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Entertainment Education for Depression in Latinx Adults: Testing Mediators and Moderators of a Culture-Centric Narrative Intervention to Promote Help-Seeking Behavior

A dissertation submitted in partial satisfaction of the

requirements for the degree of Doctor of Philosophy

in Psychology

by

Louise Emma Dixon De Silva

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ABSTRACT OF THE DISSERTATION

Entertainment Education for Depression in Latinx Adults:
Testing Mediators and Moderators of a Culture-Centric
Narrative Intervention to Promote Help-Seeking Behavior

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Louise Emma Dixon De Silva
Doctor of Philosophy in Psychology
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Professor Denise Chavira, Chair

Although rates of depression are similar in Latinx populations compared to non-Latinx whites, there are significant disparities in service utilization. Mental health literacy – one's knowledge and attitudes about mental health and treatment-seeking – is a significant predictor of help-seeking behavior and likely contributes to mental health disparities among Latinx. Understanding ways to improve mental health literacy in Latinx populations is important to reducing these disparities. Health literacy interventions that are engaging, dramatic, and culturally-relevant, such as *fotonovelas* (graphic novels designed to change health-related knowledge and attitudes), show promise in changing mental health literacy in Latinx populations. However, little is known about how these interventions work and for whom they are most effective. Furthermore, although there is some evidence that *fotonovelas* can change mental

health attitudes and intent to seek treatment, their impact on help-seeking behavior is less understood. The purpose of this study is to examine 1) if a *fotonovela* is superior to a standard mental health literacy intervention in promoting help-seeking behavior among Latinx adults with depression symptoms, 2) if narrative and cultural elements of a *fotonovela* (i.e., transportation, identification, and social proliferation) for Latinx with depression are important mediators in changing mental health attitudes and help-seeking behaviors, and 3) if factors such as geographic region, depression severity and barriers to treatment moderate these relationships. This study utilized a randomized controlled design and recruited Latinx participants (N = 176) from both urban (n = 123) and rural (n = 53) communities all with mild, moderate, or severe symptoms of depression. Results showed that, compared to individuals who received a standard health literacy intervention (i.e., control group), individuals who received the *fotonovela* were more likely to seek mental health care 3 months later, reported greater transportation and identification with the narrative, and that transportation and identification mediated some of the relationships between intervention group and attitudes and beliefs about mental health. However, changes in attitudes and beliefs did not mediate the relationship between intervention group and help-seeking. Implications for entertainment education mental health literacy interventions are discussed.

The dissertation of Louise Dixon De Silva is approved.

Leopoldo Cabassa

Michelle G. Craske

Annette Stanton

Denise Chavira, Committee Chair

University of California, Los Angeles

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Table of Contents

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Louise E. Dixon De Silva, MA, CPhil

University of California, Los Angeles
Department of Psychology

Curriculum Vita

EDUCATION

PhD 2021 — **University of California, Los Angeles**, Los Angeles, California
APA-Accredited Program: Clinical Psychology
Minor: Quantitative Psychology
Dissertation: *Entertainment Education for Depression in Latinx Adults: Testing Mediators and Moderators of a Culture-Centric Narrative Intervention to Promote Help-Seeking Behavior*
Committee: Denise Chavira, PhD (chair), Michelle G. Craske, PhD, Annette Stanton, PhD, Leopoldo Cabassa, PhD
Advanced to Candidacy: December 2018

2020-2021 — **Long Beach Veterans Affairs Healthcare System,** Long Beach, California
APA-Accredited Psychology Internship

MA 2016 — **University of California, Los Angeles**, Los Angeles, California
APA-Accredited Program: Clinical Psychology
Thesis: *Psychosocial Prevention Interventions for PTSD: A Meta Analysis*
Advisors: Denise Chavira, PhD, Bruce Chorpita, PhD

BA 2013 — **Wellesley College**, Wellesley, MA
Major: Psychology

SELECTED RESEARCH EXPERIENCE

Culture and Anxiety Lab for Mental Health Advances — **Los Angeles, CA**
UCLA Department of Psychology
Graduate Student Research Assistant — Sep 2015 – Jun 2021
Supervisor: Denise Chavira, PhD
Lab Focus: Examine how family environment and cultural factors such as acculturative stress, immigration, and conceptualizations of psychological problems influence anxiety and depression in diverse families.

UCLA Depression Grand Challenge — **Los Angeles, CA**
UCLA Health Department of Psychiatry
Graduate Student Research Fellow — Sep 2017 – Jun 2020
Supervisors: Michelle Craske, PhD and Eliza Congdon, PhD
Lab Focus: Understand the biological, psychological, and social/environmental causes of depression using a 100,000 person cohort. Better treat those with depression using novel treatment methods.

SELECTED PUBLICATIONS

Ponting, C., **Dixon De Silva, L. E**., Chodzen, G., Bocanegra, E., & Chavira, D. (2020). Responding to calls for racial justice in intervention science: The dialectic. *The Behavior Therapist, 43*(6), 200-205.

Dixon De Silva, L. E., Ponting, C., Rapp, A., Escovar, E., Camacho, A., & Chavira, D. (2020). Trauma exposure in rural Latinx adolescents and internalizing symptoms: The mediating role of family variables. *Child Psychiatry and Human Development.*

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SELECTED CLINICAL EXPERIENCE

Long Beach Veterans Affairs Healthcare System **Long Beach, CA**
Chief Psychology Intern Aug 2020 – Jul 2021

Screening and Treatment for Anxiety and Depression (STAND) Clinic **Los Angeles, CA**
UCLA Depression Grand Challenge
Psychology Fellow (4th and 5th Yr Practicum) Mar 2018 – Jun 2020

Harbor UCLA Medical Center: Adult Outpatient Psychiatry **Torrance, CA**
Psychology Extern (3rd Yr Practicum) Sep 2017 – Aug 2018

UCLA Anxiety and Depression Research Center **Los Angeles, CA**
Study Therapist: Treatment of Affective Dimensions Study (2nd Yr Practicum) Sep 2016 – Jun 2017
Supervisors: Michelle Craske, PhD and Michael Treanor, PhD

SELECTED ACADEMIC SERVICE ACTIVITIES

Ad Hoc Reviewer
Clinical Psychology Review
Clinical Psychology and Psychotherapy
Comprehensive Psychiatry
Journal of Clinical Child and Adolescent Psychology
Journal of Rural Mental Health
Cognitive Therapy and Research
Journal of Traumatic Stress

Conference Reviewer
2016 – 2020 University of California, Los Angeles Psychology Undergraduate Research Conference

Introduction

Latinx are a growing segment of the United States population. The Pew Research Center reported that the Latinx population in the US reached a new high of 58 million in 2016, accounting for 18% of the US population and representing the second-largest racial/ethnic group behind non-Latinx whites (NLW; Flores, 2017). Overall, Latinx have rates of psychiatric disorders that are mostly comparable to NLW. However, some Latinx sub-groups (e.g., Puerto Ricans, US-born Mexicans) show greater risk for some forms of psychopathology such as depression and anxiety (e.g., Dunlop, Song, Lyons, Manheim, & Chang, 2003; González, Tarraf, Whitfield, & Vega, 2010); and some studies estimate that among Latinx immigrants, 26% have clinically significant symptoms of depression (Coffman & Norton, 2010). Furthermore, for specific disorders such as depression and social anxiety, Latinx adults have a longer duration of illness (i.e., chronicity) and greater functional impairment when compared to NLW (González et al., 2010).

In contrast to mostly similar prevalence rates of mental disorders, numerous studies suggest that Latinx are less likely to use mental health services than NLW even after controlling for socioeconomic status (SES), insurance coverage, and disorder severity (Alegría et al., 2002; Cook, McGuire, & Miranda, 2007; Dobalian & Rivers, 2008; Wang et al., 2005), and among those with a clinical need, only 20-30% seek services (Alegría et al., 2007; Vera et al., 1998). When Latinx do seek mental health care, they are more likely to leave treatment prematurely and receive services of lesser quality than their NLW counterparts. These findings are most robust when considering Latinx who are less acculturated, recent immigrants, or monolingual Spanish-speakers (Alegría et al., 2007; Cabassa, Zayas, & Hansen, 2006).

There are significant barriers that contribute to mental health service use disparities in Latinx communities (Cabassa, Zayas, & Hansen, 2006; Glanz, Rimer, & Viswanath, 2015; Ojeda & Bergstresser, 2008). These barriers include individual-level factors, such as knowledge about mental health and attitudes such as perceived need for treatment, beliefs about mental illness and treatment, and stigma (Mojtabai et al., 2011; Sareen et al., 2007). Other barriers include provider-level factors such as linguistic differences, the lack of cultural competency training, and concerns about the cultural fit of services (Kim et al., 2011; Sentell & Braun, 2012; Stockdale, Lagomasino, Siffique, McGuire & Miranda, 2008). System-level factors like cost of treatment and insurance coverage also impact mental health service use in Latinx communities (Kouyoumdjian, Zamboanga, & Hansen, 2003; Sareen et al., 2007). In order to improve service utilization, interventions may target any of these levels. For example, some studies have tried to improve service use by improving the cultural acceptability of interventions (Barrera, Castro, Strycker, & Toobert, 2013; Griner & Smith, 2006) while other studies have attempted to improve the decision-making capabilities of Latinx when it comes to mental health service use (e.g., Alegría, Polo, et al., 2008). As reviewed in this paper, studies have also attempted to address knowledge and recognition of mental illness and treatment – that is, mental health literacy – in order to improve service use in Latinx communities. Mental health literacy is a feasible mediator given it is an individual-level factor and likely more modifiable when compared to other barriers to service use (e.g., system and provider level barriers).

Mental Health Literacy and Latinx

Mental health literacy – one's knowledge of mental disorders that aids in the recognition, management, or prevention of symptoms – has emerged as an important predictor of mental health service use (Coffman & Norton, 2010; Jorm, 2000; Wright et al., 2007). Mental health

literacy consists of three components: 1) knowledge of mental health disorders and their treatments, 2) attitudes towards and preferences for services and treatments, and 3) stigma about people with mental disorders or those who seek treatment.

Latinx knowledge about mental health disorders and services. Latinx adults – especially monolingual Spanish-speakers – often demonstrate limited knowledge and recognition of mental health disorders (Naranjo, 2018) and are less likely to identify a need for treatment (Bauer et al., 2010; Sentell & Braun, 2012; Vera et al., 1998). They also are less likely to use specialty mental health care services (Bauer et al., 2010). Previous studies have shown that only 20% of Latinx have adequate knowledge of mental health services (i.e., treatments), compared to an overall rate of >50% in other racial/ethnic groups including NLW (Yorgason, Linville, & Zitzman, 2008). Among rural Latinx immigrant samples, the rate of adequate mental health service knowledge is estimated to be as low as 3%, a rate significantly lower than urban Latinx immigrants (García, Gilchrist, Vazquez, Leite, & Raymond, 2011).

Latinx mental health stigma and attitudes toward treatments. Latinx report disproportionate amounts of mental health stigma compared to NLW, and greater stigma is directly related to lower rates of service use in Latinx adults (Alvidrez, 1999; Clement et al., 2015; Corrigan, Druss, & Perlick, 2014; Gary, 2005; Nadeem et al., 2007; Rastogi, Massey-Hastings, & Wieling, 2012). In a study by Jimenez and colleagues (2013), Latinx reported more shame and embarrassment for having a mental illness (i.e., internalized stigma) compared to NLW, and believed that others would think differently of them if they used mental health services (i.e., public stigma). In another study, Latinx with depression were more likely to report stigma concerns related to seeking mental health care and a lesser desire for mental health services compared to NLW and Blacks (Nadeem et al., 2007). In general, those who endorse

mental health stigma often want to avoid being labeled as having a disorder or needing treatment, as well as other related negative social consequences (Corrigan et al., 2014).

Studies of depression have found that both Latinx and other ethnic minorities prefer counseling approaches over medication (Cooper et al., 2003; Dwight-Johnson, Sherbourne, Liao, & Wells, 2000). Additionally, some findings suggest that Latinx are more likely to seek help from informal sources (e.g., support from friends and family), as this may be more acceptable than accessing services from mental health agencies (Cabassa & Zayas, 2007). Among Latinx, the use of antidepressant medication has been associated with higher levels of mental health stigma, and perceptions of being more severely ill, weak or unable to handle one's problems, and subjected to the negative effects of drugs (e.g., addiction; Interian, Martinez, Guarnaccia, Vega, & Escobar, 2007; Olfson, Marcus, Tedeschi, & Wan, 2006; Sirey, Bruce, Alexopoulos, Perlick, Friedman et al., 2001). Importantly, stigma has been cited as a reason for medication noncompliance (Interian et al., 2007).

While these components of mental health literacy – lack of knowledge, negative attitudes toward treatment, and stigma – have been shown to inhibit appropriate mental health service use, they also may be modifiable. Specifically, studies have shown that efforts to increase knowledge of mental health symptoms and treatments may reduce disparities in service use by increasing early identification and subsequent help seeking behavior (Wei, McGrath, Hayden, & Kutcher, 2015). Additionally, studies that address negative beliefs about mental health and treatment-seeking have been shown to increase acceptability of and engagement in mental health services (Dixon, Holoshitz, & Nossel, 2016). Examining how to maximize the impact of mental health literacy interventions in underserved groups such as Latinx is an important next step in reducing mental health disparities.

Health Literacy Interventions: The Case of Entertainment Education

Given the relationship between low mental health literacy and existing mental health service disparities (Coffman & Norton, 2010; Jorm, 2000; Wright et al., 2007), it is important to examine culturally appropriate ways to increase mental health knowledge and address attitudes and beliefs that deter appropriate engagement in mental health services among Latinx adults. Entertainment Education (E-E) has been proposed as one method to improve health literacy in diverse groups. E-E interventions are tools designed to entertain and educate individuals and communities about important health and social issues, typically through powerful storytelling via various forms of media. Interventions globally and locally have used E-E to raise awareness and persuade. Examples of such interventions include a radio soap opera to increase awareness about family planning in Tanzania (Mohammed, 2001), a serial television drama to communicate messages about reproductive health for Latinx youth in the US (Wang & Singhal, 2016), and as will be discussed, the use of graphic "comic books" for mental and physical health problems in Latinx and Black communities. As suggested by these and other studies, E-E interventions can be used to significantly impact health behavior in at-risk, minority communities (e.g., Berkman et al., 2011).

Theoretical Foundations for Entertainment Education: Social Cognitive Theory and Elaboration Likelihood Models:

E-E has relied on theories within social psychology (Bandura, 2001; Petty & Cacioppo, 1986) such as the social cognitive theory (SCT) and elaboration likelihood model (ELM) to explain how E-E interventions work. SCT is a broad model that posits that an individual's social environment plays a critical role in motivation and learning of a specific behavior (Schunk & DiBenedetto, 2020). Bandura's early work in SCT indicates that learning of a given behavior

may occur purely through observation of others (Bandura, 1977), and that an individual's perceived similarity to others increases the likelihood of observational learning (Bandura & Walters, 1963; Schunk & Usher, 2019). Similarly, an individual's expected positive consequences for engaging in a specific behavior increases motivation to engage in the behavior (Bandura & Walters, 1963). Learning through social modeling and observation is important in promoting specific health behaviors; namely, in learning the successes and mistakes from others (Bandura, 2004a). E-E provides a unique opportunity to model a desired behavior and communicate potential rewards from the behavior. Per SCT, E-E works to change an individual's knowledge of a certain behavior or phenomenon by observing others' interactions and experiences; for example, a character in an E-E intervention may model how to talk to a doctor about a health issue, which in turn prepares the individual to talk to their doctor about the health issue (Bandura, 2004b, 2004a; Sood, Menard, & Witte, 2004). SCT also suggests that an individual's confidence in his or her ability to engage in a modeled behavior (i.e., self-efficacy), increases their motivation to imitate the modeled behavior (Schunk & DiBenedetto, 2016). Perhaps most obviously, performance accomplishments (e.g., past engagement in the behavior) are the most reliable predictors of self-efficacy; however, physiological and emotional experiences, such as anxiety experienced when thinking about engaging in a behavior influence an individual's evaluation of their own competence to follow through (Schunk & DiBenedetto, 2020). E-E has the potential to help individuals emotionally relate to given experiences in a way that promotes engagement in health behaviors.

According to the second theoretical model, the elaboration likelihood model (ELM), the impact of messaging in E-E is enhanced through absorption in the narrative and emotional involvement with the characters in the story (Moyer-Gusé, 2008; Slater & Rouner, 2002).

According to this model, an individual's natural reaction to health education literature is to argue with health messages. However, according to Slater and Rouner (2002) when people identify with characters and are absorbed by a story, they are less likely to engage in counter-arguing of health messages. E-E interventions create an emotional connection between the narrative and the individual through four hypothesized variables: 1) storyline appeal, 2) quality of production, 3) unobtrusiveness of persuasive subtext, and 4) homophily (similarity of characters and self; Ott, Tan, & Slater, 2020). A meta analysis of entertainment education examined the components of SCT and ELM that increase attention to E-E, generate emotional connections to E-E characters, generate mental imagery of the story, and link one's own self-concept to the story, and looked at the impact of these factors on knowledge, attitudes, and behavioral outcomes (Tukachinsky & Tokunaga, 2013). Results showed that there is a moderate to large relationship between involvement in the narrative and post-exposure outcomes, especially behavioral outcomes (e.g., intent to engage in a behavior). Furthermore, empathic identification with characters and transportation into the narrative were the "the most critical components of narrative persuasion and E-E effects" (Tukachinsky & Tokunaga, 2013).

SCT and ELM, albeit somewhat overlapping, suggest that there are varying ways in which health education interventions lead to changes in behavior. The SCT model posits that through modeling and observation of others, an individual gains knowledge of *how* to engage in a behavior, whereas the ELM posits that increased motivation to engage in the behavior is a direct result of identification with characters. Both models have substantial empirical support, and it is through their combined effect that they work to promote changes in health behavior in the context of E-E.

E-E offers an acceptable way to target health behavior through intervention characteristics that reflect principles of SCT and ELM (Larkey & Hecht, 2010). First, E-E interventions have *engaging characters*, who are supposed to be realistic, and generate empathy, liking, and homophily (liking of people who are similar to the individual; McPherson, Smith-Lovin, & Cook, 2001). Larkey and Hecht (2010) argue that the emotional connection and the perceived similarity of characters are crucial to persuading individuals to pursue a modeled behavior in the intervention (Singhal & Rogers, 1999; Slater & Rouner, 2002). Second, an *engaging story* – defined as an appealing and interesting storyline – is a key narrative characteristic that further increases engagement in E-E, and the motivation to model behavior. Lastly, elements reflecting cultural embeddedness (i.e., cultural relevance and perceived similarity of cultural characteristics) have the potential to further an individual's identification with the characters as well as the story itself.

Fotonovelas: Entertainment Education Health Literacy for Latinx

One type of E-E intervention for Latinx communities that is both engaging and culturally-embedded is the *fotonovela. Fotonovelas* are graphic novels portraying dramatic stories and often containing a moral message. Popular in the Latinx community, *fotonovelas* were first developed in Latin America (mainly Argentina and Mexico) and Spain in the 1950s for entertainment purposes but eventually came to be used as E-E interventions for health-related problems. Similar to other forms of E-E, *fotonovelas* rely on engagement characteristics (such as a dramatic storyline) and cultural embeddedness (such as cultural events, language and social norms), to increase acceptability of the intervention.

Feasibility and acceptability outcomes of *Fotonovelas* in Latinx. Findings have demonstrated that the *fotonovela* is an acceptable and feasible method to increase awareness for

physical health conditions in Latinx samples (e.g., Betancourt, 2010; Grigsby, Unger, Molina, & Baron, 2017; Jagt et al., 2018; Karanth, Lairson, Savas, Vernon, & Fernandez, 2017). For example, in a study of heart disease prevention that utilized a community-based participatory research (CBPR) approach, Latinx individuals who received a heart disease focused *fotonovela* demonstrated increased knowledge of preventative care for heart disease and a high proportion of individuals reported that they intended to change their health behavior (e.g., 93%; Segura-Pérez, Damio, Galdámez, & Pérez-Escamilla, 2017). In another open trial, older adult Latinx received a *fotonovela* about dementia; results showed that participants had increased knowledge of Alzheimer's disease and reported satisfaction with the intervention (Valle, Yamada, & Matiella, 2006). Lastly, Lamb and colleagues (2017) utilized focus groups to enhance script development and production of their *fotonovela* aimed at increasing cervical cancer screening in Colombian women. Evaluation of the *fotonovela* in health clinics demonstrated increases in some forms of knowledge about HPV screening and showed that the intervention was acceptable and entertaining to women in this setting. Overall, findings from these studies support the acceptability and feasibility of E-E interventions for health behaviors in Latinx communities.

Efficacy outcomes for health-related *fotonovelas in Latinx.* Data are also emerging to support the efficacy of health related *fotonovelas*. Among adults at risk for diabetes, results from a randomized controlled trial comparing a *fotonovela* to a text pamphlet demonstrated that the *fotonovela* resulted in both greater knowledge about health behavior and greater intent to engage in healthy eating (Unger, Molina, & Baron, 2009). In a subsequent study of this diabetes intervention, there were no differences in outcomes between high and low literacy groups (Jagt et al., 2018), indicating that *fotonovelas* may be an effective way to reach and bring about change across educational levels. A recent RCT comparing a *fotonovela* about second-hand and third-

hand smoke to an informational pamphlet did not find differences in changes in knowledge across groups; however, they did find that individuals in the *fotonovela* group reported greater self-efficacy to talk to others about smoking and more positive attitudes towards advocating for smoke-free housing (Unger, Soto, Rendon, Baezconde-Garbanati, & Cruz, 2019). While RCTs of *fotonovelas* have been few, findings suggest that *fotonovelas* for physical health problems can be an effective and culturally-appropriate way to improve health beliefs among Latinx.

Fotonovelas for Mental Health

Research examining the use of *fotonovelas* for mental health problems is similarly scarce. At present, two *fotonovelas* have been developed to raise awareness and educate Latinx about mental health symptoms and treatments (i.e., depression). In a RCT of a *fotonovela* with 110 primary caregivers of loved ones with dementia (82% women; 71% born in Mexico), titled *Together We Can! Facing memory loss as a family/¡Unidos Podemos! Enfrentando la pérdida de memoria en familia,* the *fotonovela* was developed to: 1) increase coping skills for caregiver stress, 2) help caregivers better self-assess for symptoms of depression, and 3) encourage utilization of available resources (Gallagher-Thompson et al., 2015; Tzuang et al., 2013). Investigators in this study highlighted that the major theme of the *fotonovela* was to help caregivers develop flexibility in their roles and adjust cultural expectations to be in line with realities of caregiving. Results demonstrated that compared to a standard informational condition, participants who received the *fotonovela* demonstrated a greater reduction in depressive symptoms and perceived the *fotonovela* intervention to be more helpful than the standard condition. Both groups demonstrated a significant decrease in stress related to caregiving four months after receiving the intervention. Of note, the authors highlighted the need

for future research addressing how specific elements of the *fotonovela* increased intervention impact.

A significant program of research has emerged examining a *fotonovela*, called *Secret Feelings/Sentimientos Secretos*, to improve depression knowledge and treatment and reduce stigma among Latinx (Cabassa, Contreras, Aragón, Molina, & Baron, 2011; Cabassa et al., 2014; Hernandez & Organista, 2013, 2015; Unger et al., 2013). The development of the *Secret Feelings/Sentimientos Secretos* (Cabassa, Molina, & Baron, 2012) was informed by E-E strategies (Singhal & Rogers, 1999), including the utilization of media to simultaneously entertain and educate consumer audiences. The development of this *fotonovela* was also informed by the self-regulatory model of illness cognition, in order to account for the social and cultural aspects of an individuals' perceptions of illness that directly contribute to service use (Cameron & Leventhal, 2003). Further, the authors of this *fotonovela* (Cabassa et al., 2012) state that they incorporated principles from the theory of reasoned action, specifically that attitudes and social norms must be addressed to change health behavior (Sutton, 1998). Lastly, to increase cultural relevance, the authors incorporated characters that had a physical resemblance to Latinx individuals, used language similar to Latinx communities, and engaged in behavior that was considered congruent with cultural norms.

As part of this program of research, Cabassa et al. (2011) have used qualitative methods and an iterative consumer-informed approach to develop this *fotonovela*. Focus group findings have demonstrated that Latinx with limited English proficiency perceive the *fotonovela* as engaging, and consistent with the goals of addressing stigma toward depression and mental health treatment in the Latinx community (Cabassa et al., 2011).

In a RCT of this *fotonovela* with Latinx adults (n = 158), participants received either the *Sentimientos Secretos fotonovela* or a pamphlet about depression. Results showed that both the *fotonovela* and depression pamphlet were equally effective in improving depression knowledge and self-efficacy to recognize depression symptoms. However, the *fotonovela* was superior to the depression pamphlet in improving stigma and was more likely to be shared with family and friends. In this study, there were no improvements on willingness to seek help in the *fotonovela* group or the depression pamphlet group, which the authors explained may have been attributed to a ceiling effect for the measure used (i.e., all participants endorsed willingness to seek services; Unger et al., 2013). In an extension of this work, Cabassa and colleagues (2014) found that the *Secretos Sentimientos fotonovela* was significantly better than the depression pamphlet in improving treatment knowledge both directly after reading the *fotonovela* (Cohen's d = .91) and at 1-month follow up (Cohen's d = .53; Cabassa et al., 2014, p. 20). There were no differences between groups on endorsement of public stigma over time. More recently, the *Secret Feelings/Sentimientos Secretos fotonovela* has been examined as a way to engage depressed Latinx in treatment at a community health center (Sanchez, Killian, Eghaneyan, Cabassa, & Trivedi, 2019). In a pilot feasibility study, after receiving the *fotonovela*, almost 90% of participants engaged in some type of treatment (34.8% medication with or without therapy, 54.85% therapy or behavioral activation on their own). There was no control group in this study.

In another study examining *Secret Feelings/Sentimientos Secretos*, participants included at-risk Latina immigrants attending *promotora*-led (i.e., community health worker-led) health seminar groups at a community health clinic (Hernandez & Organista, 2013). Women were randomized to a regular discussion group or a *fotonovela* group. In the regular discussion (i.e., control) group, *promotoras* led a discussion about "family communication and intergenerational

relationships". In the *fotonovela* group, participants took turns with the *promotoras* reading *Secret Feelings/Sentimientos Secretos* aloud as a group (participants in the *fotonovela* group did not discuss family communication and intergenerational relationships). Consistent with previous findings (Unger et al., 2013), the *fotonovela* led to improved depression treatment knowledge. Importantly, this study also found that the *fotonovela* resulted in an increase in self-efficacy to identify a need for treatment and intent to seek treatment. In a qualitative follow up study, results suggested that Latina immigrants in the *fotonovela* group believed that their depression literacy improved due to high recall of the story and characters, with whom they reported high identification (Hernandez & Organista, 2015).

Limitations of *fotonovela* research. Research on mental health literacy in general, and *fotonovelas* specifically, is relatively nascent, and as such there are still many questions to be answered as well as improvements to be made. Although many E-E interventions rely on components of theoretical frameworks in health and social psychology, E-E research often lacks a *unifying* theoretical framework to understand how interventions lead to change (Kelly, Jorm, & Wright, 2007). Thus, further examination of *fotonovelas* using models as they apply to E-E is an important next step in the field in order to better identify salient outcomes and to understand how mental health literacy interventions achieve these outcomes, through an examination of theoretically relevant mediators. Another limitation of the *fotonovela* literature is the immediate pre-post design of the majority studies, which emphasizes immediate changes in health knowledge, attitudes/stigma, and willingness/intent to change behavior. Although such studies provide evidence that *fotonovelas* can be effective in modifying some health-related beliefs and attitudes, little is known about the durability of these effects and if these effects ultimately impact behavior. Lastly, a major limitation of the *fotonovela* literature is that little is known

about for whom these interventions work (i.e., moderators of intervention outcome). Examining moderators is an important direction for future research, as understanding how and under what conditions *fotonovelas* are most effective can be useful for tailoring efforts in order to make E-E interventions maximally effective.

Conceptual Models to Understand Potential Mediators of *Fotonovelas*

As reviewed previously, E-E interventions – including *fotonovelas* – largely rely on elements from SCT and ELM to change knowledge of and motivation to engage in a given health behavior. Specifically, increased attention to the narrative, perceived similarity to the characters, emotional responses to the story, and generation of message-relevant cognitions increase learning and reduce counterarguing, making E-E messaging maximally effective. However, these models are derived from social psychology and have largely been examined in the context of consumer behavior, outside of the context of health behavior. There are models, however, that directly examine health behavior and health decision-making. For example, the Theory of Planned Behavior (TPB; Figure 1; Ajzen, 1991) is a validated theory of health behavior that states that mediators such as attitudes (e.g., stigma), subjective norms (e.g., perceived social pressures to perform the behavior) and perceived behavioral control (e.g., perceived ease of performing the behavior) impact intent to perform a health behavior, which then leads to engagement in the behavior itself (Ajzen, 1985, 2002). Another widely-used model, the Health Belief Model (HBM; Figure 2), suggests that four variables affect the likelihood of engaging in a health-promoting behavior: 1) perceived benefits and barriers of engaging in the behavior, 2) perceived threat (i.e., a combination of perceived seriousness of illness and perceived susceptibility of illness), 3) self-efficacy (e.g., confidence in one's ability to perform the behavior, and 4) cues to action (e.g., symptoms; Carpenter, 2010; Janz & Becker, 1984).

Although both the TPB and HBM have a long history of use in studying health behavior and can be used to inform how *fotonovela* interventions achieve their outcomes, there are characteristics of the models that limit their applicability to E-E interventions for racial and ethnic minority groups. Most notably, they do not take into account the impact of dramatic variables, such as identification with characters and involvement in the narrative, two characteristics of E-E theorized by ELM and SCT to be central to their effectiveness (Moyer-Guse, 2008). Furthermore, TPB and HBM do not explicitly account for how cultural appropriateness and acceptability of E-E impact involvement in the narrative. Especially in Latinx populations, where help-seeking is largely influenced by family and friends (Villatoro, Morales, & Mays, 2014), understanding how E-E maximize cultural acceptability and influence social networks is important to understanding changes in health behavior. In order to fully understand how *fotonovelas* might work to improve knowledge, attitudes, and behavior, a model that takes into account relevant factors from both social psychology models (SCT and ELM) and health behavior models (TPB and HBM) is necessary.

A more recent theoretical model that further informs how *fotonovelas* influence outcomes, is the Narrative as Culture-Centric Health Promotion model (NCCHP; Figure 3; Larkey & Hecht, 2010). The NCCHP draws from previous research on TPB and HBM in terms of emphasizing the importance of stigma and attitudes, beliefs and knowledge, self-efficacy and intent to change in impacting subsequent health behavior. However, the NCCHP has its foundations in *narrative theory*, which is a broad set of conceptual propositions rooted in anthropology and psychology (Larkey & Hecht, 2010). The central tenants are that humans use narratives to establish their identity, organize their thoughts, communicate, and tell stories (Hoshmand, 2005; McAdams, 1993); and that narratives are essential to an individual's

formation of their self-concept (McAdams, 1993; McLean, 2005). This is particularly relevant for *fotonovelas* in that narratives can shape attitudes and belief about oneself, increase self-efficacy, and increase the likelihood that a desired health behavior is consistent with an individual's beliefs about themself.

The NCCHP also accounts for narrative characteristics, such as *engagement characteristics* and *cultural embeddedness* in helping to explain change in attitudes/beliefs and health behavior. Grounded in persuasion (e.g., elaboration likelihood models) and health promotion research, this model posits that using culture-centric health narratives (i.e., those which draw directly from individuals from within the culture) are crucial in reaching specific audiences, such as racial and ethnic minorities that have culture-specific beliefs and attitudes that affect health behavior (Larkey & Hecht, 2010). Narratives such as *fotonovelas* contain culturally-grounded health messages that are embedded in culture-specific values and norms and provide messages that are consistent with cultural practices. In particular, they draw on socially-shared symbols, activities, language, and norms to provide individuals with salient reasons to engage in a particular health behavior (Fisher, 1984, Larkey & Hecht, 2010).

Grounded in narrative theory, Larkey and Hecht (2010) provide a "layered view of narrative" in the NCCHP model by identifying intervention characteristics that shape an individual's attitudes and beliefs and reflect a broader, culturally-salient context of storytelling. Larkey and Hecht (2010) further propose three mediators – transportation, identification, and social proliferation – that act on attitudes and beliefs, self-efficacy, and intent to change, which in turn produce changes in health-related behavior. *Transportation* can be defined as becoming "carried away" by the storyline to the point of increased emotions. *Identification* is defined as relating to and understanding another person, and in particular a narrative character. *Social*

Proliferation is defined as the sharing of ideas and behaviors through a social network, such as distributing a *fotonovela* or talking about the story with family or friends. Both transportation and identification share mutual antecedents, such as personality traits of the main character; in other words, a more likeable main character increases involvement in the narrative (transportation) *and* makes an individual more likely to see themselves in the main character (identification). Indeed, prior studies have found a significant amount of correlation between these two constructs (Bilandzic & Busselle, 2011; Green, Rozin, Aldao, Pollack, & Small, 2004). However, some have argued (Moyer-Gusé, 2008) that there are correlates of identification (e.g., shared goals and empathy with the main character) that do not overlap with transportation. As such, the two variables are often measured and examined separately (Tal-Or & Cohen, 2016).

In their development, many *fotonovelas* have relied on principles of NCCHP to create a dramatic, culturally-acceptable and relevant story while targeting health literacy (i.e., knowledge and stigma). A previous study has shown that greater identification and perceived similarity is correlated with greater behavioral intention after reading a *fotonovela* about diabetes (van't Jagt et al., 2018). However, these variables have not been widely studies, and no studies have empirically tested this full NCCHP model to determine if these dramatic and culturally-relevant factors are important mediators explaining changes in knowledge, attitudes, and health-related behavior.

Do *Fotonovelas* Work for all Latinx? Effects of Rurality, Barriers to Care, and Depression Severity

Similar to the scarcity of studies examining mediators of change in relation to E-E, and fotonovelas specifically, very few studies have examined moderators of *fotonovela* outcomes. As noted earlier, literacy has been proposed as one potential moderator of knowledge outcomes,

however in a sample of Dutch adults, literacy level did not significantly moderate outcomes for those who received a diabetes *fotonovela* (Jagt et al., 2018). There are likely other variables that affect the impact of *fotonovelas* on help-seeking behavior, particularly among Latinx communities.

Socio-demographic variables such as the geographic region where one resides may impact for whom the *fotonovela* intervention is most effective. Latinx immigrants living in rural communities are significantly less likely than Latinx immigrants living in urban communities to have adequate mental health literacy and knowledge of available mental health resources (García et al., 2011). Additionally, individuals from rural communities may face additional barriers (e.g., availability of services) that contribute to mental health disparities. Indeed, individuals living in rural communities are significantly less likely to utilize mental health services (Wang et al., 2005) and more likely to endorse mental health stigma than their urban counterparts (Herzberg, 2013). Again, contextual factors may differentially influence engagement with *fotonovela* interventions that focus on region specific barriers (e.g., where to find services). Lastly, individuals in rural communities often have lower levels of acculturation to US culture (Smokowski, Rose, Bacallao, 2008), which may make the *fotonovela* a better cultural match, thus increasing potential impact in the rural community.

Additionally, barriers to treatment, such as availability of transportation or cost of services, may differentially impact service use among those receiving the intervention (Andrade et al., 2014; Mojtabai et al., 2011). Prior research has shown that logistic, structural, and provider barriers to treatment are particularly relevant for Latinx' decision to initiate services (Cabassa et al., 2006; Bledsoe, 2008), in addition to contributing to premature treatment drop-out rates (Kouyoumdjian, Zamboanga, & Hansen, 2006). Discovering ways to improve mental health

treatment seeking among Latinx with a high number of barriers to care is of public health signficiance. As such, a *fotonovela* intervention may be less effective in the context of greater barriers to care, particularly structural and logistic barriers.

Clinical variables such as illness severity may also impact help-seeking. Past studies have shown that individuals with more severe depression symptoms are more likely to seek out mental health services (Fox et al., 2018) due to a greater perceived need for treatment (Bonabi et al., 2016). Nonetheless, greater depression symptom severity is also associated with poorer mental health literacy (Lincoln et al., 2006). Understanding whether fotonovelas are most effective for those with lesser or greater symptom severity, can inform where to target dissemination efforts (e.g., community settings, specialty mental health clinics, primary care, etc.).

A better understanding of moderators is needed in order to understand for whom *fotonovelas* can be most helpful in changing attitudes about mental health treatment and help-seeking behavior. In this way, fotonovelas can be disseminated to those who will maximally benefit from such an intervention approach. Additionally, in an effort to improve access to mental health treatment among Latinx, it is important to use interventions that are acceptable and culturally relevant, especially in communities that are already under-resourced. In doing so, it is important to not assume a one-fits-all approach, and an examination of moderators, although somewhat exploratory, may lead to more targeted and effective dissemination efforts.

Specific Aims and Hypotheses

Although multiple studies have demonstrated that *fotonovelas* are effective E-E tools for changing knowledge and attitudes related to health behavior, no study has examined how *fotonovelas* impact hypothesized mediators derived from the NCCHP model (i.e., attitudes and beliefs, transportation, identification, and social proliferation) and if these mediators account for

changes in important health-related behavior. In this study, the NCCHP model will be tested to better understand whether specific NCCHP mediators lead to changes in help-seeking for depression over a 3-month time period in a sample of Latinx adults with depression symptoms. Furthermore, potential moderators of help-seeking for depression will also be examined to better understand for whom *fotonovelas* are most effective. Using a longitudinal design, this randomized controlled trial will:

Aim 1. Test the effect of receiving a *fotonovela* versus the standard health literacy intervention on help-seeking behavior.

Hypothesis 1. Compared to participants in the standard health literacy interventions, participants who receive a *fotonovela* will be more likely to seek mental health care 3 months after first receiving the fotonovela.

Aim 2a: Examine the impact of a *fotonovela* for depression on transportation, identification, and social proliferation compared to a standard health literacy intervention for depression.

Hypothesis 2a. Compared to participants in the standard health literacy intervention group, participants who receive the *fotonovela* will demonstrate greater identification, transportation, and social proliferation after receiving the *fotonovela.*

Aim 2b: Examine mediators of increased help-seeking (attitudes and behavior) for depression as theorized by the NCCHP model (Figure 3).

Hypothesis 2b: Parallel mediation. Identification, transportation, and social proliferation will mediate the relation between intervention condition and attitudes/beliefs (knowledge, stigma, self-efficacy and intent to seek care). Specifically, it is hypothesized that the *fotonovela*, compared to the standard health literacy intervention, will lead to greater

transportation, identification, and social proliferation, and transportation, identification and social proliferation will mediate the relationship between intervention and positive attitudes/beliefs about depression and depression treatment.

Hypothesis 2c: Serial mediation. The *fotonovela,* compared to the standard health literacy intervention, will lead to greater transportation, identification, and social proliferation, which in turn will lead to greater knowledge as well as positive mental health attitudes and beliefs; these explanatory variables will lead to increases in actual help-seeking behavior. These variables, in a serial manner, will mediate the relationship between intervention condition and help-seeking behavior.

Aim 3. Examine moderators of help-seeking behavior including rurality, severity of depression, and barriers to treatment.

Hypothesis 3a: Population type. There will be a significant interaction between population type and intervention group. Individuals in the urban sample who receive the control intervention will report similar rates of help-seeking compared to individuals in the urban sample who received the *fotonovela*; whereas individuals in the rural sample who receive the control intervention will report significantly lower rates of help-seeking compared to individuals in the rural sample who receive the *fotonovela*.

Hypothesis 3b: Barriers to treatment. There will be a significant interaction between barriers to treatment and intervention group on help-seeking behavior. Individuals who endorse fewer barriers to care (compared to many barriers to care) and receive the control intervention will report greater rates of help-seeking; whereas individuals in the *fotonovela* condition will report similar rates of help-seeking regardless of the number of barriers to care reported.

Hypothesis 3c: Depression symptom severity. There will be a significant interaction between depression symptom severity and intervention group on help-seeking behavior. Individuals who have less severe depression symptoms and receive the control intervention will report less help seeking compared to individuals with more severe depression symptoms; whereas individuals in the *fotonovela* condition will report similar rates of help-seeking regardless of depression severity.

Significance

Given the prevalence of unrecognized and untreated depressive symptoms in Latinx communities, E-E interventions such as *fotonovelas* provide a unique opportunity to reduce health disparities by conveying health information in a culturally appropriate manner. Findings will help researchers, clinicians, and educators to better understand what aspects of mental health literacy interventions for Latinx matter most for changing help-seeking related behaviors. Furthermore, understanding who benefits most from *fotonovelas* is an important next step to better inform dissemination efforts. In particular, a strength of this study is the inclusion of a rural sample, which not only allows for demographic comparison, but also increases knowledge of ways to increase mental health literacy – and perhaps increase mental health service use – in this underserved population.

Method

Study Design

The current study used a randomized-controlled trial design to examine mediators and moderators of a depression-focused *fotonovela* on help-seeking attitudes/behaviors in Latinx adults with depressive symptoms using the NCCHP model as a theoretical framework.

Participants and Recruitment

Participants were recruited from two communities with a high representation of Latinx individuals: urban neighborhoods of Los Angeles (e.g., Boyle Heights, East Los Angeles, Baldwin Park, etc.) and a rural area of southern California that borders Mexico, Imperial Valley. Participants from these communities face unique barriers to mental health treatment, such as geographic location and service availability, stigma, and language proficiency differences. Participants were recruited in various ways. First, study announcement flyers (Appendix A) were posted in community spaces in brick-and-mortar locations (e.g., bulletin board in Starbucks) and online (e.g., NextDoor, Craigslist). Second, members of the research team attended community events, such as health fairs, and distributed study flyers and gathered contact information from individuals who were interested in participating. Third, members of the research team visited undergraduate classrooms at Imperial Valley College to make announcements to students and distribute the recruitment flyer. Lastly, the recruitment flyer was distributed via email to all students at Rio Hondo College, San Diego State University Imperial Valley, and Imperial Valley College, and all Latinx-identifying students at University of California Los Angeles. Interested participants could contact the study team either over the phone or email to request an eligibility screening for study participation.

Eligibility

After contacting the study team to express interest in participating in the study, participants were given the option to complete the eligibility questionnaire online (via Google Forms) in their preferred language (86.1% English; 13.9% Spanish). All participants who completed the eligibility screener were entered into a raffle to win a $50 Amazon gift card. The

eligibility screening questions can be found in Appendix B. The following eligibility criteria were assessed:

Inclusion Criteria: 1) 18 years of age or older, 2) fluent in English or Spanish, 3) mild, moderate, or severe levels of depressive symptoms, 4) identify as Latinx, Chicanx, or Hispanic, and 5) live in Los Angeles or Imperial county. *Exclusion Criteria:* 1) receipt of psychotherapy or pharmacotherapy for mental health problems in the last 6 months or 2) unable to read in English or Spanish. Interested individuals completed the eligibility screening online.

If eligible to participate, participants were contacted by a member of the study team to set up their first study visit. If ineligible to participate, participants were also contacted by a member of the study team and were offered a list of mental health resources in their geographic region.

Study Procedure

Eligible participants were randomized to one of two conditions: 1) a *fotonovela* condition or 2) a standard health literacy condition. Participants were invited to have their study visit take place in person at the CALMA Lab at UCLA or over the phone. The research assistant running the study visit was blind to the intervention condition.

First Study Visit – In Person. If completing the study visit in person, the participant was invited into the CALMA Lab and was asked to sit in a private study room. First, they had an opportunity to review the informed consent form (Appendix C) and ask any questions they may have about study participation and the risks and benefits of participating. After signing the informed consent form, they received a packet of questionnaires containing a demographic form and other self-report measures (see Measures below), measuring their pre-intervention depression symptom and treatment knowledge, stigma, self-efficacy to seek care, barriers to care, acculturation, and depression symptoms. After completing these questionnaires, they were given

an opaque envelope containing either the *fotonovela* or NIH brochure and informed that they should read their intervention one time through, that the intervention was theirs to keep, and to take as much time as they need then notify the research assistant when they were done. While reading the intervention, the research assistant left the study room so the participant had privacy. After notifying the study team they read the intervention one time through, they completed their post-intervention packet of questionnaires, which measured their post-intervention depression symptom and treatment knowledge, stigma, self-efficacy to seek care, transportation, and identification. At the end of their study, participants received $10 cash and scheduled their second study visit for 3 months later. The first study visit took between 25 and 60 minutes.

First Study Visit – Over the Phone. If completing the study visit over the phone, the participant received their study materials via US Mail. The participant received their materials in a large manila envelope with a label instructing the participant not to open the envelope until instructed to do so by the study staff. At the time of the visit, the research assistant instructed the participant to open their envelope and locate the Information Sheet (Appendix D), which parallels the Informed Consent Form used for in-person visits. Then participant had an opportunity to review the Information Sheet and ask any questions they may have about study participation and the risks and benefits of participating. After providing verbal consent to participation, they were instructed to open their pre-intervention packet of questionnaires containing a demographic form and other self-report measures (see Measures below), measuring their pre-intervention depression symptom and treatment knowledge, stigma, self-efficacy to seek care, barriers to care, acculturation, and depression symptoms. The research assistant confirmed with the participant that they had not opened any of the sealed envelopes prior to starting the questionnaires. The research assistant stayed on the line with the participant while

they were completing these measures in order to answer any questions that arose. After completing these questionnaires, they were instructed to open their intervention envelope containing either the *fotonovela* or NIH brochure and were informed that they should read their intervention one time through, that the intervention was theirs to keep, and to take as much time as they need then notify the research assistant when they were done. While reading the intervention, the research assistant again remained on the line but remained silent unless the participant had a question. After notifying the research assistant they read the intervention one time through, they were instructed to complete their post-intervention packet of questionnaires, which measured their post-intervention depression symptom and treatment knowledge, stigma, self-efficacy to seek care, transportation, and identification. At the end of their study, participants were instructed to keep their intervention, but to insert the pre- and post-questionnaires into a pre-paid pre-addressed envelope and mail it to the CALMA Lab at UCLA. Once we received their study materials, they were mailed $10 in cash. Telephone visits took approximately similar amounts of time to in-person visits (25-60 mins).

Second Study Visit. Three months after completing the first study visit, all participants were emailed a Qualtrics link to complete their 3-month follow-up self-report questionnaires, including depression symptom and treatment knowledge, stigma, self-efficacy to seek care, barriers to care, depression symptoms, transportation, identification, social proliferation, and help-seeking behavior. In the email, participants were also given the option to return to the CALMA Lab to complete these measures in-person. After completing their 3-month follow-up questionnaires, participants were thanked for their participation and mailed $20 in cash.

Materials

The *fotonovela* used in this study was titled *Secret Feelings/Sentimientos Secretos* and was available in both English and Spanish. *Secret Feelings/Sentimientos Secretos* is a 30-page graphic novel and is written at a 4th grade reading level. The main character, Sofia, struggles with depressive symptoms and the storyline follows Sofia's pursuit of mental health treatment in the context of her culture. The educational messages of *Secret Feelings/Sentimeintos Secretos* include: 1) depression is a real illness that has real consequences in individuals' lives, 2) people with depressive symptoms should seek treatment, and 3) treatments are available and are effective and safe (Cabassa et al., 2011). The storyline addresses common misconceptions about depression and depression treatment, such as people who seek treatment are "crazy". The authors emphasize that *Secret Feelings/Sentimientos Secretos* attempts to increase cultural appropriateness and acceptability among Latinx individuals by casting Latinx actors and using language expressions common in the Latinx community (Cabassa et al., 2011). The version used in this study also had sections for frequently asked questions about depression, a resource list for nearby mental health services in the participants' region, and a list of questions to ask their doctors or other mental health providers including, but not limited to, available treatments, medication side-effects, and cost of treatment.

The control intervention for this study was the National Institute of Mental Health publication, *Depression: What You Need to Know/La depresión: Lo que usted debe saber* (https://www.nimh.nih.gov/health/publications/depression-what-you-need-to-know/index.shtml). Similar to *Secret Feelings/Sentimientos Secretos,* this publication aims to communicate the following messages: 1) depression is a real illness, 2) depression affects people in different ways, 3) depression is treatable, and 4) if you have depression you're not alone. It is of similar length

and format to the *fotonovela*. Additionally, this publication includes vignettes and personal accounts of individuals with depression (including their pictures), which makes testing mediators of the NCCHP model, identification and transportation, feasible in this study. The same resource list for nearby mental health services and a list of questions to ask their doctors or other mental health providers was added to the pamphlet.

Measures

Efforts were made to include measures that had been validated in Latinx samples and in Spanish. In some cases, existing measures for the given construct had only been examined in non-Latinx samples. In these instances, bilingual-bicultural members of the study team translated the measures from English into Spanish (i.e., forward translation). Then an independent bilingual-bicultural member of the study team back-translated the measure into English. The original version was compared to the back-translated version by the study team, and adjustments were made to maximize the construct validity of Spanish translation. These translation procedures followed the gold-standard method to translate and adapt instruments according to the World Health Organization and other experts in the field (WHO, 2010). For a list of measures and their associated constructs, see Table 1.

Screening measures. A telephone/online screening questionnaire was used to assess inclusion and exclusion criteria.

1) Demographic information was collected including age, gender, ethnicity, education level, household income, marital status, preferred language, and employment status.

2) Participant depressive symptoms were assessed using the **Center for Epidemiological Studies Depression Scale (CESD**), which is a self-report measure of depression symptoms. The CESD has been reported to have strong validity, reliability, and internal consistency in large and

culturally diverse samples (Van Dam & Earleywine, 2011). Participants whose scores fell above 15 – indicating the presence of at least mild depression - were eligible to participate. In this study, the CESD demonstrated good internal consistency (Cronbach's α = .89).

3) A brief measure of service utilization was used for screening purposes. Prior service use (**PSU**) was measured using the method developed for the National Comorbidity Survey Replication (Wang et al., 2005), which has been used in English with Latinx individuals. Participants were asked if they had: 1) in their lifetime and 2) in the past 6 months received treatment for "problems with your emotions or nerves or your use of alcohol or drugs". A list of types of treatment providers was presented including, psychiatrists, family physicians, other physicians, social workers, counselors, other mental health professionals, religious or spiritual advisor, or any other healer. Participants were not eligible to participate if they were receiving psychotherapy or psychopharmacology for treatment of depression, anxiety, or any other mental health or substance use disorder, or had received treatment in the last 6 months, with the exception of clergy or other spiritual leaders and healers.

Study measures. For a list of measures and their related constructs, see Table 1.

NCCHP Mediator Measures.

1. Transportation. The **Transportation Scale (TS)** (Green and Brock, 2000) included 11 items assessing the degree to which the participant felt "carried away" by the narrative. Sample items include, "While I was reading the *fotonovela/brochure*, I could easily picture the events in it taking place" and "I could picture myself in the scene of the events described in the narrative". Wording was adapted for the appropriate intervention format (i.e., *fotonovela* or NIMH brochure). Response options used a 7-point Likert-type scale and the sum of the items was used as the total

score (Green & Brock, 2000). The TS demonstrated adequate internal consistency (Cronbach's α = .76) in the current study sample.

2. Identification. To measure identification with the characters, participants were asked to rate how much they like, find similar, feel like they know, and want to be like the characters in their intervention. This measure, the **Identification Scale (IS)**, has been used in previous studies examining entertainment education interventions (Murphy et al., 2013). All items were assessed using a 10-point Likert scale. In our sample, the IS demonstrated adequate internal consistency (Cronbach's α = .72).
3. Social Proliferation. To measure social proliferation **(Social Proliferation Scale [SPS])**, participants were asked how many people they shared the intervention with (i.e., *fotonovela* or brochure) in order to determine the reach of the intervention and how they shared it. Additionally, participants were asked how they shared the intervention (e.g., gave it to someone, showed it to someone, talked about it, etc.). The total SPS score was the number of individuals they shared their intervention with in the 3-month follow up time period.

Attitudinal/Beliefs Mediator Measures

4. Attitudes/Beliefs
    a. **Depression knowledge*** was measured using a questionnaire previously developed for studies of *Secret Feelings/Sentimientos Secretos* (Cabassa et al., 2011; Unger et al., 2013). To assess symptom knowledge, participants received a list of 10 items and were asked whether they were symptoms of depression. Participants received 1 point for every correct answer. Symptoms included: hearing voices, sleeping too little, eating too much, being full of

energy, feeling guilty, feeling agitated, being violent, loss of interest, having hallucinations, and feeling confident. To assess depression treatment knowledge, participants received a list of seven items and were asked if the items were true or false. Items were adapted from Griffiths et al.'s **D-Lit*** measure. A few sample items from this measure include: "People with depression get better by themselves without professional help," "People with depression should stop taking antidepressants as soon as they feel better," "Talking to a counselor can help someone with depression," and "Antidepressant medications work right away" (Griffiths, Christensen, Jorm, Evans, & Groves, 2004). These measures have been translated into Spanish and used in previous studies with Spanish and English-speaking Latinx (Unger, Cabassa, Molina, Contreras, & Baron, 2013).

b. Stigma about mental health care was assessed using the **Attitudes Towards Seeking Professional Psychological Help Scale – Short Form (ATSPPH;** (Elhai, Schweinle, & Anderson, 2008)**).** The ATSPPH is a 10-item self-report measure that assesses individuals' attitudes about psychological treatment (e.g., "People should solve their own problems, therefore, getting psychological counseling would be their last resort," and "Talking about problems with a psychologist seems to me as a poor way to get rid of emotional problems."). In previous studies, the ATSPPH has demonstrated good internal consistency among racial and ethnic minorities (Cronbach's α = .84; Constantine, 2002), and in particular English-speaking (Cronbach's α = .70) and Spanish-speaking Latinx (Cronbach's α = .70 (Torres, Magnus, &

Najar, 2020). In this study, the ATSPPH demonstrated adequate internal consistency (Cronbach's α = .76).

c. Self-efficacy to identify depression and treatment resources was measured using the **Self Efficacy in Identifying Need for Treatment Scale (SEINT*;** Hernandez & Organista, 2013**).** The SEINT is a 3-item self-report measure that assesses an individual's self-efficacy to identify symptoms of depression (e.g., "How sure are you that you can identify symptoms of depression in yourself?") and seek help for depression (e.g., "How sure are you that you can locate depression treatment?"). This measure was developed for prior studies of the *Sentimentos fotonovela* and demonstrated adequate internal consistency in previous studies (Cronbach's alpha =.74). However, in this study, the SEINT demonstrated poor internal consistency (Cronbach's α = .54) and thus was not used in analyses.

d. Self- efficacy to access care was measured using an adapted questionnaire from Cestac, Paran, and Delhomme (2011): **The Self Efficacy-Self Control Scale (SESCS;** Cestac, Paran, & Delhomme, 2011**)**. Items from the SESCS assess self-efficacy to seek mental health treatment and are rated on a 5 point Likert scale: 1) "Accessing mental health treatment would be …" and 2) "Accessing mental health treatment is … my range of abilities." This scale demonstrated adequate reliability (Cronbach's α = .75). This scale has not been used previously in samples of Latinx.

e. Intent to seek treatment was measured using the **Intent to Seek Treatment Scale (ISTS*),** which is an 8-item self-report measure that assesses a

participant's intent to seek treatment from a professional, to discuss symptoms with family or friends, and intent to encourage family or friends to seek treatment from a doctor or therapist (Hernandez & Organista, 2013). This scale has been used in earlier research of the *Sentimentos fotonovela* and has been shown to have good internal consistency in Latinx populations (Cronbach's α = .88; Hernandez & Organista, 2013). In this study, the ISTS demonstrated adequate reliability (Cronbach's α = .75).

Measures of Moderators

1. Depression severity was measured using **CESD**, described in the "Screening Measures."
2. Barriers to care were measured using the **Barriers to Care Questionnaire** (Yeh, McCabe, Hough, Dupuis, & Hazen, 2003). The BCQ* is a 54-item self-report questionnaire that identifies potential barriers to services experienced by ethnic minority groups. The measure was developed for caregivers of children with mental health problems but has been adapted to be appropriate for a general adult population. Additionally, the questions were modified to reflect barriers to care in the last 12-months only, whereas the original measure assesses both past 12 months and lifetime. The measure contains eight scales, representing service barrier areas, including content of services (e.g., services will not be confidential; α = .76), helpfulness of services (α = .73), provider characteristics (e.g., provider will not understand client's culture; α = .69), effects of services (α = .73), economic/financial constraints (α = .69), accessibility of services (α = .78), language problems (α = .79), and lack of need

for services (α = .60). In this study, a total overall score was used, which demonstrated good internal consistency (α = .80).

Primary Outcome: Help Seeking Behavior

1. Help-seeking behavior was measured using the same **Prior Service Use** questionnaire used in the screening phase of the study. However, participants were asked to only rate service use since their first study visit (i.e., past 3 months). In addition to assessing if the participant received treatment, additional questions pertaining to other help-seeking behavior such as calling clinics and making appointments were included. This allowed for differentiation between help-seeking behavior and healthcare receipt. In this study, a positive response to seeking help included attempting to contact a clinic/provider, attending a mental health appointment, or talking to an existing provider (e.g., PCP) about mental health services.

Data Analytic Plan

Power analysis. Previous research using this *fotonovela* have demonstrated medium effect sizes on outcome variables such as mental health knowledge and stigma after 1 month of having received the intervention (*Cohen's d* = .51; Cabassa et al., 2014). Given the parallel and sequential mediation aims of this study (Figure 6; see "Analysis of Study Aims" below), no power analysis was readily available. Instead, a standard practice to determine appropriate sample size in linear regression models was used (Austin & Steyerberg, 2015); the total number of free parameters in the model (arrows = 13, intercepts = 5, total free paramteters = 18) was multiplied by 12 to determine the total number of subjects needed to test the NCCHP model (N_{Total} = 216) with adequate power.

Analysis of Study Aims.

Aim 1. Test the effect of receiving a *fotonovela* versus a standard health literacy intervention on help-seeking behavior.

Hypothesis 1. Compared to a standard health literacy interventions, individuals in the *fotonovela* group will be significantly more likely to seek mental health care 3 months after receiving the intervention.

Analysis 1. Logistic regression was used to compare the *fotonovela* group and control group on help-seeking (yes/no) at 3 months.

Aim 2. Examine mediators of increased help-seeking for depression as theorized by the NCCHP model.

For Aim 2, multiple mediation was used (Figures 6 and 7; Preacher & Hayes, 2008). This method offers several advantages including bootstrapping, which offers more power than other approaches and the simultaneous testing of multiple mediators, which controls for correlation between mediators and potential covariates (Zhao, Lynch, & Chen, 2010). Analyses were conducted in STATA 16.1 using maximum likelihood (ML) estimation, which is superior to other methods as it produces less biased parameters when data are missing.

Hypothesis 2a. Compared to participants in the standard health literacy intervention group, participants who receive the *fotonovela* will demonstrate greater identification, transportation, and social proliferation after receiving the *fotonovela*.

Analysis 2a. Multiple linear regressions were used to compare the *fotonovela* group and control group on outcomes: identification, transportation, and social proliferation.

Hypothesis 2b: Parallel mediation. Identification, transportation, and social proliferation will mediate the relation between intervention condition and attitudes/beliefs (symptom knowledge, treatment knowledge, stigma, self-efficacy and intent to seek care). Specifically,

receiving the *fotonovela*, compared to the standard health literacy intervention, will lead to greater transportation, identification, and social proliferation; transportation, identification and social proliferation will mediate the relationship between the fotonovela intervention and positive attitudes/beliefs about depression and mental health treatment.

Analysis 2b: Parallel mediation. To test parallel mediation, intervention group was entered as the independent variable. Each individual attitudes/beliefs measure was entered as the dependent variable (i.e., a different parallel mediation model was run for each attitudes/beliefs measure), and transportation, identification, and social proliferation were entered as parallel mediators.

The following tests were performed for each of the parallel mediator models:

1) The specific indirect effect of intervention condition on attitudes/beliefs through transportation.
2) The specific indirect effect of the intervention condition on attitudes/beliefs through identification.
3) The specific indirect effect of the intervention condition on attitudes/beliefs through social proliferation.
4) The total indirect effect of the intervention condition on attitudes/beliefs through identification, transportation, and social proliferation.
5) The direct effect of the intervention condition on attitudes/beliefs.
6) The total effect of the intervention condition on attitudes/beliefs.

Hypothesis 2c: Serial mediation. Receiving the *fotonovela*, compared to the standard health literacy intervention, will lead to greater transportation, identification, and social proliferation, which together will predict positive attitudes/beliefs, which in turn will explain

increases in help-seeking behavior. This pathway will mediate the relationship between intervention condition and help-seeking behavior.

Analysis 2c: Serial mediation. To test serial mediation, intervention group was entered as the independent variable. Transportation, identification, and social proliferation were entered as parallel mediators. Then, each individual attitudes/beliefs measure was entered as a serial mediator (i.e., a different serial mediation model was run for each attitudes/beliefs measure) after the parallel mediators and before the dependent variable. Help-seeking behavior was entered as the dependent variable.

The following tests were performed for each of the serial mediator models:

1) The specific indirect effect of intervention condition on changes in help-seeking behavior through each attitudes/beliefs measure (i.e., knowledge, stigma, self-efficacy, and intent to seek services).
2) The total indirect effect of intervention condition on changes in help-seeking behavior through transportation, identification, social proliferation (entered as parallel mediators) and attitudes/beliefs (entered as a serial mediator).
3) The direct effect of the intervention condition on changes in help-seeking behavior.
4) The total effect of the intervention condition on changes in help-seeking behavior.

Aim 3. Examine moderators of help-seeking for depression (population type [urban vs. rural], severity of depression, and logistic barriers to treatment).

Hypothesis 3a: Population type. There will be a significant interaction between population type and intervention group. Individuals in the urban sample who receive the control intervention will report similar rates of help-seeking compared to individuals in the urban sample who received the *fotonovela*; whereas individuals in the rural sample who receive the control

intervention will report significantly lower rates of help-seeking compared to individuals in the rural sample who receive the *fotonovela*.

Hypothesis 3b: Barriers to treatment. There will be a significant interaction between barriers to treatment and intervention group on help-seeking behavior. Individuals who endorse fewer barriers to care (compared to many barriers to care) and receive the control intervention will report greater rates of help-seeking; whereas individuals in the *fotonovela* condition will report similar rates of help-seeking regardless of the number of barriers to care reported.

Hypothesis 3c: Depression symptom severity. There will be a significant interaction between depression symptom severity and intervention group on help-seeking behavior. Individuals who have less severe depression symptoms and receive the control intervention will report less help seeking compared to individuals with more severe depression symptoms; whereas individuals in the *fotonovela* condition will report similar rates of help-seeking regardless of depression severity.

Analysis 3. Moderators of help-seeking behavior for depression were tested by adding interaction terms to the linear regression equation. Population type, logistic barriers to treatment, and severity of depression were examined as moderators of help-seeking behavior.

Results

Sample Characteristics

Figure 5 represents the flow of participants selected for the study. Of the 808 potential participants who qualified for the study (met eligibility criteria on the initial screen), 41 refused to participate and 2 were no longer eligible when contacted for study participation. The study team attempted to contact the remaining 765 participants to schedule a meeting to review informed consent and conduct the first study visit. Of these participants, 589 did not respond to

multiple attempts to contact them. The remaining 176 participants successfully completed the informed consent and first study visit and were randomized to the *fotonovela* (n = 97) or NIH brochure (n = 79) groups. Participants were all Latinx adults (m_{age} = 24.4, SD = 9.1) who were experiencing mild, moderate, or severe levels of depression. About a quarter of participants considered themselves to be more than one race/ethnicity (n = 49; 27.8%), and most of the participants were women (n = 142; 80.7%). Participants described themselves as native English speakers (n = 59; 33.5%), native Spanish speakers (n = 62; 35.2%), or native in both languages (n = 55, 31.3%). Additionally, results from the ARSMA indicated that most participants in our sample were Latinx-Oriented to Approximately Balanced (n = 100; 56.8%) or Slightly Anglo Oriented Bicultural (n = 52; 29.6%), followed by Very Latinx Oriented (n = 11; 6.3%) and Very Anglo Oriented (n = 7; 4.0%). Most participants reported moderate to severe depressive symptoms (59.6%); the rest reported mild to moderate symptoms (33.2%) or no symptoms (7.3%). Over half of the participants (n =108; 61.4%) completed the study in person versus over the phone; participants in Imperial Valley more often completed the visit over the phone (79.25%) versus in person, whereas participants in Los Angeles more often completed the visit in person (78.86%). Pre-intervention demographic comparisons between Los Angeles and Imperial Valley participants are shown in the Appendix; notably, IV participants had higher levels of pre-intervention depression and tended to be older and lower-income. All analyses controlled for pre-intervention depression symptoms and age in order to address these discrepancies (we did not control for income given that we only had these data for less than half our sample). Full sample characteristics can be found in Table 2. There were no significant differences in the *fotonovela* versus control groups on pre-intervention demographic characteristics. On pre-intervention outcome measures, individuals in the *fotonovela* group reported greater pre-intervention

depression symptom knowledge compared to individuals in the control group (Table 6). As such, all analyses examining depression symptom knowledge included pre-intervention knowledge as a covariate. There were no significant differences on other pre-intervention measures comparing the *fotonovela* and control groups. Lastly, gender was associated with mediators and several outcome variables, and as such was included as a covariate in all analyses.

Checking Regression Assumptions

Regression assumptions of linearity and independence were met for all outcome measures. Assumptions of heteroscedasticity were met for all measures except for Attitudes Towards Seeking Professional Psychological Help Scale (ATSPPH). In these cases, robust standard errors were used in regression analyses in order to minimize biased estimates of coefficients. Assumptions of normality of residuals were met for all measures. Correlations between study variables (Tables 3-5) were also performed to examine possible multicollinearity between mediators and outcome variables. There was no evidence of multicollinearity with the exception of transportation and identification being highly correlated. However, because these two variables are theoretically separate constructs (Tal-Or & Cohen, 2016), they were kept as separate variables in all models.

Primary Aims

Aim 1: Test the effect of receiving a *fotonovela* versus a standard health literacy intervention on help-seeking behavior.

Covariates were chosen given either due to their significant relationship to the outcome variable (i.e., help-seeking) or because they have different pre-intervention values when comparing the urban and rural samples. Included covariates included gender, age, pre-intervention depression severity, and mode of intervention delivery.

A logistic regression showed that after controlling for gender (*OR* = .60, *SE* = .25, *p* = .22), age (*OR* = 1.05, *SE* = .02, *p* < .05), pre-intervention depression severity (*OR* = 1.05, *SE* = .02, *p* < .001), and mode of intervention delivery (i.e., phone vs. in person; *OR* = .72, *SE* = .25, *p* = .35), intervention group was significantly related to help-seeking behavior at 3-month follow-up ($Chi^2(5) = 21.31$, *p* < .001, R^2 = .09). Individuals in the *fotonovela* group were significantly more likely to report seeking mental health services in the past 3 months compared to individuals in the NIH brochure group (*OR* = 2.24, *SE* = .75, *p* < .05, *95% CI* = [1.16 – 4.31]).

Aim 2: Examine mediators of increased help-seeking (attitudes and behaviors) for depression as theorized by the NCCHP model (Figure 3).

In all Aim 2 analyses, post-intervention timepoint was used for the identification and transportation measures and 3-month follow-up timepoint was used for the social proliferation measurement. Further, the post-intervention timepoint for attitudes/beliefs measures was used in order to ensure temporal precedence in mediation analyses.

Effects on Mediators: Linear regressions showed that after controlling for gender (*b* = 5.26, *SE* = 1.86, *p* < .01), age (*b* = -.01, *SE* = .08, *p* = .94), mode of intervention delivery (*b* = 2.24, *SE* = 1.57, *p* = .16), and pre-intervention depression symptoms (*b* = .26, *SE* = .07, *p* < .001), intervention group was significantly related to transportation (*F* (5, 168) = 7.64, *p* < .001, R^2 = .19); individuals in the *fotonovela* group on average reported a greater transportation score than individuals in the NIH brochure group (*b* = 4.77, *SE* = 1.47, *p* < .001). After controlling for gender (*b* = .79, *SE* = .32, *p* < .05), age (*b* = -.004, *SE* = .01, *p* = .77), mode of intervention delivery (*b* = .42, *SE* = .27, *p* = .12), and pre-intervention depression symptoms (*b* = .02, *SE* = .01, *p* = .16), intervention group also was significantly related to identification (*F* (5, 168) = 4.16, *p* < .01, R^2 = .11); individuals in the *fotonovela* group on average reported greater identification

scores than individuals in the NIH brochure group (b = .70, SE = .25, p < .01). After controlling for gender (b = -.42, SE = .39, p = .30), age (b = -.01, SE = .02, p = .64), mode of intervention delivery (b = .43, SE = .40, p = .30), and pre-intervention depression symptoms (b = .001, SE = .01, p = .92), intervention group was not significantly related to social proliferation (b = -.11, SE = .29, p = .73).

Parallel Mediation: Parallel mediation analyses were performed to examine if transportation and identification mediated the relationship between intervention group and outcome measures, including: 1) depression symptom knowledge, 2) depression treatment knowledge, 3) stigma related to help-seeking, 4) self-efficacy related to help-seeking, and 5) help-seeking intent. All analyses controlled for pre-intervention levels of outcome measures and gender, given their significant relationship to identification and transportation. Additionally, mode of intervention delivery (i.e., phone vs. in person), age, and pre-intervention depression symptoms were included as covariates given there were significant differences in these variables at pre-intervention comparing the urban and rural sample. Social proliferation was not included as a third parallel mediator because it was unrelated to the predictor variable (intervention group) and to all outcome variables. Exploratory mediation analyses were performed with social proliferation as a third mediator in the model in order to assure that it did not have a significant indirect effect, despite having insignificant *a* paths and *b* paths; no significant indirect effects were found.

Depression Symptom Knowledge. Multiple mediation analysis showed that although direct and total effects between intervention group and depression symptom knowledge were significant, this relationship (indirect effect ab = .05, SE = .07, p = .39) was not mediated by transportation nor identification (Table 7).

Depression Treatment Knowledge. There were no significant direct (*c'* = .03, *SE* = .14, *p* = .82) and total (*c* = .03, *SE* = .14, *p* = .83) effects between intervention group and depression treatment knowledge. Additionally, this relationship (indirect effect *ab* = -.001, *SE* = .04, *p* = .99) was not mediated by transportation nor identification (Table 7).

Stigma towards seeking help. Results from a parallel mediation analysis (Table 7) indicated that intervention group had an indirect effect on stigma towards help-seeking through its relationship with transportation, but not identification. Individuals in the *fotonovela* group reported greater transportation than those in the control condition (a_1 = 4.97, *SE* = 1.46, *p* = .001), and greater transportation was subsequently related to more positive attitudes towards help-seeking (i.e., less stigma; b_1 = .10, *SE* = .04, *p* < .05). A 95% bias-corrected confidence interval indicated that the indirect effect through transportation, holding identification constant, was above zero (*95% CI* = [.016 - .970]). In contrast, the indirect effect through identification was not different than zero (95% CI = [-.217 - .434]). Further, individuals in the *fotonovela* group reported less stigma towards help-seeking when taking into account intervention group's indirect effect through transportation. These results suggest that transportation mediates the relationship between intervention group and stigma towards seeking help, in that individuals in the *fotonovela* group reported greater transportation by the narrative, which was then related to more positive attitudes (i.e., less stigma) towards seeking treatment.

Self-efficacy to seek treatment. Results from a parallel mediation analysis (Table 7) indicated that intervention group had an indirect effect on self-efficacy to seek treatment through its relationship with identification and transportation. Individuals in the *fotonovela* group reported greater identification (a_2 = .70, *SE* = .25, *p* < .01) and transportation (a_1 = 4.70, *SE* = 1.47, *p* < .01) than those in the control condition, and greater identification (b_2 = .07, *SE* = .03, *p*

< .05) was subsequently related to greater self-efficacy to seek treatment, whereas transportation (b_1 = .01, *SE* = .01, p = .08) was not related to greater self-efficacy to seek treatment. A 95% bias-corrected confidence interval indicated that the indirect effect through identification, holding transportation constant, was not entirely above zero (*95% CI* = [-.005 - .106]). Additionally, the indirect effect through transportation was also not different than zero when holding identification constant (*95% CI* = [-.012 - .100]). However, individuals in the *fotonovela* group reported greater self-efficacy to seek treatment when taking into account intervention group's indirect effect through both transportation and identification (*95% CI* = [.035 - .154]). These results suggest that identification and transportation together mediate the relation between intervention group (i.e., the *fotonovela* group) and self-efficacy to seek treatment, in that individuals in the *fotonovela* group reported greater identification and transportation, and together greater identification and transportation led to greater self-efficacy to seek treatment.

Intent to seek treatment. Results from a parallel mediation analysis indicated that intervention group had an indirect effect on intent to seek treatment through its relationship with identification and transportation (Table 7). Individuals in the *fotonovela* group reported greater identification (a_2 = .69, *SE* = .25, p < .01) and transportation (a_1 = 4.59, *SE* = 1.42, p < .01) than those in the control group, but transportation (b_1 = .006, *SE* = .003, p = .09) and identification (b_2 = .02, *SE* = .02, p = .25) were not related to intent to seek treatment. A 95% bias-corrected confidence interval indicated that the indirect effect through identification, holding transportation constant, was not different from zero (95% CI = [-.014 - .046]). Additionally, the indirect effect through transportation, holding identification constant, was also not different from zero (95% CI = [-.008 = .064]). There was a significant relationship between intervention group and intent to seek treatment when taking into account intervention group's indirect effect through

transportation and identification (95% CI = [.011 - .077]). However, the direct (*c'* = -.071, *SE* = .053, 95% CI = [-.174 - .032]) and total effects (*c* = -.027, *SE* = .052, 95% CI = [-.129 - .075]) of intervention group on intent to seek treatment were not different from zero. Rucker and colleagues (2011) explain that significant indirect effects may be found in the context of insignificant total and direct effects when there are asymmetries in statistical power (e.g., measurement of the mediator is highly reliable and measurement of the dependent variable is only moderately reliable) and/or important suppressor variables are omitted (i.e., those which weaken the relationship between the independent and dependent variable when omitted from analyses; Rucker, Preacher, Tormala, & Petty, 2011). In this case, both direct and total effects of intervention group on intent to seek treatment are negative, whereas the indirect effect is positive, providing additional evidence of the omission of a suppressor variable.

Serial Mediation: After examining transportation and identification as parallel mediators of attitudes/beliefs outcome measures, serial mediation was used to further examine if changes in attitudes/beliefs variables then led to subsequent changes in help-seeking behavior 3 months after receiving the intervention (Figure 7). All analyses controlled for gender, mode of intervention delivery, age, and pre-intervention depression symptoms.

Depression symptom knowledge. In parallel mediation analyses, identification and transportation did not mediate the relationship between intervention group and depression symptom knowledge, so they were dropped from subsequent mediation analyses. Therefore, depression symptom knowledge was the only mediator included in the analysis to explain the relationship between intervention group and help-seeking behavior. Results from the mediation analysis indicated that intervention group was not significantly related to help-seeking through its relationship with depression symptom knowledge. Individuals in the *fotonovela* group

reported greater depression symptom knowledge than those in the control group (a = 1.68, SE = .21, p < .001); however, depression symptom knowledge was not significantly related to help-seeking behavior (b = -.007, SE = .03, p = .78). A 95% bias-corrected confidence interval indicated that the indirect effect of intervention group on help seeking through depression symptom knowledge was not different than zero (95% CI = [-.095 - .071]).

Stigma of help-seeking. In parallel mediation analyses, identification did not mediate the relationship between intervention group and stigma. Therefore, it was dropped from subsequent mediation analyses. In serial mediation analyses, transportation was examined as a mediator of the relationship between intervention group and stigma of help seeking, which together mediated the relationship between intervention group and help-seeking behavior. After controlling for gender, age, mode of delivery, pre-intervention depression symptoms, and pre-intervention stigma, intervention group was significantly related to transportation (a = 4.97, SE = 1.46, p < .01). Additionally, transportation was significantly related to stigma (b_1 = .12, SE = .03, p < .001), but stigma was not significantly related to help-seeking behavior (b_2 = .002, SE = .010, p = .76). A 95% bias-corrected confidence interval indicated that the indirect effect of intervention group on help-seeking through stigma was not entirely above zero (95% CI = [-.015 - .020]), suggesting no mediation of intervention group and help-seeking through stigma of help-seeking (Table 8).

Self-efficacy to seek treatment. Identification and transportation were examined as parallel mediators of the relationship between intervention group and self-efficacy, which together were examined as serial mediators of the relationship between intervention group and help-seeking behavior (Table 8). After controlling for gender, age, pre-intervention depression symptoms, mode of intervention delivery, and pre-intervention self-efficacy, intervention group

was significantly related to transportation (a_1 = 4.70, *SE* = 1.47, $p < .01$) and identification (a_2 = .70, *SE* = .25, $p < .01$), and identification, but not transportation, was significantly positively related to self-efficacy to seek treatment (b_{12} = .07, *SE* = .03, $p < .05$). However, self-efficacy was not significantly related to help-seeking (b_2 = .089, *SE* = .065, $p = .17$). A 95% bias-corrected confidence interval indicated that the indirect effect of intervention group on help-seeking through self-efficacy was not entirely above zero (95% CI = [-.025 - .010]), indicating no significant mediation.

Intent to seek treatment. Identification and transportation were examined as parallel mediators of the relationship between intervention group and intent to seek treatment, which together were examined as serial mediators of the relationship between intervention group and help-seeking behavior (Table 8). After controlling for gender, age, pre-intervention depression symptoms, mode of intervention delivery, and pre-intervention intent to seek treatment, intervention group was significantly related to identification and transportation, but neither transportation (b_{11} = .006, *SE* = .004, $p = .09$) nor identification (b_{12} = .023, *SE* = .020, $p = .25$) were significantly related to intent to seek treatment. Additionally, intent to seek treatment was not significantly related to help-seeking (b_2 = -.07, *SE* = .10, $p = .52$). A 95% bias-corrected confidence interval indicated that the indirect effect of intervention group on help-seeking through intent to seek treatment was not entirely above zero (95% CI = [-.011 - .021]), suggesting no significant mediation.

In summary, although there was a relationship between intervention group and help-seeking behavior such that individuals in the *fotonovela* group were significantly more likely to have sought care than those in the control group, none of the proposed attitudes/beliefs measures

– including depression symptom knowledge, stigma of help-seeking, self-efficacy to seek treatment, and intent to seek treatment – significantly mediated this relationship.

Aim 3. Examine moderators of help-seeking behavior including depression severity, barriers to treatment, and population type.

Depression severity. Depression severity was examined as a moderator of the relationship between intervention group and help-seeking at 3-month follow up. There was no significant interaction effect between intervention group and depression severity (*OR* = 1.01, *SE* = .03, *p* = .79) on help-seeking at 3-month follow up. There was also no significant main effect of depression severity (*OR* = 1.04, *SE* = .02, *p* = .09) on help-seeking behavior.

Barriers to treatment. Total number of barriers to treatment was examined as a moderator of the relationship between intervention group and help-seeking at 3-month follow up. There was no significant interaction effect between intervention group and barriers to care (*OR* = .92, *SE* = .04, *p* = .06). There was also a significant main effect of barriers to care on help-seeking (*OR* = 1.09, *SE* = .04, *p* < .05) in that individuals who experienced more barriers to care in the 3-month follow-up time period were more likely to seek help than those with fewer barriers.

Population (urban vs. rural). Population type (urban vs. rural) was examined as a moderator of the relationship between intervention group and help-seeking at 3-month follow-up. There was no significant interaction effect (*OR* = 2.16, *SE* = 1.5, *p* = .27) between intervention group and population type, nor was there a significant main effect of population type *(OR* = .60, *SE* = .32, *p* = .35*)* on help-seeking at 3-month follow up.

Post-Hoc Moderation. Because there appeared to be significant relationships between several covariates, including gender and mode of intervention delivery, these were also examined

as moderators of help-seeking in exploratory post-hoc analyses. Gender was examined as a moderator of the relationship between intervention group and help-seeking at 3-month follow-up. There was a significant interaction effect of gender and intervention group (*OR* = 5.41, *SE* = 4.26, $p < .05$) in that among male participants, individuals who received the NIH brochure were more likely to have sought help at 3-month follow-up than individuals who received the *fotonovela*; whereas among female participants, individuals who received the *fotonovela* were more likely to have sought help at 3-month follow-up than individuals who received the NIH brochure.

Additionally, mode of intervention delivery was examined as a moderator of the relationship between intervention group and help-seeking at 3-month follow-up. There was no significant interaction effect between mode of intervention delivery and intervention type (*OR* = 1.21, *SE* = .78, $p = .77$), nor was there a significant main effect of mode of delivery on help-seeking (*OR* = .87, *SE* = .43, $p = .78$).

Discussion

The purpose of this study was to examine the effect of the *fotonovela*, *Sentimientos Secretos*, compared to a standard health literacy intervention on help-seeking behavior among a sample of Latinx adults with depressive symptoms. Additionally, this study examined how elements of entertainment education – such as identification with characters and engagement in the narrative – influence attitudes and beliefs about mental health and help-seeking and if these changes in turn help explain help-seeking behavior. These aims were based on a pre-existing health behavior model - the Narrative as Culture-Centric Health Promotion theory (NCCHP; Figure 3; Larkey & Hecht, 2010) – which hypothesizes cultural relevance and connection as important elements for health literacy materials that lead to health behavior change. This study

included Latinx participants with depression symptoms from urban (i.e., Los Angeles metro area) and rural (i.e., Imperial Valley area) communities in order to examine differential effects of the *fotonovela* across communities considered to have unique barriers to mental health services.

Does the *fotonovela* result in greater mental health help-seeking behavior compared to standard health literacy tools?

Individuals who received the *fotonovela* were more likely to have sought mental health services three months after receiving their intervention compared to the control group who received the NIH depression brochure, indicating that people who got the *fotonovela* were more likely to have contacted a provider or clinic about mental services in the 3 months following their first study visit. These findings are encouraging, as understanding ways to motivate individuals in need to seek services is of great public health importance and crucial in reducing health disparities among Latinx. Prior studies have shown that among Latinx meeting diagnostic criteria for past-year depressive disorder, only 36% utilize any form of mental health services (e.g., Alegría, Canino, et al., 2008). Rates among individuals in the current study who received the NIH brochure (i.e., control condition) were similar to these previous studies. Alternately, half of the participants who received the *fotonovela* engaged in mental health service seeking, a rate approaching that of non-Latinx Whites. These findings suggest that the *fotonovela* may have been useful in faciliating service seeking among Latinx and may be comparatively better than standard mental health literacy tools (e.g., brochures) in addressing mental health disparities.

Does the fotononovela impact relevant aspects of the NCCHP Model?

The second specific aim was to examine if reading a mental health literacy tool such as the *fotonovela (i.e., Sentimientos Secretos*) led to greater identification, transportation, and social proliferation compared to the control intervention (i.e., the NIH brochure), if these changes

affected attitudes and beliefs about mental health, and if all of these variables mediated the relationship between intervention type and mental health help-seeking behavior.

Effects on Mediators

Analyses showed that when compared to a standard health literacy tool, the *fotonovela* led to greater identification (i.e., relating to and understanding) with characters in the story. These findings were expected given the *fotonovela*'s focus on the experiences of a Latinx family who likely shared similar cultural practices and norms to many participants in the study (Slater & Rouner, 2002)—while stories in the control condition minimized cultural elements and featured indiviudals from a diverse set of racial and ethnic backgrounds. According to Cohen, Weimann-Saks, and Mazor-Tregerman (2018), three potential processes – relatability, liking, and realism of characters –lead to greater identification in narrative works such as *fotonovelas*. In the current study, participants may have found the main character of the *fotonovela* to be more relatable and understandable, due to similar cultural characteristics, neighborhood contexts, and other life experiences. Next, prior research shows that identification is correlated with liking of a character, which is also related to homophily, the tendency for people to be attracted to or seek out others who are similar to themselves (see also McPherson, Smith-Lovin, & Cook, 2001). Liking and homophily have been shown to faciliate communication (Moyer-Gusé & Nabi, 2010). While not assessed, there may have been greater homophily (liking) of the characters in the *fotonovela* compared to those in the control condition. Lastly, realism also facilitates identification (Konijn, Bijvank, & Bushman, 2007). Given the characteristics and actions of the main character and the setting were vividly depicted and similar to those of their own community, they were likely more realistic, thus further faciliating identification among *fotonovela* participants compared to those in the control condition.

Additionally, individuals who received the *fotonovela* reported greater transportation than individuals in the control condition, which was consistent with study hypotheses. *Transportation* can be defined as becoming "carried away" by the storyline to the point of increased emotions. The *fotonovela's* dramatic storyline may have facilitated greater cognitive and emotional involvement compared to stories in the NIH brochure which were primarily anecdotal and unrelated to each other. Studies of cognitive and neural mechanisms of emotional memory show that increased emotional intensity during an event results in greater event memory encoding and memory consolidation (Hamann, 2001). As such, the non-direct persuasive messages of the *fotonovela* nested in emotionally-salient storylines may have increased encoding and memory consolidation of the *fotonovela* content compared to the control condition, who received a more overt and less emotional persuasive message (Hamann, 2001; Slater & Rouner, 2002). This is one way that the *fotonovela* may have facilitated transportation, and may also explain the *fotonovela's* impact on attitudes and behaviors. Additional research that includes the actual measurement of event memory encoding and consolidation, in the context of entertainment education interventions is necessary.

The construct of transportation has similar theoretical and empirical convergence with identification due to their mutual antecedents (e.g., personality traits of main characters) and common consequences (e.g., enjoyment, changes in attitudes; Tal-Or & Cohen, 2016). Indeed in the current study, the transportation and identification scales were highly correlated (Table 4), consistent with prior studies examining these two variables (e.g., Bilandzic & Busselle, 2011; Green, Rozin, Aldao, Pollack, & Small, 2004). However, in a systematic review of these two variables, Tal-Or and Cohen (2016) argue that that although there is some overlap in transportation and identification, there are unique predictors and consequences associated with

each, and thus it is important to differentiate these constructs for effective messaging. Moyer-Gusé (2008) further specify that while absorbtion in the narrative relates to both identification and transportation, other characteristics such as empathy, cognitive similarities, and shared goals are unique dimensions of identification. As such, examining these two variables separately in the current study was important to determining the unique role these narrative elements play in changing attitudes, beliefs, and subsequent behavior.

With regard to the final element of the NCCHP model, social proliferation, there were no differences between the *fotonovela* and control condition on this measure. In previous studies, individuals who received the *fotonovela* were more likely to share it with someone else, whereas individuals who received the NIH brochure (i.e., control) were more likely to keep it for themselves (Unger, Cabassa, Molina, Contreras, & Baron, 2013). The lack of a significant finding for social proliferation may be due to the nature of our sample, young adults and university-aged students, who may rely on digital materials and social media to transmit information rather than hard copy materials such as brochures and pamphlets. Additionally, the onset of stay-at-home orders due to COVID likely increased social isolation, thus limiting participants' abilities to share hard copy materials with each other.

Given the significant relationship between intervention type and transportation and identification, and in order to explore the second aim further, these variables were examined as mediators of the relationshp between intervention type and attitudes and beliefs about mental health help-seeking. Tranportation and identification were simultaneously examined as potential mediators of the relationship between intervention group and attitudes/beliefs, specifically 1) depression symptom knowledge, 2) depression treatment knowledge, 3) stigma of help-seeking, 4) self-efficacy to seek treatment, and 5) intent to seek treatment. Transportation mediated the

relationship between intervention group and stigma of help-seeking and the combined effect of transportation and identification mediated the relationships between intervention group and self-efficacy to seek treatment, and intervention group and intent to seek treatment.

NCCHP mediators and stigma toward help seeking: The unique effect of transportation

Results showed that transportation mediated the relationship between intervention group and stigma towards help-seeking, such that those who were in the *fotonovela* group reported greater transportation and those with greater transportation reported less stigma. As previously discussed, transportation has been hypothesized to facilitate cognitive and emotional responses, and greater emotional responses have been shown to lead to greater message encoding and consolidation (Green & Brock, 2000; Hamann, 2001). This cascade of effects may have lead to greater acceptability and internalization of messages of anti-stigma embedded in the *fotonovela*. Another possible explanation is that transportation focuses a person's cognitive resources on the narrative, thus increasing attention to anti-stigma messages (Green & Brock, 2000; Kreuter et al., 2007). Slater and Rouner (2002) argue that greater transportation in a narrative reduces counterarguing, as being "swept up" in a narrative is an enjoyable and immersive process that limits motivation to generate skepticism towards persuasive messages (Green & Brock, 2000; Moyer-Gusé, 2008; Slater & Rouner, 2002). Specifically, individuals in the *fotonovela* group, through the act of being transported into the story, may have accepted anti-stigma messages from the *fotonovela* more readily which facilitated a more positive stance to mental health treatment.

In previous studies, transportation has been a robust predictor of changes in attitudes (de Graaf, Hoeken, Sanders, & Beentjes, 2012; Green et al., 2004; Murphy, Frank, Moran, & Patnoe-Woodley, 2011). Consistent with the current study's findings, Tal-Or (2016) found that greater transportation was positively related with more positive attitudes (Tal-Or, 2016) whereas

identification with a protagonist was not related to change in attitudes. Indeed, previous studies that examine identification and transportation in changing attitudes and/or stigma find that of the two, transportation appears to be most relevant in positive change (McQueen, Kreuter, Kalesan, & Alcaraz, 2011; Murphy et al., 2011).

NCCHP mediators and self-efficacy and intent to seek treatment: The combined effect of identification and transportation

Identification and transportation together were significant mediators of the relationship between intervention group and self-efficacy to seek treatment. Although the individual indirect effects of identification and transportation were not significant, the significant total indirect effect and the significant direct relationship between identification and self-efficacy suggest that identification may play an important role in changing self-efficacy of mental health help-seeking. Specifically, those in the *fotonovela* group reported greater identification and those with greater identification reported greater self-efficacy with regard to seeking treatment. Higher identification with the main character may have made it easier for participants to imagine themselves seeking help (Moyer-Gusé, 2008; Moyer-Gusé, Chung, & Jain, 2011). One reason for this finding could be that identification increases cognitive rehearsal, defined as thinking about yourself engaging in a given health behavior (McQueen et al., 2011). In both the *fotonovela* and the control condition, participants were provided with models of how to ask for help for depression (e.g., how to ask a doctor about medication). The experience of identifying with the characters – as was expected to be the case for those who received the *fotonovela* – may have promoted cognitive rehearsal, a process important to self-efficacy to seek treatment. In the context of Social Cognitive Theory (SCT; Bandura, 2001), which posits that self-efficacy is a critical factor in whether or not an individual engages in health behavior, the role of

identification is an important variable to consider in mental health literacy interventions. Although there was no significant pathway from transportation to self-efficacy, the significant indirect effect of transportation and identification combined suggests that transportation has an important part in enhancing self-efficacy in health literacy tools, perhaps by engaging the person in the narrative and increasing the salience of the characteristics relevant to identification.

The relationship between intervention group and intent to seek treatment was also mediated by the combined effect of identification and transportation. Prior studies have demonstrated that increases in transportation in entertainment education lead to changes in intent to engage in health behavior (Kim et al., 2012; Murphy et al., 2011), and that this association is particularly strong in racial and ethnic minorities (Murphy et al., 2013). Furthermore, prior E-E studies have shown that greater identification with the main character is predictive of changes in behavioral intentions (e.g., Moyer-Gusé & Nabi, 2010). However, there was no significant direct or total effect of intervention group on intent to seek treatment at post-intervention, and there was no relationship between transportation and identifcation and intent to seek treatment. This finding is suggestive of an important omitted variable in the model, although no other variables in this study came up as significant suppressor variables. One possible suppressor variable not measured in this study is perception of pursuasive intent; in other words, how strongly the individual believes the intervention is intended to pursuade him or her of the intervention's message. Research has shown that greater perceptions of pursuasive intent can lead to increased counterarguing (McGrane, Toth, & Alley, 1990; Weisntein, Grubb, & Vautier, 1986) and make changes in attitudes and behavior less likely. It is possible that understanding participants' perception of pursuasive intent would have helped to explain the current study findings.

NCCHP mediators: Nonsignificant effects of identification and transportation on depression symptom and treatment knowledge

Although intervention group was significantly related to changes in depression symptom knowledge, transportation and identification did not explain this relationship. This finding is surprising, as previous studies have found these components, especially transportation, to be consistently related to changes in knowledge health among those receiving entertainment education interventions (Murphy et al., 2011). One possible reason for these inconsistent findings may be related to the level of depression knowledge in this study; overall our sample demonstrated high levels of depression symptom recognition and treatment knowledge, thus creating a ceiling effect for these measures. In prior studies of this *fotonovela*, participants have been recruited from community adult schools, and depression knowledge scores have been significantly lower at pre-intervention compared to the current study (Unger et al., 2013). Previous studies have demonstrated that level of education is positively related with mental health literacy (Reavley, Morgan, & Jorm, 2014). Given that the current study included mostly community college and university students (i.e., individuals with higher levels of education than those in community samples), the impact of *fotonovelas* on knowledge outcomes may be different among Latinx with lesser levels of education.

The hypothesis that transportation and identification would mediate attitudes/beliefs, which would then mediate the relationship between intervention group and help-seeking was not supported. The failure to find evidence that the *fotonovela* changes health behavior *through* attitudes/beliefs indicates that the NCCHP model does not adequately capture all of the relevant variables that influence mental health help-seeking for Latinx adults with depression. Some studies examining the impact of attitudes on behavior – and vice versa – show that there is only a

weak association between changes in attitudes and changes in behavior (Kroesen, Handy, & Chorus, 2017). Further, when it comes to health behavior, meta analytic data show that there is only a small effect size of attitudes on increasing a desired health behavior (Sheeran et al., 2016). While limited, a couple studies have shown that among Latinx, mental health stigma and beliefs about mental health treatment were unrelated to treatment variables such as premature drop-out (Diniz et al., 2011; Escovar, 2020). Taken together, these findings suggest that attitudes and stigma may not always predict behavior.

These results beg the question: why the *fotonovela* – if not for the E-E elements of transportation and identification, and their subsequent impact on attitudes and knowledge – was more effective at increasing help-seeking behavior than the standard health literacy tool? Many studies have shown that culturally-adapted mental health treatment interventions produce positive oucomes, such as greater symptom improvement (Griner & Smith, 2006), engagement (e.g., Barrera, Berkel, & Castro, 2017), and lower treatment drop-out rates (e.g., Kanter, Santiago-Rivera, Rusch, Busch, & West, 2010). The current study is consistent with this previous research in that a culturally-adapted health literacy tool outperformed the standard health literacy tool in facilitating engagement in mental health services. However, additional research is needed to determine *why* this occurs, if not for hypothesized and culturally embeded components of the theoretically driven NCCHP model.

It is possible that standard components of cultural adaptation frameworks may explain improved help seeking in the fotonovela group. According to Bernal's ecological validity model (Bernal, Bonilla, & Bellido, 1995), the use of salient metaphors from one's culture, cultural consistent goals (e.g., individual treatment for the sake of the family), and culturally relevant methods of delivery (e.g., storytelling) are important aspects of cultural adaptations along with

language adaptations, consideration of contextual factors, and the use of bilingual/bicultural individuals to deliver the intervention. Many of these components were part of the fotonovela intervention, and may have lead to improved help seeking outcomes. The impact of these components were not measured, so it is difficult to know their contributions to the study outcomes. This is a broader challenge in the cultural adaptations literature, understanding what types of adaptations are most meaningful, and for whom (e.g., Castellanos, Spinel, Phan, Orengo-Aguayo, Humphreys, & Flory, 2020; Ennis, Shorer, Shoval-Zuckerman, Freedman, Monson, & Dekel, 2020).

*Fotonovela*s improve help-seeking behavior: For whom?

One hypothesis of the study, albeit exploratory, was that the fotonovela would be most effective for those Latinx for whom there was a greater cultural match with the intervention. More specifically, it was hypothesized that the fotonovela would have more of an impact on help-seeking behavior in a rural community compared to a urban community given the potential of the *fotonovela* to address mutliple barriers to help-seeking - barriers that were expected to be more salient in a rural setting (e.g., knowledge about treatment, knowledge about symptoms, access to services etc). It was also hypothesized that the *fotonovela* might be more appropriate in rural communities where mental health literacy is often lower compared to urban communities. However, findings did not support an interaction between intervention group and population type; the effect of the *fotonovela* on help seeking was similar for participants from urban and rural commuities. Important to note, supplemental analyses suggested that number of barriers and acculturation levels did not differ across the urban and rural groups, diminishing the premise for our initial hypotheses. In light of this context, it makes sense that population type did not moderate the relationship between intervention group and help-seeking.

We also hypothesized that other factors, such as depression severity and barriers to care, might also affect the outcomes of the intervention on help-seeking behavior. This study hypothesized that those with severe depression symptoms may be more likely respond to the fotonovela and to get care (Fox et al., 2018) due to a greater perceived need for services (Bonabi et al., 2016). The results of the current study did not support this hypothesis, possibly due to culturally-influenced illness perception and perceived benefits and barriers of engaging in help seeking.

Barriers to care also did not moderate the impact of the *fotonovela* on help-seeking. This is suprising given previous research demonstrating that various types of barriers, such as logistic, provider, or structural barriers, are important to access and initiation of services among ethnic minority inidividuals (Cabassa et al., 2006). It is possible that the provision of resources (list of referrals) and a model for how to discuss depression symptoms in both interventions (fotonovela and NIH brochure), mitigated the impact of these barriers on service use. Additional research is needed in order to elucidate the mental health help-seeking process among Latinx adults with depression.

In addition to the hypothesized moderators, this study also examined gender as a moderator of help-seeking behavior. Analyses showed that there was a significant interaction between gender and intervention type on help-seeking behavior. Indeed, results suggest that among women, the *fotonovela* was most effective at promoting help-seeking behavior, and among men, the NIH brochure (i.e., standard mental health literacy tool) was more effective. This could be due to the main character in the *fotonovela* being female, which increases identification with the narrative, which in turn is related to help seeking (although no mediation was supported by our data). Similarly, a female-led narrative such as in the *fotonovela* may have

alienated male participants, rendering it less relatable and thus promoting the NIH brochure as a more effective way to change help-seeking behavior.

Limitations and Future Directions

The current study had several limitations. Although our recruitment was open to anybody from a designated rural and urban context, the majority of participants who signed up for the study were college students. College students in this study were from a variety of educational systems, such as a tier 1 research university, a teaching-focused university, and community colleges, and were diverse in terms of socioeconomic status and acculturation level. However, given that the majority of students had more than a high school education, the generalizability of our findings is limited. A more diverse Latinx sample – including a greater number of immigrant Latinx and those without a college education – would have increased the generalizability of our findings and would have strengthened the rigorousness of our analyses examining for whom the *fotonovela* is most effective. Additionally, the cultural aspects of the identification and transportation elements of the NCCHP model may have been more fully experienced in a sample that was less acculturated and had lower levels of mental health literacy.

Additionally, this study was underpowered to examine the full mediation model with parallel and serial mediators. In order to do so fully, a sample of size of 216 would have been needed. It is important to note that three months of recruitment took place during the coronavirus pandemic, which limited the ability to recruit and enroll new participants to achieve the desired sample size. Additionally, it is possible that the coronavirus pandemic affected the results of the study, by making it more difficult for a participant to access mental health services despite the intervention. On one hand, stay-at-home orders likely restricted participants' access to local clinics and hospitals; on the other hand, the availability of telemental health services increased,

which may have made it easier for some participants to get care. In the future, it will be important for investigators to examine how the effects of this pandemic affected access to care, particularly among Black, Indigenous, and People of Color (BIPOC), and how mental health literacy tools like the *fotonovela* could be adapted to help Latinx better identify available telemental health services.

The methodology of this study was also limited due to the reliance on self-report data. Some of the measures used, such as the transportation and identification scales, were modified to be relevant to this study. Although they have been shown to be reliable and valid in other studies focused on raising health awareness, no psychometric data are available for the use of these measures in a mental health context. Another limitation of self-report measurement is socially desirable responding, in particular with regards to attitudes about mental health (i.e., stigma; Latkin, Edwards, Davey-Rothwell, & Tobin, 2017; Luke & Grosche, 2017). Although every effort was made (e.g., completing measures without study staff present) to reduce response bias, there is no way to be sure that participants did not endorse responses that they considered to be more socially desirable.

Furthermore, measures of explanatory variables such as social proliferation were based on self-report. To achieve a true measure of social proliferation, it would have been useful to have a more comprehensive understanding of the size and nature of a participants' social network. For example, it may be meaningful for an individual to share the *fotonovela* with two individuals if their network is less than 10 people; whereas for an individual with a very large family and/or friend network, sharing with two individuals may not carry the same significance. Additionally, it would have been useful to know the strength of the relationship between participants and the people they shared it with – in particular, if they shared the *fotonovela* with

people who were influential in their decision-making process regarding mental health care (Villatoro et al., 2014). A more nuanced understanding of how health information travels in a social network and its connection to help-seeking for Latinx adults with depression symptoms is an important next step.

Lastly, repeated assessment of variables, such as depression symptom and treatment knowledge, likely had a priming effect on the acquisition of mental health literacy. In other words, because participants were asked to identify symptoms of depression prior to engaging in the intervention, they were more likely to attend to this information while reading the *fotonovela* which may have increased their post-intervention recognition of symptoms more than had they not been primed with these questions. This possible explanation is supported by Bjork & Bjork (Bjork & Bjork, 2011, 2014; Little & Bjork, 2016) whose research with college students shows that individuals are better at learning content when primed ahead of time with a knowledge test.

Future studies are advised to include a qualitative component to capture the likely nuanced ways that *fotonovelas* are affecting change in attitudes and help seeking behaviors in Latinx communities, particularly why *fotonovelas* may work differently in women versus men. For example, qualitative interviews could elucidate ways in which an individual may have been "carried away by a message" (i.e., transportation) and how that lead to greater acceptability and internalization of anti-stigma messages embedded in the *fotonovela*. Furthermore, qualitative interviews could tap into other variables that may have led to greater help-seeking among those who received the *fotonovela* intervention including the role of standard elements of cultural adaptations. In general, questions about what motivated treatment seeking in the two groups would have provided useful confirmatory (or disconfirmatory) data about the impact of *fotonovela* interventions.

Conclusion

Fotonovelas and other E-E tools provide a unique opportunity to reduce health disparities among Latinx by conveying health information in a culturally-appropriate and relevant manner. The findings from this study suggest that one of the ways to address health disparities in mental health service utilization among Latinx is to use culturally-relevent E-E tools, which increase help-seeking behavior when compared to standard health literacy tools like brochures. *Fotonovelas* like the one used in this study can be used clinically as a "bridge" to mental health care in primary care and other physical healthcare settings. Additionally, *fotonovelas* may be useful in community (i.e., non-healthcare) settings to encourage help-seeking among those who otherwise would not consider accessing services. However, additional research needs to be done to understand why and for whom *fotonovelas* are most effective in order to expand their reach. Efforts to identify relevant explanatory variables and improve measurement of these contructs may improve the impact of these interventions on reducing disparities in mental health care for Latinx.

Tables

Table 1. Study Measures and Their Related Constructs

Measure	Abbreviation	Construct	Type of Measure
Demographics			Covariates
Depression Knowledge	DK	Mental health literacy	Mediator - Attitudes/Beliefs
Depression Literacy	D-Lit	Mental health treatment literacy	Mediator – Attitudes/Beliefs
Attitudes Towards Seeking Professional Psychological Help	ATSPPH	Stigma	Mediator - Attitudes/Beliefs
Self Efficacy Self Control Scale	SESC	Perceived behavioral control	Mediator – Attitudes/Beliefs
Intent to Seek Treatment Scale	ISTS	Intent to seek treatment	Mediator – Attitudes/Beliefs
Transportation Scale	TS	Transportation of Narrative	Mediator - Transportation
Identification Scale	IS	Identification of Narrative	Mediator - Identification
Social Proliferation Scale	SPS	Social proliferation	Mediator – Social Proliferation
Barriers to Care Questionnaire	BCQ	Logistic barriers	Moderator
Center for Epidemiologic Studies Scale	CESD	Depression symptoms	Moderator
Prior Service Use	PSU	Service Use	Outcome Measure

Table 2. Full Sample Characteristics

	N	*Percentage*	
Group			
Intervention (*Fotonovela*)	97	55.1%	
Control (NIH)	79	44.9%	
Mode of Study Administration			
In Person	108	61.36%	
Over the Phone	68	38.6%	
Language Preference			
English	161	91.5%	
Spanish	15	8.5%	
County of Residence			
Los Angeles	123	69.9%	
Imperial	53	30.1%	
School			
Imperial Valley College	34	21.8%	
San Diego State University – IV	4	2.6%	
UCLA	94	57.7%	
Rio Hondo College	13	8.3%	
Not a student	15	9.6%	
Gender Identity			
Male	34	19.3%	
Female	142	80.7%	
Race/Ethnicity			
Latinx/Hispanic	176	100%	
White	24	13.6%	
Black	4	2.3%	
Mestizo/a	18	10.2 %	
Asian	6	3.4%	
Other	4	2.3%	
Marital Status			
Single	151	85.8%	
Married	14	8.0%	
Other	11	6.3%	
Location of Birth			
Outside of USA	42	23.3%	
	Mean	*SD*	*Range*
Age	24.4	9.1	18.0-65.0
Income	$48,570	$35,758	$2,000-$160,000
CESD*	30.9	10.6	9.0-54.0
ARSMA			
Anglo-Orientation Subscale	3.6	.5	1.2-4.8
Latinx-Orientation Subscale	4.0	.6	2.3-5.0
Barriers to Care Questionnaire*			

Total Barriers	19.1	8.1	0.0-38.0
Content of Services	2.7	1.7	
Helpfulness of Services	2.8	1.8	
Lack of Need of Services	2.6	1.1	
Access to Services	4.8	2.9	
Language Concerns	.09	.4	
Financial Concerns	1.8	2.3	
Provider Concerns	2.0	1.4	
Effects of Services	2.5	1.9	

Note: * measured at pre-intervention

Table 3. Correlation Between Study Variables at Pre-Intervention

	1.	2.	3.	4.	5.	6.	7.	8.
1. DK	1.00							
2. DLit	.11	1.00						
3. ATSPPH	.09	.37	1.00					
4. SESC	.10	.35	.52	1.00				
5. ISTS	-.03	.32	.52	.39	1.00			
6. Past Year BCQ	-.09	-.21	-.30	-.39	-.21	1.00		
7. CESD	.10	-.13	-.15	-.16	-.23	.41	1.00	
8. ARSMA LOS	-.18	.02	.06	.12	.22	.03	.001	1.00

Note: ISTS = Intent to Seek Treatment Scale; DLit = Depression Treatment Knowledge Scale; DK = Depression Symptom Knowledge Scale; ATSPPH = Attitudes Towards Seeking Professional Psychological Help Scale; SESC = Self Efficacy Self Control Scale; BCQ = Barriers to Care Questionnaire; CESD = Center for Epidemiological Studies Depression Scale; ARSMA LOS = Acculturation Rating Scale for Mexican Americans Latinx Orientation Subscale

Table 4. Correlation Between Study Variables at Post-Intervention

	1.	2.	3.	4.	5.	6.	7.
1. DK	1.00						
2. DLit	.40	1.00					
3. ATSPPH	.15	.22	1.00				
4. SESC	.02	.16	.45	1.00			
5. ISTS	-.04	.24	.49	.45	1.00		
6. TS	.18	.003	.27	.13	.27	1.00	
7. IS	.12	-.03	.22	.18	.27	.70	1.00

Note: ISTS = Intent to Seek Treatment Scale; DLit = Depression Treatment Knowledge Scale; DK = Depression Symptom Knowledge Scale; ATSPPH = Attitudes Towards Seeking Professional Psychological Help Scale; SESC = Self Efficacy Self Control Scale; TS = Transportation Scale; IS = Identification Scale

Table 5. Correlation Between Study Variables at 3-month Follow-up

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. DK	1.00									
2. DLit	.31	1.00								
3. ATSPPH	.09	.31	1.00							
4. SESC	.04	.13	.32	1.00						
5. ISTS	.10	.002	.32	.38	1.00					
6. 3-month BCQ	-.03	-.10	-.21	-.35	-.17	1.00				
7. CESD	-.02	-.05	-.16	-.24	-.14	.44	1.00			
8. TS	.18	.15	.32	.21	.29	.13	.09	1.00		
9. IS	.11	.08	.20	.15	.25	.21	.12	.71	1.00	
10. SPS	-.05	-.15	.08	.14	.18	.12	-.03	.13	.07	1.00

Note: ISTS = Intent to Seek Treatment Scale; DLit = Depression Treatment Knowledge Scale; DK = Depression Symptom Knowledge Scale; ATSPPH = Attitudes Towards Seeking Professional Psychological Help Scale; SESC = Self Efficacy Self Control Scale; TS = Transportation Scale; IS = Identification Scale; BCQ = Barriers to Care Questionnaire; CESD = Center for Epidemiological Studies Depression Scale

Table 6. Mean Differences in Attitudes and Beliefs Across Time by Intervention Group

	Pre-Intervention		Post-Intervention		3-Month Follow-Up	
	Fotonovela Mean(SE)	*Control Mean(SE)*	*Fotonovela Mean(SE)*	*Control Mean(SE)*	*Fotonovela Mean(SE)*	*Control Mean(SE)*
DLit	5.8(.10)	5.6(.17)	6.6(.10)	6.5(.10)	6.1(.18)	6.0(.11)
DK	**8.6(.13)**	**7.8(.22)**	**8.8(.16)**	**7.0(.15)**	**8.3(.25)**	**7.5(.19)**
ATSPPH	19.2(.61)	18.6(.61)	23.6(.51)	22.9(.55)	21.4(.59)	20.4(.59)
SESC	2.2(.08)	2.4(.09)	2.7(.08)	2.7(.09)	2.4(.09)	2.3(.10)
ISTS	2.1(.05)	2.0(.06)	2.4(.04)	2.4(.06)	**2.3(.04)**	**2.1(.06)**
SPS	-	-	-	-	2.1(.19)	2.1(.22)
CESD	29.9(1.21)	31.0(1.4)	-	-	26.1(1.1)	25.6(1.2)
BCQ	18.7(.88)	19.7(1.12)	-	-	14.9(1.07)	15.7(1.3)

Note: Bolded items represent between-group significant differences; DLit = Depression Treatment Knowledge Scale; DK = Depression Symptom Knowledge Scale; ATSPPH = Attitudes Towards Seeking Professional Psychological Help Scale; SESC = Self Efficacy Self Control Scale; ISTS = Intent to Seek Treatment Scale; SPS = Social Proliferation Scale; CESD = Center for Epidemiological Studies Depression Scale; BCQ = Barriers to Care Questionnaire

Table 7 – Aim 2b

Outcome	**Mediator**	***a***	***p***	***b***	***p***			
Depression Symptom Knowledge	Transportation	**4.69**	**.002**	.02	.10			
	Identification	.70	.25	-.07	.37			
	Predictor	***c***	***p***	***a*b***	***p***	**95% CI**	***c'***	***p***
	Intervention Group	**1.68**	**<.001**	.07	.36	[-.07 - .18]	**1.62**	**<.001**
	Gender	.04	.87	.04	.58	[-.10 - .19]	-.03	.90
	Mode of delivery	-.40	.07	.02	.67	[-.07 - .12]	-.42	.05
	Age	-.01	.56	.001	.92	[-.004 - .004]	-.01	.54
	Pre-Int. CESD	-.001	.95	.004	.18	[-.002 - .01]	-.01	.61
	Pre-Int. DK	**.31**	**<.001**	.003	.81	[-.02 - .03]	**.31**	**<.001**
	Mediator	***a***	***p***	***b***	***p***			
Depression Treatment Knowledge	Transportation	**4.73**	**.001**	.01	.28			
	Identification	**.70**	**.005**	-.07	.21			
	Predictor	***c***	***p***	***a*b***	***p***	**95% CI**	***c'***	***p***
	Intervention Group	.03	.82	-.001	.99	[-.08 - .08]	.03	.83
	Gender	.19	.28	-.001	.97	[-.10 - .09]	.19	.29
	Mode of delivery	-.10	.50	-.01	.83	[-.06 - .05]	-.09	.53
	Age	-.01	.08	.001	.85	[-.002 - .002]	-.01	.07
	Pre-Int. CESD	-.005	.43	.001	.52	[-.003 - .005]	-.007	.33
	Pre-Int. DLit	**.28**	**<.001**	.001	.92	[-.02 - .02]	**.27**	**<.001**
	Mediator	***a***	***p***	***b***	***p***			
Stigma towards Help Seeking	Transportation	**4.97**	**.001**	**.10**	**.01**			
	Identification	**.72**	**.005**	.15	.50			
	Predictor	***c***	***p***	***a*b***	***p***	**95% CI**	***c'***	***p***
	Intervention Group	-.31	.59	**.60**	**.004**	**[.19 – 1.01]**	-.91	.12
	Gender	**1.48**	**.04**	**.72**	**.006**	**[.21 – 1.2]**	.76	.29
	Mode of delivery	-.09	.88	.28	.11	[-.06 - .63]	-.37	.53
	Age	.004	.91	-.004	.65	[-.02 - .01]	.008	.81

	Pre-Int. CESD	.02	.55	**.03**	**.008**	[.008 - .05]	-.01	.60
	Pre-Int. ATSPPH	**.49**	**<.001**	.006	.69	[-.02 - .04]	**.49**	**<.001**
Self-Efficacy	**Mediator**	***a***	***p***	***b***	***p***			
	Transportation	**4.70**	**.001**	.009	.08			
	Identification	**.70**	**.005**	**.073**	**.02**			
	Predictor	***c***	***p***	***a*b***	***p***	**95% CI**	***c'***	***p***
	Intervention Group	.01	.90	**.09**	**.002**	**[.03 - .15]**	-.08	.30
	Gender	-.12	.22	**.10**	**.004**	**[.03 - .18]**	**-.23**	**.02**
	Mode of delivery	-.03	.66	**.05**	**.05**	**[.001 - .10]**	-.09	.27
	Age	.004	.92	-.005	.70	[-.02 - .01]	.0001	.83
	Pre-Int. CESD	-.0003	.93	**.03**	**.008**	**[.003 - .002]**	-.004	.83
	Pre-Int. SESCS	**.61**	**<.001**	-.01	.50	[-.04 - .02]	**.63**	**<.001**
Intent to Seek Treatment	**Mediator**	***a***	***p***	***b***	***p***			
	Transportation	**4.59**	**.001**	.006	.08			
	Identification	**.69**	**.005**	.02	.25			
	Predictor	***c***	***p***	***a*b***	***p***	**95% CI**	***c'***	***p***
	Intervention Group	-.02	.60	**.04**	**.01**	**[.01 - .07]**	-.07	.18
	Gender	.08	.22	**.04**	**.01**	**[.01 - .09]**	.03	.64
	Mode of delivery	.08	.14	.02	.10	[-.004 - .05]	.06	.25
	Age	-.002	.39	-.001	.75	[-.02 - .01]	-.002	.41
	Pre-Int. CESD	-.002	.26	**.03**	**.008**	[-.001 - .0001]	**-.005**	**.04**
	Pre-Int. ISTS	**.59**	**<.001**	**.05**	**.01**	[.01 - .08]	**.54**	**<.001**

Note: bolded items indicate significant effects. See Figure 6 for path diagram.

Table 8 – Aim 2c

Outcome	**Mediators**	**Pred.**	***a***	***p***	***b***	***p***			***c***	***p***			***a*b***	***p***	***95% CI***	***c'***	***p***		
Help Seeking	Depression Symptom Knowledge[1]	Int. Group	**1.68**	**<.001**	.001	.97			.12	.08			-.01	.78	[-.09 - .07]	.13	.10		
		Gender	.03	.91					-.10	.23			-.0002	.91	[-.004 - .003]	-.10	.24		
		Mode	-.40	.07					-.06	.43			.002	.78	[-.02 - .02]	-.06	.41		
		Age	-.01	.56					**.01**	**.003**			<.0001	.80	[-.0003 - .0004]	**.01**	**.003**		
		Pre-Int CESD	-.001	.95					**.01**	**.002**			<.0001	.95	[-.0001 - .0001]	**.01**	**.002**		
		Pre-Int DK	**.31**	**<.001**					.11	**<.001**			-.002	.78	[-.02 - .01]	.12	**<.001**		
Outcome	**Mediators**	**Pred.**	***a***	***p***	***b₁***	***p***	***b₂***	***p***	***c₁***	***p***	***c₂***	***p***	***a*b₁*b₂***	***p***	***95% CI***	***c₁'***	***p***	***c₂'***	***p***
Help Seeking	Transportation, Stigma[2]	Int. Group	**4.97**	**.001**	**.12**	**<.001**	-.002	.76	-.31	.59	**.17**	**.01**	.001	.79	[-.005 - .008]	-.89	.12	**.17**	**.02**
		Gender	**6.06**	**.001**					**1.48**	**.04**	-.11	.24	-.004	.76	[-.03 - .02]	.77	.29	-.10	.26
		Mode	-.40	.07					-.09	.88	-.06	.43	.002	.89	[-.002 - .004]	-.34	.57	-.06	.43
		Age	-.01	.56					.04	.91	.006	.20	<.0001	.91	[-.0002 - .0002]	.007	.82	.006	.20
		Pre-Int CESD	-.001	.95					**.**01	**.**56	**.01**	**<.001**	<.0001	.79	[-.0001 - .0001]	-.02	.54	**.01**	**<.001**
		Pre-Int ATSPPH	**.31**	**<.001**					**.49**	**<.001**	.007	.35	-.001	.76	[-.01 - .01]	**.48**	**<.001**	.01	.34
Outcome	**Mediators**	**Pred.**	***a₁***	***p***	***a₂***	***p***	***b₁₁***	***p***	***b₁₂***	***p***	***b₂***	***p***	***c₁***	***p***	***c₂***	***p***	***a₁,₂*b₁₁***	***p***	***95% CI***
Help Seeking	Transportation, Identification, Self Efficacy [3]	Int. Group	**4.69**	**.001**	**.70**	**.005**							.01	.90	**.20**	**.005**	.001	.90	[-.01-.02]
		Gender	**5.24**	**.004**	**.78**	**.013**	.009	.08	**.07**	**.02**	.09	.17	-.13	.22	-.12	.19	-.01	.36	[-.04 - .02]
		Mode	2.25	.14	.44	.09							-.04	.66	-.06	.42	-.004	.68	[-.02 - .01]
		Age	-	.96	-	.65					.		.0004	.92	.007	.07	<.0	.92	[-

			.004		**.007**												01		.001 - .001]
		Pre-Int CESD	**.25**	**<.001**	.02	.65							<.0001	.93	**.01**	**<.001**	< .001	.93	**[-.001 - .001]**
		Pre-Int SESCS	-.50	.64	-.09	.62							**.61**	**<.001**	.09	.07	.05	.17	[-.02 - .13]
	""		***c₁'***	***p***	***c₂'***	***p***													
		Int. Group	-.08	.30	**.20**	**.005**													
		Gender	**-.23**	**.02**	-.11	.23													
		Mode	-.09	.28	-.05	.44													
		Age	.001	.83	.007	.07													
		Pre-Int CESD	-.004	.32	**.01**	**<.001**													
		Pre-Int SESCS	**.62**	**<.001**	.04	.54													
Outcome	**Mediators**	**Pred.**	***a₁***	***p***	***a₂***	***p***	***b₁₁***	***p***	***b₁₂***	***p***	***b₂***	***p***	***c₁***	***p***	***c₂***	***p***	***a₁,₂ *b₁₁ -₂***	***p***	***95 % CI***
Help Seeking	Transportation, Identification, Intent to seek treatment[4]	Int. Group	**4.59**	**.001**	**.70**	**.005**							-.03	.60	**.19**	**.007**	.002	.68	[-.01 - .01]
							.006	.09	.02	.25	-.07	.52							
		Gender	**5.05**	**.005**	**.77**	**.013**							.08	.23	-.10	.26	-.005	.57	[-.02 - .01]
		Mode	1.85	.22	.40	.13							.08	.14	-.06	.47	-.005	.55	[-.02 - .01]
		Age	-.008	.92	**-.00**	.67					.		-.002	.39	**.01**	**.01**	.0001	.60	[-.000

			5									4 -.0007]
Pre-Int CESD	**.31**	**<.001**	**.02**	**.04**		-.003	.26	**.01**	**.008**	.0002	.57	[-.0004 -.0008]
Pre-Int ISTS	**4.71**	**.003**	**.73**	**.007**		**.59**	**<.001**	**-.17**	**.02**	-.04	.52	[-.16 -.08]

	c_1'	*p*	c_2'	*p*
Int. Group	-.07	.18	**.19**	**.007**
Gender	.03	.64	-.09	.28
Mode	.06	.27	-.05	.51
Age	-.002	.41	**.009**	**.02**
Pre-Int CESD	**-.005**	**.04**	**.009**	**.009**
Pre-Int ISTS	**.54**	**<.001**	-.13	.17

Note: bolded items indicate significant effects. See Figure 7 for path diagram. [1]IV=intervention group, gender; Serial Mediator = Depression symptom knowledge; DV=Help-seeking at 3-month follow-up. [2]IV = intervention group, gender; Serial Mediator 1=Transportation; Serial Mediator 2 = stigma; DV = Help-seeking at 3-month follow-up. [3]IV=intervention group, gender; Parallel Mediators =Transportation (1) and Identification (2); Serial Mediator = self-efficacy; DV=Help-seeking at 3-month follow-up. [4]IV=intervention group, gender; Parallel Mediators =Transportation (1) and Identification (2); Serial Mediator = intent to seek treatment; DV=Help-seeking at 3-month follow-up.

Figures

Figure 1. Theory of Planned Behavior Model

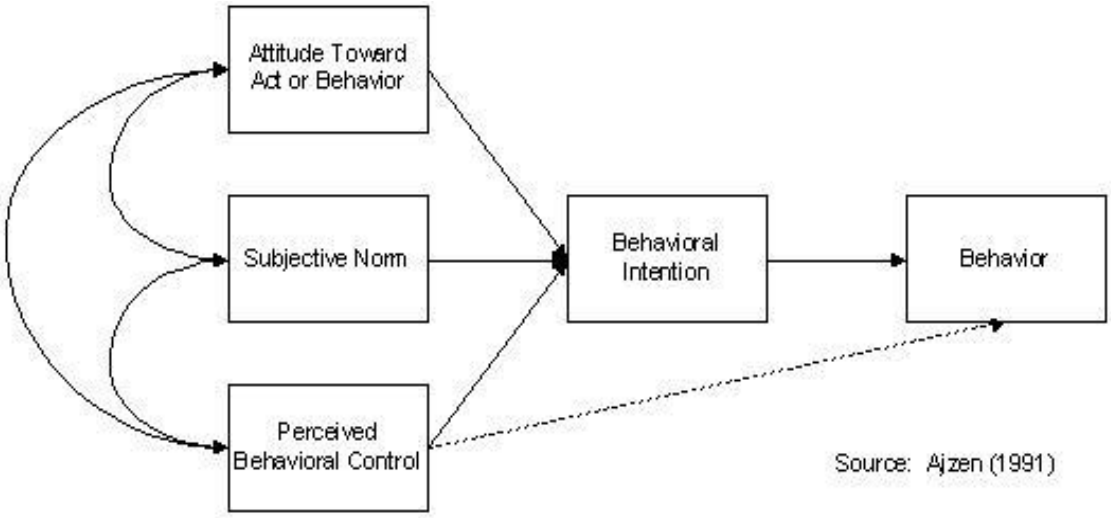


Figure 2. Health Belief Model

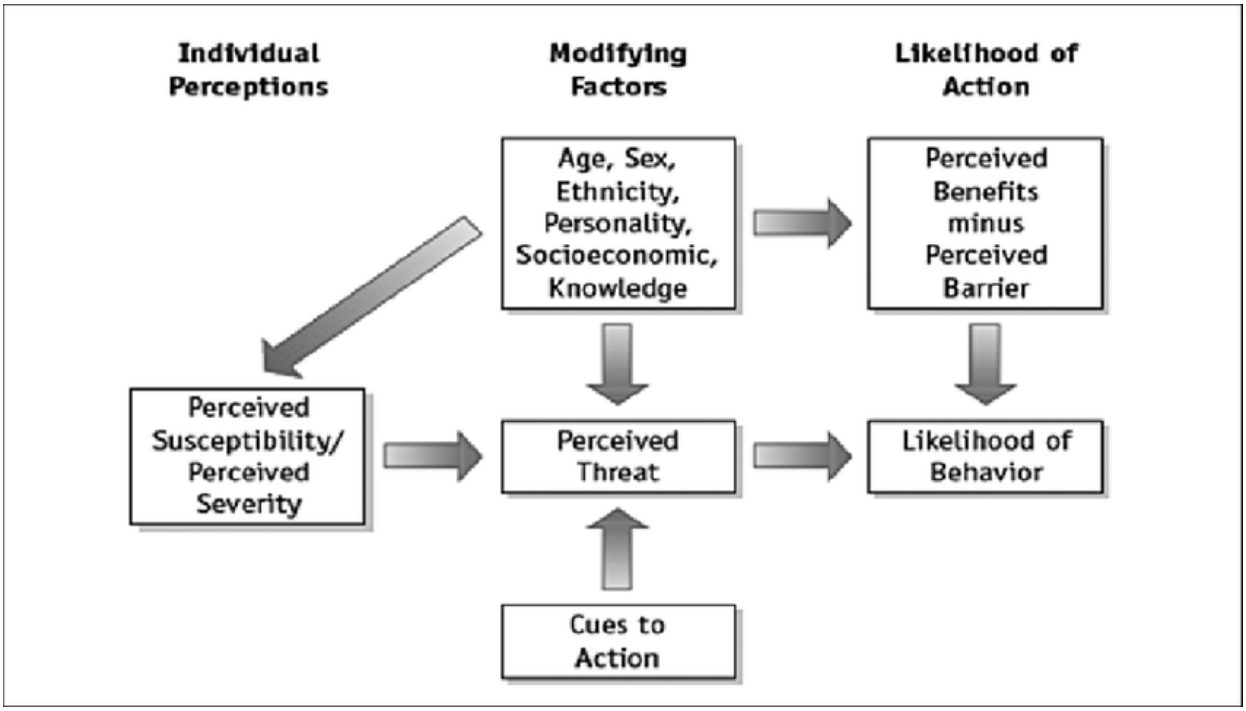


Figure 3. Narrative as Culture-Centric Health Promotion Model

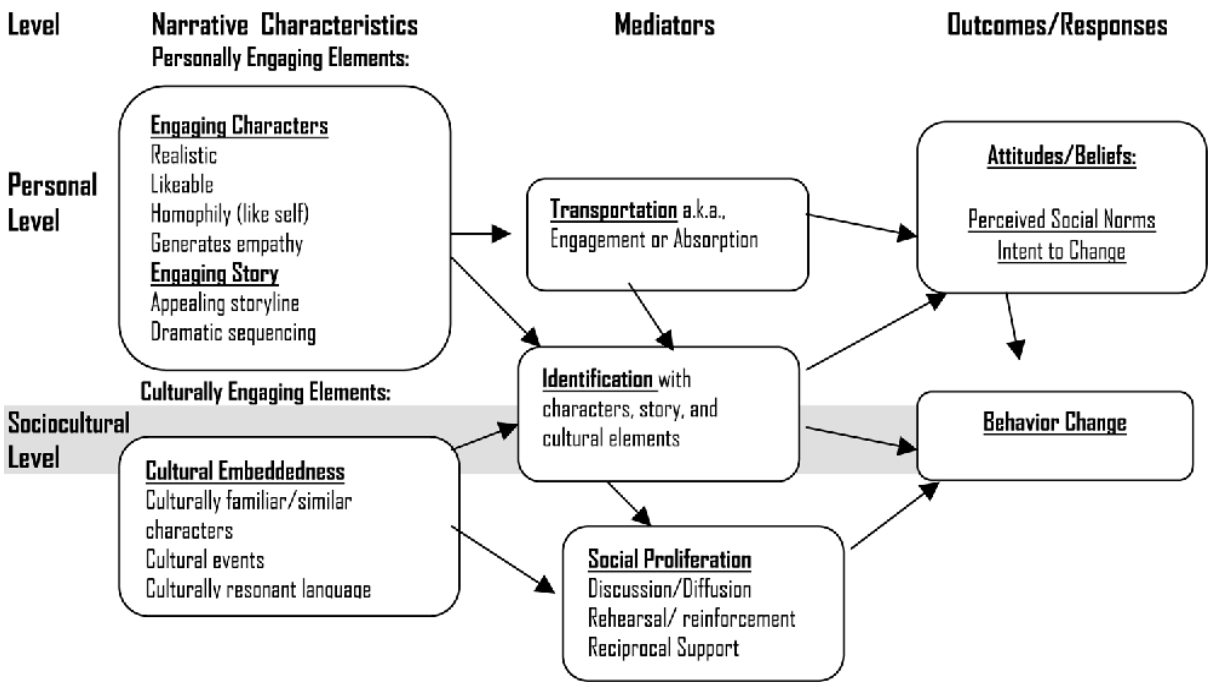
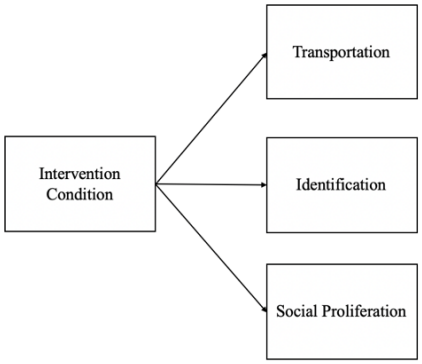
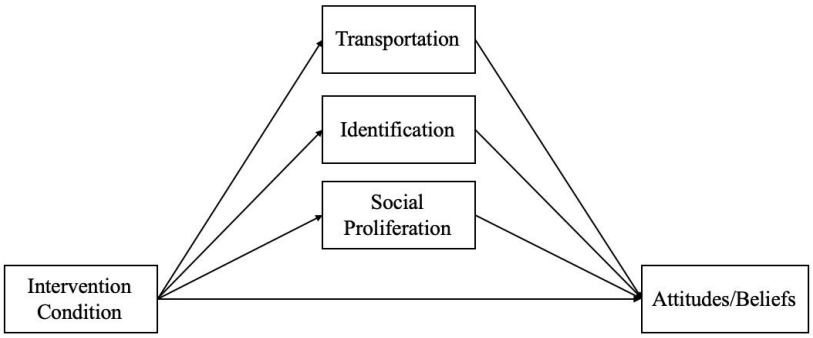


Figure 4. Study Hypotheses

a) Aim 1, Hypothesis 1



b) Aim 2, Hypothesis 2a



c) Aim 2, Hypothesis 2b

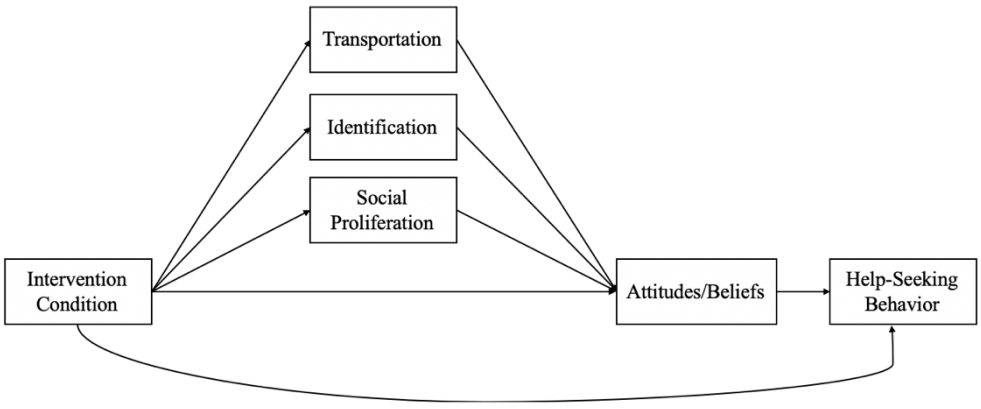


Figure 5. CONSORT Diagram of Study Participants

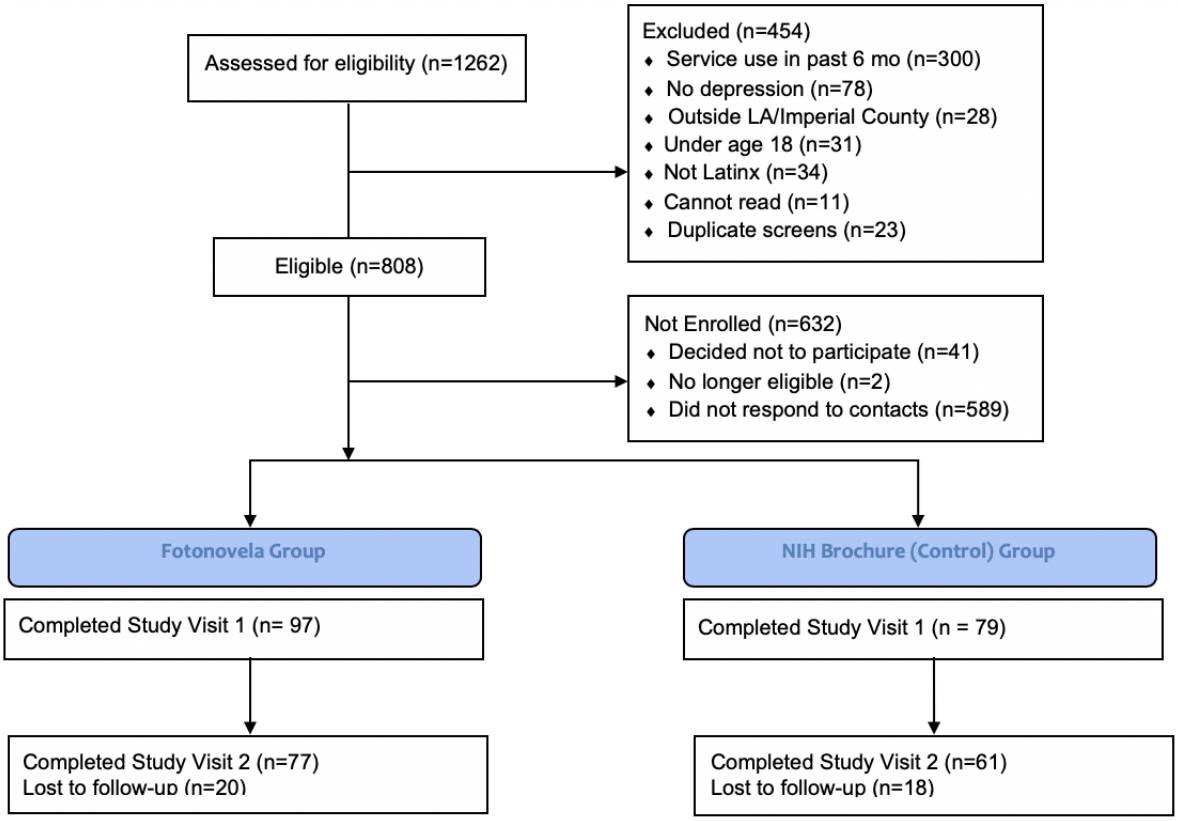


Figure 6. Proposed Parallel Mediational Model

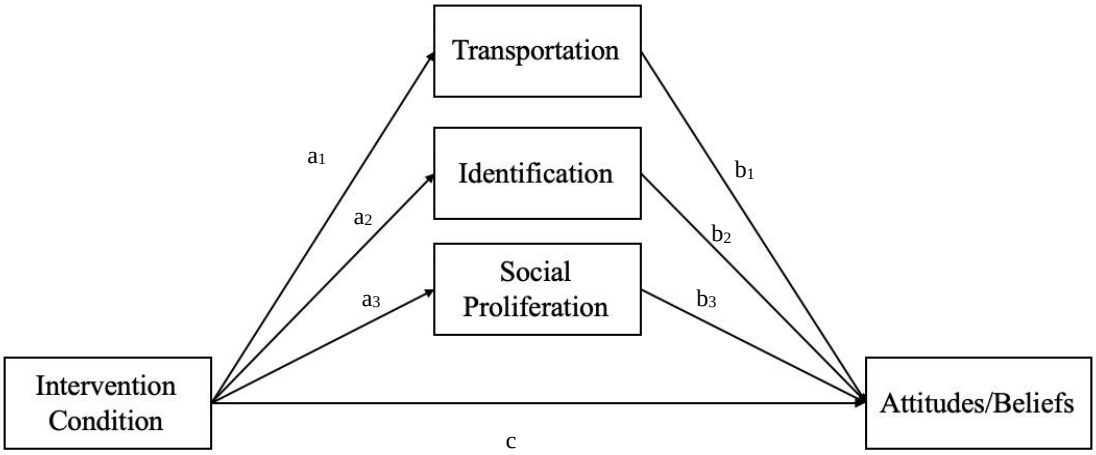
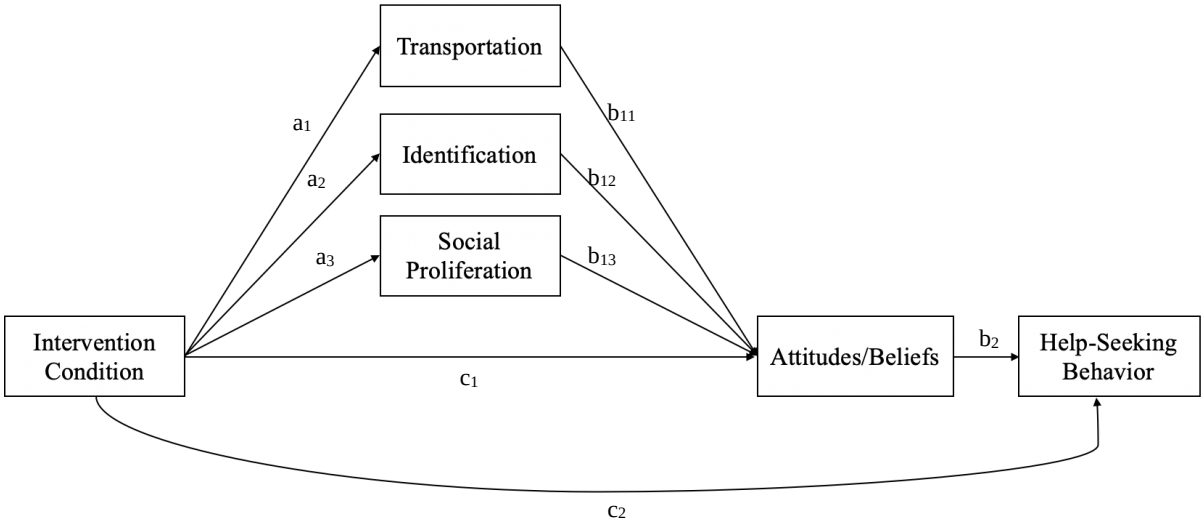


Figure 7. Proposed Serial Mediational Model



Appendices

Appendix A - Recruitment Flyer

project: Mente Fuerte

Have you recently been feeling down, sad, or not like yourself?

Are you interested in strengthening your mental well-being?

If yes, consider participating in our project!

The CALMA Lab at UCLA is looking for Latino/a adults who want to learn more about mental well being to participate in a research study.

As a participant, you will receive a short book about depression and ways to help improve mental well being. You will fill out some questionnaires about yourself before and after reading the book (in person) and 3 months later (in person or online). Study visits may take place in your home, at UCLA, or in some cases at your school.

You will receive up to $30 for your participation in this study, and the total time commitment is approximately 4 hours.

CALMA UCLA

For more information or to see if you're eligible to participate in the study, please contact:

mentefuerteUCLA@gmail.com
(310) 825-7796

Principal Investigator: Louise Dixon, MA
Co-Investigator: Denise Chavira, PhD

Appendix B – Eligibility Screener

Mente Fuerte Eligibility Screening (Selección de Elegibilidad Mente Fuerte)

Thank you for your interest in participating in the eligibility screening for the UCLA study: Mente Fuerte. Please complete the following questions to the best of your ability. If you are eligible to participate, a member of the study staff will be in contact with you shortly to schedule your first study visit. If you have any questions, please email us at mentefuerteucla@gmail.com.

Gracias por su interés en participar en el estudio de UCLA: Mente Fuerte. Por favor complete las siguientes preguntas lo mejor que pueda. Si es elegible para participar, un miembro del estudio va a contactarlo para arreglar su primera visita de estudio. Si tiene preguntas, por favor contáctanos a mentefuerteucla@gmail.com

* Required

1. Email address *

2. First and last name (Nombre y apellido) *

3. Phone number (número de teléfono) *

4. Preferred language (idioma preferido) *

- [ ] English
- [ ] Español

5. ZIP Code

_____

6. In which county do you live? (¿En qué condado vives?) *

- ◯ Los Angeles County
- ◯ Imperial County
- ◯ Other: _____

7. Are you 18 years of age or older? (¿Tiene 18 años o es usted mayor de 18 años?) *

- ◯ Yes/Sí
- ◯ No

8. Do you fluently speak English or Spanish? (Habla inglés o español con fluidez?) *

- ◯ Yes/Sí
- ◯ No

9. Can you read in English or Spanish? (Puede used leer en inglés o español?) *

- [ ] Yes/Sí
- [ ] No

10. Do you identify as Latino/a/x or Hispanic? (Se identifica usted como latino/a/x o hispano/a/x?)

- [ ] Yes/Sí
- [ ] No

11. If you do not identify as Latino/a/x or Hispanic, what is your race/ethnicity? (Si no se identifica como latino/a/x o hispano/a/x, ¿cuál es su raza/etnia?)

_____

12. Are you currently a student at one of the following institutions? (¿Es actualmente estudiante una de las siguientes instituciones?

- [ ] Imperial Valley College
- [ ] San Diego State University - Imperial
- [ ] University of California, Los Angeles (UCLA)
- [ ] Rio Hondo College
- [ ] California State University, Los Angeles (CSULA)
- [ ] None/Ninguno
- [ ] Other: _____

13. How did you find out about this study? (¿Cómo enteró usted de este estudio?)

- [ ] Community event/Evento en la comunidad
- [ ] Friend or family member/Amigo o familiar
- [ ] Flyer/Volante
- [ ] Social media/Redes sociales
- [ ] School announcement or email/Anuncio o correo de la escuela
- [ ] Other: _____

CESD

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the PAST WEEK.

A continuación hay una lista de las formas en que podría haberse sentido o sentido. Por favor, dime con qué frecuencia te has sentido así durante la SEMANA PASADA.

14. 1. I was bothered by things that usually don't bother me. (Me molestaron las cosas que normalmente no me molestan.)

- [ ] Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- [ ] Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- [ ] Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- [ ] Most or all of the time (5-7 days) / Casi siempre (5-7 días)

15. 2. I did not feel like eating; my appetite was poor (No me sentía con ganas de comer; no tenía apetito).

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

16. 3. I felt that I could not shake off the blues even with help from my family or friends. (Me sentí que no podía quitarme de encima la tristeza, aún con la ayuda de mi familia o amigos.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

17. 4. I felt that I was just as good as other people (Sentía que yo era tan bueno(a) como cualquier otra persona.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

18. 5. I had trouble keeping my mind on what I was doing. (Tenía dificultad en mantener mi mente en lo que estaba haciendo.)

- [ ] Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- [ ] Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- [ ] Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- [ ] Most or all of the time (5-7 days) / Casi siempre (5-7 días)

19. 6. I felt depressed (Me sentía deprimido(a).)

- [ ] Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- [ ] Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- [ ] Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- [ ] Most or all of the time (5-7 days) / Casi siempre (5-7 días)

20. 7. I felt that everything I did was an effort. (Sentía que todo lo que hacía requería esfuerzo.)

- [ ] Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- [ ] Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- [ ] Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- [ ] Most or all of the time (5-7 days) / Casi siempre (5-7 días)

21. 8. I felt hopeful about the future. (Me sentía optimista sobre el futuro.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

22. 9. I thought my life had been a failure.(Pensé que mi vida había sido un fracaso.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

23. 10. I felt fearful. (Me sentía con miedo.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

24. 11. My sleep was restless. (Mi sueño era inquieto.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

25. 12. I was happy. (Estaba contento(a).)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

26. 13. I talked less than usual. (Hablé menos de lo usual.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

27. 14. I felt lonely. (Me sentía solo(a).)

- ◯ Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- ◯ Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- ◯ Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- ◯ Most or all of the time (5-7 days) / Casi siempre (5-7 días)

28. 15. People were unfriendly. (Sentía que la gente no era amistosa.)

- ◯ Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- ◯ Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- ◯ Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- ◯ Most or all of the time (5-7 days) / Casi siempre (5-7 días)

29. 16. I enjoyed life. (Disfruté de la vida.)

- ◯ Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- ◯ Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- ◯ Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- ◯ Most or all of the time (5-7 days) / Casi siempre (5-7 días)

30. 17. I had crying spells. (Pasé ratos llorando.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

31. 18. I felt sad. (Me sentía triste.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

32. 19. I felt that people dislike me. (Sentía que no le caía bien a la gente.)

- Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- Most or all of the time (5-7 days) / Casi siempre (5-7 días)

33. 20. I could not get “going.” (No tenía ganas de hacer nada.)

- ◯ Rarely or none of the time (less than 1 day) / Casi nunca (menos de 1 día)
- ◯ Some or a little of the time (1-2 days) / Muy poco (1-2 días)
- ◯ Occasionally or a moderate amount of time (3-4 days) / Algunas veces (3-4 días)
- ◯ Most or all of the time (5-7 days) / Casi siempre (5-7 días)

Past service use

34. Have you ever received treatment from a psychiatrist for problems with your emotions, or nerves, or use of alcohol or drugs? (¿Alguna vez ha recibido tratamiento de un psiquiatra por problemas con sus emociones, nervios o uso de alcohol o drogas?)

- ◯ No
- ◯ Yes, but not in the last 6 months (Sí, pero no en los últimos 6 meses)
- ◯ Yes, in the last 6 months (Sí, en los últimos 6 meses)

35. Have you ever received treatment from a family physician (PCP) for problems with your emotions, or nerves, or use of alcohol or drugs? (¿Alguna vez ha recibido tratamiento de un médico familiar por problemas con sus emociones, nervios o uso de alcohol o drogas?)

- ◯ No
- ◯ Yes, but not in the last 6 months (Sí, pero no en los últimos 6 meses)
- ◯ Yes, in the last 6 months (Sí, en los últimos 6 meses)

36. Have you ever received treatment from another type of physician for problems with emotior or nerves, or use of alcohol or drugs? (¿Alguna vez ha recibido tratamiento de un otro médic por problemas con sus emociones, nervios o uso de alcohol o drogas?)

- ◯ No
- ◯ Yes, but not in the last 6 months (Sí, pero no en los últimos 6 meses)
- ◯ Yes, in the last 6 months (Sí, en los últimos 6 meses)

37. Have you ever received treatment from a social worker for problems with your emotions, or nerves, or use of alcohol or drugs? (¿Alguna vez ha recibido tratamiento de un trabajador social por problemas con sus emociones, nervios o uso de alcohol o drogas?)

- ◯ No
- ◯ Yes, but not in the last 6 months (Sí, pero no en los últimos 6 meses)
- ◯ Yes, in the last 6 months (Sí, en los últimos 6 meses)

38. Have you ever received treatment from a counselor for problems with your emotions, or nerves, or use of alcohol or drugs? (¿Alguna vez ha recibido tratamiento de un(a) consejero/a por problemas con sus emociones, nervios o uso de alcohol o drogas?)

- ◯ No
- ◯ Yes, but not in the last 6 months (Sí, pero no en los últimos 6 meses)
- ◯ Yes, in the last 6 months (Sí, en los últimos 6 meses)

39. Have you ever received treatment from any other mental health professional for problems w your emotions, or nerves, or use of alcohol or drugs? (¿Alguna vez ha recibido tratamiento d cualquier otro profesional de salud mental por problemas con sus emociones, nervios o uso alcohol o drogas?)

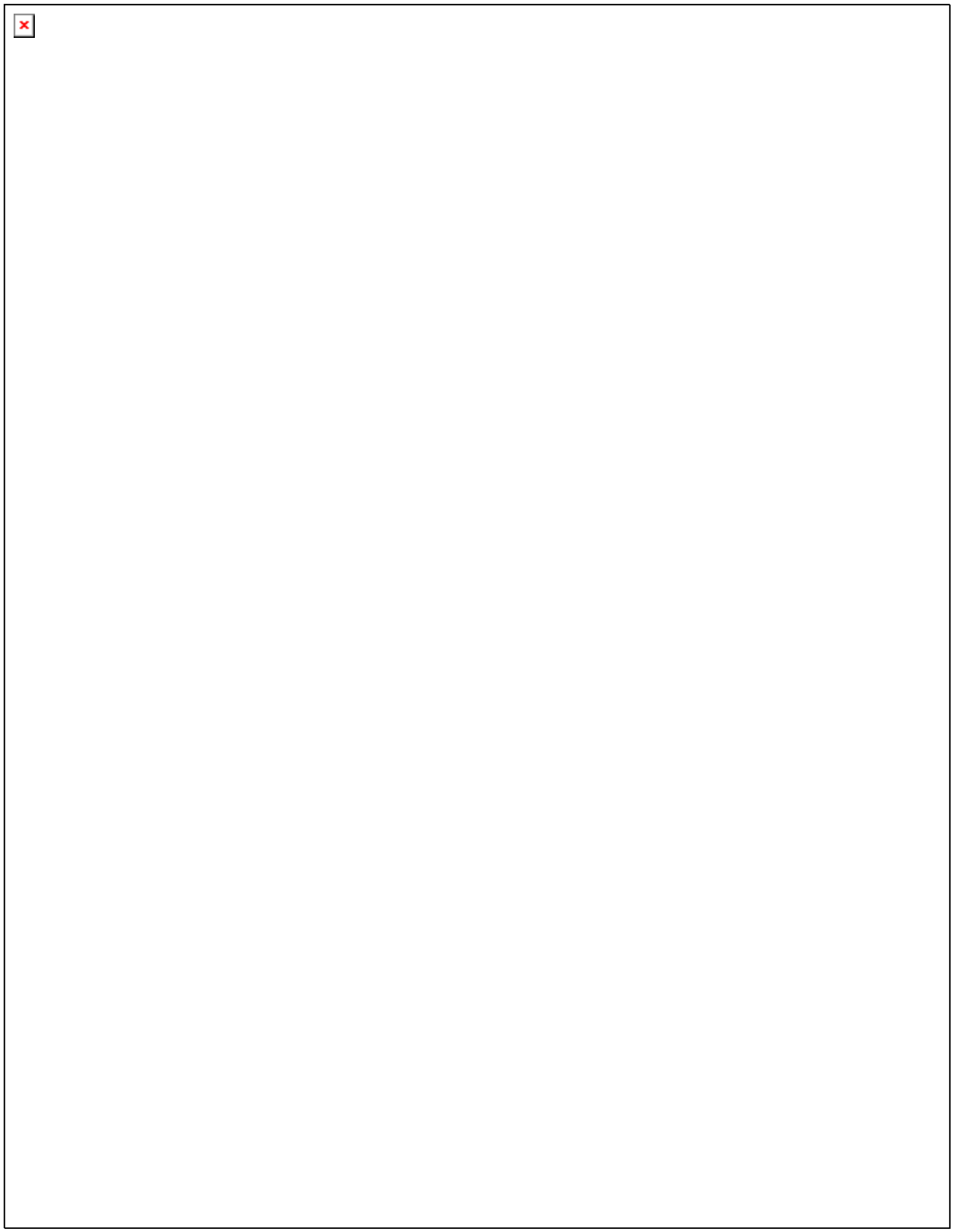
- [ ] No
- [ ] Yes, but not in the last 6 months (Sí, pero no en los últimos 6 meses)
- [ ] Yes, in the last 6 months (Sí, en los últimos 6 meses)

40. Have you ever received treatment from a religious or spiritual advisor for problems with your emotions, or nerves, or use of alcohol or drugs? (¿Alguna vez ha recibido tratamiento de un consejero religioso o espiritual por problemas con sus emociones, nervios o uso de alcohol o drogas?)

- [ ] No
- [ ] Yes, but not in the last 6 months (Sí, pero no en los últimos 6 meses)
- [ ] Yes, in the last 6 months (Sí, en los últimos 6 meses)

41. Have you ever received treatment from any other type of healer for problems with your emotions, or nerves, or use of alcohol or drugs? (¿Alguna vez ha recibido tratamiento de un curador(a) por problemas con sus emociones, nervios o uso de alcohol o drogas?)

- [ ] No
- [ ] Yes, but not in the last 6 months (Sí, pero no en los últimos 6 meses)
- [ ] Yes, in the last 6 months (Sí, en los últimos 6 meses)



Appendix C – Informed Consent for In Person Visits

University of California, Los Angeles

CONSENT TO PARTICIPATE IN RESEARCH

Entertainment Education for Depression in Latinx Adults: Testing Mediators and Moderators of a Culture-Centric Narrative Intervention to Promote Help-Seeking Behavior

Louise Dixon, MA and Denise Chavira, PhD, from the *Clinical Psychology Department* at the University of California, Los Angeles (UCLA) are conducting a research study.

You were selected as a possible participant in this study because *you are an adult who identifies as Latinx/Hispanic and may benefit from some information on mental wellbeing and depression*. Your participation in this research study is voluntary.

Why is this study being done?

This study is being done to compare two books about mental wellbeing. We are interested in knowing how these books affect your knowledge about depression and your views about depression treatment. Also, we want to know how engaging and dramatic you think the books are, to know which one is more effective at helping people like you.

What will happen if I take part in this research study?

If you volunteer to participate in this study, the researcher will ask you to do the following:

- *Read and sign this informed consent form*

First Study Visit (in person):

- *Complete a packet of questionnaires before reading the book. These questionnaires will ask you about yourself, your mental wellbeing including your mood, you knowledge of depression and treatments. You may complete these questionnaires today, or set up another time to complete them.*

- *Read the book right after you complete the first packet of questionnaires.*

- *Complete a packet of questionnaires right after reading the book. These questionnaires will ask you about your knowledge of depression and treatments and how much you liked the book, how you related to the characters in the story, and how likely you would be to act like the characters in the story. You will complete these questionnaires on the same day you read the book.*

Second Study Visit (in person or online):

- *Complete a packet of questionnaires 3 months from now, which will ask you similar questions to the previous questionnaires including questions about your mood. We can set up a meeting for you to complete these questionnaires in person, or you can complete them online.*

How long will I be in the research study?

Participation will take a total of about *3.5 hours, which will be broken down as follows:*

1. Informed Consent: 30 minutes
2. First study visit: ~120 minutes
3. Second study visit: ~60 minutes

The Second study visit will take place 3 months after the first study visit.

Are there any potential risks or discomforts that I can expect from this study?

There is risk that you may be identified by the data collected in the study. However, information collected in the course of this study will be stored in a locked and secure location and your consent form and name will be kept separate from the responses you provide. Some questions about your mood may bring up uncomfortable feelings. You can choose not to answer any question, and discontinue your participation at any time.

Research participation is voluntary and you can stop at any time or choose not to complete certain parts of the study.

Are there any potential benefits if I participate?

You may not experience any benefits from participating in this study.

Findings will help researchers, clinicians, and educators to better understand what aspects of mental health literacy interventions for Latinx may matter most for changing help-seeking related behaviors for mental wellbeing.

Will I be paid for participating?

You will receive $30 for participating in this study. You will receive $10 for completing the first study visit and $20 for completing the second study visit. If mailing a cash payment is not possible, you will be sent an electronic Amazon gift card payment.

Will information about me and my participation be kept confidential?

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. However complete confidentiality cannot be guaranteed.

All of the information you provide will be associated with a number. We will not write your name on any questionnaires. Only the study staff will have access to the list identifying the names connected to each identification number. The master list connecting your name to your data will be destroyed within three years after the conclusion of the study.

The research team may not be able to keep confidential any disclosure or endorsement of thoughts to harm yourself. In the event that you tell the research staff that you are thinking about killing yourself the research staff will ask you more questions about the thoughts. Depending on how intense your thoughts are or how much you feel like hurting yourself, the research staff may provide you with referrals for treatment, work with you to contact your personal physician, trusted family member, or therapist to discuss your thoughts of harming yourself; or work with you on a plan that may include getting you to a hospital for safety.

What are my rights if I take part in this study?

- You can choose whether or not you want to be in this study, and you may withdraw your consent and discontinue participation at any time.
- Whatever decision you make, there will be no penalty to you, and no loss of benefits to which you were otherwise entitled.
- You may refuse to answer any questions that you do not want to answer and still remain in the study.

Who can I contact if I have questions about this study?

- **The research team:**
  If you have any questions, comments or concerns about the research, you can talk to the one of the researchers. Please contact:

  Louise Dixon, MA 424-262-1340; ldixon7891@ucla.edu
  Denise Chavira, PhD 310-825-8466; dchavira@psych.ucla.edu

- **UCLA Office of the Human Research Protection Program (OHRPP):**

  If you have questions about your rights as a research subject, or you have concerns or suggestions and you want to talk to someone other than the researchers, you may contact the UCLA OHRPP by phone: (310) 206-2040; by email: participants@research.ucla.edu or by mail: Box 951406, Los Angeles, CA 90095-1406.

You will be given a copy of this information to keep for your records.

SIGNATURE OF STUDY PARTICIPANT

Name of Participant

Signature of Participant | Date

SIGNATURE OF PERSON OBTAINING CONSENT

Name of Person Obtaining Consent | Contact Number

Signature of Person Obtaining Consent | Date

Appendix D – Informed Consent Information Sheet for Phone Visits

University of California, Los Angeles

INFORMATION TO PARTICIPATE IN RESEARCH

Entertainment Education for Depression in Latinx Adults: Testing Mediators and Moderators of a Culture-Centric Narrative Intervention to Promote Help-Seeking Behavior

Louise Dixon, MA and Denise Chavira, PhD, from the *Clinical Psychology Department* at the University of California, Los Angeles (UCLA) are conducting a research study.

You were selected as a possible participant in this study because *you are an adult who identifies as Latinx/Hispanic and may benefit from some information on mental wellbeing and depression*. Your participation in this research study is voluntary.

Why is this study being done?

This study is being done to compare two books about mental wellbeing. We are interested in knowing how these books affect your knowledge about depression and your views about depression treatment. Also, we want to know how engaging and dramatic you think the books are, to know which one is more effective at helping people like you.

What will happen if I take part in this research study?

If you volunteer to participate in this study, the researcher will ask you to do the following:

- *Read this information sheet and provide oral consent to participate in research*

First Study Visit (over the phone):

- *Complete a packet of questionnaires before reading the book. These questionnaires will ask you about yourself, your mental wellbeing including your mood, you knowledge of depression and treatments. You may complete these questionnaires today, or set up another time to complete them. A member of the study staff will read the questions to you over the phone.*

- *Read the book right after you complete the first packet of questionnaires.*

- *Complete a packet of questionnaires right after reading the book. These questionnaires will ask you about your knowledge of depression and treatments and how much you liked the book, how you related to the characters in the story, and how likely you would be to act like the characters in the story. You will complete*

these questionnaires on the same day you read the book. A member of the study staff will read the questions to you over the phone.

Second Study Visit (online):

- *Complete a packet of questionnaires 3 months from now, which will ask you similar questions to the previous questionnaires including questions about your mood. You will complete them online.*

How long will I be in the research study?

Participation will take a total of about *3.5 hours, which will be broken down as follows:*

4. Informed Consent: 30 minutes
5. First study visit: ~120 minutes
6. Second study visit: ~60 minutes

The Second study visit will take place 3 months after the first study visit.

Are there any potential risks or discomforts that I can expect from this study?

There is risk that you may be identified by the data collected in the study. However, information collected in the course of this study will be stored in a locked and secure location and your consent form and name will be kept separate from the responses you provide. Some questions about your mood may bring up uncomfortable feelings. You can choose not to answer any question, and discontinue your participation at any time.

Research participation is voluntary and you can stop at any time or choose not to complete certain parts of the study.

Are there any potential benefits if I participate?

You may not experience any benefits from participating in this study.

Findings will help researchers, clinicians, and educators to better understand what aspects of mental health literacy interventions for Latinx may matter most for changing help-seeking related behaviors for mental wellbeing.

Will I be paid for participating?

You will receive $30 for participating in this study. You will receive $10 for completing the first study visit and $20 for completing the second study visit. If mailing a cash payment is not possible, you will be sent an electronic Amazon gift card payment.

Will information about me and my participation be kept confidential?

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. However complete confidentiality cannot be guaranteed.

All of the information you provide will be associated with a number. We will not write your name on any questionnaires. Only the study staff will have access to the list identifying the names connected to each identification number. The master list connecting your name to your data will be destroyed within three years after the conclusion of the study.

The research team may not be able to keep confidential any disclosure or endorsement of thoughts to harm yourself. In the event that you tell the research staff that you are thinking about killing yourself the research staff will ask you more questions about the thoughts. Depending on how intense your thoughts are or how much you feel like hurting yourself, the research staff may provide you with referrals for treatment, work with you to contact your personal physician, trusted family member, or therapist to discuss your thoughts of harming yourself; or work with you on a plan that may include getting you to a hospital for safety.

What are my rights if I take part in this study?

- You can choose whether or not you want to be in this study, and you may withdraw your consent and discontinue participation at any time.
- Whatever decision you make, there will be no penalty to you, and no loss of benefits to which you were otherwise entitled.
- You may refuse to answer any questions that you do not want to answer and still remain in the study.

Who can I contact if I have questions about this study?

- **The research team:**
  If you have any questions, comments or concerns about the research, you can talk to the one of the researchers. Please contact:

  Louise Dixon, MA 424-262-1340; ldixon7891@ucla.edu
  Denise Chavira, PhD 310-825-8466; dchavira@psych.ucla.edu

- **UCLA Office of the Human Research Protection Program (OHRPP):**

  If you have questions about your rights as a research subject, or you have concerns or suggestions and you want to talk to someone other than the researchers, you may contact the UCLA OHRPP by phone: (310) 206-2040; by email: participants@research.ucla.edu or by mail: Box 951406, Los Angeles, CA 90095-1406.

Appendix E – Measures

Demographics

Please answer all questions to the best of your ability.

1. What is your gender?

____ Male (0) ____Female (1) ____Other (2)

2. What is your age?

_____ Years Old

3. Do you identify as Latino/a or Hispanic?

___Yes (1)

___ No (0)

3a. Do you identify with any other race or ethnicity (check all that apply)?

___ No, I do not identify as any other race or ethnicity (0)

___ White or Caucasian (1)

___ Black, African-American, or Afro-Latino (2)

___ Mestizo/a (i.e., European and indigenous mixed) (3)

___ Asian (4)

___ Native Hawaiian or Pacific Islander (5)

___Native American or Alaska Native (6)

___ Middle Eastern or Northern African (7)

___ Other (8): _____

3b. Where were you born? _____

3c. If you were not born in the United States of America, how long have you been living in the USA?

_____ years

4. What is your employment status?

___Employed full time (>35 hours per week) (0)

___Employed part time (<35 hours per week) (1)

___Unemployed, looking for work (2)

___Student (3)

___ Homemaker, supported by someone else in my home (4)

___ Receiving assistance from the government (5)

___ Other (6) :_____

5. If you combined all the income from everyone who lives in your house, what is your yearly household income?

$_____

6. Including yourself, how many people live in your house?

_____ people

7. What is the farthest you went in school?

___ Elementary School (0)

___Junior High or Middle School (1)

___Partial High School (2)

___High School Graduate (3)

___Partial College (4)

___Associates or other 2-year college degree (5)

___Bachelor's or other 4-year college degree (6)

___Master's degree (7)

___Doctoral degree (8)

8. What is your marital status?

___ Single, not living with a significant other (0)

___ Single, living with significant other (1)

___ Married (2)

___ Divorced (3)

___ Widowed (4)

___ Other (5): _____

9. How well do you speak English?

I do not speak English		**Somewhat**		**Fluent**
1	2	3	4	5

9a. Do you consider yourself a native English speaker?

___Yes (1)

___ No (0)

10. How well do you speak Spanish?

I do not speak Spanish		**Somewhat**		**Fluent**
1	2	3	4	5

10a. Do you consider yourself a native Spanish speaker?

___Yes (1)

___ No (0)

CESD

Center for Epidemiologic Studies Depression Scale (CES-D), NIMH

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

	During the Past Week			
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	☐	☐	☐	☐
2. I did not feel like eating; my appetite was poor.	☐	☐	☐	☐
3. I felt that I could not shake off the blues even with help from my family or friends.	☐	☐	☐	☐
4. I felt I was just as good as other people.	☐	☐	☐	☐
5. I had trouble keeping my mind on what I was doing.	☐	☐	☐	☐
6. I felt depressed.	☐	☐	☐	☐
7. I felt that everything I did was an effort.	☐	☐	☐	☐
8. I felt hopeful about the future.	☐	☐	☐	☐
9. I thought my life had been a failure.	☐	☐	☐	☐
10. I felt fearful.	☐	☐	☐	☐
11. My sleep was restless.	☐	☐	☐	☐
12. I was happy.	☐	☐	☐	☐
13. I talked less than usual.	☐	☐	☐	☐
14. I felt lonely.	☐	☐	☐	☐
15. People were unfriendly.	☐	☐	☐	☐
16. I enjoyed life.	☐	☐	☐	☐
17. I had crying spells.	☐	☐	☐	☐
18. I felt sad.	☐	☐	☐	☐
19. I felt that people dislike me.	☐	☐	☐	☐
20. I could not get "going."	☐	☐	☐	☐

SCORING: zero for answers in the first column, 1 for answers in the second column, 2 for answers in the third column, 3 for answers in the fourth column. The scoring of positive items is reversed. Possible range of scores is zero to 60, with the higher scores indicating the presence of more symptomatology.

PSU (Prior Service Use)

Have you ever received treatment from _____ for problems with your emotions or nerves or your use of alcohol or drugs?
If yes, when? When was the last time you saw them for treatment for problems with emotions, nerves, or use of alcohol or drugs?

	NO	YES	IF YES, SPECIFY
Psychiatrist			___Lifetime, not past year ___Past year, not past 6 months ___Past 6 months, not for low mood ___Past 6 months, for low mood
Family physician (PCP)			___Lifetime, not past year ___Past year, not past 6 months ___Past 6 months, not for low mood ___Past 6 months, for low mood
Other physicians			What type of physician? _____ ___Lifetime, not past year ___Past year, not past 6 months ___Past 6 months, not for low mood ___Past 6 months, for low mood
Social workers			___Lifetime, not past year ___Past year, not past 6 months ___Past 6 months, not for low mood ___Past 6 months, for low mood
Counselors			___Lifetime, not past year ___Past year, not past 6 months ___Past 6 months, not for low mood ___Past 6 months, for low mood
Other mental health professional			What type of mental health professional? _____ ___Lifetime, not past year ___Past year, not past 6 months ___Past 6 months, not for low mood ___Past 6 months, for low mood
Religious or spiritual			___Lifetime, not past year

advisor (**note, pts may still participate if they have received treatment from someone in this category**)			___Past year, not past 6 months ___Past 6 months, not for low mood ___Past 6 months, for low mood
Other healer			What type of healer? _____ ___Lifetime, not past year ___Past year, not past 6 months ___Past 6 months, not for low mood ___Past 6 months, for low mood

Have you ever called 911, gone to the emergency room or hospital, or had a doctor hospitalize you for problems related to your mental health?
____No

____Yes

Date	Duration	What for?

Depression Knowledge

Below are some symptoms that might or might not be symptoms of depression. To the best of your ability, indicate if the following are symptoms of depression or not.

	Yes, this is a symptom of depression	No, this is not a symptom of depression
Hearing voices		
Sleeping too little		
Eating too much		
Being full of energy		
Feeling guilty		
Feeling agitated		
Being violent		
Loss of interest in activities		
Having hallucinations		
Feeling confident		

Please indicate if the following statements are TRUE or FALSE

Medications can help someone with depression	TRUE	FALSE
Depression is a medical condition	TRUE	FALSE
People with depression get better by themselves without professional help	TRUE	FALSE
People with depression should stop taking antidepressants as soon as they feel better	TRUE	FALSE
Talking to a counselor can help someone with depression	TRUE	FALSE
Antidepressants are addictive	TRUE	FALSE
Antidepressant medications work right away	TRUE	FALSE

Acculturation Rating Scale for Mexican Americans (ARSMA-II)

Circle a number between 1-5 next to each item that best applies.

		Not at all	Ver little or not very often	Moderately	Much or very often	Extremely often or almost always
1	I speak Spanish	1	2	3	4	5
2	I speak English	1	2	3	4	5
3	I enjoy speaking Spanish	1	2	3	4	5

4	I associate with Anglos	1	2	3	4	5
5	I associate with Latinos and/or Latino Americans	1	2	3	4	5
6	I enjoy listening to Spanish language music	1	2	3	4	5
7	I enjoy listening to English language music	1	2	3	4	5
8	I enjoy Spanish language TV	1	2	3	4	5
9	I enjoy English language TV	1	2	3	4	5
10	I enjoy English language movies	1	2	3	4	5
11	I enjoy Spanish language movies	1	2	3	4	5
12	I enjoy reading (e.g., books in Spanish)	1	2	3	4	5
13	I enjoy reading (e.g., books in English)	1	2	3	4	5
14	I write letters in Spanish	1	2	3	4	5
15	I write letters in English	1	2	3	4	5
16	My thinking is done in the English language	1	2	3	4	5
17	My thinking is done in the Spanish language	1	2	3	4	5
18	My contact with Latin-America has been…	1	2	3	4	5
19	My contact with the US has been…	1	2	3	4	5
20	My father identifies or identified himself as Latino	1	2	3	4	5
21	My mother identifies or identified herself as Latina	1	2	3	4	5
22	My friends while I was growing up were of Latino/a origin	1	2	3	4	5
23	My friends while I was growing up were of Anglo origin	1	2	3	4	5
24	My family cooks Latino foods	1	2	3	4	5
25	My friends now are of Anglo origin	1	2	3	4	5
26	My friends now are of Latino origin	1	2	3	4	5
27	I like to identify myself as an Anglo American	1	2	3	4	5
28	I like to identify myself as a Latino/a American	1	2	3	4	5
29	I like to identify myself as a Latino/a	1	2	3	4	5
30	I like to identify myself as an American	1	2	3	4	5

Self Efficacy Self Control Scale (SESCS)

1. Accessing mental health treatment for me would be…..	Very Difficult	Difficult	Neutral	Easy	Very Easy
2. Accessing mental health treatment for me would be_____ the range of my abilities	Definitely Not Within	Not within	Somewhat within	Within	Definitely within
3. I _____be willing to access mental health services in my situation	Definitely Would Not	Would Not	Would Somewhat	Would	Would Definitely
4. I _____ feel in control about accessing mental health services.	Definitely would not	Would not	Would somewhat	Would	Would Definitely

TS (Transportation Scale)

		Not at all						Very much
1.	While I was reading the narrative, I could easily picture the events in it taking place.	1	2	3	4	5	6	7
2.	While I was reading the narrative, activity going on in the room around me was on my mind.	1	2	3	4	5	6	7
3.	I could picture myself in the scene of the events described in the narrative.	1	2	3	4	5	6	7
4.	I was mentally involved in the narrative while reading it.	1	2	3	4	5	6	7
5.	After I finished the narrative, I found it easy to put it out of my mind.	1	2	3	4	5	6	7
6.	I wanted to learn how the narrative	1	2	3	4	5	6	7

	ended.							
7.	The narrative affected me emotionally.	1	2	3	4	5	6	7
8.	I found myself thinking of ways the narrative could have turned out differently	1	2	3	4	5	6	7
9.	I found my mind wandering while reading the narrative.	1	2	3	4	5	6	7
10.	The events in the narrative are relevant to my everyday life.	1	2	3	4	5	6	7
11.	The events in the narrative have changed my life.	1	2	3	4	5	6	7

IS (Identification Scale)

	Not At All									Extremely
How much do you like the characters in this narrative?	1	2	3	4	5	6	7	8	9	10
How similar are you to the characters in the narrative?	1	2	3	4	5	6	7	8	9	10
How much do you want to be like the characters in the narrative?	1	2	3	4	5	6	7	8	9	10
How much do you want to be like the characters in this narrative?	1	2	3	4	5	6	7	8	9	10

SPS (Social Proliferation Scale)

We are interested in how many people you shared your brochure with. Below, please list the people who you shared it with, how you know them, and mark how you shared it.

Name	**Relationship to you**	**How you shared it (select all that apply)**
		___ Talked about it ___ Showed it to them ___ Gave it to them ___ Sent them a picture of it ___ Other: _____ _____

		___ Talked about it ___ Showed it to them ___ Gave it to them ___ Sent them a picture of it ___ Other: ______________ _________________________
		___ Talked about it ___ Showed it to them ___ Gave it to them ___ Sent them a picture of it ___ Other: ______________ _________________________
		___ Talked about it ___ Showed it to them ___ Gave it to them ___ Sent them a picture of it ___ Other: ______________ _________________________
		___ Talked about it ___ Showed it to them ___ Gave it to them ___ Sent them a picture of it ___ Other: ______________ _________________________
		___ Talked about it ___ Showed it to them ___ Gave it to them ___ Sent them a picture of it ___ Other: ______________ _________________________
		___ Talked about it ___ Showed it to them ___ Gave it to them ___ Sent them a picture of it ___ Other: ______________ _________________________

ISTS (Intent to Seek Treatment Scale)

		Definitely Not	Probably not	Probably Yes	Definitely Yes
1.	If you have symptoms of depression, do you think that you would talk with a doctor?				
2.	If you have symptoms of depression, do you think that you will talk with a therapist?				
3.	If you have symptoms of depression, do you think that you will talk with a friend?				
4.	If you have symptoms of depression, do you think that you will talk with a family member?				
5.	If you have symptoms of depression, do you think that you will not talk to anyone?				
6.	If your friend has symptoms of depression, do you think you will encourage him or her to talk to a doctor?				
7.	If your friend has symptoms of depression, do you think that you will encourage him or her to talk to a therapist?				
8.	If your family member has symptoms of depression do you think that you will encourage him or her to talk to a doctor?				
9.	If your family member has symptoms of depression do you think that you will encourage him or her to talk to a therapist?				

Barriers to Care Questionnaire (BCQ)

Please think about whether the following things have kept you from getting mental health services you needed in the past **12 months**. (Note, when barriers to care is re-assessed at 3-month timepoint, instructions will be modified to only be reflective of barriers to care in last **3 months**)

a. First these questions will ask you about things that might happen during services. Circle yes or no for each question. In the last 12 months, have you ever thought that…	***YES***	***NO***
a.1. Services may not be confidential?	YES	NO
a.2. The service provider may have different goals from that of your family or would not take your wishes into account?	YES	NO
a.3. You did not know what would happen in services?	YES	NO
a.4. You would not feel comfortable talking about your problems with a stranger or did not want to burden others with your problems?	YES	NO
a.5. You would feel out of place in services?	YES	NO

b. Next, questions will ask you about the helpfulness of services. Circle yes or no for each question. In the last 12 months, have you ever thought that…	***YES***	***NO***
b.1. Services would not help?	YES	NO
b.2. The people you trusted most did not recommend professional help?	YES	NO
b.3. You lacked confidence in those who recommended professional help?	YES	NO
b.4. You did not know who to trust for advice?	YES	NO
b.5. “Talk therapy” or talking about problems wouldn’t help?	YES	NO

b.6. Other people in services would be a bad influence on you?	YES	NO
b.7. You had a negative experience with the professionals?	YES	NO
b.8. Someone else you know had a negative experience with the professionals?	YES	NO

c. Now questions will ask about service providers. Circle yes or no for each question. In the last 12 months, have you ever thought that…	***YES***	***NO***
c.1. The service provider may talk down to you, not show respect for you, or say something that would offend you?	YES	NO
c.2. You may not like or trust the provider who offered the service?	YES	NO
c.4. The service provider may not understand your your cultural background?	YES	NO
c.5. You may experience or did experience racial discrimination or prejudice in services?	YES	NO

d. The following questions ask about worries you have had about how services may affect other parts of your life. Circle yes or no for each question. In the last 12 months, have you ever thought that…	***YES***	***NO***
d.1. Getting services might mean you would receive a label that would make you feel different or be treated differently from others?	YES	NO
d.2. Getting services might reflect a lack of appreciation for people who had helped you in the past?	YES	NO
d.3. You were afraid of what your family or friends would say?	YES	NO

d.4. Exposing your problems to outsiders would bring shame or embarrassment upon your family?	YES	NO
d.5. Receiving services might mean too many people getting involved in your life?	YES	NO
d.6. You or a family member might be deported as a result of using services?	YES	NO
d.7. Using services might make it hard for your family to support other family members to come to the United States.	YES	NO
d.8. You may lose custody?	YES	NO
d.9. You may lose your parental rights?	YES	NO
d.10. Receiving services may make it hard for you to get a job?	YES	NO

e. The following questions ask about finances and insurance. Circle yes or no for each question. In the last 12 months, have you ever thought that…	***YES***	***NO***
e.1. Services were too expensive?	YES	NO
e.2. The insurance benefits were exhausted or services not covered?	YES	NO
e.3. There were problems when you had to get insurance authorization?	YES	NO
e.4. Using services might affect your current government benefits?	YES	NO
e.5. You were not eligible to receive services?	YES	NO

f. The following questions ask about other practical problems. Circle yes or no for each question. In the last 12 months, have you ever thought that…	***YES***	***NO***
f.1. You did not know help or services were available to you?	YES	NO
f.2. You didn't know where to go for services?	YES	NO
f.3. You didn't have enough time to go to services or they wouldn't fit into your schedule?	YES	NO
f.4. You didn't look for services because you were too sick?	YES	NO
f.5. You had no way to get there?	YES	NO
f.6. Services were too inconvenient to use?	YES	NO
f.7. The services were too far away?	YES	NO
f.8. You may have problems getting an appointment over the phone?	YES	NO
f.9. You may have to wait a long time for an appointment?	YES	NO
f.10. A provider was not available?	YES	NO
f.11. Services were refused?	YES	NO
f.12. You weren't given a referral for a service you needed?	YES	NO
f.13. Too many conditions were required to receive services?	YES	NO
f.14. The services were not part of treatment?	YES	NO

g. The following questions ask about language barriers. Circle yes or no for each question. In the last 12 months, have you ever thought that…	***YES***	***NO***
g.1. You would have trouble talking to staff workers or filling out forms in English?	YES	NO
g.2. You would be embarrassed about your ability to communicate in English?	YES	NO

h. Lastly, these questions ask about your need for services. Circle yes or no for each question. In the last 12 months. have you ever thought that…	***YES***	***NO***
h.1. Your problem was not a mental health problem?	YES	NO
h.2. Your family had disagreements about whether you really needed services?	YES	NO
h.3. Your problems were not so serious?	YES	NO
h.4. You could handle your problems on your own	YES	NO

Attitudes Towards Seeking Professional Psychological Help (ATSPPH)

		Disagree			Agree
1.	If I thought I was having a mental breakdown, my first thought would be to get professional attention.	0	1	2	3
2	Talking about problems with a psychologist seems to me as a poor way to get rid of emotional problems.	0	1	2	3
3	If I were experiencing a serious emotional crisis, I would be sure that psychotherapy would be useful	0	1	2	3
4	I admire people who are willing to cope with their problems and fears without seeking professional help.	0	1	2	3
5	I would want to get psychological help if I were worried or upset for a long period of time.	0	1	2	3
6	I might want to have psychological counseling in the future.	0	1	2	3
7	A person with an emotional problem is not likely to	0	1	2	3

	solve it alone; he or she is more likely to solve it with professional help.				
8	Given the amount of time and money involved in psychotherapy, I am not sure that it would benefit someone like me.	0	1	2	3
9	People should solve their own problems, therefore, getting psychological counseling would be their last resort.	0	1	2	3
10	Personal and emotional troubles, like most things in life, tend to work out by themselves.	0	1	2	3

Appendix F – Replication of previous findings

Prior to addressing study aims, an effort to replicate previous findings (Cabassa, Contreras, Aragón, Molina, & Baron, 2011; Cabassa et al., 2014; Unger et al., 2013) demonstrating the impact of the *fotonovela* on relevant outcomes was made. Linear regression analyses were performed in STATA 16.1 to identify the effects of the *fotonovela* compared to the effects of the NIH brochure (i.e., control) on post-intervention outcome measures while controlling for gender.

Compared to the control group, being in the *fotonovela* group was not significantly related to participants' self-efficacy to seek treatment (b = .02, SE = .08, $F(1, 174)$ = .05, p = .81), attitudes towards seeking help (b = -.31, SE = .56, $F(1, 168)$ = .31, p = .58), intent to seek treatment (b = -.02, SE = .05, $F(1, 172)$ = .21, p = .64), or depression treatment knowledge (b = .03, SE = .14, $F(1, 176)$ = .04, p = .83) at post-intervention. However, individuals in the *fotonovela* group demonstrated significantly better knowledge of depression symptoms at post-intervention compared to the NIH brochure group (b = 1.66, SE = .21, $F(1, 176)$ = 62.46, p < .001).

Appendix G – Comparing Demographic Groups

Table G1. Descriptives of Study Variables in LA and IV Participants

	LA *N(%)*	*IV* *N(%)*	*Chi-Square*
Group			
Intervention (*Fotonovela*)	66	31	$Chi^2(1) = .35$, $p = .55$
Control (NIH)	57	22	
Mode of Study Administration			
In Person	97	11	$Chi^2(1) = 52.75$, $p < .001$
Over the Phone	26	42	
Language Preference			
English	116	45	$Chi^2(1) = 4.20$, $p < .05$
Spanish	7	8	
Gender Identity			
Male	24	10	$Chi^2(1) = .01$, $p = .92$
Female	99	43	
Race/Ethnicity			
Latinx/Hispanic	123 (100%)	53 (100%)	
White	11	13	$Chi^2(1) = 7.64$, $p < .05$
Black	3	1	$Chi^2(1) = .05$, $p = .82$
Mestizo/a	17	1	$Chi^2(1) = 5.74$, $p < .05$
Asian	5	1	$Chi^2(1) = .53$, $p = .47$
Marital Status			
Single	111	40	$Chi^2(2) = 15.55$, $p < .01$
Married	10	4	
Other	2	9	
	LA *M(SE)*	*IV* *M(SE)*	*t-test*
Age	23.2(.69)	27.1(1.58)	$t(174) = 2.59$ $p < .05$
Income	$57,378(5,442)	$38.386(6,452)	$t(67) = 2.26$ $p < .05$
CESD*	29.36(.92)	34.45(1.52)	$t(172) = 2.94$ $p < .01$
ARSMA			
Anglo-Orientation Subscale	3.65(.04)	3.67(.10)	$t(168) = .24$ $p = .81$

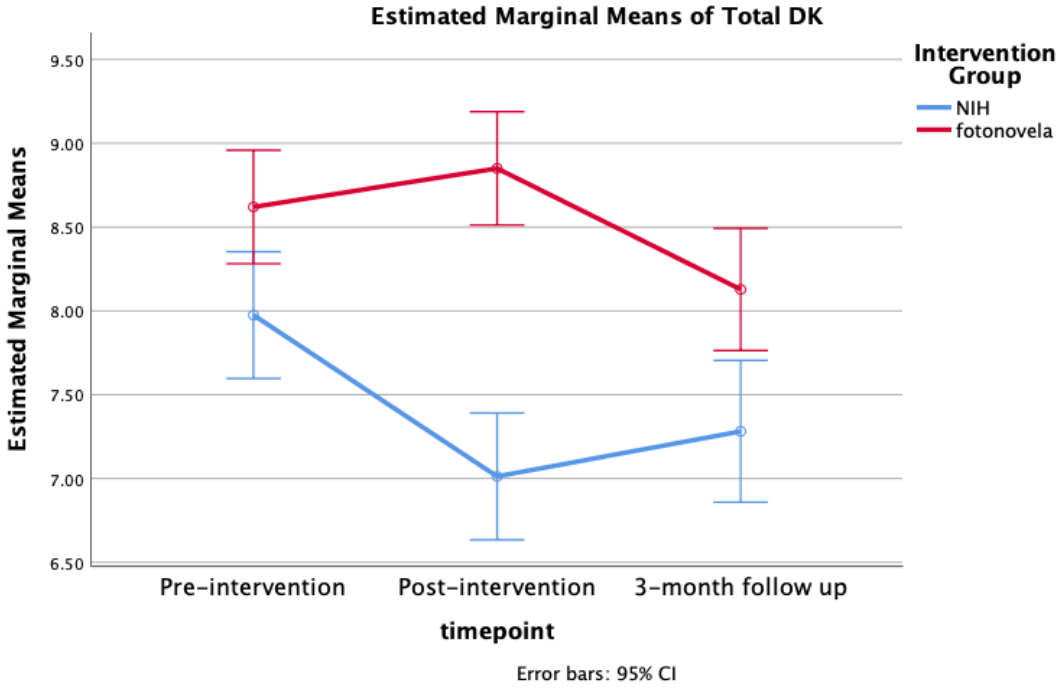
Latinx-Orientation Subscale	3.99(.05)	3.96(.10)	$t(169) = .36$ $p = .71$
Barriers to Care Questionnaire Total Barriers*	19.76(.72)	17.45(1.14)	$t(174) = 1.74$ $p = .08$

Table B2. Descriptives of Study Variables in In-Person and Phone Participants

	In Person N(%)	*Phone N(%)*	*Chi-Square*
Group			
Intervention (*Fotonovela*)	66	31	$Chi^2(1) = .35$, $p = .55$
Control (NIH)	57	22	
Language Preference			
English	107	60	$Chi^2(1) = 1.5$,
Spanish	7	8	P = .22
Gender Identity			
Male	22	12	$Chi^2(1) = .20$,
Female	86	56	$p = .66$
Race/Ethnicity			
Latinx/Hispanic	123 (100%)	53 (100%)	
White	10	14	$Chi^2(1) = 4.5$, $p < .05$
Black	2	2	$Chi^2(1) = .22$, $p = .63$
Mestizo/a	10	8	$Chi^2(1) = .28$, $p = .59$
Asian	4	2	$Chi^2(1) = .07$, $p = .79$
Marital Status			
Single	97	54	$Chi^2(5) = 11.9$,
Married	8	6	$p < .05$
Other	3	8	
	In Person M(SE)	*Phone M(SE)*	*t-test*
Age	23.10(.69)	26.4(1.38)	$t(174) = 2.36$ $p < .05$
Income	$49,242(5,964)	$47,954(6,258)	$t(67) = .14$ $p = .88$
CESD*	29.2(1.00)	33.5(1.30)	$t(172) = 2.67$ $p < .01$
ARSMA			
Anglo-Orientation Subscale	3.6(.05)	3.7(.07)	$t(168) = .34$ $p = .73$
Latinx-Orientation Subscale	4.0(.06)	3.9(.07)	$t(169) = 1.3$ $p = .19$
Barriers to Care Questionnaire Total Barriers*	19.5(.76)	18.4(1.02)	$t(174) = .91$ $p = .37$

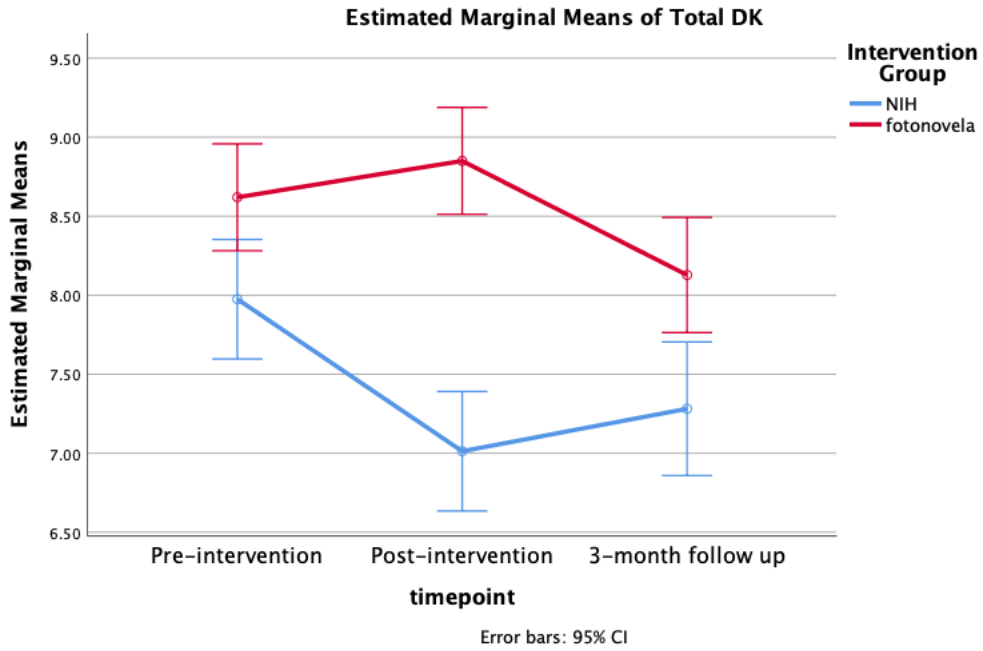
Appendix H – Supplementary Figures

Figure C1. Mean Differences of Depression Symptom Knowledge Over Time



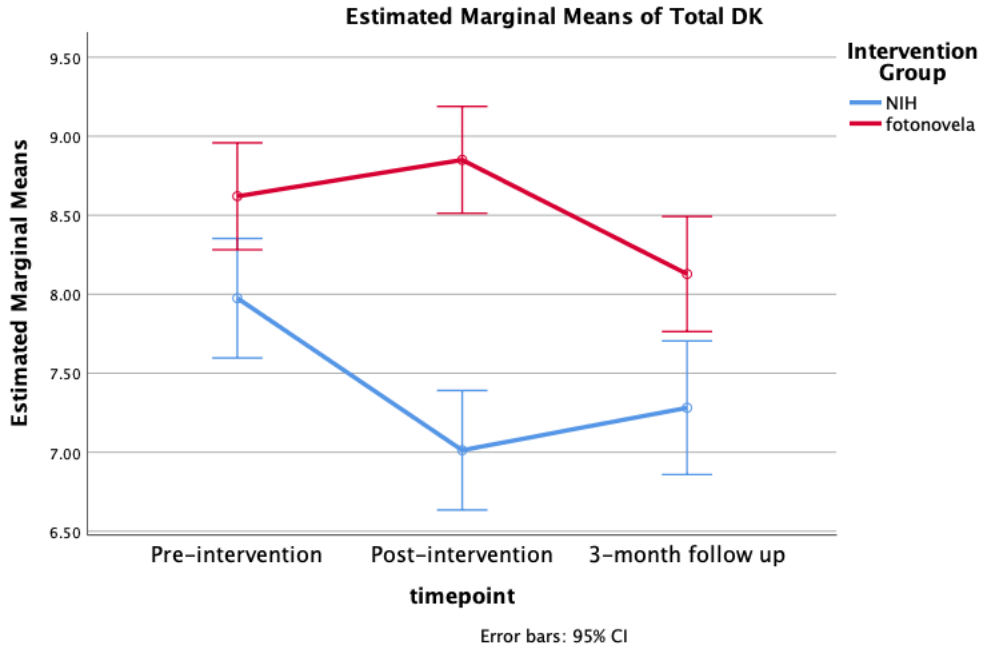
Note: DK = Depression Symptom Knowledge

Figure C2. Mean Differences of Depression Treatment Knowledge Over Time



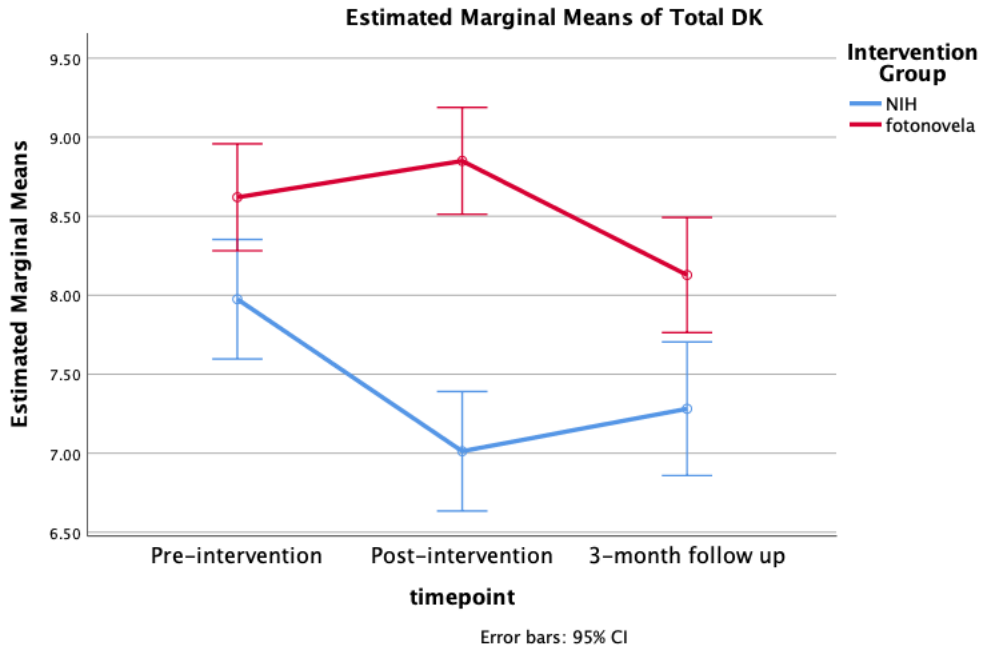
Note: DLit = Depression treatment knowledge

Figure C3. Mean Differences of Stigma of Help-Seeing Over Time



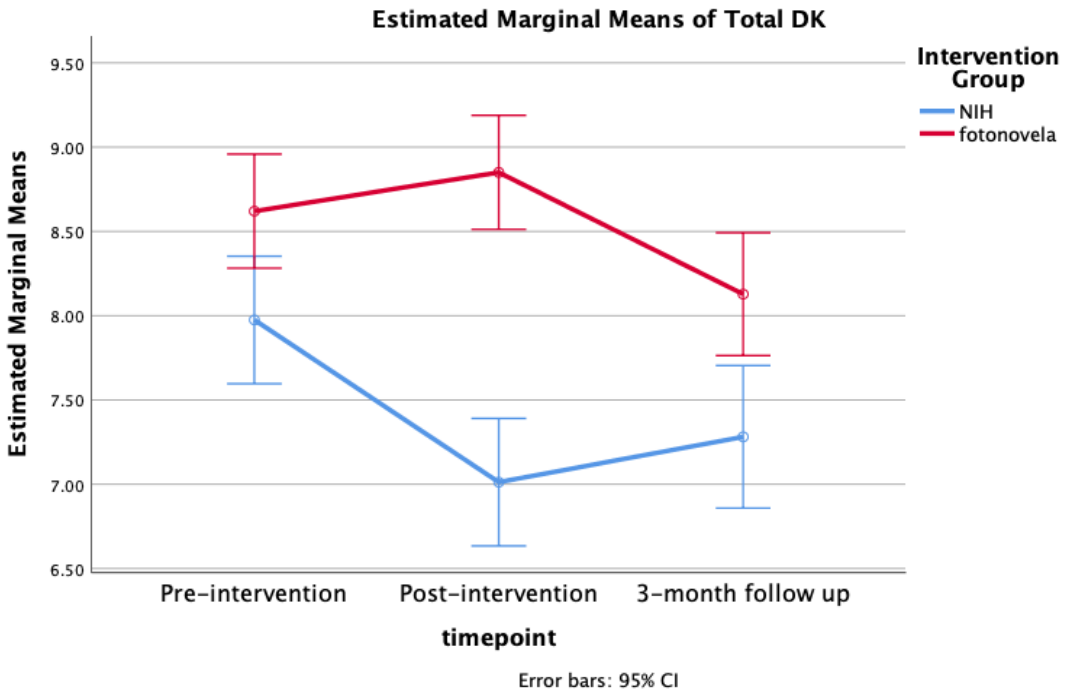
Note: ATSH = Attitudes towards seeking help scale

Figure C4. Mean Differences of Self-Efficacy to Seek Treatment Over Time



Note: SESCS = self-efficacy self control scale

Figure C5. Mean Differences of Intent to Seek Treatment Over Time



Note: ISTS = intent to seek treatment scale

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