

## Toward the Early Recognition of Psychosis Among Spanish-Speaking Adults on Both Sides of the U.S.–Mexico Border

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Lack of knowledge about psychosis, a condition oftentimes associated with serious mental illness, may contribute to disparities in mental health service use. Psychoeducational interventions aimed at improving psychosis literacy have attracted significant attention recently, but few have focused on the growing numbers of ethnic and linguistic minorities in countries with large immigrant populations, such as the United States. This paper reports on 2 studies designed to evaluate the effectiveness of a DVD version of *La CLaVe*, a psychoeducational program that aims to increase psychosis literacy among Spanish-speaking Latinos. Study 1 is a randomized control study to test directly the efficacy of a DVD version of *La CLaVe* for Spanish speakers across a range of educational backgrounds. Fifty-seven medical students and 68 community residents from Mexico were randomly assigned to view either *La CLaVe* or a psychoeducational program of similar length regarding caregiving. Study 2 employed a single-subjects design to evaluate the effectiveness of the DVD presentation when administered by a community mental health educator. Ninety-three Spanish-speakers from San Diego, California completed assessments both before and after receiving the DVD training. Results from these 2 studies indicate that the DVD version of *La CLaVe* is capable of producing a range of psychosis literacy gains for Spanish-speakers in both the United States and Mexico, even when administered by a community worker. Thus, it has potential for widespread dissemination and use among underserved communities of Spanish-speaking Latinos and for minimizing disparities in mental health service use, particularly as it relates to insufficient knowledge of psychosis.

*Keywords:* psychosis, mental health literacy, Latinos, psychoeducation

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### Disparities in Mental Health Service Use

Latinos, particularly those of Mexican origin and those who are Spanish-speaking, significantly underutilize mental health services relative to their need. In the largest psychiatric epidemiological study of Mexican Americans, Vega, Kolody, Aguilar-Gaxiola, and Catalano (1999) found that only 9% of Mexican-origin adults and 5% of Mexican-born immigrants with diagnosable mental disorders sought mental health services by a psychiatrist, psychologist, social worker, psychiatric nurse, or other mental health professional in the last year. A more recent study based on a national sample of Latinos found persons of Mexican origin and persons who spoke Spanish were among those with the lowest use of such services (Alegría et al., 2007). In contrast, results from a nationally representative household survey indicated that mental health service use may be as high as 22% for English-speaking adults with mental disorders who live in the United States (Wang et al., 2005).

Notably, the aforementioned epidemiological surveys were based largely on community samples of persons with anxiety, depression, and substance abuse disorders. Less is known regarding disparities in mental health service use among patients who suffer specifically from psychotic symptoms, such as delusions, disorganized speech, or hallucinations. Of the limited research that is available, studies have primarily focused on ethnically diverse patients with schizophrenia within systems of care. For example, Barrio and her colleagues (2003) found that during fiscal year 1998–99 in San Diego County, California, only 19% of Latino patients with schizophrenia received case management services compared to 30% of European Americans. Other researchers have found that, in Florida, Medicaid spending for psychotropic medications for patients with schizophrenia was lower for Latinos compared to Whites (Horvitz-Lennon, McGuire, Alegría, & Frank, 2009).

### The Burden of Mental Illness

Disparities in Latinos' use of mental health services, which includes but is not limited to the treatment of psychotic disorders, requires attention and intervention not only because of their adverse implications for overall public health (e.g., the Latino population is among the largest and fastest growing demographic groups in the United States), but also because of the social and economic burdens associated with lack of treatment. The best evidence indicates that approximately 14% of the global burden of disease, a standardized estimate of the mortality and morbidity costs associated with hundreds of illnesses and injuries based on data from several different countries, can be attributed to mental illnesses (Prince et al., 2007). Psychotic disorders are associated with some of the most significant burden. For example, using data from the National Comorbidity Replication Survey, Kessler and colleagues (2008) estimated the annual loss of earnings associated with serious mental illness to be \$193.2 billion.

### The Current Research

Although available research documents the noted disparities in mental health care among Latinos, including those with psychotic disorders such as schizophrenia, much less attention has been given to reducing or eliminating disparities (López, Barrio, Kopolowicz, & Vega, 2012; Vega et al., 2007). In this paper, we

present two studies that evaluate a psychoeducational program focused on increasing psychosis literacy among Spanish-speaking communities in the United States and Mexico. Our long-term goal is to develop an evidence-based psychoeducational intervention to minimize the possibility of disparities in mental health service use for Spanish-speaking patients who suffer from psychosis.

We define psychosis literacy as a type of mental health literacy, which Jorm (2000) has defined as the knowledge and beliefs about mental disorders that aid in their recognition, management, or prevention. Our operational definition of psychosis literacy focuses on knowledge of psychotic symptoms, specifically delusions, disorganized speech, and hallucinations. We focus on psychosis because it is among the most debilitating and costly mental health problems (Rössler, Salize, van Os, & Riecher-Rössler, 2005). In addition, there is beginning evidence that psychosis literacy is malleable and related to mental health service use for psychotic disorders. Two studies (Chong, Mythily, & Verma, 2005; Melle et al., 2004) reported that community education campaigns, for example, can increase the timeliness in which persons with first-episode psychosis receive appropriate services. In much of the literature this is referred to as the duration of untreated psychosis (DUP, Melle et al., 2004). The results from the Treatment and Intervention Psychosis Study (TIPS) is particularly compelling because (a) the authors carried out a controlled study and (b) they found that after the educational campaign ended, patients' DUP returned to nearly precampaign levels (Joa et al., 2008) suggesting that the campaign was critical to the timeliness of seeking services. Other evidence for the linkage between psychosis literacy and service use is suggested by findings from a brief psychoeducational intervention for caregivers of patients who suffer from schizophrenia. Cassidy, Hill, and O'Callaghan (2001), found that the intervention successfully increased caregivers' knowledge about schizophrenia, and more importantly, their ill relatives were less likely to be readmitted to the hospital during a 2-year follow-up period (see also McWilliams et al., 2012). Together these findings are consistent with the view that increased psychosis literacy is associated with improved service use.

Community education campaigns of psychosis have given little attention to linguistic and ethnic minority communities. This is problematic given that some minority communities, especially immigrant groups (Bourque, van der Ven & Malla, 2011; Cantor-Graae & Selten, 2005), are at high risk for psychotic disorders. Based on their meta-analysis, Bourque and associates concluded that "migrant status, either FGI (first generation immigrant) or SGI (second generation immigrant), cannot be disregarded as an important risk factor for psychotic disorders, with a risk magnitude within the same range as that associated with cannabis use, urbanicity or perinatal complications." In the United States, Latinos may be at high risk for such disorders as a significant proportion are immigrants (36%, Motel & Patten, 2013). Thus, it would be particularly helpful for U.S. Latinos to be knowledgeable of psychosis so that they can seek services promptly and reduce the illness burden to themselves and their families, especially for Mexican-origin Latinos who have especially low rates of mental health service use and for whom a significant portion are immigrants or offspring of immigrants.

Although limited, the available research indicates that some Latinos have very low psychosis literacy. In one study, when presented with a hypothetical case that included evidence of psy-

chosis, depression, and social stressors, only 2% of Spanish-speaking Latinos residing in Los Angeles referred to the psychotic features, whereas 86% of them noted the depression, and 56% referred to the social stressors (López et al., 2009). Qualitative evidence comes from clinical observations of a significant delay between when Mexican American family members first notice the signs of a psychotic episode and subsequent access to mental health services for their loved ones (Urdaneta, Saldaña, & Winkler, 1995). Urdaneta and colleagues noted that these family caregivers of patients with schizophrenia and affective bipolar disorder “. . . were aware only that their relative was not behaving the way he or she used to,” but that they “seemed unaware of mental illness per se (pathology, diagnosis, treatment, prognosis) . . .”

In an effort to improve the psychosis literacy of Spanish speakers in the United States, López and colleagues (2009) developed and evaluated an innovative conceptually informed psychoeducational program designed primarily for a nonclinical, community audience. The program integrated popular cultural icons derived from music, art, and videos, as well as a mnemonic device—*La CLAVE* (The Clue). The 35-min program was presented by a mental health professional who used a PowerPoint presentation that included audio and video clips. The investigators found that administration of *La CLAVE* led to significant increases in (a) knowledge of psychosis, (b) efficacy beliefs in their ability to identify psychosis in others, (c) attributions to mental illness, and (d) recommendations to seek professional help for healthy community residents. These findings are explained and accounted for by a theoretical model in which increased knowledge about psychosis leads to higher efficacy beliefs that one can identify psychosis in others. Better knowledge about psychosis, coupled with higher efficacy beliefs, is thought to contribute to greater attributions of psychosis as a mental illness, that are ultimately believed to increase professional help-seeking. Thus, the model assumes that psychoeducation and knowledge of psychosis is an essential prerequisite and determining factor that leads to mental health service use for individual patients with psychosis. From a broader perspective, the model also has important potential implications for public health. To the extent that lack of knowledge about psychosis may be more prevalent among certain racial, ethnic, or linguistic minority groups, it could contribute to disparities in care-seeking and service use among patients with psychosis who belong to those groups.

Although the initial study of *La CLAVE* provided encouraging results, there are three areas that limit its use. First, the PowerPoint presentation was delivered by a mental health professional, which restricts its dissemination potential to larger and more widespread audiences. Second, the evidence is currently limited to a single group design, with a pre- and posttraining assessment. This leaves open the possibility that observed increases in psychosis literacy could be due to factors other than the presentation of *La CLAVE*. For example, participants were evaluated in the same manner both before and after the literacy program. It is plausible that increases in familiarity with the stimulus material and assessment procedures could have contributed to observed changes in literacy. Third, the samples of the original study were comprised primarily of persons with few years of education. Thus, it is unclear what the range of psychosis literacy gains are for persons with differing educational backgrounds.

This paper reports findings from two studies that specifically address these limitations. Study 1 is an efficacy study in which we carry out a randomized control trial. Study 2 is an effectiveness study in which a community worker administered *La CLAVE* to community residents. It should be noted that Study 1 was conducted in Mexico and Study 2 was conducted in the United States. This provides an opportunity to evaluate the program's relevance for residents in a Spanish-speaking country and for Spanish-speaking immigrants in the United States, and underscores our efforts to broaden the ecological validity and ultimate dissemination potential of the program.

## Study 1

For this first study, we developed a DVD version of *La CLAVE* and aimed to determine if it could also lead to increases in psychosis literacy as previously demonstrated with the original PowerPoint presentation. The DVD version has significantly greater dissemination potential in large part because it can be administered by lay persons. By using a DVD version of *La CLAVE*, we were also able to preserve the majority of information from the original PowerPoint version of the program with minimal modifications to its content, style, or length. Second, we sought to determine if literacy gains were maintained after controlling for potential confounding effects, especially familiarity with the evaluation measures and assessment procedures. Thus, we carried out this study as part of an experiment whereby we randomly assigned participants to either the DVD version of *La CLAVE* or a control condition, *El Gran Vacío* (a psychoeducational program of similar length regarding caregiving). We hypothesized that psychosis literacy across the four conceptual domains, including (a) knowledge, (b) efficacy beliefs, (c) illness attributions, and (c) recommended help-seeking, would improve after participating in the presentation of *La CLAVE*, but not *El Gran Vacío*. Finally, we aimed to evaluate the full range of literacy gains that could be expected from the program. We therefore purposively selected a sample of highly educated Spanish-speaking persons and compared their scores with those from a community sample of low-educated Spanish-speaking participants. We hypothesized that the highly educated sample would show greater increases in psychosis literacy than their lower-educated counterparts under the assumption that they would be better able to understand the concepts that relied heavily on the written word (e.g., *clave*).

## Method

**Participants.** The sample ( $N = 127$ ) was obtained in two adjoining states in south central Mexico, Puebla and Tlaxcala. Participants included second- or third-year medical students in Puebla ( $n = 59$ ), as well as a comparison group of community residents ( $n = 68$ ) who were either visiting a public hospital or a community center. The participants from the public hospitals included adult patients waiting for an outpatient or urgent care consultation and family members who accompanied them. They were drawn from a large lobby area on the first floor. The community center is in the center of a small town and serves multiple functions including a meeting place for the residents, a place where youth play soccer or basketball on a court just outside the building, and where the two local law enforcement officials have a small

office. Most participants were women (medical students = 67.8%; community residents = 76.5%). The medical students reported an average of 16.4 years of education ( $SD = 1.45$ ) and an average age of 21.65 years ( $SD = 2.15$ ). The community sample reported an average of 8.26 years of schooling ( $SD = 4.35$ ) and an average age of 39.63 years ( $SD = 16.75$ ). All participants were recruited in July and August of 2010. Table 1 provides a breakdown of the participant demographic information by educational background (e.g., medical students vs. community residents) and experimental condition (e.g., *La CLAVE* or *El Gran Vacío*).

There were minimal exclusion criteria for this study. All participants were required to be at least 18 years of age. Medical students were recruited by means of a convenience sample of students who were attending second- and third-year courses at the Facultad de Medicina of the Benemérita Universidad Autónoma de Puebla (BUAP). Community residents were also recruited via a convenience sample from public hospital waiting rooms in Puebla and Tlaxcala, as well as from a community center in San Juan Bautista, Tlaxcala. We did not systematically assess the refusal rate across either of the two participant samples, but it is our impression that among the medical students and participants at the community center in San Juan Bautista almost everyone participated. Not all the community residents from the hospital lobbies participated. Some individuals were called for their appointments during the presentation and data collection, and consequently, did not complete their questionnaires. Data from these individuals were not included in the analyses.

**Procedure.** This study took place in a group setting, and some participants in the community resident sample were unable to read. Thus, in addition to distributing the questionnaires with the informed consent on the first page, the experimenter read aloud the informed consent in Spanish. We expressed our desire for an evaluation of the presentation, which would require them to watch a video and answer several questions before and after the main session. We stressed that participation was voluntary and that individuals did not have to complete the questionnaires. We also informed them that they would not be adversely affected if they declined to participate (e.g., grades for students or clinical services for those community residents in the hospital). We told them that if they chose not to participate they could turn in blank questionnaires or partially completed questionnaires. Our informed consent procedures were approved by and executed in accordance with the Institutional Review Board of the University of Southern California and the *comité de ética* of the Benemérita Universidad Autónoma de Puebla.

In an effort to prevent priming respondents about our interest in mental health literacy, we introduced our project as “Learning about health.” We intentionally avoided any reference to “mental health” during the introduction. Next, we randomly assigned the participants to either the experimental condition, the DVD presentation of *La CLAVE* (medical students,  $n = 31$ ; community residents,  $n = 35$ ), or the control condition, *El Gran Vacío* (medical students,  $n = 28$ ; community residents,  $n = 33$ ). Before they received either training, participants in both groups were shown a video vignette that features an actress who plays a *comadre* (i.e., fictive kin or a very close friend). The *comadre* talks to the audience about her neighbor’s daughter, *Olga* who has various clinical symptoms of both depression and psychosis. A more detailed explanation about the content of the vignette can be found in the original article (López et al., 2009).

Immediately following the video vignette of Olga, participants completed a “pretraining” questionnaire to obtain a baseline evaluation of their psychosis literacy prior to the experimental manipulation. Because some of the community residents were illiterate, four to six members of the research team were available to assist participants with completing the assessments. Specifically, research team members were available to answer questions from potential participants throughout the study, as well as to administer the questionnaires orally to participants who expressed difficulty with reading or writing.

After the pretraining evaluation, participants either received the *La CLAVE* or *El Gran Vacío* training. The experimental condition was presented by a research assistant with a bachelor’s degree and some mental health expertise, and the control condition was presented by a PhD-level clinical psychologist. At the conclusion of the presentations participants once again viewed the video vignette of Olga and were asked to complete a “posttraining” questionnaire that was nearly identical to the pretraining questionnaire. At the end of the presentation, after participants had turned in their questionnaires, we also identified places where they could receive

Table 1  
*Sociodemographic Characteristics of Medical Students Versus Community Residents in Study 1 by Experimental Condition (e.g., La CLAVE or El Gran Vacío)*

	<i>La CLAVE</i>	<i>El Gran Vacío</i>	Statistic	<i>p</i>
Medical students				
Age (years)	21.55 (1.69) $n = 31$	21.77 (2.63) $n = 26$	$t = 0.38$	.70
Years of schooling	16.63 (1.69) $n = 30$	16.09 (0.97) $n = 22$	$t = 1.34$	.18
Gender (% female)	77.4% $n = 31$	57.1% $n = 28$	$\chi^2 = 1.70$	.19
Community residents				
Age (years)	37.71 (15.51) $n = 35$	41.67 (17.99) $n = 33$	$t = 0.97$	.33
Years of schooling	8.35 (3.85) $n = 34$	8.16 (4.89) $n = 32$	$t = 0.18$	.86
Gender (% female)	88.6% $n = 34$	63.6% $n = 33$	$\chi^2 = 0.90$	.34

mental health services in their communities. Medical students were able to complete the entire procedure within approximately an hour and 15 minutes whereas the community residents required an additional 30 minutes.

**Materials.** To carry out the presentation and evaluation of *La CLAVE* and *El Gran Vacío*, we used a laptop computer, an LCD projector, and computer speakers.

**La CLAVE.** The DVD presentation was designed to model the original PowerPoint presentation as closely as possible. Thus, in developing the video presentation, we sought to minimize changes to the content of *La CLAVE*. The video, which is 33 minutes and 31 seconds long, maintained all of the original artwork, music, and media from the PowerPoint presentation. The content was organized in the same manner as well, specifically around the word *clave*, the mnemonic device to represent the core symptoms of psychosis as noted in DSM-V (American Psychiatric Association, 2013). “C” stands for *creencias falsas* (delusions), “L” for *lenguaje desorganizado* (disorganized speech), and “A” for *alucinaciones* (hallucinations). The “v” and “e” represent types of hallucinations: *ver cosas que no existen* (visual hallucinations), and *escuchar voces o sonidos que no existen* (auditory hallucinations). The DVD presentation features a clinical psychologist as the narrator of the film, who speaks in simple, everyday language to convey the significance of serious mental illness and the symptoms of psychosis. Although the discussion of psychosis is framed as a mental disorder, we recognize that psychosis can pertain to medical conditions as well. *La CLAVE* does not distinguish the different etiologies of psychosis and simply recommends that an evaluation by a health or mental health professional be obtained should such symptoms be observed.

**El Gran Vacío.** The presentation begins with a video clip of an actress reading a redacted story by Matute (2001) entitled *El Gran Vacío*. It portrays Mateo Alfonso, a man who works vigorously to care for his paralyzed wife toward the end of her life. The story is told through the eyes of young children in a rural Spanish village. The video clip, which lasts 9 minutes and 41 seconds, is immediately followed by a 25-minute PowerPoint presentation entitled “Es cuestión de medida: Familias cuidando a sus parientes discapacitados” (It’s a question of balance: Families caring for their disabled relatives). Based on the story and available research, the presenter recommended that caregivers (a) celebrate the positive aspects of caregiving, (b) develop a balanced view regarding the ill relative’s responsibility for their negative behavior, and (c) take care of themselves.

**Measures.** The pre- and posttraining questionnaires assessed the participants’ levels of psychosis literacy within the four theoretical domains. Knowledge of psychotic symptoms was assessed by the question, “What are the symptoms or principal signs of a serious mental illness?” Participants wrote their responses in the blank space following the question. Raters then coded whether respondents identified any of the three psychotic symptoms emphasized in the presentation (false beliefs, disorganized speech, and hallucinations). To measure efficacy beliefs, we asked, “How sure are you that you can identify someone with a serious mental illness? Participants provided responses using a 5-point rating scale (1 = *not at all*, 2 = *a little*, 3 = *somewhat*, 4 = *quite a bit*, 5 = *very much*).

We assessed illness attributions by asking, “What’s happening to Olga? What do you think is wrong with her?” Participants wrote

down their answers and raters coded their responses into one or more of three categories established in our prior research: psychosis, social world, and depression/sadness (López et al., 2009). For example, references to one or more of the three possible psychotic symptoms or a description of the symptoms (e.g., Olga is talking to her husband who is not there) were coded as psychosis. Responses that pointed to external causes such as Olga’s divorce, family problems, or stress were coded as social world. When “sadness” or “depression” were mentioned they were coded as depression. Recommended help-seeking was assessed by asking, “What should her [Olga’s] parents do to help her?” Participants wrote down their responses and they were coded into two categories: recommendations for professional help (e.g., “She should see a psychiatrist”), and recommendations for social help (e.g., “Her parents should care for her and spend time with her.”). Some responses were coded into both categories.

To examine whether participants were able to use the word *clave* as a mnemonic device, we only asked them at the posttraining assessment to write down the corresponding symptom to each letter in the word. Participants wrote down their responses to each letter and coders judged whether they were accurate (e.g., “creencias falsas” for the letter “C”). *Acceptability* of the video presentation was also evaluated during the posttraining assessment by asking the following two questions using a 10-point Likert scale ranging from 1 (*not at all*) to 10 (*very much*): “How much did you like the presentation?” and “How engaging was the presentation?”

**Psychometric properties of the measures.** After receiving rigorous training and practice with coding responses from prior datasets, two raters achieved excellent interrater reliabilities ( $K_s = .96-1.0$ ) on 20 blindly coded participant responses from the current study.

With regard to validity, in our first study we found significant differences between family caregivers of persons with schizophrenia and community residents on most literacy measures prior to administering the psychoeducation program (López et al., 2009). For example, family caregivers reported more knowledge of psychotic symptoms, greater efficacy in identifying serious mental illness in others, and greater attributions to mental health problems providing some support for the validity of the measures.

**Research design.** This study applied a  $2 \times 2 \times 2$  mixed design with two between-subjects independent variables (type of training: *La CLAVE* or *El Gran Vacío*; and educational background: community residents or medical students) and one within-subjects variable (time of assessment: pre- or posttraining). There were seven dependent variables included in this study (illness attributions; recommended help-seeking; knowledge of psychosis; efficacy beliefs, “CLAVE” as a mnemonic device; acceptability of the video presentation-likability; acceptability of the video presentation-engagement).

## Results

**Analyses.** We conducted three types of analyses to assess for training effects. For continuous variables, including knowledge of psychosis and efficacy beliefs, we conducted two  $2 \times 2 \times 2$  (Type of Training  $\times$  Educational Background  $\times$  Time) mixed design analysis of variance. To examine the acceptability of training and recognition of *La CLAVE*, we conducted two paired *t* tests. For

categorical data, including illness attributions and help-seeking, we conducted two separate McNemar tests.

**Knowledge of psychosis.** Main effects were observed for type of training,  $F(1, 123) = 61.76, p < .001, \eta^2 = .33$ , educational background,  $F(1, 123) = 105.80, p < .001, \eta^2 = .46$ , and time of assessment,  $F(1, 123) = 91.06, p < .001, \eta^2 = .43$ . However, the significant interaction of type of training (*La CLaVe* or *El Gran Vacio*) by time of assessment (pretraining vs. posttraining),  $F(1, 123) = 104.53, p < .001, \eta^2 = .46$ , was particularly informative and consistent with expectation. For instance, an examination of Figure 1 indicates both medical students and community residents identified significantly more symptoms of psychosis in their definitions of serious mental illness after viewing the video presentation of *La CLaVe* compared to *El Gran Vacio*. However, medical students were able to identify significantly more psychotic symptoms than community residents both before and after viewing the DVD presentation of *La CLaVe*. Means and standard deviations for knowledge of psychosis across type of training, educational background, and time are included in Table 2.

**Efficacy beliefs.** There were significant main effects for type of training,  $F(1, 122) = 4.22, p = .04, \eta^2 = .03$ , educational background,  $F(1, 122) = 38.75, p < .001, \eta^2 = .24$ , and time of assessment,  $F(1, 122) = 22.24, p < .001, \eta^2 = .15$ . However, the significant interaction between type of training and time of assessment,  $F(1, 122) = 14.15, p < .001, \eta^2 = .10$ , was the most informative. As predicted, efficacy beliefs increased significantly for both medical students and community residents following administration of *La CLaVe* but not *El Gran Vacio*. Medical students though reported higher self-efficacy beliefs than community residents at both time points. Means and standard deviations for efficacy beliefs across type of training, educational background, and time are included in Table 2.

**Illness attributions.** As shown in Table 3, posttraining illness attributions to psychosis increased for both medical students and community residents after viewing *La CLaVe*. For example, before

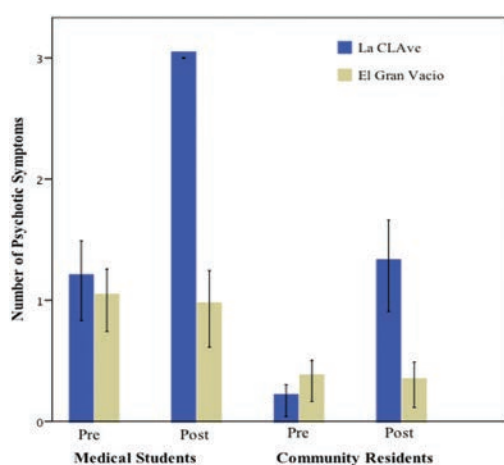


Figure 1. Knowledge of psychosis by condition, education, and time. Mean values representing number of psychotic symptoms recalled by medical students and community residents both before and after administration of either *La CLaVe* or *El Gran Vacio*. Standard errors are represented by the error bars attached to each column. See the online article for the color version of this figure.

viewing *La CLaVe*, only 45% of medical students made illness attributions to psychosis, but this number increased to 97% after the presentation ( $n = 31, p < .001$ ). Importantly, these effects are specific to the *La CLaVe* training, as there were no significant differences across any of the three types of illness attributions for medical students or community residents who received the *El Gran Vacio* training. The observed differences remained significant even after applying a Bonferroni correction ( $p = .008$ ) for 6 multiple tests (3 illness categories by 2 conditions). (See Table 3 for a complete report of the pre- and posttraining differences).

**Help-seeking.** As indicated in Table 3, after viewing *La CLaVe*, community residents recommended significantly more professional help (pretraining = 34%, posttraining = 60%,  $n = 35, p = .012$ ) and significantly less social help (pretraining = 29%, posttraining = 13%,  $n = 35, p = .02$ ). However, community residents who received the *El Gran Vacio* training did not significantly change their recommendations for either professional help (pretraining = 30%, posttraining = 42%,  $n = 33, p = .22$ ) or social help (pretraining = 76%, posttraining = 76%,  $n = 33, p = 1.00$ ). There were no significant changes in medical students' recommendations for professional or social help after viewing either *La CLaVe* or *El Gran Vacio*.

**Recognition of La CLaVe.** After viewing the video presentation for those in the *La CLaVe* condition, medical students recalled all the symptoms ( $M = 5.00, SD = 0.00$ ) whereas community residents recalled nearly three symptoms ( $M = 2.74, SD = 2.09$ ). Medical students recalled significantly more symptoms than community residents,  $t(34) = 7.76, N = 127, p < .001$ .

**Acceptability of training.** Given the two measures of acceptability (liked the presentation and viewed the presentation as engaging), we carried out the same mixed design analysis of variance as with the other continuous variables, except in this case we used a MANOVA. We found no significant differences in acceptability across condition,  $F(1, 122) = 2.17, N = 127, p = .12$ , groups,  $F(1, 122) = 1.02, N = 127, p = .36$ , or their interaction,  $F(1, 122) = .816, N = 127, p = .44$ . For example, both groups reported that they liked their training (*La CLaVe*: medical students,  $M = 8.87, SD = 1.15$ ; community residents,  $M = 8.89, SD = 1.76$ ; *El Gran Vacio*: medical students,  $M = 9.25, SD = .93$ ; community residents,  $M = 8.85, SD = 1.40$ ).

## Discussion

In Study 1, we demonstrated that the presentation of a DVD version of *La CLaVe* can lead to increases in psychosis literacy. Most importantly, this randomized control trial indicated that the increases in psychosis literacy were associated with the presentation of *La CLaVe* and not with other factors such as the similarity of the assessment procedures used at baseline and posttraining. Third, these findings suggest that educational level is associated with the training effects, though it is not clear what about educational level is related to the differential results (e.g., literacy skills). The importance of these findings is that they point out the potential range of psychosis literacy gains given administration of *La CLaVe*.

## Study 2

Although the first study provided evidence that the DVD version of *La CLaVe* works, it was carried out in controlled settings

Table 2  
Means and Standard Deviations for Knowledge of Psychosis and Efficacy Beliefs

	<i>La CLAVE</i>		<i>El Gran Vacío</i>	
	Pre ( <i>n</i> = 31) <i>M</i> ( <i>SD</i> )	Post ( <i>n</i> = 31) <i>M</i> ( <i>SD</i> )	Pre ( <i>n</i> = 28) <i>M</i> ( <i>SD</i> )	Post ( <i>n</i> = 28) <i>M</i> ( <i>SD</i> )
Knowledge of psychosis				
Medical students	1.16 (0.90)	3.00 (0.00)	1.00 (0.67)	0.93 (0.81)
Community residents	0.17 (.38)	1.29 (1.10)	0.33 (0.48)	0.30 (0.53)
Self-efficacy				
Medical students	3.13 (0.96)	4.35 (0.66)	3.21 (0.83)	3.36 (0.87)
Community residents	2.17 (1.59)	2.77 (1.35)	2.09 (1.61)	2.16 (1.53)

Note. Knowledge of psychosis was based on participants' inclusion of any of the three psychotic symptoms (false beliefs, disorganized speech, and hallucinations) in their definition of serious mental illness. Efficacy beliefs were self-reported on a 5-point Likert scale, with higher values indicating increased self-reported efficacy in one's ability to recognize serious mental illness in someone else.

closely supervised by the principal investigator. In this second study, we sought to evaluate the effectiveness of the DVD presentation of *La CLAVE* when administered by a community mental health educator as part of her job. We reasoned that this evaluation would further assess the dissemination potential of the program. Moreover, by recruiting community residents from the United States we could assess the effectiveness of the DVD version of *La CLAVE* with a Spanish-speaking community within the United States.

## Method

**Participants.** Participants ( $N = 93$ ) were residents of San Diego County who attended a community education program organized and led by a community outreach worker. They were

Table 3  
Percentages of Medical Student and Community Resident Illness Attributions and Help-Seeking Recommendations Before and After Administration of *La CLAVE* or *El Gran Vacío*

	<i>La CLAVE</i>			<i>El Gran Vacío</i>		
	Pre	Post	<i>p</i>	Pre	Post	<i>p</i>
Illness attributions						
Medical students						
Psychosis	45%	97%	<.001	39%	36%	1.000
Social world	68%	23%	.001	86%	79%	.687
Depression	87%	26%	<.001	93%	93%	1.000
Community residents						
Psychosis	3%	40%	<.001	6%	3%	1.000
Social world	89%	54%	.002	61%	73%	.388
Depression	51%	31%	.092	46%	52%	.754
Help seeking						
Medical students						
Professional	94%	97%	1.000	82%	89%	.687
Social	29%	13%	.180	40%	42%	.700
Community residents						
Professional	34%	60%	.012	30%	42%	.219
Social	77%	51%	.022	76%	76%	1.000

Note. Statistical analyses were computed using McNemar tests. The sample sizes were: medical students (*La CLAVE*,  $n = 31$ ; *El Gran Vacío*,  $n = 28$ ); community residents (*La CLAVE*,  $n = 35$ , *El Gran Vacío*,  $n = 33$ ).

recruited by means of a convenience sample of individuals who were attending one of the community education programs hosted by the mental health agency where the community outreach worker was employed. Ninety-three percent of the sample was female, their average age was 38 ( $SD = 11.63$ ), and they reported 9.5 years of education ( $SD = 3.80$ ). Most participants were foreign-born (86%) and had lived in the United States an average of 17 years ( $SD = 13.33$ ). They also reported on a 4-point scale (1 *very poorly* to 4 *very well*) that they were better able to speak Spanish ( $M = 3.73$ ,  $SD = .56$ ) than English ( $M = 2.10$ ,  $SD = 1.03$ ), paired  $t(1,87) = 12.25$ ,  $p < .001$ .

**Procedure.** The procedures for this study were identical to those identified in Study 1, including the materials, measures, and informed consent procedures; however, there was no control condition for this study. In addition, *La CLAVE* was administered by a community worker rather than a research assistant. Doing so allowed us to evaluate the effectiveness of the DVD program of *La CLAVE* when administered directly by a community health worker as a more stringent test of ecological validity and feasibility of the administration method. One of the primary objectives in creating the DVD program was to increase its dissemination potential by capitalizing on existing and established neighborhood networks and community structures. Thus, testing its feasibility in this context would likely strengthen the evidence base of the program.

The principal investigator and his staff trained the community worker to administer *La CLAVE* in three meetings, and after that the community worker carried out the *La CLAVE* presentations and evaluation on her own. Data from the training sessions were omitted from these analyses. Two different coders rated the written responses to open-ended responses and their interrater reliability ( $K$ s) ranged from .94 to 1.00 across the entire sample.

## Results

No adjustments were made for missing data. Thus, the  $n$  for some analyses was less than 93, and is noted, where applicable, for specific analyses throughout the results section.

Paired sample  $t$  tests revealed that higher knowledge of psychosis was observed in the posttraining than in the pretraining,  $t(1,91) = 9.65$ ,  $N = 93$ ,  $p < .001$ ;  $d = 1.01$ . Participants reported an average of 0.30 ( $SD = 0.53$ ) symptoms of psychosis in their

definitions of serious mental illness before viewing the video presentation of *La CLAVE* and 1.35 ( $SD = 1.06$ ) symptoms after the presentation. McNemar tests indicated that the training was associated with a significant increase in participants' attributions to psychosis in the hypothetical case of Olga (pretraining = 3%; posttraining = 30%,  $p < .001$ ) and a significant decrease in their attributions to both the social world, (pretraining = 59%, posttraining = 28%,  $N = 93$   $p < .001$ ) and depression, (pretraining = 60%, posttraining = 43%,  $N = 93$ ,  $p = .014$ ). Regarding help-seeking, after administration of *La CLAVE*, participants made more recommendations for professional resources (pretraining = 44%, posttraining = 75%,  $n = 92$ ,  $p < .001$ ) and less recommendations for social resources (pretraining = 71%, posttraining = 37%,  $n = 92$ ,  $p < .001$ ). Finally, participants were able to use the word *clave* as a mnemonic device to recall an average of three out of five symptoms of psychosis after the video presentation ( $M = 3.53$ ,  $SD = 1.90$ ). At posttraining, participants also indicated that they enjoyed the presentation ( $M = 9.07$ ,  $SD = 1.45$ ) and found it to be engaging ( $M = 8.87$ ;  $SD = 1.31$ ).

## Discussion

In Study 2 we demonstrated that the DVD presentation of *La CLAVE* can lead to increases in psychosis literacy for Spanish-speaking community residents when administered by a community health worker. This finding provides support for the feasibility of use and dissemination potential of *La CLAVE* as an effective psychoeducational tool for increasing psychosis literacy in Spanish-speaking communities.

### General Discussion

Results from the two studies indicate that the DVD version of *La CLAVE* is a viable Spanish language psychoeducational program that can increase Spanish-speakers' knowledge about psychosis and their ability to recognize psychotic symptoms. Using an experimental design, Study 1 demonstrated the efficacy of a DVD version of *La CLAVE*. These findings indicated that the observed increases in psychosis literacy are likely due to the information presented in the psychoeducational program and not some other factor. In an effectiveness trial, Study 2 demonstrated that the administration of the DVD version of *La CLAVE* by a community mental health worker in her usual practice can also lead to positive gains in psychosis literacy. Taken together, these findings provide justification for future research aimed at using *La CLAVE* as a psychoeducational intervention to increase mental health service utilization among Latino and Spanish-speaking individuals with psychosis, particularly those of Mexican origin.

Both studies collectively reveal the low level of psychosis literacy in the community residents and the range of psychosis literacy gains that can be expected. Very few of the community residents with low educational backgrounds in Mexico or in the United States, included a psychotic symptom in their definition of serious mental illness ( $M_s = .17$  to  $.30$  symptoms). Moreover, only a small percentage of community residents in both studies recognized psychosis in the vignette before training ( $M_s = 3\%$  to  $6\%$ ). This provides evidence for the low level of psychosis literacy and the need for such a program on both sides of the border. After the training, the community residents increased their knowledge on

average to more than one symptom and more people recognized psychosis in a specific case (30% to 40%). The more educated medical students reported greater psychosis literacy prior to the training but benefitted from it as well. For example, prior to the training, the medical students reported on average one psychotic symptom in their definition of mental illness ( $M = 1.16$ ) whereas after the training they included all three psychotic symptoms in their definition of mental illness ( $M = 3.00$ ). Moreover, both the lower and higher educated groups rated the program very highly. Furthermore, these data add to the growing body of evidence regarding the effectiveness of psychoeducational interventions outside of the United States, particularly in Mexico. Lara, Navarro, Navarrete, Mondragon, and Rubi (2003) have previously demonstrated the effectiveness of a psychoeducational intervention for Mexican women with depressive symptoms.

The observed psychosis literacy gains for the community residents who received the DVD-based version of *La CLAVE* in these studies were very similar to the gains observed with community residents who received the PowerPoint version of *La CLAVE* administered by a mental health professional in the prior study (López et al., 2009). Given the fewer costs and resource demands associated with a community worker administration model than with a professional administration model, the video-program version of *La CLAVE* delivered by community workers improves the feasibility potential of the program to increase the psychosis literacy of large Spanish-speaking communities.

There is one caveat to the community workers' presentation of the DVD version. *La CLAVE* oftentimes generates a number of questions by the public. In particular, some people raise questions about whether specific people, including themselves, may suffer from psychosis. For instance, in one case a mother mentioned that her 7-year-old daughter had an imaginary friend. In another case, a very religious young man reported that he heard God speaking to him on a daily basis. In these cases, the presenter inquired about how well these individuals were functioning in their work or school and with others (friends and family members). In both cases, the persons reported that they were doing fine in these areas, and the trainer told them that those experiences did not likely reflect psychosis. They were informed, however, that if there was a change in their functioning in these areas it might be wise to obtain an evaluation. Thus, it is important that lay community health workers who administer the DVD version of *La CLAVE* be well trained to answer the range of questions or concerns that might emerge from the audience during or after the video presentation.

There are important limitations of the current studies. Based on the existing data, it is unclear if the observed gains in psychosis knowledge would generalize to real-world situations. For example, although administration of *La CLAVE* led to increased identification of psychotic symptoms in a simulated case example, it is unknown whether this ability would facilitate identification of psychosis in a family member and eventual use of mental health services. In everyday life, barriers exist to identifying mental illness in others (e.g., stigma) and to seeking services (e.g., lack of medical insurance and limited English proficiency). An additional challenge concerns the possibility that *La CLAVE* may contribute to the false identification of psychosis for nonpsychotic signs and symptoms, although as noted earlier, a trainer can help community residents discern when an evaluation may or may not be needed.



Also, *La CLAVE* only focuses on the positive symptoms associated with psychotic disorders and does not include reference to abnormal motor behavior or negative symptoms such as avolition (Heckers et al., 2013). Finally, these studies relied on convenience samples of participants and did not include attrition data, which present possible limitations to the generalizability of our results. Future studies are needed to assess whether Latino groups other than those of Mexican background can benefit from *La CLAVE*.

The findings provide empirical support for the efficacy and effectiveness of an easy-to-administer DVD version of *La CLAVE* for increasing psychosis literacy among Spanish-speakers. These results provide some justification for using *La CLAVE* as part of the next phase of our research, in which we will carry out a widespread educational campaign to enhance psychosis literacy among Spanish-speaking Latinos in Southern California. Specifically, we plan to assess whether the gains in psychosis literacy produced by *La CLAVE* can significantly reduce the duration of untreated psychosis of largely Mexican-origin Latinos with first-episode psychosis. Facilitating mental health care in the early phase of psychosis holds promise to reduce disparities in mental health services and reduce suffering of the most seriously ill Latinos and their families.

### Clinical Implications

At a general level we demonstrated that a Spanish language psychoeducation program that integrates shared cultural icons and themes can cross educational and national borders to increase psychosis literacy. More specifically, our research has demonstrated that the *La CLAVE* program can be useful in community outreach and clinical practice. In community outreach, as demonstrated here, community members can learn what the symptoms are of psychosis and can be encouraged to contact their local community mental health services. In clinical practice, clinicians can use *La CLAVE* to assist patients and family caregivers in understanding what psychosis is, especially early on in treatment. Our evaluation of the effectiveness of *La CLAVE* with different groups of Spanish speakers and in various contexts is ongoing. An experimental version of *La CLAVE* is available for clinicians and other users who would like to use it, and who are also interested in collecting further data. In a prior study we demonstrated that family caregivers improved their psychosis literacy after presenting the in-person version of the psychoeducation program (López et al., 2009). The DVD version might be particularly useful for family caregivers participating in multifamily groups (Kopelowicz et al., 2012) or even peer-led Family-to-Family Education programs (Dixon et al., 2004). Our goal is that *La CLAVE* be used to increase community residents' and caregivers' knowledge about psychosis, so that they will be able to recognize the symptoms in a timely fashion and assist their loved ones in seeking mental health services promptly.

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