriers, and clinical/procedural barriers. It is theorized that help-seeking occurs in a sequential order: a person 1) possesses a perceived need for services; 2) assesses their attitudinal stance towards seeking care; 3) assesses structural barriers impeding access to treatment; and 4) navigates clinical/procedural barriers once care is accessed. Absent perceived need, the weight of attitudinal and structural barriers is assumed as limited. This is the first study investigating if perceived need is actually the strongest predictor of help-seeking. It is thought that a person's high perceived need, regardless of the barriers they face, will be the strongest predictor of help-seeking because it is the first theoretical step towards help-seeking. Without a perceived need for mental health care services, help-seeking would not occur. The main variables of interest in this study are perceived need, attitudinal barriers, and structural barriers, which are briefly described below.

Perceived Need

The GATE model posits that regardless of an individual's diagnosis or assessed need, for help-seeking to occur, the individual must first recognize a need for intervention (Bridges, 2018). Studies on health care utilization have identified perceived need as a predictor of mental health care service utilization (Meadows, Burgess, Bobevski, Fossey, Harvey, & Liaw, 2002; Mojabai, Olfson & Mechanic, 2002). Perceived need for health care services has been found to vary by

ethnic group membership. A study conducted with data from the National Comorbidity Survey-Replication (NCS-R; Kessler, Chiu, Demler, & Walters, 2004) found that of individuals who met criteria for mood and/or anxiety disorders, Latinxs were less likely to perceive a need for care than non-Latinx Whites (Ault-Brutus & Alegría, 2018). However, individuals who perceive a need for mental health services, but who do not meet criteria for a disorder, also stand to benefit from treatment (Sareen, Stein, Campbell, Hassard, & Menec, 2005). Therefore, when discerning the appropriateness of mental health service resources, an individual's self-perceived need of mental health treatment is essential to consider (Sareen, Cox, Afifi, Clara, & Yu, 2005).

Attitudinal Barriers

Individuals who believe that they will be negatively judged for seeking care (President's Commission on Mental Health, 1978), who hold stigmatizing attitudes towards mental illness or mental health care (Stefl & Prosperi, 1985), or who have a stoic attitude and would prefer to handle problems on their own (Mojabai et al., 2011), may not voluntarily seek out services for depression. In fact, some evidence suggests that mental health disorders may have a greater stigma attached to them in ethnic minority communities than in majority non-Latinx White communities living in the United States (Gary, 2005).

Similarly, negative perceptions of mental health care treatment can serve as barriers to accessing care. However, perceptions of mental health treatment have improved within the past couple of decades. A study conducted by Mojabai (2007) that analyzed data from the National Comorbidity Survey (NCS; Kessler et al., 1994) from 1990-1992 (Blazer, Kessler, McGonagle, & Swartz, 1994) and the National Comorbidity Survey-Replication from 2001-2003 (NCS-R; Kessler et al., 2004) found increasingly positive perceptions of mental health treatment from the 1990s to 2000s. Specifically, individuals seemed more willing (35.6% in 1990s, compared to

41.4% in 2000s), comfortable (27.1% compared to 32.4%), and less embarrassed (33.7% compared to 40.3%) to receive care if needed.

Perceptions of mental health treatment may vary by demographic characteristics. For instance, one study that assessed college students' beliefs and barriers to mental health services found that women were less likely than men to hold stigma-related attitudes to accessing care (Vidourek, King, Nabors, & Merianos, 2014). Another study found that Latinx immigrant women endorsed more stigma related to seeking mental health care services than US born Latinxs (Nadeem et al., 2007).

Structural Barriers

Structural barriers, or barriers that are not under the control of the individual, have also been found to affect help-seeking behavior in the general population. An example of a structural barrier is a lack of health insurance. Latinxs experience one of the highest uninsured rates of all ethnic groups in the US. To illustrate, in a national study of depression treatment utilization, Alegría et al. (2008) found that 34.8% of Latinxs in their sample were uninsured compared to 8.8% of non-Latinx Whites. An estimated 37% of Latinxs compared to 14% of non-Latinx Whites are uninsured (Brown et al., 2000). Even when they had coverage, insured Latinxs accessed mental health services at lower rates than non-Latinx Whites (Padgett, Patrick, Burns, & Schlesinger, 1994). It is unclear if not accessing care for depression when insured is partially due to an interaction between structural and attitudinal barriers.

Income has also been identified as a structural barrier to treatment. Similarly, a lack of transportation also serves as a structural barrier. A study by Alegría et al. (2002) found that after controlling for age, sex, education, insurance status, geographic location, and residence in an urban or rural setting, as well as the number of psychiatric diagnoses, economically

disadvantaged Latinxs were less likely than non-Latinx Whites to use specialty mental health

services from a social worker, psychologist, psychiatrist or psychiatric nurse. A lack of

transportation or reliance on public transportation was noted as structural barriers to accessing

mental health services in a Latinx sample (Barrio et al., 2008). Lack of reliable transportation is

associated with difficulties seeking and completing mental health appointments (Bridges &

Lindly, 2008).

Methodological Limitations to Prior Research in Help-Seeking

Prior work assessing barriers to care for mental health services has been retrospective

(Alegría et al., 2004; Kessler et al., 1997; Kessler & Merikangas, 2004). This may be

problematic in that retrospective accounts of service utilization may not accurately represent the

actual barriers that individuals faced when accessing care. For instance, non-experimental

surveys of past help-seeking have been conducted through several epidemiological studies such

as the National Comorbidity Survey (NCS; Kessler et al., 1997) of 1990-1992, the National

Comorbidity Survey-Replication (NCS-R; Kessler & Merikangas, 2004) of 2001-2003, and the

National Latino and Asian American Study (NLAAS; Alegría et al., 2004) of 2003. Such surveys

describe characteristics of the population who have or have not accessed care, but do not

manipulate relevant theoretical components of help-seeking. Additionally, these studies tend to

limit the number of variables examined at one time. Likewise, the moderating effects of ethnicity

have not always been examined.

A study that assessed perceived barriers to care related to affordability (the provider's

costs for services), availability to services (the provider's personnel and technological resources

to offer care), accessibility to services (the geographical location and the patient's ability to get

there), accommodation (the provider's services are organized to meet the client's constraints and

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preferences), and acceptability of services (the client's perception of the provider's ability to provide services), otherwise known as the five As to service utilization (Penchansky and Thomas, 1981), found that reported barriers varied by participant characteristics. Stefl and Prosperi (1985) found those who had used services in the past reported more barriers than those who solely reported a need for services but had not actually sought services. Such a finding indicates that time and need may factor into how barriers to care are perceived.

Purpose

This study contributes to the larger scientific question about the role that diverse barriers to care (perceived need, attitudinal, and structural barriers) have on perceived likelihood of seeking care for depression. The proposed study was designed to overcome some of the prior limitations in past studies of help-seeking for depression by: (1) using in-the-moment judgments instead of retrospective recall, (2) using an experimental design, and (3) examining multiple variables and interactions at the same time. I proposed the following three *a priori* hypotheses:

- Hypothesis 1: High perceived need will predict a higher perception of help-seeking likelihood scores compared to a low perceived need.

- Hypothesis 2: High attitudinal barriers will predict lower perceptions of help-seeking likelihood scores compared to low attitudinal barriers.

- Hypothesis 3: High structural barriers will predict lower perceptions of help-seeking likelihood scores compared to low structural barriers.

This study also had three exploratory research aims:

- Aim 1: Assess which barrier type (perceived need, attitudinal barriers, or structural barriers) best predicts perceived help-seeking likelihood.

- Aim 2: Assess whether attitudinal and structural barriers moderate the relation between perceived need and help-seeking likelihood.

- Aim 3: Assess whether perceived need and perceived likelihood of seeking care is moderated by participant ethnicity.

Method

Participants

Data were collected from $N = 987$ students, ages 18 years and older, enrolled in one of two universities: The University of Arkansas at Fayetteville (UA; $n = 593$) and The University of Texas at Rio Grande Valley (UTRGV; $n = 394$). Inclusion criteria were any undergraduate students aged 18 or older enrolled at UA or UTRGV who ethnically identified as either Latinx or non-Latinx White. Exclusion criteria were individuals who did not identify as Latinx or non-Latinx White and individuals under the age of 18. Descriptive statistics for demographic variables are reported in Table 1. In terms of gender, 65.7% of participants identified as female. Participants ranged in age from 18 to 60 years, with a mean age of 20.51 years ($SD = 4.33$). Demographic statistics for the sample by university affiliation are reported in Table 2. Sixty percent of participants came from the UA. Demographic statistics for the sample by ethnicity are reported in Table 3. In terms of ethnicity, 44.28% of participants identified as Latinx.

Data were downloaded from Qualtrics (Snow & Mann, 2013), $N = 1,177$ ($n = 676$ from UA; $n = 501$ from UTRGV). A total of 80 participants from UA were excluded because they did not pass a manipulation test. Three participants were excluded because they did not identify as female or male. From UTRGV, a total of 30 participants were excluded because they were duplicated entries, and 77 were excluded due to not meeting the study criteria (ethnic background was not Latinx or non-Latinx White).

Experimental Procedure

Participants at UA and UTRGV completed study materials via Qualtrics (Snow & Mann, 2013), an online survey platform. A description of the study recruitment as displayed to participants is found in Appendix A. UA is a predominantly White institution serving 76% White and 9% Latinx students (College Board, 2018a). UTRGV is a predominantly Hispanic serving institution, with 92% Latinx and 3% White students (College Board, 2018b). The Institutional Review Board at both institutions approved all study procedures. A copy of the University of Arkansas' Institutional Review Board approval is found in Appendix B. All data was stored on Qualtrics servers, meeting security standards consistent with the Health Insurance Portability and Accountability Act (HIPAA; Act, A., 1996). Data was only accessible by the principal investigator and members of the research team.

Participants reviewed the risks and benefits of participation (see Appendix C for the flow chart of procedural methods). Once their informed consent was obtained (see Appendix D), participants read a vignette depicting a woman who experienced significant symptoms of depression (see Appendix E). After reading the vignettes, participants were asked to answer a set of questions to ensure they attended to and understood the vignette (see Appendix F). Participants who fail these manipulation checks at 100% were excluded from analyses. Participants had two opportunities to pass the manipulation check. Next, participants responded to questions assessing their perception of the woman, including the likelihood the woman would seek mental health care (see Appendix G). Then, participants completed a variety of self-report measures and answered questions about their demographic characteristics (see Appendix H). Finally, participants were debriefed, provided psychoeducational information about resources on their campus (see Appendix I), and assigned course credit consistent with the time required for

their participation. The study took participants an average of 30 minutes to complete.

Materials

Given depression has a higher prevalence rate among women than men (National Institute of Mental Health, 2019), the vignette depicted a college-age woman (Appendix E). The woman in the vignette was given an ethnically ambiguous name ("Sara") in an effort to prevent participants from assuming a particular character ethnicity. The paragraphs following the vignette described the independent variables (IV1: perceived need; IV2: attitudinal barriers; IV3: structural barriers). Each independent variable had two levels. Low was coded as 0 and high was coded as 1. Specifically, the paragraphs were manipulated to represent: (1) perceived need, where Sara either explicitly stated she (1a) believed she needed help, or (1b) believed help unnecessary; (2) attitudinal barriers, where Sara either shared she (2a) admired those who sought mental health services, or (2b) explicitly viewed those who obtained mental health services as weak; and (3) structural barriers where Sara either shared (3a) the clinic was at a close geographical distance to her, she had health insurance covering the cost of mental health care services, and the clinic had flexible hours of operation, or (3b) the clinic was at a far distance from her location, she did not have health insurance covering the cost of mental health care services, and the clinic hours were not flexible.

With three independent variables, each with two levels, a total of eight possible combinations of the study vignette were created. Randomization was blocked by ethnic group, meaning that random assignment to conditions was made within ethnic groups to ensure equal sample sizes across all conditions in both ethnic groups. At the time of data collection, because of a programming error, one scenario (low perceived need, high attitudinal barriers, and low

structural barriers) never made the randomization (see Appendix E randomizations cell counts). Analyses was conducted on seven scenarios. All measures were administered in English.

The vignette was informed by the theoretical components of perceived need, attitudinal barriers, and structural barriers of the GATE model (Bridges, 2018). Before data collection took place, the vignette was presented to a focus group of undergraduate research assistants who read the vignette and were asked whether Sara had high or low perceived need, high or low attitudinal barriers, and high or low structural barriers. Their responses indicated the manipulations were valid. When participants were asked to give feedback about what Sara experienced in the vignette, all students answered depression.

Measures

Demographic Information

Participants completed a questionnaire assessing basic demographic information. Gender (0 = male; 1 = female), ethnicity (0 = non-Latinx White; 1 = Latinx), institution (0 = UA; 1 = UTRGV), health insurance (0 = no; 1 = yes), and prior help-seeking for mental health (0 = no; 1 = yes) were measured dichotomously. Age and the number of college credit hours was measured continuously. Grade (0 = Freshman; 1 = Sophomore; 2 = Junior; 3 = Senior; 4 = Fifth year or beyond), employment status (0 = unemployed and not looking for work; 1 = unemployed and looking for work; 2 = employed part-time below 19 hours; 3 = employed part time at 20 to 39 hours; 4 = employed full time at 40 or more hours), and family income (0 = $0-19,999; 1 = $20,222-39,000; 2 = $40,000-59,999; 3 = $60,000-79,999; 4 = $80,000-99,999; 5 = $100,000 – 149,999; 6 = $150,000-249,999; 7 = $250,000+) were measured ordinally. See Appendix H for the demographic questionnaire.

Perceived Likelihood for Care

The dependent variable in the study was participants' perceptions of the likelihood the main character in the vignette, Sara, would seek mental health care for her stated difficulties. Participants were asked a series of 10 questions: knowing what you know about Sara, how *likely do* you think that she will obtain care; do you think that Sara *wants* to get help; do you think that Sara *sees a need* for seeking help; do you think that it *would be easy* for Sara to get help if she wanted it; do you think that Sara would *benefit* from getting help; do you think that she would *face many challenges* to trying to get help; do you think that Sara will be able *to overcome these challenges*; do you think that Sara is *likely to call and make an appointment*; do you think that Sara *will keep her appointment* if she makes one; do you think that Sara is *likely to return for another visit* after her first appointment? Participants rated their responses on a scale from (e.g., *1= not very likely)* to (e.g., *10 = absolutely likely)*. The challenge question was reversed scored. The average of all scores was obtained, with higher scores indicating a higher likelihood that Sara would obtain care. Only participants who answered at least 75% of the 10 items had their scores averaged for a total likelihood of care score. Cronbach's alphas for the survey ten items was computed as a check for reliability. Evidence for excellent internal consistency was found in the current sample, with $\alpha = .90$.

Participants answered a single question assessing which stage of change they believed Sara was in. The transtheoretical model (Prochaska & DiClemente, 1983) posits that there are six stages to making a change in one's behavior; however, in the current study, only the first four were examined. Participants were prompted to answer the following question: "Which of the following do you think best describes Sara's view right now?" Participants were asked to make one selection from the following answer choices: a) Sara is not thinking about getting care at all;

b) Sara is thinking perhaps she might get care at some point in the future; c) Sara is thinking about calling for mental health care soon (in the next month); and d) Sara is going to call for a mental health appointment right away (in the next day or two). Responses were coded on a 1 (*precontemplation*) to 4 (*action*) scale. A higher score signified a higher readiness to seek care.

The answer to the stage of change question was significantly positively correlated with the total score of perceived likelihood for care questions ($r = .80$), so a composite variable was created from the 10 likelihood of care questions and the one stage of change question. Cronbach's alpha for the new 11-item likelihood of care scale was excellent, $\alpha = .91$.

Analytic Approach

Correlations between perceived need, attitudinal barriers, structural barriers and perceived likelihood of seeking care were computed through Pearson product moment correlation coefficients and are presented in Table 1. Assumptions regarding normality and linearity were evaluated in SPSS 23 through examination of descriptive statistics, histograms, and scatterplots. No violations of the assumption of normality, linearity, skewness and kurtosis were found. Untransformed variables are presented in the results.

I conducted chi-square tests to ensure the demographic data was similar across institutions. Although there were substantial differences in the demographic characteristics of the participants, the distribution seemed to be informed based on participant ethnic identification and I proceeded to analyze the data. To test hypotheses 1-3, I conducted independent samples *t*-tests with each experimental condition (perceived need, attitudinal barriers, structural barriers) as the independent variable and perceived likelihood of seeking care as the outcome variable. To assess aim 1, a multiple regression model was conducted with perceived likelihood of seeking care as the outcome variable and each of the experimental conditions as the predictor variables. To

assess aim 2, I regressed perceived likelihood of seeking care onto perceived need, attitudinal barriers, and the interaction between the two. To assess aim 3, I regressed perceived likelihood of seeking care onto perceived need, structural barriers, and the interaction between the two.

A Priori Power Analysis

An *a priori* power analysis for a planned *F* test, fixed effects, omnibus, one-way analysis of variance (ANOVA) was conducted using *G* Power* (Faul, Erdfelder, Lang & Buchner, 2007). Given that previous research examining predictors of help-seeking using the GATE model have not been conducted, I used a conservative estimate for the anticipated effect (i.e., powered the study to detect a small effect size; Cohen, 1988). Given a small effect size ($f = .25$), power of .80, alpha = .05, an estimated 448 participants were sought.

Results

Descriptive Analyses

The percentages for gender identity, university affiliation, ethnic identity, grade level status, employment status, income category, health insurance status, and prior help-seeking as well as the means and standard deviations for the number of college credit hours taken at school and the age of participants in the overall samples are presented in Table 2. The same information presented by university affiliation is presented in Table 3, and by ethnic identity in Table 4. Below is more detail about the descriptive analyses.

Demographic Statistics for the Sample by University Affiliation

The percentage of participants who were female did not differ by university affiliation, X^2 $(1, n = 987) = 3.08, p = .08$. Latinx participants were more likely to have completed their survey at UTRGV, $X^2 (1, n = 987) = 599.09, p < .001$. Students at UTRGV were older ($M = 22.06, SD = 5.66$) than students at the UA ($M = 19.48, SD = 2.70$), $t (513.30) = -8.42\ p = < .001$. The UA

students were more likely to be either Freshman or Sophomores, whereas the distribution of students at UTRGV was more evenly distributed between Freshman, Sophomore, Junior, and Senior classes, X^2 (4, n = 987) = 208.51, p < .001. UA students were taking more credits (M = 15.47, SD = 2.07) than the UTRGV students (M = 11.68, SD = 4.57). t (501.59) = 15.49, p <.001. Over half of UTRGV students were employed and the majority of students at UA were not employed or looking for employment. The majority of UTRGV students endorsed an income lower than the federal poverty line during their last year of high school compared to UA students, X^2 (7, n = 984) = 363.97, p <.001. Nearly all students at the UA had health insurance compared to 44.9% of the UTRGV students, X^2 (2, n = 986) = 285.69, p <.001. Two thirds of UA students had sought services for mental health in the past compared to one third of UTRGV students, X^2 (1, n = 987) = 4.30, p = .038

Demographic Statistics for the Sample by Ethnicity

The percentage of participants who were female did not differ by ethnicity, X^2 (1, n = 987) = .79, p = .37. Latinx students were older (M = 21.48, SD = 5.17) than non-Latinx White students (M = 19.74, SD = 3.32), t (708.73) = -6.12, p = < .001. Non-Latinx white students were more likely to be either Freshman or Sophomores, whereas the distribution of Latinx students was more evenly distributed between Freshman, Sophomore, Junior, and Senior classes, X^2 (4, n = 987) = 141.73, p < .001. Latinx students took fewer credits (M = 12.34, SD = 4.47) than non-Latinx Whites students (M = 15.23, SD = 2.51), t (649.48) = 12.08, p = < .001. Over half of Latinx participants were employed and the majority of non-Latinx Whites were not employed or looking for employment. The majority of Latinx students endorsed an income lower than the federal poverty line during their last year of high school compared to non-Latinx students, X^2 (7, n = 984) = 339.02, p < .001. Over a third of Latinx students were uninsured compared to 91.1%

of non-Latinx White students who had health insurance, $X^2(2, n = 986) = 208.5, p < .001$. Two thirds of a third of Latinx students accessed services in the past compared to two thirds of non-Latinx White students, $X^2(1, n = 987) = 8.29, p < .01$

Hypotheses 1-3

Independent samples *t*-tests were used to test the three proposed hypotheses. The first hypothesis was supported. There was a significant effect for perceived need, $t(984) = -14.76, p < .001, d = .96$, with higher perceived need ($M = 7.21, SD = 1.67$) predicting higher likelihood for seeking care scores than lower perceived need ($M = 5.44, SD = 2.02$). The second hypothesis was also supported. There was a significant effect for attitudinal barriers, $t(984) = 13.59, p < .001, d = 0.87$, with higher attitudinal barriers ($M = 5.56, SD = 2.07$) predicting likelihood for seeking care at lower rates than lower attitudinal barriers ($M = 7.20, SD = 1.67$). The third hypothesis was also supported. There was a significant effect for structural barriers, $t(984) = 22.09, p < .001, d = 1.49$, with higher structural barriers ($M = 5.59, SD = 1.76$) predicting lower likelihood for seeking care scores than lower structural barriers ($M = 8.05, SD = 1.39$).

Exploratory Aim 1: Predictors of Perceived Likelihood of Care

A standard multiple regression was performed using perceived likelihood of seeking care score as the dependent variable and perceived need, attitudinal barriers, and structural barriers as independent variables. Preliminary analyses were conducted to ensure no violation of the assumption of normality, linearity, and homoscedasticity of residuals. With the use of a $p < .001$ criterion for Mahalanobis distance, no outliers among cases were found. A total of $N = 987$ cases was used.

Table 6 displays the correlations between the variables, the unstandardized regression coefficients (*B*) and intercept, and the standardized regression coefficients (ß), the semipartial

correlations (sr_i^2), R^2, and adjusted R^2. R for regression was significantly different from zero, F (3, 985) = 565.56, $p < .001$., $R^2 = .63$. Of the perceived need, structural barriers, and attitudinal barriers variables, structural barriers made the largest unique contribution (β= -.52), followed by perceived need ($\beta = .42$), and then attitudinal barriers ($\beta = -.39$).

Moderation Analyses

Exploratory Aim 2: Perceived Need by Attitudinal Barriers

To test Aim 2, a standard multiple regression was conducted predicting perceived likelihood of care scores from perceived need, attitudinal barriers, and their interaction (see Table 7; see Figure 2). Preliminary analyses indicated no violations of assumptions of normality, linearity, multicollinearity, and homoscedasticity. The overall model was significant, F (1, 982) = 64.38, $p = < .001$, $R^2 = .40$. Both perceived need ($\beta = .30$, $p < .001$) and attitudinal barriers ($\beta = -.70$, $p < .001$) significantly predicted perceived likelihood of seeking care scores. The interaction of perceived need and attitudinal barriers ($\beta = .38$, $p < .001$) was also significant. Participants said Sara was likely to seek care when attitudinal barriers were low regardless of whether perceived need was high ($M = 7.68$) or low ($M = 6.41$). However, in the context of high attitudinal barriers, participants said Sara was likely to seek care only when perceived need was high ($M = 6.51$) compared to when perceived need was low ($M = 3.54$).

Exploratory Aim 2: Perceived Need by Structural Barriers

To test Aim 2, a standard multiple regression was conducted predicting perceived likelihood of seeking care scores from perceived need, structural barriers, and their interaction (see Table 8; see Figure 3). Preliminary analyses indicated no violations of assumptions of normality, linearity, multicollinearity, and homoscedasticity. The overall model was significant, F (1, 982) = 28.34, $p = < .001$, $R^2 = .50$. Both perceived need ($\beta = .23$, $p < .001$) and attitudinal

barriers (β = -.72, p < .001) significantly predicted perceived likelihood of seeking care scores.

The interaction of perceived need and structural barriers (β = .26 p < .001) was also significant.

Participants said Sara was likely to seek care when structural barriers were low regardless of

whether perceived need was high (M = 8.35) or low (M = 7.40). However, in the context of high

structural barriers, participants said Sara was likely to seek care more often when perceived need

was high (M = 6.45) compared to when perceived need was low (M = 4.45).

Exploratory Aim 3: Perceived Need by Participant Ethnicity

An independent samples t-test was used to examine whether participants' ethnicity

predicted likelihood for seeking care scores. There was a significant effect for ethnicity t (984) =

-3.71, p < .001, with Latinxs (M = 8.84, SD = 2.01) reporting Sara would seek care for

depression at higher rates than non-Latinx Whites (M = 6.37, SD = 1.95).

To test Aim 3, a standard multiple regression was conducted predicting perceived

likelihood of care scores from perceived need, ethnicity, and their interaction (see Table 9; see

Figure 4). Preliminary analyses indicated no violations of assumptions of normality, linearity,

multicollinearity, and homoscedasticity. The overall model was not significant, F (1, 982) = .39,

p = .53, R^2 = .19. Perceived need (β = .37, p < .001) predicted perceived likelihood of seeking

care. Ethnicity (β = .09, p = .078) did not significantly predict perceived likelihood of seeking

care scores. The interaction of perceived need and ethnicity (β = .06, p = .530) also was not

significant.

Post-hoc Analysis

Finally, in order to compare participants who had and had not sought mental health

services in the past and their rating on Sara's likelihood to seek care, an independent samples t-

test was conducted. There was a significant effect of participants' prior mental health service use

on likelihood of seeking care scores, t (982) = -2.26, p = .024, d = .15, with individuals who had

sought mental health services in the past (M = 6.37, SD = 2.05) evincing slightly lower

likelihood for seeking care scores than individuals with no prior help-seeking experience (M =

6.68, SD = 1.96). According to Cohen's (1988) interpretation guidelines, the effect of d = .15 is

very small.

Discussion

This study empirically tested theoretical components of the GATE model (Bridges, 2018)

of help-seeking by manipulating levels of perceived need, internal barriers, and structural

barriers as it related to perceived likelihood of seeking care scores through vignette

methodology. All hypotheses were supported: 1) high versus low assessed need better predicted

likelihood of seeking care scores; 2) low versus high attitudinal barriers better predicted

likelihood of seeking care scores; 3) low versus high structural barriers better predicted

likelihood of seeking care scores. My findings suggest structural barriers are the strongest

predictor of help-seeking. Attitudinal barriers moderated the relationship between perceived need

and likelihood of seeking care for depression scores. Structural barriers moderated the

relationship between perceived need and likelihood of seeking care scores. The ethnicity of the

participant did not moderate the effect between perceived need and likelihood of seeking care for

depression scores. Below is a more detailed description of study implications.

Perceived Need

As hypothesized, when scenarios described the main character as agreeing with the

results of a positive depression screener, participants were more likely to say the character, Sara,

would seek care than when Sara was described as disagreeing with the results of the depression

screener. This is consistent with what Sareen et al., (2005) and Mojabai (2007) argue regarding

perceived need as an integral variable informing disparities in access to mental health care.

When a person meets criteria for a mental health disorder but does not believe they have a

problem, they are less likely to access care compared to individuals who do believe they have a

need for services. Recognizing where a patient is in regard to their stage of change (Prochaska

and DiClemente, 1983) or their awareness of their symptoms as a problem, informs the type of

intervention a clinician might use to help increase perceived need for care. For clients who may

meet criteria for a disorder such as depression, a provider may use techniques such as

motivational interviewing (MI; Rollnick & Miller, 1995) or active psychoeducation (Taylor-

Rodgers and Batterham, 2014) to increase the likelihood that a person with low perceived need

for services will seek needed mental health care.

Assessed Need

As hypothesized, when scenarios described the character in the vignette viewing the act

of seeking mental health care for mental health as stigmatizing or weak, participants rated the

character as less likely to seek care than when she was described as viewing seeking mental

health services as a sign of strength. This is consistent with literature on stigma as a barrier to

seeking mental health services (Clement et al., 2015). In this study, the character was sometimes

described as holding attitudinal stigma against seeking services. However, ideas about the self

are informed by social laws, political, and societal practices about a person seeking mental health

services (Clement, 2015). Participants might rate Sara differently if both Sara and her parents did

not have a stigma towards accessing care compared to if Sara and her parents had stigma towards

accessing care. Nonetheless, clinically, Clement et al. (2015) would suggest that interventions

regarding stigma should be informed by the source of the stigma and perceived ramifications

towards accessing care. According to Clement and colleagues, stigma may come from: a

dissonance between a person's perceived self/social identity and mental illness beliefs, anticipated social reactions towards accessing mental health services such as labeling or having a record, personal shame, and stigma from family. Interventions recommended by Clement et al. (2015) include reaffirming the confidential nature of seeking care, having discussions with the client about informed self-disclosure; and helping the client access non-stigmatizing supports systems.

There is also some research suggesting other ways to decrease mental health stigma such as media campaigns (Clement, et al., 2013), knowing someone else who sought care (Vogel, Wade, Wester, Larson, & Hackler, 2007; Alvidrez, 1999), or delivering services in a way that reduces the sense of stigma (e.g., in integrated primary care settings; Shim & Rust, 2013).

Structural Barriers

As hypothesized, when scenarios described the distance and cost of services as low, participants rated the character as more likely to seek care than when the distance and cost of services were high. Such a finding is consistent with literature suggesting structural barriers as an impediment to care. Bridges and Lindly (2008) provide recommendations on how to decrease structural barriers. They recommend reducing economic barriers to service utilization by providing transportation for patients. They additionally recommend for service practitioners and others to advocate for universal health care to provide insurance for all. Also, they recommend helping individuals complete the necessary paperwork for health care coverage. They moreover advise the use of satellite clinics to service areas that are more rural or isolated in an effort to expand the reach of services to the community. Freuh (2015) suggests that a way to increase the likelihood of service utilization is to increase physical accessibility to care. Including options such as telepsychology might help increase the reach of services in areas where geographic

distance serves as a barrier to care. However, it is important to note that not all individuals have access to the internet.

Exploratory Research Aim 1

The GATE Model (Bridges, 2018) posits that accessing care occurs in a sequential manner. The person must first perceive a need for services, then overcome attitudinal barriers, and finally overcome structural barriers. The model makes no assumptions as to the relative importance or difficulty of each step in the help-seeking process; however, the first step is implied as being the most important because without perceived need, help-seeking should not occur. However, the exploratory analysis via multiple regression in this study found structural barriers as the factor with most weight and thus most informing perceived help-seeking likelihood scores. This finding further informs the GATE model (Bridges, 2018). Perhaps, help-seeking does occur in a sequential manner, but the steps towards gaining services might have differential weights, meaning structural barriers may serve as the largest barrier towards accessing care.

Exploratory Research Aim 2

Participants said Sara was more likely to access care for depression when her attitudinal barriers were described as low, regardless of Sara's perceived need for services. This finding is perplexing. Theoretically, a low perceived need would indicate a lower likelihood for seeking services, even if one held no stigmatizing attitudes towards help-seeking. The same pattern held true for the interaction between perceived need and structural barriers: if structural barriers were low, participants rated Sara as being very likely to seek help, even when she was described as having low perceived need for services. It would be worth investigating if the same pattern of results would hold if assessed need were to have been manipulated in the vignettes. Assessed

need was held constant in all the vignettes, meaning that Sara had a high assessed need for services in all scenarios (she had a high depression screening score on an internet quiz). It is possible participants, knowing she actually *did* probably have depression, had a difficult time taking Sara's perspective. It would have been interesting to see if a low assessed need in combination of low perceived need would have differentially impacted the results compared to what was actually tested in this study, which was high assessed need and varying levels of perceived need. Additionally, asking participants if they suspected Sara would change her mind about seeking help the more that time elapsed would get at the dynamic nature of help-seeking.

Exploratory Research Aim 3

An *a priori* hypothesis regarding how perceptions for help-seeking would differ based on participants' ethnicity was not made. Ethnic differences in help-seeking likelihood scores was found, such that Latinx participants were more likely to report higher help-seeking likelihood scores than non-Latinx White participants. However, a moderating effect for ethnicity on perceived need and help-seeking likelihood scores was not found. This finding is supported by work with college students, suggesting that college students in general hold lower rates of stigma and are more likely to access care than older adults (Vidourek, King, Nabors, & Merianos, 2014). It would be interesting to see if the same pattern of results held if the research questions were tested with middle aged individuals living in rural versus urban areas.

Post-hoc Analysis

The small effect of Cohen's $d = .15$ for prior participants' use of mental health services and their likelihood of seeking mental health services scores suggests participants were answering the vignette questions according to what they thought *Sara* would do, and not so much on what they themselves might do if in Sara's situation. This is consistent with the instructions

participants received, which were specifically asking them to consider what they thought the character would do and not to state what they would do if they were in that same situation.

Strengths, Limitations and Future Directions

Prior work on help-seeking has mostly focused on retrospective accounts of accessing care (Kessler et al., 1997; NCS-R; Kessler & Merikangas, 2004). This study was the first to test the theoretical components of the GATE model (Bridges, 2018) using in-the-moment judgments. Using an experimental design with variable manipulations and examining multiple variables and interactions at the same time is a strength of the study.

Nonetheless, this study had several limitations. One limitation of the study was that participants were not asked about actual help-seeking but hypothetical help-seeking. In particular, the study asked about a hypothetical situation describing a person, and not the actual participant. It is unclear if the same pattern of results would have held if we asked participants how likely they would seek care if they lived through Sara's experiences.

A second limitation of this study is that Sara's assessed need for services was not manipulated. Manipulations of Sara's assessed need might have impacted participants' perceptions of help-seeking likelihood. In actual help-seeking, individuals might consult with others or change their opinion about needing services following minutes, hours, days, months or years after an initial assessment of their mental health. If the survey reported Sara's symptoms as mild, compared to moderate or severe, differences in perceptions regarding likelihood of seeking care might have been more varied. Information on the assessed severity of symptoms might inform a person's decision not to seek care, perhaps because they think the symptoms might remit on their own if the severity of their symptoms is described as low.

A third limitation was that participants were not asked how they perceived Sara's

ethnicity. Sara's name was chosen purposely in an effort to leave her ethnicity ambiguous. In research with graphic narratives, individuals are known to fill in the gaps of stories by making inferences based on provided content (Magliano, Kopp, Higgs, & Rapp, 2016). It is possible that when reading vignettes, individuals might have inferred the ethnicity of the participant to be similar to their own, which might have consequently informed likelihood of seeking care scores. Asking participants if they inferred Sara's ethnicity is therefore crucial. Knowing participants responses to this question would provide richer explanations that might inform perception of help-seeking scores. It could be a reason why a moderating effect for ethnicity was not found.

Additionally, another limitation to this study is that the types of structural barriers an individual might face reflects the sociopolitical circumstances of the time. Some ethnic groups experience more structural barriers to service utilization such as racism and discrimination than others. These questions are worth exploring in future studies, perhaps through vignette manipulation.

Likewise, in order to better understand the GATE model (Bridges, 2018), it is important to test different manipulations to ensure the model holds true. In this study, a woman was described as experiencing depression. This was purposefully done because women typically have higher prevalence rates than men for depression (National Institute of Mental Health, 2019). However, it is also known that stigma for mental health needs is lower among women than men (Vidourek, King, Nabors, & Merianos, 2014). Results might have differed if the main character had been described as a man rather than a woman. The same could be true if vignettes included information about a person's religious beliefs, ethnic identity salience, political affiliation, or gender identity. The strongest predictor for help-seeking may change as a consequence of the sociodemographic characteristics that are most salient to a person and their circumstances at a

given time. Additionally, this study showed a snapshot of a person's case at a particular point in time; who is to say a person's opinion might not change later? Thus, the dynamic nature of help-seeking was not fully assessed. Moreover, the vignette described Sara visiting a website to take a depression test. Ambiguity remains whether Sara purposely sought the website or if the website randomly populated on her server as an advertisement. If Sara sought the website, an argument for some perceived need for services, aside from the explicit manipulation, is possible. Making Sara's participation in the online survey appear more serendipitous would further underscore the argument that Sara's score on the online survey was a marker of assessed need and not perceived need.

Another direction in which to test participants' ability to take Sara's perspective on what she would do, could be to have participants answer the likelihood of seeking care questions for themselves (i.e., rather than asking participants "how likely *do* you think it is that *Sara* will obtain care" participants would be asked "how likely would YOU be to obtain care if you were in this position"). Findings could allow researchers to explore how individual differences in participants (personal stigma, history of help-seeking, psychiatric symptoms) relate to their help-seeking intentions in hypothetical vignettes and would be a nice complement to the current study.

Conclusion

Ethnic disparities in access to care for depression have been documented in various epidemiological studies (Alegría et al., 2004; Kessler et al., 1997; Kessler and Merikangas, 2004). In this study, ethnic differences in ratings of perceived likelihood of seeking care based on manipulations of perceived need was not found. Structural barriers were the strongest predictor of likelihood of help-seeking scores. Structural barriers moderated the effect between

perceived need and perceived likelihood of seeking care. Attitudinal barriers also moderated the effect between perceived need and perceived likelihood of seeking care. Assessed need might be a factor worth incorporating into the GATE model (Bridges, 2019). A revised version of the GATE model (Bridges, 2018) is found in Figure 5.

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Table 1

Correlations for study variables by participant ethnicity

Variable	1	2	3	4
Latinx participants				
(1) Perceived Need	-			
(2) Attitudinal Barriers	.07	-		
(3) Structural Barriers	-.09	.03	-	
(4) Perceived Likelihood of Seeking Care	.44**	.36**	.60**	-
Non-Latinx White participants				
(1) Perceived Need	-			
(2) Attitudinal Barriers	.06	-		
(3) Structural Barriers	-.05	.09*	-	
(4) Perceived Likelihood of Seeking Care	.42**	.43**	.56**	-

Note. Correlations between Perceived Likelihood of seeking Care (DV) and PN, IB, and EB are point biserial.

†p < .10. *p < .05. **p < .01. ***p

Table 2

Demographic and background characteristic of participants

N = 987	M(SD) or N(%)
Gender	
Female	648 (65.7%)
Male	339 (34.3%)
Ethnicity	
Latinx	437 (44.3%)
Non-Latinx White	550 (55.7%)
Age, in years	20.51(4.33)
Institution	
University of Arkansas	593 (60.1%)
University of Texas Rio Grande Valley	394 (39.9%)
Grade	
Freshman	477 (48.3%)
Sophomore	221 (22.4%)
Junior	155 (15.7%)
Senior	113 (11.4%)
Fifth year or beyond	21 (2.1%)
Number of college credit hours taken at school	13.95(3.79)
Employment status	
Employed part-time (1-19 hours/week)	209 (21.2%)
Employed part-time (20-39 hours/week)	160 (16.2%)
Employed full time (40+ hours/week)	57 (5.8%)
Unemployed looking for work	207 (21.0%)
Unemployed not looking for work	354 (35.9%)
Family's annual household income last year of high school	
$0-19,999	114 (11.6%)
$20,000-39,999	181 (18.4%)
$40,000-59,999	125 (12.7%)
$60,000-79,999	122 (12.4%)
$80,000-99,999	89 (9.0%)
$100,000-149,999	137 (13.9%)
$150,000-249,999	122 (12.4%)
$250,000+	94 (9.6%)
Currently have health insurance (HI)	
Yes	724 (73.4%)
No	198 (20.1%)
Don't Know	64 (6.5%)
Prior mental health (MH) help-seeking	
Yes	297 (30.10%)
No	687 (69.6%)
Missing	3 (.3%)

Table 3

Demographic and background characteristic of participants by university affiliation

Variable N = 987	U*of*A M(SD) or N(%)	UTRGV M(SD) or N(%)	Test Statistic	p
Gender			$X^2 = 3.08$	0.08
Female	376 (63.4%)	272 (69.0%)		
Male	217 (36.6%)	122 (31.0%)		
Ethnicity			$X^2 = 599.09$	<.001
Latinx	75 (12.6%)	362 (91.9%)		
Non-Latinx White	518 (87.4%)	32 (8.1%)		
Age, in years	19.48(2.7)	22.06(5.66)	$t = -8.42$	<.001
Grade			$X^2 = 208.51$	<.001
Freshman	379 (63.9%)	98 (24.9%)		
Sophomore	134 (22.6%)	87 (22.1%)		
Junior	54 (9.1%)	101 (25.6%)		
Senior	21 (3.5%)	92 (23.4%)		
Fifth year plus	5 (0.8%)	16 (4.1%)		
Credits taking at school	15.47 (2.07)	11.68 (4.57)	$t = 15.49$	<.001
Employment status			$X^{2-} = 130.00$	<.001
Part-time (1-19 hrs./wk.)	129 (21.8%)	80 (20.3%)		
Part-time (20-39 hrs./wk.)	58 (9.8%)	102 (25.9%)		
Full-time (40+ hrs./wk.)	8 (1.3%)	49 (12.4%)		
Unemployed looking	126 (21.2%)	81 (20.6%)		
Unemployed not looking	272 (45.9%)	82 (20.8%)		
Family's annual household income last year of high school			$X^2 = 363.97$	<.001
$0-19,999	21 (3.5%)	93 (23.7%)		
$20,000-39,999	40 (6.8%)	141 (36.0%)		
$40,000-59,999	58 (9.8%)	67 (17.1%)		
$60,000-79,999	81 (13.7%)	41 (10.5%)		
$80,000-99,999	67 (11.3%)	22 (5.6%)		
$100,000-149,999	122 (20.6%)	15 (3.8%)		
$150,000-249,999	112 (18.9%)	10 (2.6%)		
$250,000+	91 (15.4%)	3 (0.8%)		
Currently have HI			$X^2 = 285.69$	<.001
Yes	547 (92.4%)	177 (44.9%)		
No	22 (3.7%)	176 (44.7%)		
Don't know	23 (3.9%)	41 (10.4%)		
Prior MH help-seeking				
Yes	193 (65.0%)	104 (35.0%)	$X^2 = 4.30$	=.038
No	398 (57.9%)	289 (42.1%)		

Table 4

Demographic and background characteristic of participants by ethnicity

Variable N = 987	Latinx M(SD) or N(%)	Non-Latinx M(SD) or N(%)	Test Statistic	p
Gender			$X^2 = .79$	.37
Female	294 (67.3%)	354 (64.4%)		
Male	143 (32.7%)	196 (35.6%)		
Age, in years	21.48 (5.17)	19.74 (3.32)	$t = -6.12$	<.001
Grade			$X^2 = 141.73$	<.001
Freshman	130 (29.7%)	347 (63.1%)		
Sophomore	102 (23.3%)	119 (21.6%)		
Junior	104 (23.8%)	51 (9.3%)		
Senior	86 (19.7%)	27 (4.9%)		
Fifth year plus	15 (3.7%)	6 (1.1%)		
Credits Taking at School	12.34 (4.47)	15.23 (2.51)	$t = 12.08$	<.001
Employment Status			$X^2 = 92.93$	<.001
Part-time (1-19 hrs./wk.)	89 (20.4%)	120 (21.8%)		
Part-time (20-39 hrs./wk.)	111 (25.4%)	49 (8.9%)		
Full-time (40+ hrs./wk.)	42 (9.6%)	15 (2.7%)		
Unemployed looking	91 (20.8%)	116 (21.1%)		
Unemployed not looking	104 (23.8%)	250 (45.5%)		
Family's annual household income last year of high school			$X^2 = 339.02$	<.001
$0-19,999	90 (20.7%)	24 (4.4%)		
$20,000-39,999	149 (34.3%)	32 (5.8%)		
$40,000-59,999	77 (17.7%)	48 (8.7%)		
$60,000-79,999	52 (12.0%)	70 (12.8%)		
$80,000-99,999	23 (5.3%)	66 (12.0%)		
$100,000-149,999	24 (5.5%)	113 (20.6%)		
$150,000-249,999	17 (3.9%)	105 (19.1%)		
$250,000+	3 (0.7%)	91 (16.6%)		
Currently have HI			$X^2 = 208.5$	<.001
Yes	222 (50.8%)	502 (91.4%)		
No	168 (38.4%)	30 (5.5%)		
Don't Know	47 (10.8%)	17 (3.1%)		
Prior MH Help-Seeking				
Yes	111 (37.4%)	186 (62.6%)	$X^2 = 8.29$	<.01
No	325 (47.3%)	362 (52.7%)		

Table 5

Statistics for sample by likelihood of seeking care

Variable	Likelihood of Seeking Care M(SD) n	Test Statistic	Cohen's d
Ethnicity		$t(984) = -3.71, p < .001$	0.24
Latinx	6.84 (2.01) $n = 437$		
Non-Latinx White	6.37 (1.95) $n = 549$		
Perceived need		$t(984) = -14.76, p < .001$	0.96
High	7.21 (1.67) $n = 635$		
Low	5.44 (2.02) $n = 351$		
Attitudinal barriers		$t(984) = 13.59, p < .001$	0.87
High	5.56 (2.07) $n = 371$		
Low	7.20 (1.67) $n = 615$		
Structural barriers		$t(984) = 22.09, p < .001$	1.49
High	5.69 (1.76) $n = 612$		
Low	8.05 (1.39) $n = 374$		
Participants sought MH care in the past			
Yes	6.37 (2.05) $n = 297$	$t(982) = -2.26, p = .024$	0.15
No	6.68 (1.96) $n = 687$		

Table 6

Correlations, means, standard errors and standard multiple regression of perceived need (PN),
attitudinal barriers (AB), and structural barriers (SB) on perceived likelihood of care scores
(PLOC)

Variables	LOC	PN	AB	SB	B	β	sr^2 (unique)
PN	.43				1.73***	0.42	.56
AB	-.40	.06			-1.60***	-0.39	-.54
SB	-.60	-.07	.06		-2.15***	-0.52	-.65
				Intercept =	7.40***		
Means	6.58	.64	.38	.62			$R^2 = 63$
SDs	1.99	.48	.48	.48		Adjusted	$R^2 = 63$
							R = .80***

*** $p < .001$

40

Table 7

Standard multiple regression of perceived likelihood of care (PLOC) predicted from perceived need (PN), attitudinal barriers (AB), and their interaction (PN x AB)

Predictor	Mean	SD	B	β	95% CI for B	
PLOC	6.58	1.99				
PN	0.64	0.48	1.27***	.30	1.01	1.52
AB	0.38	0.49	-2.89***	-.70	-3.23	-2.54
PN x AB	0.26	0.44	1.72***	.38	1.30	2.14

Table 8

Standard multiple regression of perceived likelihood of care (PLOC) predicted from perceived need (PN) and structural barriers (SB)

Predictor	Mean	SD	B	β	95% CI for B	
PLOC	6.58	1.99				
PN	.64	.48	0.95***	.23	.64	1.23
SB	.62	.49	-2.95***	-.72	-3.26	-2.64
PN x SB	.38	.49	1.05***	.26	.66	1.43

Table 9

*Standard multiple regression of perceived likelihood of care (PLOC) predicted from perceived
need (PN) and ethnicity*

Predictor	Mean	SD	B	β	95% CI for B	
PLOC	6.58	1.99				
PN	0.64	0.48	1.55	0.37	0.83	2.26
Ethnicity	1.44	0.50	0.34	0.09	-0.04	0.72
PN x Ethnicity	0.93	0.80	0.15	0.06	-0.32	0.62

Figures
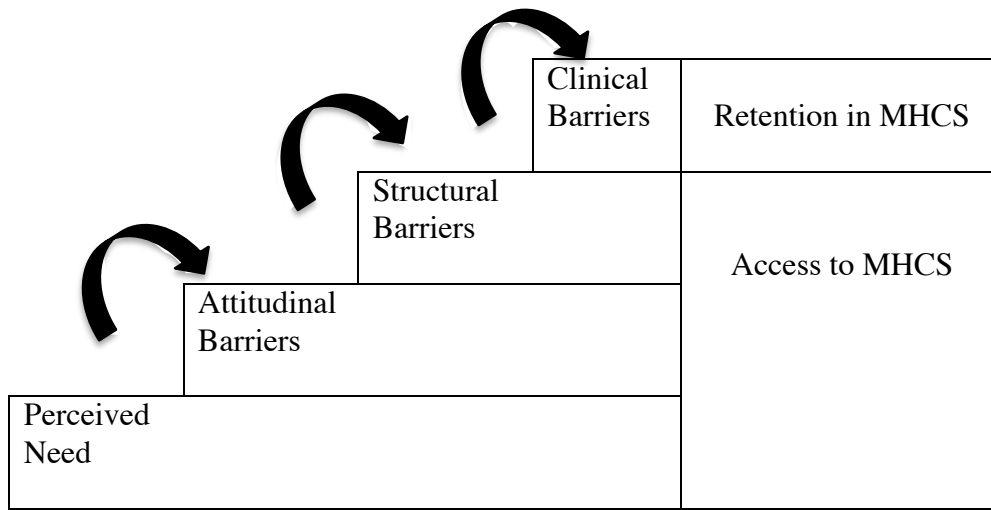
Figure 1. The Gaining Access to Treatment Equity Model (Bridges, 2018).
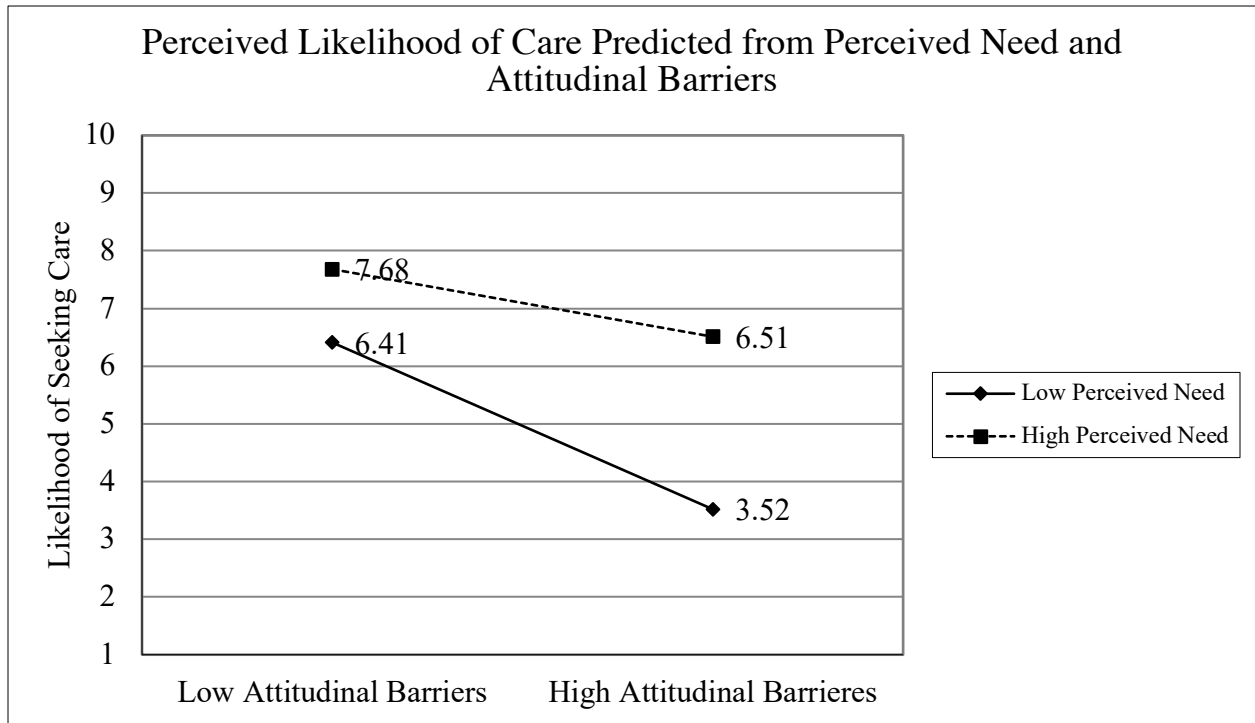
Figure 2. Comparisons of mean likelihood of seeking care ratings between perceived need and attitudinal barriers.
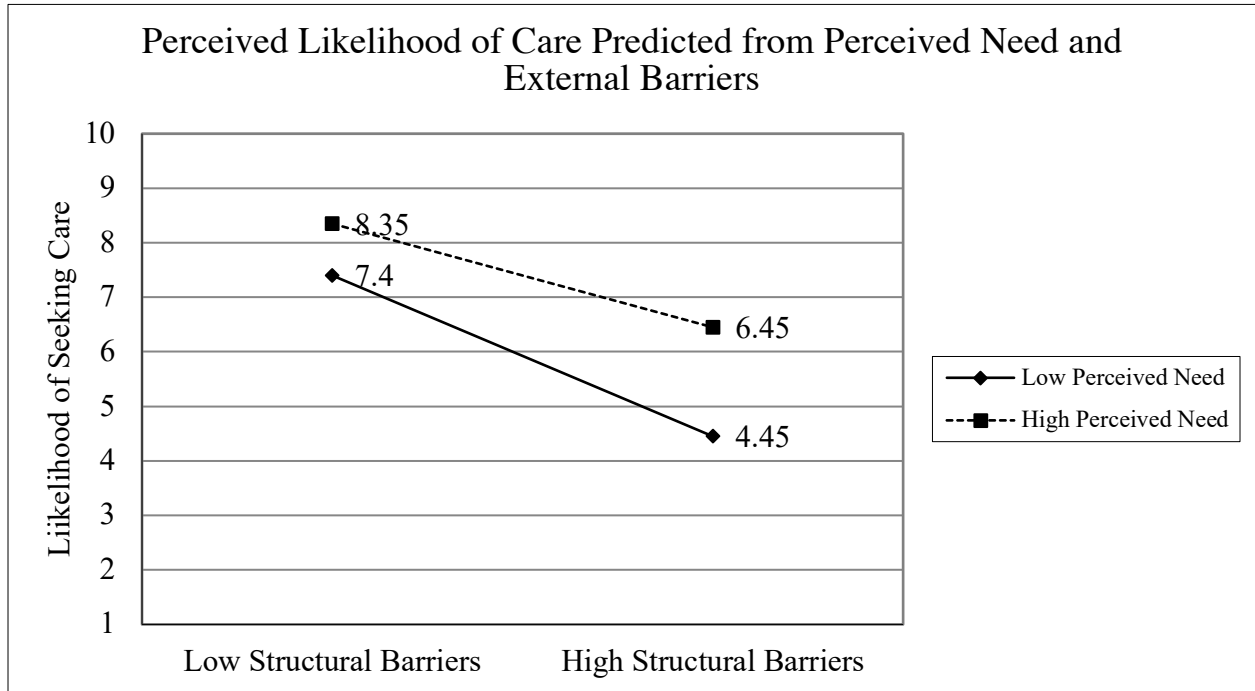
Figure 3. Comparisons of mean likelihood of seeking care ratings between perceived need and structural barriers.
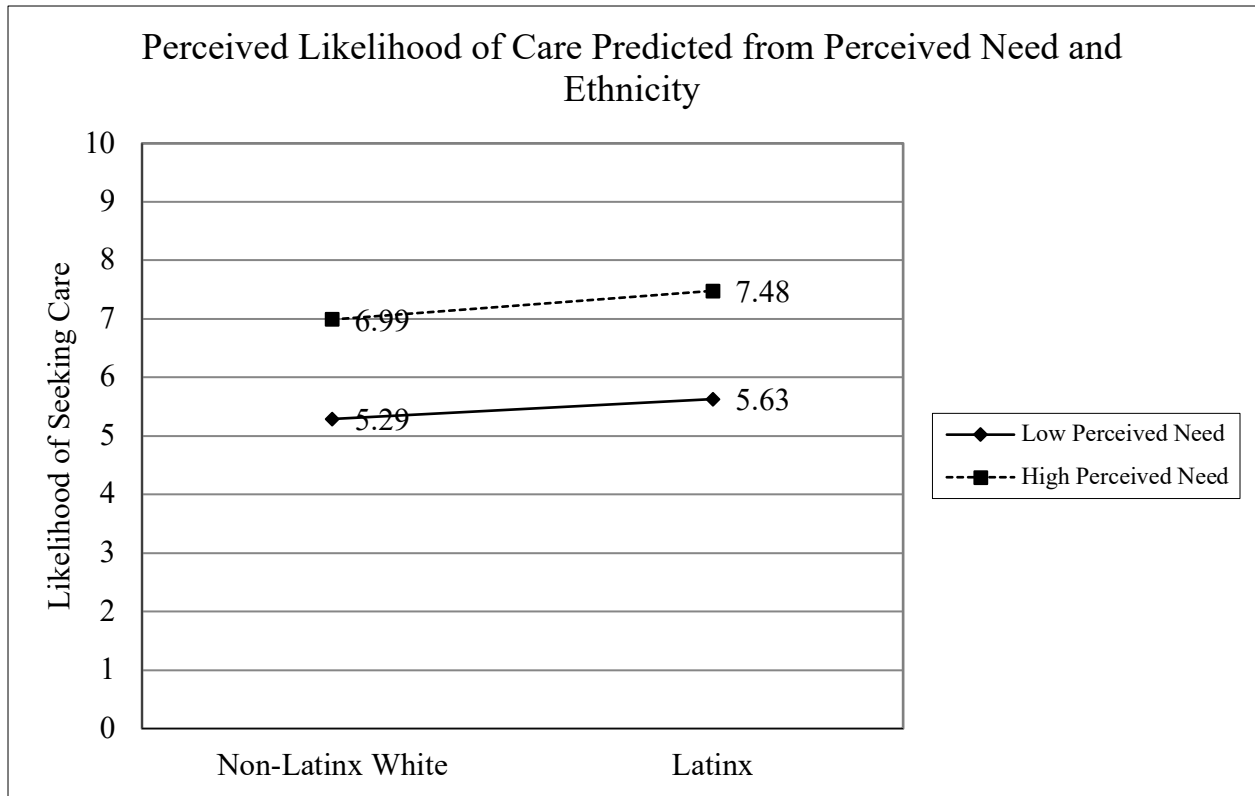
Figure 4. Comparisons of mean likelihood of seeking care ratings between perceived need and participant ethnicity.

Clinical Barriers	Retention in MHCS
Structural Barriers	
Attitudinal Barriers	Access to MHCS
Perceived Need	
Assessed Need	
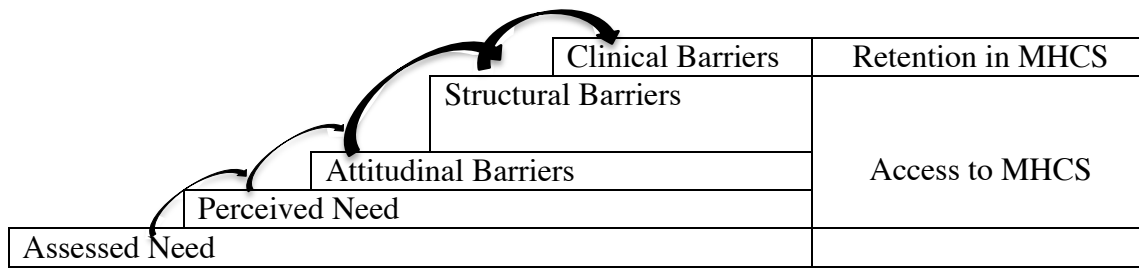
Figure 5. Revised Gaining Access to Treatment Equity Model.

Appendices

Appendix A: Study Description

Abstract: This study is about better understanding possible obstacles that individuals might encounter when seeking care for depression.

Description: You will complete an online survey. The survey includes reding a story about a person, then answering some questions about the story. You will also be asked some questions about your own moods, attitudes, and beliefs.

Eligibility requirements: Latinx or Non-Latinx White race/ethnicity

Appendix B: Institutional Review Board Approval Letter

UNIVERSITY OF ARKANSAS

To:	Linda E Guzman
From:	Douglas James Adams, Chair
	IRB Committee
Date:	12/19/2018
Action:	**Exemption Granted**
Action Date:	12/19/2018
Protocol #:	1810153886
Study Title:	Help-Seeking Attitudes

The above-referenced protocol has been dete — d to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: Ana Julia Bridges, Investigator

Appendix C: Procedure Flow Chart

Recruitment

Participants who identify as Latinx or Non-Latinx Whites are recruited via Sona from either the University of Arkansas or The University of Texas at Rio Grande Valley. Participants not meeting demographic criteria are excluded. Randomization is blocked by University affiliation.

Consent

Participants consent to participate in the experiment. They will earn course credit for their participation. Participants are excluded if they do not consent.

Experiment

Participants reads the vignette. Participants complete a manipulation check and must score 100% in order to ensure they understood the content of the vignette. Participants have two opportunities to pass the manipulation. Later, participants answer the likelihood of care and the transtheoretical model of change question. Lastly, participants provide their own demographic characteristics.

Debrief

Participants learn about the purpose of the study, are provided with a list of resources at their campus and are award credit via Sona for their participation.

Appendix D: Consent to Participant in an Experimental Study

TITLE: Help-Seeking Attitudes

RESEARCHERS:
Linda E. Guzman, B.A.
Ana J. Bridges, Ph.D.
University of Arkansas
Department of Psychological Science
Fayetteville, AR 72701
leguzman@uark.edu

COMPLIANCE CONTACT PERSON:
Ro Windwalker, IRB Coordinator
Office of Research Compliance
109 MLKG Building
1424 West Martin Luther King Jr.
Fayetteville, AR 72701
479-575-2208; irb@uark.edu

RESTRICTIONS: You must be at least 18 years old and non-Hispanic White or Latinx to participate in this experiment.

PURPOSE: This study is about better understanding possible obstacles that individuals might encounter when seeking care for depression.

DURATION: This study should take about 30 minutes to complete.

DESCRIPTION: In this study, you will read a story. Then you will answer some questions about the story. Finally, you will complete some self-report measures that assess your mood, attitudes, and beliefs.

RISKS AND BENEFITS: There are no anticipated risks to participating in this study. The story describes a stressful situation, which may be temporarily upsetting to you. You are free to skip over any items you'd like. The benefits include earning research credits (½ credit per 30 minutes of participation) toward your Psychology research requirement or course extra credit. You will also be contributing to research that will expand our understanding of how individuals seek help.

VOLUNTARY PARTICIPATION: Your participation in this research is completely voluntary. There are other options that are available for you to complete your Psychology research requirement or course extra credit. There are no payments for participating in this study. You are not obligated to participate, and you may leave any of the questions blank or stop participating in the study at any time.

CONFIDENTIALITY: Your name will be kept separate from any materials; all of your responses will be recorded confidentially and, once data collection is complete, your name will be removed to render the data anonymous. All information you provide will be kept confidential to the extent allowed by law and University policy.

RIGHT TO DISCONTINUE: You are free to refuse to participate in the research and/or to discontinue this study at any time. If at any time you wish to discontinue your participation, just inform the experimenter and you will be excused. Your decision to discontinue will bring no negative consequences—no penalty to you. If you choose to discontinue at any point during the experiment you will be given credit for the amount of time you spent in the study.

INFORMED CONSENT: I have read the description, including the purpose of the study, the procedures to be used, the potential risks and benefits, the confidentiality, as well as the option to discontinue participation at any time. I believe I understand what is involved in this study. By signing below, I am indicating that I freely agree to participate in this study.

Signature: _____ Date: _____

Appendix E: Vignette

Participants were randomized to receive 1 of 8 vignettes.

Vignette composed of the following parts:
1) Standardized Story
2) Perceived Need   (manipulation: high or low)
3) Attitudinal Barriers (manipulation: high or low)
4) Structural Barriers (manipulation: high or low)

INSTRUCTIONS: Please take your time to read the following story as you will be asked to answer questions regarding the story's content.

Standardized Story

Sara is a 22-year-old woman in her last year of college hoping to become a veterinarian who works part-time as a paramedic for her local hospital as a way to pay for school. One evening, Sara was on a call that required for the patient to have intravenous (IV) fluids. Sara administered the IV to the patient, but the patient moved, and Sara accidently stuck herself with the patient's IV needle. The patient was a person affected by HIV and later Sara found out that she had contracted the virus. Once she found out about her health condition, she broke the news to her boyfriend, whom she had been dating for the past two years. This news was too much for him, and he decided to end the relationship. The breakup devastated Sara.

Following the breakup, she was unable to concentrate. To cope with her health diagnosis, her recent break-up with her boyfriend, and her accumulating coursework, Sara started drinking a bottle of wine every couple of days. Sara stopped attending classes, lost her desire to hang out with friends and to go to work. Because of her struggles, Sara asked for and was granted a leave from school. She moved back in with her parents' spare room and has been at home for the last month. Since then, she has not showered, and constantly thinks about dying and how it would not be bad if she were to not wake up one day. Her parents have been away visiting family and are not aware of Sara's struggles. Sara is finding it harder to find a reason to live and has thought about taking all of her medications to "end it all." To avoid leaving her parent's home, she has resorted to having pizza delivered to her house every day. One evening, while browsing the internet, she came upon an online questionnaire that assessed for depression. She decided to take the questionnaire.

Sara scored in the 80th percentile for depression symptoms. The online feedback form told her she likely suffered from clinical depression and recommended she seek professional help immediately. It also provided a list of local therapists and mental health centers Sara could call to seek an appointment.

	1 $n = 127$	2 $n = 127$	3 $n = 252$	4 $n = 118$	5 $n = 118$	6 $n = 115$	7 $n = 0$	8 $n = 130$
Perceived Need	High	High	High	Low	Low	Low	Low	High
Attitudinal Barriers	High	High	Low	High	Low	Low	High	Low
Structural Barriers	High	Low	High	High	Low	High	Low	Low

Appendix E: Vignette continued

Perceived Need

High   Sara reread the information on the web page before closing it and said aloud "That is a strange test. I think they may be totally right though. Maybe I do have depression because I've been going through a rough time."

Low   Sara read the information web page before closing it and said aloud "That is such a stupid test. They are totally wrong. I DON'T have depression; I'm just going through a rough time."

Attitudinal Barriers

High   Sara could not stop thinking about those words from the website: clinical depression, professional help, mental health. They were scary words to her. Sara had always believed people used depression as a way to excuse their behavior and a way to not take responsibility for themselves. She always prided herself on being active, in charge, and able to handle the stressors of life. As a paramedic, Sara had faced many stressful situations. Some of her colleagues would talk about how tough the job was or how much they felt traumatized by what they had seen when responding to fatal accidents and other situations, but Sara thought these were a sign of weakness. When one of her friends had gone to a counselor because she had a hard time dealing with college, Sara had thought she was weak and pitiful. And when her dorm mate admitted to taking medication for anxiety, Sara thought it was a bit embarrassing and was surprised she had admitted it to her so easily.

Low   Sara could not stop thinking about those words from the website: clinical depression, professional help, mental health. They were scary words to her. Sara never believed people used depression to excuse their behavior and a way to not take responsibility for themselves; she knew depression was a real thing. She had always prided herself on being active, in charge, and able to handle the stressors of life. As a paramedic, Sara had faced many stressful situations. Some of her colleagues would talk about how tough the job was or how much they felt traumatized by what they had seen when responding to fatal accidents and other situations, and Sara thought these were a sign of strength. When one of her friends had gone to a counselor because she had a hard time dealing with college, Sara had thought she was brave and admirable. And when her dorm mate admitted to taking medication for anxiety, Sara thought it showed good judgment and was pleased she had admitted it to her so easily.

Structural Barriers

High   As she thought about the names and numbers of local mental health centers, Sara realized all of them were many miles from her parents' home. She also knew, because she was on her parent's health insurance plan, that her insurance did not cover mental health care and that she would need to pay money out of pocket for those services. The center did not had appointments available during evenings and weekends

Low   As she thought about the names and numbers of local mental health centers, Sara realized one of them was less than a mile from her home. She also knew, because she was on her parent's health insurance plan, that she had good insurance that covered mental health care and that she would not need to pay any money out of pocket for those services. The center even had appointments available during evenings and weekends

1. Appendix F: Manipulation Questions

1. What did the online survey say about Sara's symptoms?
    a. Likely has depression
    b. Likely does not have depression
2. Does Sara believe that she had a mental health care need?
    a. Yes
    b. No
3. What is Sara's opinion about mental health care?
    a. Good
    b. Bad
4. Does Sara have the means to afford mental health care?
    a. Yes
    b. No

Appendix G: Likelihood for Care Questionnaire

INSTRUCTION: Please answer all questions and provide a rational (e.g. Why did you select that number? _____).

1) Knowing what you know about Sara, how likely do you think that she will obtain care?

1	2	3	4	5	6	7	8	9	10

Not very likely   Somewhat likely   Absolutely likely

2) Do you think that Sara *wants* to get help?

1	2	3	4	5	6	7	8	9	10

Does not want help   Somewhat wants help   Absolutely wants help

3) Do you think that Sara *sees a need* for seeking help?

1	2	3	4	5	6	7	8	9	10

Does not see a need   Somewhat sees a need   Absolutely sees a need

4) Do you think that it *would be easy* for Sara to get help if she wanted it?

1	2	3	4	5	6	7	8	9	10

Not very easy   Somewhat easy   Most difficult

5) Do you think that Sara would *benefit* from getting help?

1	2	3	4	5	6	7	8	9	10

Not likely to benefit   Somewhat likely to benefit   Most likely to benefit

6) Do you think that she would *face many challenges* to trying to get help?

1	2	3	4	5	6	7	8	9	10

Not likely to face challenges   Somewhat likely to face challenges   Most likely to face challenges

Appendix G: Likelihood for Care Questionnaire Continued

7) Do you think that Sara <u>will be able to overcome these challenges</u>?

1	2	3	4	5	6	7	8	9	10

Not very   Somewhat   Most likely
likely   likely

8) Do you think that Sara is likely to <u>call and make an appointment</u>?

1	2	3	4	5	6	7	8	9	10

Not very   Somewhat   Most likely
likely to call   likely to   to call
                  call

9) Do you think that Sara <u>will keep her appointment</u> if she makes one?

1	2	3	4	5	6	7	8	9	10

Not very   Somewhat   Most likely
likely to   likely to   to keep her
keep her   keep her   appointment
appointment   appointment

10) Do you think that Sara is <u>likely to return for another visit</u> after her first appointment?

1	2	3	4	5	6	7	8	9	10

Not very   Somewhat   Most likely
likely to   likely to   to return
return   return

11) Which of the following do you think best describes Sara's view right now?
   a) Sara is not thinking about getting care at all.
   b) Sara is thinking perhaps she might get care at some point in the future.
   c) Sara is thinking about calling for mental health care soon (in the next month).
   d) Sara is going to call for a mental health appointment right away (in the next day or two).
       Why did you select that option? _____

Appendix H: Demographic Questionnaire

INSTRUCTIONS: Please fill out the following information. Please note that this information is solely for research purposes to better understand the sample of individuals who participated in the study and will not be shared with individuals outside of the research team.

1. Sex: Male   Female   Non-Binary
2. Age: 18   19   20   21   22   23   24   25
3. Ethnicity:
   ____ Caucasian / White   ____ Hispanic / Latino
   If Hispanic/Latino, please specify by circling all that apply:
   Mexican American; South American; Puerto Rican; Cuban; Central American; Other: __
4. Country of your Birth:
   a. United States
   b. Mexico
   c. Country other than the United States or Mexico. Please specify: _____
5. Country of mother's birth:
   a. United States
   b. Mexico
   c. Country other than the United States or Mexico. Please specify: _____
6. Country of father's birth
   a. United States
   b. Mexico
   c. Country other than the United States or Mexico. Please specify: _____
7. At what age did you move to the United States?
   (Write N/A if you were born in the United States)   _____
8. If born in another country, how long have you been living in the United States?
   (Write N/A if you were born in the United States)   _____
9. Country that you have lived in most of your life   _____
   a. How long have you lived there?   _____
10. Which country do you most identify with most culturally?   _____
11. We are all human, but if you could describe yourself, how would you?
    American   Latinx-American
    Latinx   Mexican-American   Other: _____

10. Please describe your family's household income during your last year of high-school. An estimate, not an exact amount, is what is sought for:
    $0 - 9,999
    $10,000 - 19,999
    $20,000 - 29,999
    $30,000 - 39,999
    $40,000 - 49,999
    $50,000 - 99,999
    $100,000 - 249,999
    $250,000+
11. Do you currently have health insurance? Yes; No
12. Have you ever visited a counselor for a mental health problem? Yes; No

Appendix I: Debrief Form

HELP-SEEKING ATTITUDES STUDY

Thank you for participating in this study. We appreciate your efforts and patience.

The purpose of this study is to investigate the role that different barriers to care (such as transportation, cost, and perceived need) play in the decision to seek help from mental health services. You were randomly assigned to read a story about a woman with depression. There were actually 8 different stories; you only read one of them. The stories were different in the types of barriers the individual in the story experienced. We then asked you to rate the likelihood that the described individual would seek care and asked you about your own history with seeking care from mental health services.

We ask that you do not discuss this study with others, at least until the end of the academic year, because it could ruin the study for other participants.

We believe this study is important because it will give us more insight into how people do or do not get help for depression. Many people who have depression do not get any kind of help. We want to better understand why so that we can get more people the services they need.

If you are interested in learning more about depression, the National Institute of Mental Health's (NIMH) website provides good science-based information that you may find helpful: https://www.nimh.nih.gov/health/topics/depression/index.shtml.

If you or someone you know is struggling with a mental health problem such as depression, there are services available to you. These include:

- For U of A:
    Psychological Clinic (phone: 479-575-4258; website: https://fulbright.uark.edu/departments/psychological-science/psychologicalclinic/index.php)
    Counseling and Psychological Services (phone: 479-575-5276; website: https://health.uark.edu/mental-health/index.php)
    Psychology and Counseling Associates (phone: 479-443-5575; website: https://www.pca-nwa.com/)
- For UTRGV:
    Counseling Center Brownsville Location (phone: 956-882-3897; website: https://www.utrgv.edu/counseling/services/counseling/index.htm)
    Counseling Center Edinburg Location (phone: 956-665-25741; website: https://www.utrgv.edu/counseling/services/counseling/index.htm)

Please note the University of Arkansas and the University of Texas at Rio Grande Valley are not responsible for any costs you may incur as a function of seeking such treatment.

If you have any questions or concerns regarding this study, or would like to learn about the results, please contact Linda Guzman at leguzman@uark.edu or Dr. Ana Bridges at abridges@uark.edu. For questions about the ethical conduct of the study, please contact Ro Windwalker at irb@uark.edu.

Again, thank you for your participation!