Entertainment–Education? A Fotonovela? A New Strategy to Improve Depression Literacy and Help-Seeking Behaviors in At-Risk Immigrant Latinas

Maria Y. Hernandez · Kurt C. Organista

Abstract Research shows high risk for depression among immigrant Latinas known to increase during the acculturation process. Several barriers such as stigma and low health literacy result in an under-utilization of needed treatment among these women. In response, this study replicated the effectiveness of a Spanish language *fotonovela*, a form of Entertainment–Education (E–E), designed to increase depression literacy, decrease stigma, and increase help-seeking knowledge and behavior in Latinos. Specifically, this study evaluated a fotonovela delivered in a multifaceted approach to health education used by promotoras. A pretest–posttest randomized control group experimental design with 142 immigrant Latinas at risk for depression was employed. Results indicate significant posttest improvements in depression knowledge, self-efficacy to identify the need for treatment, and decreased stigma in experimental as compared to control group participants. Findings support the application of E–E health literacy tools such as fotonovelas, delivered in multifaceted approaches to health education used by promotoras, to Latinas at risk for mental health concerns.

Keywords Entertainment–Education · Health literacy · Depression fotonovela · Promotoras · Immigrant Latinas

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Introduction

Among recent immigrants, low health literacy is associated with higher depression levels (Coffman and Norton 2010). Gabriel and Violato (2010) found Latina immigrants suffering from depression to present with low depression literacy, particularly its biological components, and that women with less than 12 years of education were more likely to delay treatment. Further, for Latinas the immigration process and various cultural factors can impede their access to mental health services. An expanding number of mental health studies have explored access disparities for US and foreign-born Latinos (Alegría et al. 2007; Escobar et al. 2000; Vega et al. 2001) and generally find lower receipt of services among immigrants. Factors such as acculturation level, legal status, lack of bilingual or culturally sensitive services, and not knowing how or where to access services can greatly hinder help-seeking behaviors among immigrant women (Sabina et al. 2012). Additional barriers to treatment include lack of health insurance, stigma, a need to prioritize basic life needs, conflicting time commitments, lack of child care, and much more (Kieffer et al. 2013). Interestingly, few studies identify low health literacy as a barrier to mental health treatment (Bennett et al. 2007; Glenn and Christensen 1998) or investigate how its improvement can help increase help-seeking behaviors while reducing stigma towards mental health disorders.

Health literacy refers to health knowledge and health management skills influenced by reading fluency, prior health knowledge and experiences, as well as conceptual knowledge of health care (Baker 2006). Persons with low health literacy tend to have poor understanding of verbal and written health materials and instructions, difficulty with providing accurate health histories, and often present with low self-efficacy to manage health problems and even

mistrust of health care providers (National Institutes of Health 2012; Gonzalez-Ramos and Gonzalez 2005; Servellen et al. 2003). In comparison to other ethnic groups, Latinos are most at risk for low health literacy, particularly those who are older, for whom Spanish is the first language, and who have low reading levels (White 2008; Valle et al. 2006).

Entertainment–Education (E–E) offers a potentially effective way to improve mental health literacy and treatment-seeking among vulnerable groups. E–E refers to the placement of educational content within entertainment messages in efforts to increase knowledge and create behavioral and social change (Singhal and Rogers 2002). Existing research demonstrates the effectiveness of E–E for health topics such as breast cancer, AIDS/HIV, safe sex practices, diabetes, TB, and family planning (Cabrera et al. 2002; Moyer-Guse 2008; Singhal and Rogers 2002; Wilkin et al. 2007). The success of E–E has attracted governmental health agencies that support its use as a health promotion tool to educate audiences with low health literacy about diverse health disorders (Valle et al. 2006). With a few exceptions, such as Lopez et al. (2009) and Unger et al. (2012), E–E has received minimal exploration and testing in the field of mental health.

Entertainment–Education methods are versatile and can be culturally adapted for the diverse groups served by mental health care providers (Singhal and Rogers 2002). Adapted health information for individuals with low health literacy is needed given that written health materials are commonly considered difficult to read because of complex jargon, limited use of graphics, small print, inaccurate translations, and inappropriate culture or language for the targeted audience (Horner et al. 2000; Plimpton and Root 1994). When tailored for Latinos the delivery of factual information at the appropriate reading level is only the first step. The intervention should also reflect the targeted culture, engage the audience, and seek to impact help-seeking behaviors (Nelson et al. 2008).

One example is the *fotonovela*, or booklet in a comic book layout with posed photographs and bubble dialogue, that offers Latinas a health literacy tool in a culturally familiar and appealing format used throughout Latin America (Cabrera et al. 2002). Fotonovelas are more readable than more technical health pamphlets typically written at a 10th grade reading level and not tailored for audiences with low health literacy (Borrayo 2004; Unger et al. 2012). Moreover, the use of fotonovelas to disseminate health education is compatible with Latino community needs because in Latin America fotonovelas typically attract low-income and middle-class women of all ages while in the US they attract women with lower acculturation levels (Cabrera et al. 2002; Valle et al. 2006).

Latinos are also more likely to act on information learned through media compared to Caucasians (Wilkin and Ball-Rokeach 2006). Immigrant groups rely on predominantly Spanish language media and social networks to learn about health resources. In a sample of 739 Latinos in Los Angeles County, Wilkin and Ball-Rokeach (2006) found that 40 % reported use of ethnic media versus 10 % use of mainstream media. Wilkin and Ball-Rokeach (2006) caution that while media use is high, health stories may not provide sufficient information to help consumers identify, prevent, or resolve health problems. Spanish language television does not regularly include referrals to local health resources, newspapers sometimes fail to make health information relevant to the Latino community, and Spanish speaking Latinos are not often exposed to health information delivered by English media (Britigan et al. 2009; Wilkin and Ball-Rokeach 2006). Thus, health disparities persist if pertinent health information does not reach vulnerable communities. The solution is found in health educators' ability to become part of an ethnic community's storytelling network composed of residents, non-profits, and the media (Wilkin and Ball-Rokeach 2006).

To meet the multiple needs of Latino immigrants, it is necessary to apply multifaceted and culturally competent interventions. Previous research has found that the use of such approaches reduce barriers in treatment access, while increasing health literacy and the length of time in treatment (Elder et al. 2009). Work with Latinos specifically finds the provision of daycare, culturally appropriate interventions, and the use of community health advisors or *promotoras* (to recruit clients and deliver interventions) helpful in the engagement and maintenance of clients in treatment (Elder et al. 2009; Organista and Muñoz 1996; Sue et al. 2009). The use of promotoras has become increasingly common in community clinics and research studies serving underserved populations (Larkey et al. 2009). Promotoras typically live in the communities they serve, understand local cultural and health needs, and adequately tailor interventions for individuals with low health literacy through the delivery of verbal rather than written health information (Elder et al. 2009; Larkey et al. 2009).

Theoretical Framework

The application of E–E to depression literacy is guided by two models of health behavior change: (1) social cognitive theory and (2) a model of culture-centric narratives in health promotion. Social cognitive theory proposes that new behaviors are learned through direct experience or observation, suggesting that most behavior is learned through modeling (Bandura 1977). Models serve as guides or tutors for new behaviors and can help people see "through a social, pictorial, or verbal display" how behavior changes connect with valued outcomes (Bandura 1977, p. 51). With the concept of diffusion of innovation, social cognitive theory supports the idea that modeling

disseminates new ideas or practices into society, particularly if the individual is linked to social networks that reinforce new behaviors (Bandura 1977, 2004). Yet, the newly learned behaviors are only implemented if the individual believes she has the self-efficacy to do so. Perceived self-efficacy, the individual's belief about her ability to influence events that shape her life, affects behavioral change by impacting the level of motivation and perseverance needed to change health habits (Bandura 1994, 2002). Health promotion tools, such as the fotonovela under study, have the potential to increase self-efficacy through culturally familiar modeling that incorporates guided mastery, demonstrations of how an individual attempts new skills under circumstances familiar to the reader (Bandura 2002).

Complimentary to social cognitive theory is the model of culture-centric narratives in health promotion, developed by Larkey and Hecht (2010) that expands the focus on promoting change via behavioral modeling to examining the cultural relevance of narrative communication. Larkey and Hecht (2010) offer a testable model examining cultural (i.e., cultural familiarity, cultural events, culturally resonant language, and culturally realistic storylines) and psychological factors (i.e., audience engagement, identification with the storyline, audience transportation or being taken away to the point that emotions are evoked, discussion of the topic, and changes in attitudes) influencing behavior change. Larkey and Hecht (2010) propose that realistic culturally compelling characters and storylines promote audience engagement and identification with the storyline and its characters. Such engagement is believed to increase the audience's intention to change behaviors, ultimately leading to changes in health behaviors consistent with those modeled in story narratives.

Purpose of Study

The current study builds upon the work of Unger et al. (2012) who evaluated the effectiveness of a fotonovela titled *Secret Feelings* to increase knowledge of depression and its treatment among Latinos. Unger et al. (2012) compared *Secret Feelings* to a depression pamphlet, in a sample of 157 foreign-born Latinos with limited English proficiency attending night school, and found greater increases in depression knowledge and reduced stigma towards depression treatment among participants exposed to the fotonovela versus the depression pamphlet control group. Although these results support the effectiveness of the fotonovela as a depression literacy tool, Unger et al. (2012) recommend expanding its application in clinical and/or other Latino community settings where combined with more intensive interventions, such as promotora interventions or case management programs, the fotonovela

may further convince Latinos to seek treatment. Thus, the current study builds upon the work of Unger et al. (2012) by evaluating the fotonovela's effectiveness with immigrant Latinas in a community-based setting in which promotoras, trained by a local community-based clinic, conduct health education activities. This study explored the fotonovela's compatibility with the promotora model of health education given that immigrant Latinas are likely to use promotoras as a link between informal and formal health and mental health services. The current study further expands the work of Unger et al. (2012) by evaluating their fotonovela with a sample at high risk for depression and low health literacy. While most studies test the effectiveness of health literacy tools, they typically fail to assess the conditions such tools aim to prevent or ameliorate. Hence, the following hypotheses were tested:

Hypotheses

1. Exposure to the fotonovela will increase knowledge of depression and its treatment in immigrant Latinas.
2. Exposure to the fotonovela will reduce stigma towards depression treatment among immigrant Latinas.
3. Self-efficacy to identify the need for treatment will increase after exposure to the fotonovela.
4. The intention to seek depression treatment will increase after exposure to the fotonovela.

Methodology

Study Design

The study utilized a pretest–posttest randomized control group experimental design (Campbell and Stanley 1963) to analyze the fotonovela's effectiveness in a sample of immigrant Latina women. Participants were randomly assigned to either the treatment (exposure to the fotonovela) or control group (exposure to a discussion of family communication and intergenerational relationships). At the time of the study, the first author was asked by the study site's agency director to expose the control group to a family communication seminar frequently conducted by the clinic's team of promotoras. Consequently, the first author was trained to deliver the family communication seminar in order to comply with the study site's condition to provide the control group with a useful topic.

Participants

Purposive and snowball sampling facilitated selection of Spanish speaking immigrant Latinas not currently in

treatment yet documented in the literature to be at high risk for depression and low health literacy. Women recruited were asked to invite others similar in background to participate in the study. This study was approved by the University of California, Berkeley Committee for the Protection of Human Subjects.

One hundred forty-two adult Latina women, 18–55 years old, were recruited for this study: 67 randomized to the control group and 75 to the experimental group. Participants were recruited through a large multiservice community clinic located in the East Bay of San Francisco by the first author and promotoras who are trained by the clinic to do community outreach as well as provide a number of health and mental health related seminars. Promotoras were instructed to recruit Spanish speaking Latina immigrants not enrolled in mental health treatment. Participants were either enrolled in educational classes (health or parenting) offered regularly by the study site's promotoras or were recruited by the first author and the promotoras at community events and other local services (e.g., Head Start) where such women are typically recruited for ongoing health educational classes.

Procedures

Participants were recruited by the first author and promotoras on a weekly basis, between the months of July 2011 and November 2011, from a variety of health education or parenting classes offered regularly at the study site. Participants were also recruited from 3 nearby Head Start programs where the promotoras frequently recruited participants for their ongoing health education courses. Additional participants were recruited from community events organized by the promotoras (i.e., health fairs and cultural events). Study flyers were given to all health education group leaders and to the promotoras for distribution during their daily contact with community members or the agency's clients. Some participants referred friends or family members of similar backgrounds. In total, 283 women were approached and informed about the study and 198 of these women expressed interest and provided contact information.

At the end of each week of recruitment, participants were contacted and screened for eligibility to ensure that they were not enrolled in mental health treatment. Using STATA 11 software, those eligible for participation were randomly assigned to either the control or experimental group. A total of 75 women participated in the experimental group while 67 participated in the control group. The total number of women in each group is unequal due to attrition. At least a dozen women were recruited for each group but actual group sizes ranged from 2 to 12 participants per group. Each participant was given a pretest

completed in 30–45 min that collected demographic information, treatment history, depression and health literacy levels, depression-related knowledge, stigma, self-efficacy, and intent to seek treatment. Participants were then exposed to either the fotonovela or a discussion of family communication.

As a means of accommodating participants with varied literacy levels in health education groups, the study site's promotoras typically use nutrition related fotonovelas and literate group members read the fotonovelas out loud while those with lower literacy levels listen. Following the same format, the current study's fotonovela was read out loud with each literate participant taking turns. Each group received verbal instructions for completion of the pretest and posttest that were verbally administered to 11 illiterate participants or to those with difficulty completing the forms. The fotonovela was read in 20–30 min, followed by posttesting requiring 30–40 min to complete. The posttest reassessed depression-related knowledge, stigma, self-efficacy, and intent to seek treatment. All participants received a $25 cash payment for their participation along with a list of community resources offering depression treatment. Day care, routinely offered by the study site, was provided as needed.

The experimental group was exposed to the fotonovela, *Secret Feelings* (Cabassa et al. 2010), which is written at a 4th grade reading level and presents the story of a depressed middle age Latina mother named Sophia. The storyline presents adaptive illness perceptions and help-seeking behaviors. Depression symptoms are identified, treatment options are presented, and common fears and misconceptions associated with treatment are discussed (e.g., antidepressants as addictive). Sophia models where and how to seek treatment as well as how to discuss her mental health concerns with her family. The fotonovela was created by a team of researchers, mental health experts, and clinicians in collaboration with a professional writer and film producer. It was translated into Spanish using back-translation techniques (Cabassa et al. 2010), and validated with a sample of adult Latinos attending night school (Cabassa et al. 2011; Unger et al. 2012).

Participants in the control group were exposed to a discussion of family communication and intergenerational relationships lasting 45 min to an hour developed by the study site's clinicians. The discussion identifies maladaptive communication patterns between immigrant parents and their US born children and offers techniques for its improvement.

Measures

Depression Knowledge

Depression knowledge was assessed with the following measures developed and translated into Spanish by Unger

et al. ([2012](#)) for the evaluation of the fotonovela, *Secret Feelings*. Participants were given a list of 10 symptoms of various mental disorders, including 5 DSM-IV depressive symptoms, and asked to check those they thought were common depression symptoms and reflected those identified in the fotonovela. The list of 10 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. Participants were also asked 7 additional questions about depression treatment and asked to indicate true, false, or don't know. Sample questions include "People with depression should stop taking antidepressants as soon as they feel better" and "Talking to a counselor can help someone with depression". Participants were given 1 point for each correct response, creating a continuous score ranging from 0 to 12.

Stigma

Stigma towards depression treatment was assessed with the Spanish versions of the Stigma Concerns About Mental Health Care (SCMHC) scale, and the Latino Scale for Antidepressant Stigma (LSAS) (Interian et al. [2010](#)). The SCMHC is a 3-item scale measuring stigma-related barriers to depression treatment (i.e., avoid seeking treatment due to embarrassment about discussing personal matters with others, fear of what others might think, or thoughts that family members would not approve of the treatment). Each item has 3 response options (0 = Disagree, 1 = Agree, or 7 = Don't know). The LSAS includes 7 items each providing participants with 4 options to indicate how they believe others think about depression treatment. For example, people who take prescription medicine for depression have a difficult time solving their problems on their own: 0 = No one thinks that way, 1 = Some people think that way, 2 = Everyone thinks that way, and 7 = Don't know. Scores for the LSAS range from 0 to 14. The psychometric properties of both scales were assessed with a sample of 200 low-income Latinos screened for depression. Latinos who scored high on both the SCMHC (*OR* .64, $p < .05$) and the LSAS (*OR* .77, $p < .05$) were less likely to take antidepressant medication (Interian et al. [2010](#)). The current study used Cronbach's alpha to measure each scale's internal consistency and found good internal reliability for both the SCMHC (.83) and the LSAS (.79).

Self-Efficacy to Identify the Need for Treatment

Three Likert type scale items measuring self-efficacy were created for this study and converted into the Self-Efficacy to Identify the Need for Treatment scale. Bandura's ([2006](#))

Guide for Constructing Self-Efficacy Scales informed the construction of this outcome variable. The 3 items were: (1) How sure are you that you can identify symptoms of depression in yourself? (2) How sure are you that you can identify symptoms of depression in someone else? And (3) How sure are you that you can locate depression treatment? Each item was arranged on 5-point scales ranging from 1 = Not Sure to 5 = Very Sure, the midpoint 3 = Neutral. Polychoric correlations, producing both a correlation coefficient matrix and a principal component analysis to analyze the construct and content validity of ordinal scale items or their unidimensionality, were used to convert all 3 items into a scale ranging in value from 0 to 15. The scale was found to have acceptable internal consistency (Cronbach's alpha = .74). This scale was translated into Spanish by the first author, a bilingual native speaker of Spanish, and then reviewed by 2 additional bilingual native speakers of Spanish. Feedback and edits to the scale were then discussed until consensus was achieved by all 3 translators on the final Spanish language version.

Intent to Seek Treatment

Eight 4-point scale items were created to measure intent to seek treatment from a professional, to discuss symptoms of depression with family or friends, and intent to encourage a friend or family member to seek treatment from a doctor or therapist. Responses to these questions were: 1 = Definitely Not, 2 = Probably Not, 3 = Probably Yes, and 4 = Definitely Yes. These questions were modified from the work of Unger et al. ([2009](#)). Polychoric correlations were used to convert the eight 4-point scale items into the Intent to Seek Treatment Scale with scores ranging from 0 to 32, and good internal consistency (Cronbach's alpha = .88). This scale was also translated into Spanish using the same procedure described above for the self-efficacy scale.

Depression

The Center for Epidemiologic Studies Depression Scale (CES-D Scale) (Radloff [1977](#)) is a short self-report scale developed to measure current depressive symptoms in the general population. The 20-item scale assesses mood during the past 2 weeks (e.g., feelings of worthlessness, hopelessness, loneliness). Scores range from 0 to 60 with a cut-off score of 16 indicating a potential clinically significant depressive disorder (Roberts [1980](#)). The CES-D has been cross validated with various racial and ethnic minority groups, including several Spanish speaking US Latino groups (Leykin et al. [2011](#)). The Spanish version of the CES-D was used for this study.

Health Literacy

The Spanish version of the Short Test of Functional Health Literacy in Adults (s-TOFHLA) was used to assess this variable (Baker et al. 1999). The scale contains 2 health care passages about which respondents are asked several multiple-choice questions. The first derives from instructions for an upper gastrointestinal tract radiograph and the second from the patient's rights and responsibilities with regard to a Medicaid application. Scores from 0–16 indicate inadequate literacy, 17–22 marginal literacy, and 23–36 adequate literacy. The Cronbach's alpha was .97 for the 36 items in both passages (Baker et al. 1999). When tested with both Spanish and English speaking Latinos, the s-TOFHLA was found to have a Cronbach's alpha above .95 (Aguirre et al. 2005).

Treatment History

In addition to screening for participants not currently in mental health treatment, they were also asked "have you ever received depression treatment (yes, no)" to assess for any past treatment experience.

Demographic Background

Participants were asked to provide age, marital status, number of children, employment status, access to health insurance, country of birth, years in the US, highest level of education, and family income.

Analysis of Data

Preliminary Analysis

Using STATA 11 software, demographic characteristics were calculated using simple descriptive statistics. First, a mean imputation technique (Gelman and Hill 2007) was used to replace missing values only found in the CES-D and stigma scales (SCMHC and LSAS) with the mean of the observed values for each scale. Missing values were only imputed if the participant left less than 4 CES-D scale items blank, or no more than 1 SCMHC or LSAS scale item blank. Next, independent samples t tests were conducted with all continuous demographic variables to assess any pre-intervention differences between control and experimental groups. Similarly, Fisher's exact tests were applied to all categorical demographic variables to identify any pre-intervention group differences. The control and experimental group were found to be equivalent in the distribution of all demographic variables with the

exception of previous depression treatment: 23 participants in the control group and 15 in the experimental group previously received treatment. However, this between group difference was found to have no effect on any of the study's outcome variables as assessed by preliminary regression analyses.

Hypothesis Testing

To test all hypotheses, 5 continuous variables (i.e., difference in: depression knowledge, mental health stigma, antidepressant stigma, self-efficacy to identify need for treatment, and intent to seek treatment) were created to calculate the mean difference between the pretest and posttest scores for all outcomes variables, for both the experimental and control groups. Next, paired samples t tests with unequal variance were used to compare mean differences in pretest and posttest scores between the control and experimental groups. Cohen's d was calculated to measure the fotonovela's effect size values for improving depression knowledge, self-efficacy to identify the need for treatment, intent to seek treatment, as well as stigma reduction. In order to detect the possibility of a Type I error that can sometimes result from multiple testing, the Bonferroni–Dunn test was implemented to calculate a more conservative significance level to more stringently test the 4 hypotheses guiding this study.

Results

Participant Demographics

One hundred forty-six women were recruited for this study. Three participants, one from the control group and two from the experimental group, had invalid measures due to several missing responses. One participant assigned to the experimental group reported being enrolled in counseling at the time of pretest and posttest administration, so her data were not used. Thus, a total of 142 participants were included: 67 in the control group and 75 in the experimental group. As depicted in Table 1, all women were relatively young with the majority falling into two age groups, 26–35 (40 %) and 36–45 (36 %). Eighty-three percent were either married or living with a partner. All but 4 women were mothers with an average of 3 children each. Two-thirds were unemployed and over half were uninsured. All women were foreign-born and mostly (79 %) of Mexican origin with the rest from Central America. A third reported living 6–10 years in the US, and 58 % reported more than 10 years. Almost all women were monolingual Spanish speakers and had a family income of less than

Table 1 Participant demographic characteristics by group ($n = 142$)

Variable	Control ($n = 67$)	Experimental ($n = 75$)	Total
Age			
18–25	6 (8.9 %)	4 (5.3 %)	10 (7.0 %)
26–35	21 (31.3 %)	35 (46.6 %)	56 (39.7 %)
36–45	23 (41.7 %)	28 (37.3 %)	51 (36.1 %)
46–55	16 (23.8 %)	8 (10.6 %)	24 (17.0 %)
Marital status			
Married	35 (52.2 %)	48 (64.0 %)	83 (58.4 %)
Living with partner	17 (25.3 %)	18 (24.0 %)	35 (24.6 %)
Never married	6 (17.9 %)	5 (12.0 %)	11 (7.7 %)
Divorced or widowed	9 (13.4 %)	4 (5.3 %)	13 (9.1 %)
Children			
Yes	65 (97.0 %)	73 (97.3 %)	138 (97.1 %)
Employed			
Yes	25 (37.3 %)	23 (30.6 %)	48 (33.8 %)
Medically insured			
Yes	29 (43.2 %)	35 (46.6 %)	64 (45.0 %)
Country of birth			
Mexico	47 (70.1 %)	65 (86.6 %)	112 (78.8 %)
Other	20 (29.8 %)	10 (13.3 %)	30 (21.1 %)
Time in US			
<5 years	6 (8.9 %)	5 (6.6 %)	11 (7.7 %)
6–10 years	20 (29.8 %)	26 (34.6 %)	46 (34.0 %)
>10 years	38 (56.7 %)	40 (53.3 %)	78 (57.7 %)
Bilingual			
No	55 (82.0 %)	62 (82.6 %)	117 (82.3 %)
Income			
<$19, 000	48 (71.6 %)	51 (68.0 %)	99 (69.7 %)
$20,000–$30,000	12 (17.9 %)	15 (20.0 %)	27 (19.0 %)
>$30,000	7 (10.4 %)	9 (12.0 %)	16 (11.2 %)
Education			
Grade school	22 (32.8 %)	30 (40.0 %)	52 (36.6 %)
Middle school	19 (28.3 %)	17 (22.6 %)	36 (25.3 %)
Some high school	11 (16.4 %)	9 (12.0 %)	20 (14.0 %)
High school or GED	5 (7.4 %)	10 (13.3 %)	15 (10.5 %)
Some college or beyond	6 (8.9 %)	9 (12.0 %)	15 (10.5 %)
Health literacy			
Inadequate	24 (35.8 %)	16 (21.3 %)	40 (28.1 %)
Marginal	6 (8.9 %)	12 (16.0 %)	18 (12.6 %)
Adequate	37 (55.2 %)	47 (62.6 %)	84 (59.1 %)
CES-D mean score	19.06	19.71	19.41
Previous treatment			
Yes	23 (34.3 %)	15 (20.0 %)	38 (26.7 %)

$19,000 in the previous year. Most women completed either grade school or middle school (62 %). Only 11 % obtained a high school diploma or a GED. Forty-one percent scored in the inadequate or marginally adequate health literacy range. The mean CES-D score was 19, suggesting a high level of depressive symptomatology.

Hypothesis Testing

Depression Knowledge

The first hypothesis was supported by greater increases in pre to post mean depression knowledge scores among the experimental group (Ms = 6.95 and 9.40, respectively) in comparison to the control group (Ms = 7.33 and 7.41, respectively). Results of the paired samples t test indicate a statistically significant difference, $t(133) = -7.00$, $p < .001$, between the experimental ($M = 2.44$, $SD = 2.24$, $n = 72$) and the control ($M = .02$, $SD = 1.79$, $n = 64$) groups' mean increase in depression knowledge. Further, Cohen's effect size value ($d = 1.19$) indicates a large effect and high practical significance (Cohen 1988).

Stigma Towards Mental Health Treatment

Several missing values were found in response to the two stigma scales: while 85 % of participants responded to the SCMHC, only 69 % responded to LSAS. During the administration of the SCMHC and LSAS several participants, from both groups, requested assistance in the completion and comprehension of the scales. Fischer's exact test was implemented to determine if the missing values differed between the experimental and control groups' responses to the SCMHC but no differences were found ($p = .479$). A separate Fisher's exact test found similar results ($p = .147$) for the missing LSAS values noted among both groups.

With regard to Hypothesis 2, no differences were found between the experimental (Ms = .79 and .82, respectively) and control groups' (Ms = .66 and .99, respectively) pre to post mean stigma concern about mental health scores as indicated by a paired samples t test, $t(119) = .57$, $p = .573$. At posttest, SCMHC mean scores slightly increased for both the experimental ($M = .09$, $SD = 1.21$, $n = 62$) and control group ($M = .21$, $SD = 1.19$, $n = 59$). However, a greater pre to post mean decrease in antidepressant stigma scores was found in the experimental group (Ms = 7.15 and 5.58, respectively) when compared to the control group (Ms = 7.13 and 6.34, respectively). Results of the paired samples t test, $t(96) = 3.13$, $p = .0023$, indicated a statistically significant difference between the experimental ($M = -1.99$, $SD = 3.12$, $n = 56$) and control ($M = -.31$, $SD = 2.18$, $n = 42$) groups' mean decrease in LSAS scores. A Cohen's effect size value ($d = .61$) suggests a moderate effect (Cohen 1988). Thus, Hypothesis 2 was partially supported.

Self-Efficacy to Identify the Need for Treatment

The third hypothesis was validated by mean pre to post self-efficacy to identify the need for treatment scores indicating a greater increase for the experimental group (Ms = 8.30 and 12.08, respectively) in comparison to the control group (Ms = 8.80 and 8.98, respectively). A paired samples t test, $t(124) = -7.04$, $p < .001$, confirmed that the experimental group's mean increase in self-efficacy from pretest to posttest ($M = 3.64$, $SD = 3.36$, $n = 70$) is significantly greater than the mean increase for the control group ($M = .13$, $SD = 2.35$, $n = 63$). Cohen's effect size value ($d = 1.20$) suggested high practical significance and a large effect (Cohen 1988).

Intent to Seek Treatment

The fourth hypothesis was found to be marginally significant. Although a paired samples t test initially found a statistically significant difference, $t(97) = -2.56$, $p = .012$, between the experimental ($M = 1.10$, $SD = 2.99$, n = 63) and control ($M = -.70$, $SD = 4.46$, n = 57) groups' mean increase in intent to seek treatment, the Bonferroni–Dunn test, used to control for alpha inflation, yielded a more conservative α-level of .01, rendering the above p value marginally significant in favor of greater intention to seek treatment on the part of experimental participants exposed to the fotonovela. Cohen's effect size value ($d = .47$) suggests a moderate effect (Cohen 1988).

Discussion

Results indicate that, similar to the first evaluation of the fotonovela by Unger et al. (2012) with Latinos in night school classes, this culturally sensitive depression literacy tool was highly effective when tested in a community-based setting with immigrant Latinas at risk for depression and low health literacy. Findings revealed a significant pattern of pre to post gains for the experimental group as compared to the control group in depression-related knowledge, self-efficacy to identify the need for treatment, and reduced stigma towards antidepressant medication. Such improvements are very important for the study population that, consistent with recent studies (Coffman and Norton 2010; Grzywacz et al. 2005; Hiott et al. 2006; Kaltman et al. 2010), frequently manifest high rates of depression symptoms. Given that depressive episodes are typically recurrent, participation in this study may potentially improve the mental health status of participants. As noted by Latino mental health researchers (e.g., Lopez et al. 2009), Latinos often attempt to resolve mental health concerns by reducing social stressors without considering clinical treatment. The fotonovela taught participants distinct treatment options for depression to which they can now turn locally in order to improve their mental health. The study site selected for the current study also fits well with Rosen's et al. (2000) recommendation to make

available and accessible the health services researchers hope study participants will seek.

Consistent with recommendations for culturally appealing mental health interventions for Latinos (Elder et al. 2009), the fotonovela was flexibly implemented in conjunction with other culturally competent approaches. First, use of the multiservice study site allowed for collaboration with promotoras who assisted in the successful outreach and recruitment of often hard to reach Latina immigrants. Second, childcare was offered to all participants, without which many would not have participated. Third, consistent with the promotoras' typical delivery of health education, the fotonovela was read out loud in a group format and assistance was given to participants who had difficulty completing pre- and post-intervention measures.

Although it was hypothesized that exposure to the fotonovela would not only reduce stigma towards antidepressants but to general mental health treatment as well, experimental group and control group participants did not differ on the latter outcome. This finding may have partly been the result of the stigma measures used (i.e., SCMHC and LSAS) which many participants found difficult to answer (i.e., leaving many items blank and requesting assistance to complete). Future research should develop and test mental health stigma scales with Latinos with low health literacy for improved assessment of this important construct.

Still given that the mean level of antidepressant stigma did decline from pretest to posttest among the experimental group participants, it is worthwhile to compare it to the mean level of stigma found in other studies. Interian et al. (2011) assessed the antidepressant stigma levels of 220 Latinos who tested positive for depression, a sample composed mostly of women, in a primary care setting. Using the LSAS the participants were found to have a baseline mean score of 7.6. The participants in this study were also found to have a baseline LSAS mean score above 7 and this score declined to about 6 after exposure to the fotonovela. Future evaluations of this depression literacy tool and others like it will determine if similar gains are found with larger sample sizes.

Regarding the final hypothesis, that intent to seek treatment would increase after fotonovela exposure, the Bonferroni–Dunn test rendered the between group difference marginally significant. However, while it could be strictly argued that the difference favoring the experimental group was a false positive, resulting from multiple (i.e., four) hypotheses testing, the significance level of .012 is so close to the more conservative level of .01 calculated with the Bonferroni–Dunn test that it could also be argued that Hypothesis 4 was supported because the group difference is consistent with the overall pattern of significant results across all other hypotheses.

As with the previous evaluation of the fotonovela (Unger et al. 2012), exposure to *Secret Feelings* in the current study also increased depression-related knowledge, self-efficacy to identify the need for treatment, and reduced stigma towards depression treatment. Thus the current study builds upon previous research by demonstrating the effectiveness of the fotonovela with a sample of immigrant Latinas, presenting with clinically significant levels of depressive symptoms and low health literacy as frequently documented in the literature. Also, the fotonovela intervention was delivered using the promotora model of health education. Thus, the fotonovela appears highly generalizable to different Latino populations and community settings, where it can be flexibly implemented alongside health education classes offered by promotoras.

Further, during the fotonovela's first evaluation by Unger et al. (2012) the health literacy of participants was not assessed. While most evaluations of health literacy tools measure knowledge gains, most fail to assess participants' general health literacy level. This study contributes to the exploration of health literacy tools by assessing the participants' health literacy. As previously noted, even women unable to read benefitted from the intervention due to the inclusive ways that promotoras provide health education. In contrast, in the original test of the fotonovela by Unger et al. (2012), Latinos enrolled in ESL classes did not require assistance with the reading or completion of study materials because of higher literacy levels found in such settings.

With regards to study limitations, the sample size was smaller than optimal for testing group differences. Yet despite limited power for detecting statistical differences, a significant pattern of differences were found supporting the study's hypotheses, suggesting that gains in depression knowledge related outcomes were quite robust. Another limitation is the number of missing values found on the SCMHC and LSAS stigma measures. It is unclear if the missing values were the result of difficulty comprehending the stigma scales or because participants simply opted not to respond to stigma related questions. Either way, more research on this topic is warranted. Another intriguing limitation of the current study was that a greater number of participants with previous mental health treatment was found in the control group versus the experimental group, which challenged the need for pre-intervention equivalence of both groups. Fortunately, this limitation can be seen as supporting study results because while we would expect the experience of past treatment to positively influence study outcomes, the experimental group still outperformed the control group.

A potential limitation is also found in the fact that the control group intervention was delivered in a more interactive format than the fotonovela intervention. The participants in the control group openly shared problematic communication patterns within their families and it is unclear if this impacted their study outcomes. For example, it is unclear if gaining insight into problematic communication patterns influenced the control group's intent to seek treatment, which could potentially explain their similarity with the experimental group at posttest. A final limitation is that without assistance in completing study measures, and having others read the fotonovela, low literacy participants would not have been able to successfully participate and benefit from the fotonovela. Therefore, even health literacy tools require a minimum level of literacy to be beneficial. Fortunately, individuals reporting low literacy could still participate in the current study because the intervention was delivered in a group format from which excluding such participants is considered culturally incompetent.

Use of this effective depression literacy tool offers mental health service providers in community-based settings several advantages. The fotonovela can be delivered by multiple providers (e.g., social workers, psychologists, promotoras) to educate, engage and retain clients in services. Once diagnosed with depression, the fotonovela may help women better understand their condition and treatment options. Promotoras can continue to utilize this tool to educate high risk populations about the importance of depression treatment and to persuade them to seek treatment if needed. Studies have shown that the provision of psychoeducation to Latinas regarding the purpose of psychotherapy and psychotropic medication reduces their reluctance to receive either treatment (Cabassa and Hansen 2007; Miranda et al. 2003). Likewise, Kreuter et al. (2007) suggest that women exposed to familiar and appealing forms of E–E, delineating treatment options, are more likely to remain in treatment.

Future research should assess whether exposure to *Secret Feelings* and other culturally adapted health literacy tools not only lead to increased intentions to seek mental health treatment but to actual utilization of such needed services. Such research should also assess how different cultural elements and dimensions of fotonovelas influence health and mental health related outcomes. The lack of theories guiding our understanding of how cultural mediators impact health behavior change limits our ability to more rigorously assess cultural narratives. Therefore, the questions of how and why tailored interventions work effectively with specific populations continue to be understudied (Hawkins et al. 2008). Future research should build upon Larkey and Hecht's (2010) model of culture-centric story narratives in health promotion to assess how they influence behavior change (e.g., through engagement with the storyline, identification with story characters, etc.). It is also recommended that future research continue to test the reliability of the depression knowledge measure used in this study and others like it. Given that the evaluation of mental health literacy tools is expanding and new knowledge measures are frequently created to examine their effectiveness, it is necessary to test the validity and reliability of all newly created knowledge measures. Finally, the limitations of written health literacy tools with low health literacy individuals should be investigated in order to make modifications as was demonstrated in a short video developed by Lopez et al. (2009) to help Latinos understand psychosis. All such recommended research will advance the effectiveness of health literacy tools for individuals with varied health and mental health diagnoses, literacy levels, cultural orientations and acculturation levels.

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