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Evaluating a Culturally Tailored HIV Risk Reduction Intervention Among Latina Immigrants in the Farmworker Community

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Abstract

Latina immigrants in the farmworker community are a vulnerable and understudied population at risk of acquiring HIV. Employing a CBPR framework, this pilot study was the first to evaluate the efficacy of SEPA, a CDC evidenced-based and culturally tailored HIV risk reduction intervention

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on a cohort of $N = 110$ predominantly undocumented Latina immigrants in a farmworker community. Findings revealed SEPA was effective in increasing HIV knowledge and decreasing HIV risk behaviors. However, no changes in self-efficacy were found in the present sample. We posit specific socio-cultural and structural barriers specific to the farmworker community not targeted in the original intervention may have hindered the program's capacity to influence changes in self-efficacy among this less acculturated population. Possible socio-cultural adaptations of the intervention to the target population and policy implications are discussed.

Keywords

HIV/AIDS; Hispanic; Latino/a; immigrant; farmworker; migrant worker; seasonal workers; women

Introduction

Nationally, rates of new HIV infections among Latinas are more than four times (4.2) that of non-Latino White women (Centers for Disease Control and Prevention [CDC], 2012 2013a). Immigrant Latinas are a rapidly growing segment of the U.S. population, with an increasing risk of acquiring HIV (Sastre, Sanchez, & De La Rosa, 2015). In 2011, of the estimated 11,032 U.S. Latinos diagnosed with HIV, 50 percent reported being foreign-born, with 44 percent of those being women (CDC, 2011).

Less acculturated Latinas who recently immigrated to the United States may be particularly vulnerable to contracting HIV as these women have (i) less perceived risk of HIV/AIDS, (ii) less knowledge of how HIV/AIDS is contracted, (iii) less likelihood of knowing where HIV testing can be obtained, and (iv) higher stigma associated with HIV/AIDS (Shedlin, Ulises, & Oliver-Velez, 2005). In addition, previous research indicates most Latina immigrants living with HIV become infected in the United States, underscoring the opportunity and need for prevention services early in the immigration process (CDC, 2014; Dennis et al., 2013).

Existing investigations examining the effectiveness of culturally tailored HIV risk interventions among Latina immigrants have primarily focused on metropolitan areas such as Miami and Chicago (Peragallo et al., 2005). These studies reveal that cities with high concentrations of Latino immigrants have been particularly affected by HIV/AIDS. In Miami-Dade County, 65 percent of residents are Latinos, two-thirds (66 percent) of which are foreign born (mainly from the Caribbean and South and Central America). Miami-Dade is not only home to the most diverse Latino population of any U.S. city (U.S. Census Bureau, 2010), but also leads the nation in highest rate of new cases of HIV infection and number of people living with HIV/AIDS (CDC, 2013a). Between 2003 and 2012, the County has seen a 40 percent increase in the proportion of reported HIV infections among Latinos. Latinos in Miami-Dade are five times more likely to have HIV than non-Latino White individuals (Florida Department of Health, 2013).

While existing studies reveal that Latino immigrants residing in urban areas are particularly affected by HIV, far less is known about Latinas in farmworker communities. Latinas in

farmworker communities are among the most vulnerable and understudied groups in the United States. Most of the produce we eat in the United States is planted, nurtured, and harvested by migrant and seasonal farmworkers. Migrant farmworkers move from one state to another or sometimes within the same state to do agricultural work. Seasonal farmworkers live in one place year-round, doing field work part of the year (planting, harvesting) and other agricultural work (e.g., packing industry, nurseries) during the off-season (National Center for Farmworker Health, 2016). Women make up 21 percent of the estimated 2.5 million migrant and seasonal farmworkers in the United States (Farmworker Justice, 2014). While they play a vital role in harvesting the food on our plates, farmworker women are arguably the most exploited workers in this country, even more vulnerable than male farmworkers as females in the fields are often given the least desired, lowest paying jobs, are the first to be laid off, receive fewer opportunities to advance, and face a culture of discrimination and machismo in the workplace (Fernandez et al., 2004; Human Rights Watch, 2012).

Farmworkers experience a confluence of socio-demographic, ecological, and behavioral circumstances that place them at risk for HIV infection (Fernandez et al., 2004; Worby & Organista, 2007). Data regarding the incidence of HIV/AIDS among farmworkers are scarce and most studies have been conducted on small, farmworker community populations. Some research has identified HIV infection rates among farmworkers to be as high as 13 percent (NCFH, 2011; Organista, Organista, & Soloff, 1998). However, these statistics have been questioned as they do not fairly encompass the farmworker population (Rao, Hancy, Velez, Freeman, & Davis, 2008).

Social and structural barriers placing farmworkers at risk for HIV include (i) language barriers; (ii) inadequate or incorrect HIV-related knowledge; (iii) immediate survival problems (e.g., child care, family dislocation, hazardous working conditions, exposure to pesticides, limited access to health services related to indigence, and associated disempowerment that take precedence over the possibility of developing a fatal disease in the distant future); (iv) limited access to HIV risk reduction information and techniques; (v) the intersection of alcohol, drug abuse, and intimate partner violence; and (vi) social isolation or limited interactions with the community around them, translating into the lack of connections to institutions such as schools, churches, and other informal supports (NCFH, 2011).

Cultural factors contributing to HIV risk among Latino farmworkers include (i) stigma/fear of discrimination, (ii) traditional gender roles ("*machismo*," which promotes dominance and virility among men; and "*marianismo*," which demands submissiveness and traditional [e.g., Christian] ideals of purity from women), (iii) cultural values related to trust and integrity in intimate relationships that may deter women from securing safer sex with their steady partners, and (iv) being less likely than racial/ethnic nonminority individuals to discuss HIV/AIDS with others or to receive HIV/AIDS-related support (CDC, 2015). Additionally, over 90 percent of migrant and seasonal farmworkers are foreign born, and many would like to secure legal status in the United States. Farmworkers may refrain from HIV testing and utilizing HIV-related services due to fears of being deported, or otherwise jeopardizing their

current or desired status relating to becoming a legal permanent resident and/or naturalized citizen (NCFH, 2011).

The vulnerable circumstances affecting the Latina farmworker community outlined above underscore the need for development of effective, culturally consistent HIV interventions in this population (CDC, 2014; Dennis et al., 2013). Existing studies examining HIV risk among farmworkers have focused predominantly on males. Very little is known about the HIV risk factors of affected Latinas in this population. Women encounter distinct HIV risk issues, and these differences extend to particularly marginalized populations such as Latina immigrants in the farmworker community (Albarrán & Nyamathi, 2011; Weine & Kashuba, 2012). Nevertheless, there is no well-articulated conceptualization of how HIV prevention for Latina farmworkers needs to differ from interventions for men, or from Latina women in the general population.

Research Aims

This paper reports on preliminary findings of a pilot study aimed at evaluating the effectiveness of a culturally tailored HIV risk reduction intervention among Latina immigrants in the farmworker community (LIF). Utilizing a community-based participatory research (CBPR) approach, this study is the first to evaluate the efficacy of SEPA, a CDC evidenced-based, culturally tailored HIV risk reduction intervention in this vulnerable and understudied population (CDC, 2013b). The acronym SEPA represents: *Salud*/Health, *Educación* /Education, *Prevención*/Prevention, *Autocuidado*/Self-care. The aims of the present study are as follows:

1. Examine the efficacy of the SEPA intervention for increasing cognitive (HIV knowledge, self-efficacy, intentions for safe sex negotiation) and behavioral (condom use) HIV strategies among LIFs.
2. Identify if changes in HIV cognitive prevention strategies (HIV knowledge, self-efficacy, intentions for safe sex negotiation) directly impact changes in HIV prevention behavior (condom use) among LIF who participated in the SEPA intervention.

Methods

Procedure

Data for the present study were collected through on an ongoing community based participatory research pilot study with approval from the institutional review board of a large university in Miami, FL. The overall aim of the pilot study was to (i) develop a community action plan for preventing HIV among LIFs through improving access to HIV/AIDS prevention programs and (ii) increase the capacity of LIFs to respond to HIV at the local level through the provision of tools to educate and empower other women in the community. The study was conducted in collaboration with the South Miami-Dade farmworkers community. Due to climate characteristics in the region, most farmworkers tend to be seasonal rather than migratory—working in various agricultural sectors throughout the years. Specifically, researchers partnered with a community based agency that provides a

host of services focused on increasing awareness and prevention of intimate partner violence, sexual violence, and HIV/AIDS in the Latino farmworker community with a special focus on immigrant women and their families.

Research activities, conducted in equitable partnership with the community, included the selection of measures, recruitment, facilitation of group sessions, and follow-up with participants. Furthermore, a community advisory board consisting of stakeholders and members of the target community assisted in monitoring the data collection and implementation of the intervention. Additionally, researchers implemented a fidelity and sustainability monitoring process for the duration of the intervention. Fidelity was ensured by utilization of the SEPA standardized materials including the intervention manual and PowerPoint presentations. Quality assurance checks were routinely conducted by the co-investigator of the study to ensure fidelity and address any issues that may have arisen during delivery of the intervention.

The pilot study planning phase involved a comprehensive community assessment, with the goal of developing a pilot study intervention targeting HIV risk behaviors among LIFs. The community assessment process involved multiple data collection methods including individual interviews and focus groups with community service providers, stakeholders, gatekeepers, and members of the target population. Lessons learned from the community assessment and overall planning phase of the pilot study included the (i) need for establishing and maintaining trust between outreach staff and the farmworker community; (ii) importance of cultural nuances and practices that might create challenges to the research and intervention process, and the interaction of these factors with structural barriers such as poverty; and (iii) need for flexibility in recruitment and intervention (Rojas, Lopez-Quintero, Sastre, Melton, & De La Rosa, 2014).

Findings from the community assessment informed the selection of an evidence-based HIV/AIDS prevention intervention (SEPA; CDC, 2013b) to be conducted for the first time on a sample of Latina immigrant farmworkers. Language adaptations were made to the original SEPA intervention with substantial input from the community to make it culturally congruent to the target population. Overall, nonfundamental changes were made to some of the terminology utilized in the SEPA intervention to tailor it to the Central American Spanish spoken by a large proportion of the target community.

Participants were recruited via flyers distributed at local community health fairs and neighborhood level activity locales (i.e., migrant camps), through street outreach activities, and by word of mouth by community leaders and community advisory board members. Recruitment activities were concentrated near the partnering community based agency and adjacent neighborhoods that compose the farmworker community of South Miami-Dade. Trained bilingual interviewers provided informed consent to eligible participants. The structured interview lasted approximately 1.5 hours and was conducted using computer assisted personal interviewing software (CAPI) in a private office in the community agency. Participant incentives were \$50 each at baseline, intervention completion, and 6-month follow-up. Retention activities included telephone calls, multiple communications, and home visits.

Participants

The present study was conducted with a sample of ($n = 110$) Latina immigrants in a farmworker community of Miami-Dade County Florida. The eligibility criteria for the study included (i) being between the ages 18–50; (ii) self-identifying as Latina; (iii) immigrating to the United States within the last 10 years; (iv) participating in unprotected sex in the last 3 months; (v) residing in the targeted farming community; and (vi) not having ever participated in a SEPA intervention, or not participating in another HIV/STI prevention program in the past year.

Sample demographics are presented in Table 1. Most (90 percent) of the sample immigrated from Mexico or Central America. The amount of time participants had been in the United States ranged from 3 to 10 years ($M = 7.96$, $SD = 1.81$). Approximately 70 percent of participants were undocumented immigrants. Participants reported relatively low levels of education with 54.5 percent of the sample having less than a high school diploma. Approximately half of the participants were currently unemployed while half worked in the farming industry. Participants also reported relatively low income with a mean annual household income of \$23,541.

Intervention

A culturally tailored HIV behavior change intervention (i.e., SEPA) was selected as particularly relevant to the target population (CDC, 2013a). SEPA is an evidenced-based small group level intervention culturally tailored for heterosexually active Latina women ages 18–50. SEPA focuses primarily on building knowledge, self-efficacy, and communication skills and targets the confluence of HIV and other STI (HIV/STI) risk behaviors including substance abuse and intimate partner violence among heterosexual Latinas (CDC, 2013b). SEPA is based on Social Cognitive Theory, which suggests that behavior change requires more than simply increasing knowledge of HIV transmission and the benefits of condom use. Rather, the adoption of healthy and safer sex behaviors is developed through interaction between person, behavior, and others in the environment. According to the Social Cognitive model, performance of a behavior is a function of outcome expectancies (expectations of more positive than negative outcomes) and self-efficacy (confidence in the ability to perform a behavior). SEPA enables participants to build self-efficacy through practice and role-playing exercises. Social Cognitive Theory is a relevant theoretical approach for the examination of Latina sexual behavior (Wingood & DiClemente, 1996). It is built on the premise that individuals who believe they have the capability to perform an action are more likely to engage in the action.

The SEPA intervention employs demonstrations, role-play, and other capacity building exercises that together strengthen the confidence and self-efficacy of Latinas in condom use, condom negotiation, and partner communication (CDC, 2013b). The original SEPA is a 2.5-hour intervention, six-session program that is facilitated within a 3-week period. The present study is based on a revised version of SEPA that includes a 2.5-hour intervention facilitated over three sessions within a 3-week period. It has been designed to take place in community settings, led by a trained facilitator, with groups of 8–12 women. Although previous studies have found SEPA to be effective in reducing HIV risk behaviors among Latinas in the

United States (Peragallo et al., 2012), no previous study has examined its impact on Latina immigrants in the farmworker community.

In the present study, the intervention was implemented in 18 small groups of ($M = 6$ women) and included participants who, to date, attended all three sessions and completed the baseline assessment and 6-month follow-up. The intervention was facilitated by two bilingual Latinas. Groups were conducted in Spanish and took place in four community settings that were easily accessible to participants. At the 6-month follow-up, women were contacted for a post-interview at the partnering community based agency and two other available community sites facilitated by the community-based organization.

Sociodemographics

Measures—All measures used in this study had been previously translated into Spanish and utilized in past investigations examining the effectiveness of the SEPA intervention with other Latina samples. Some terminology was adapted to the target community colloquialism based on the feedback gathered in community assessments and by our community advisory board (i.e., a “*sexual relationship*” was more appropriately referred to as an “*intimate relationship*”).

A demographics form assessed, in part, participants’ time in the United States, marital status (0 = *single*; 1 = *in a relationship*; 2 = *married*), employment status (1 = *employed*; 0 = *not employed*), and annual household income in the past 12 months. U.S. documentation status was measured by 11 possible categories (e.g., temporary or permanent resident, temporary work visa, undocumented, or expired visa). These categories were recoded into a dichotomous variable: documented = 1 or undocumented = 0. Education level was measured by six possible categories (1 = *less than high school* to 6 = *graduate/professional studies*). Given the few participants reporting higher education, this variable was coded into three categories (1 = *less than high school*; 2 = *high school diploma*; 3 = *greater than high school diploma*).

Cultural Factors

Acculturation—This was measured with the Americanism subscale of the Bidimensional Acculturation Scale (Marin & Gamba, 1996), consisting of 12 items ranging from 1 to 4. The total score is calculated by adding and averaging the responses to the 12 questions. In this sample, the scale indicated high reliability ($\alpha = 0.95$).

Marianismo—Marianismo Beliefs Scale (Castillo, Perez, Castillo, & Ghosheh, 2010) is a 24-item instrument with five subscales (Family Pillar, Virtuous and Chaste, Subordinate to Other, Self-silencing to Maintain Harmony, and Spiritual Pillar) measuring the extent to which a Latina woman believes she should enculturate and practice the cultural value of marianismo. In the present study, a total scale score was calculated by summing all items and indicated good internal consistency of $\alpha = 0.89$.

HIV Prevention Outcomes

HIV-Related Knowledge—We used the Heckman HIV knowledge scale to evaluate HIV related knowledge (Heckman et al., 1995; Sikkema, Heckman, Kelly, Anderson, & Richard, 1996). The scale has 12 items with a dichotomous response (true/false) measuring knowledge about HIV transmission, prevention, and consequences. The total score indicated the number of items answered correctly (1 point per each correct answer, total completed score = number correct, range = 0–12). A higher score indicated a higher level of HIV-related knowledge. This measure has been used with previous studies examining the efficacy of SEPA (Peragallo et al., 2005), with a reported $\alpha = 0.75$. In our study, the scale had an internal consistency of $\alpha = 0.72$.

Self-Efficacy and HIV Prevention—Seven items were used to measure a woman's level of confidence in her ability to practice HIV prevention behaviors (Bandura, 1990, 1995). Items were rated on a 4-point Likert scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. The total score was calculated by summing the number of correct responses (range = 7–28) with a higher score representing a higher level of self-efficacy for HIV prevention. The scale has been used with Latinas in the United States (Peragallo et al., 2005) and internationally (Cianelli et al., 2012) in previous studies examining the efficacy of SEPA. The scale to been found to have a fairly low reliability of $\alpha = 0.68$ (Peragallo et al., 2005). In the present study, it had an internal consistency of $\alpha = 0.61$.

Intentions to Negotiate Safe Sex—Measured with four items (e.g., “I will say no to sex with a male partner if he will not use a condom”) adapted from Sikkema and colleagues for Hispanic women (Dennis et al., 2013; Kim, Soliz, Orellana, & Alamilla, 2009). Women responded on a 4-point Likert scale (strongly disagree to strongly agree) high scores. In the present study, the scale indicated moderate internal consistency ($\alpha = 0.72$).

Condom Use—Four items assessed frequency of vaginal and anal sex with primary sex partner and vaginal or anal sex with someone other than primary sex partner in the past 3 months. Condom use during oral sex was seldom reported therefore not included (e.g., “How often did you have vaginal sex with your primary sex partner?”). Four items assessed frequency of condom use during sex in past 3 months (e.g., “How often was a condom used for anal sex with your primary sex partner?”). Ratios between sex frequency and condom use frequency were calculated. Condom use was then dichotomously recoded as 1 = always used a condom in past 3 months, 0 = did not always use a condom in past 3 months.

Analytic Plan

SPSS 20.0 and SAS 9.3 were used to analyze the data in the study. Initial data analyses included (i) descriptive statistics for all study variables and (ii) examining distribution properties of continuous variables to correct skews that violated the assumption of normality following Kline's (2005) suggested cutoffs of absolute values of 3.0 and 8.0 for skewness and kurtosis, respectively.

Paired samples *t*-tests analysis was used in order to determine whether there were significant differences between pre-test and post-test scores in each of the continuous outcome variables

(HIV knowledge, self-efficacy for HIV prevention, safe sex negotiation intentions). McNemar's test was used to determine differences between pre- and post-test for the dichotomous outcome variable condom use. A mixed model was used to test whether each of the continuous outcome variables (HIV knowledge, self-efficacy for HIV prevention, safe sex negotiation intentions) changed significantly after the intervention, adjusted by the demographic variables (age, years in the United States, education, documentation status, and marital status), and cultural factors (acculturation and marianismo). Generalized estimating equations (GEE) were employed to test whether the odds of using condom significantly changed after the intervention, adjusted by the demographic and cultural variables. Potential mediation effect of HIV knowledge, self-efficacy for HIV prevention, safe sex negotiation intentions on condom use was tested using the joint significance test (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

Results

HIV Knowledge

The paired *t*-test analysis of HIV knowledge revealed a statistically significant increase from baseline ($M = 6.86$, $SD = 2.62$) to post-test ($M = 9.49$, $SD = 2.24$) in HIV knowledge score among participants $t(108) = -11.98$, $p < 0.001$ (see Table 2). The mixed model analysis showed that the HIV knowledge still increases significantly ($\beta = 2.63$, $SE = 0.29$, $p < 0.001$) after controlling the demographic and cultural factors. It also showed that higher education ($\beta = 1.04^*$, $p\text{-value} = 0.03$) is associated with higher HIV knowledge, and participants in a relationship ($\beta = -1.04$, $SE = 0.46$, $p = 0.02$) indicated lower HIV knowledge than Latinas that were single. In regard to cultural factors, higher levels of acculturation ($\beta = 0.65$, $SE = 0.28$, $p = 0.02$) and lower levels of marianismo ($\beta = -0.07$, $SE = 0.02$, $p < 0.001$) were associated with more HIV knowledge (see Table 3).

Self-Efficacy for HIV Prevention

Overall, Latina women's self-efficacy for HIV prevention increased after the intervention with participants reported higher levels of self-efficacy after the intervention ($M = 23.12$, $SD = 3.67$) than at baseline ($M = 22.23$, $SD = 4.13$, $t(106) = -2.13$, $p = 0.04$) (see Table 2). However, results from the mixed model analysis revealed no significant differences in self-efficacy ($\beta = 0.89$, $SE = 0.52$, $p = 0.09$) after controlling for demographic and cultural factors (see Table 3).

Intentions for Safe Sex Negotiation

Paired *t*-test analysis showed a significant difference between the mean score on behavioral intentions to negotiate safe sex at $t(106) = -4.40$, $p < 0.001$, indicating an increase in behavioral intentions from baseline ($M = 10.09$, $SD = 2.41$) to post-test ($M = 11.07$, $SD = 1.54$) (see Table 2). The mixed model analysis showed that the intentions still increase significantly ($\beta = 0.96$, $SE = 0.27$, $p = 0.006$) after controlling the demographic predictors and specific cultural factors (see Table 3).

Condom Use

McNemar's test indicated significant increases in condom use among participants after the intervention ($p < 0.001$). At baseline 17 percent of participants reported always using a condom during sexual intercourse in the past 3 months compared to 34 percent after the intervention. The GEE analysis showed that the odds of condom use still increases significantly ($\beta = 0.16$, $SE = 0.05$, $p = 0.006$) after controlling the demographic and cultural factors. Latina immigrants with more years in the United States were more likely to use a condom compared to those that were immigrants ($\beta = 0.04$, $SE = 0.02$, $p = 0.03$). As anticipated, participants that were married were less likely to use a condom than those that were single ($\beta = -0.22$, $SE = 0.10$, $p = 0.03$) (see Table 3). The mediation analyses indicated that higher self-efficacy ($\beta = 0.02$, $SE = 0.01$, $p = 0.004$) and higher HIV knowledge ($\beta = 0.03$, $SE = 0.01$, $p = 0.003$) significantly increases the odds of using condom. Intentions of safe sex negotiation ($\beta = 0.02$, $SE = 0.01$, $p = 0.07$) showed a marginal significant effect on the odds of using condom. Thus, HIV knowledge indicated a mediating effect on condom use based on the joint significant test given that both variables significantly increased post intervention.

Discussion

This is the first study to examine the efficacy of SEPA, an evidence-based, culturally tailored HIV risk reduction intervention among Latina immigrants in the farmworker community (LIF). Results indicated increases in cognitive and behavioral HIV prevention strategies from baseline to 6-month post-test with significant, increased scores on HIV knowledge, intentions to negotiate safe sex, and condom use. These results are consistent with previous study findings on the effect of SEPA in other Latina immigrant populations (Peragallo et al., 2012). Findings suggest the intervention was not successful in increasing self-efficacy in the target population. Interestingly, none of the demographic predictors were significantly associated with self-efficacy. Additionally, no differences were evident in HIV risk behaviors between documented and undocumented participants.

Self-efficacy is a critical element for engaging in HIV prevention behaviors. Yet, little is known about the predictors of self-efficacy for condom use and other HIV risk reduction behaviors among LIF (Villegas et al., 2013). Though self-efficacy has been found to enhance a woman's sense of power to exercise control when dealing with sexually risky situations, few interventions with Latina women overall have developed strategies for developing and/or enhancing self-efficacy. Our study is guided by Bandura's (1990) definition of self-efficacy: a person's belief in his/her personal capacity to carry out necessary actions to perform a specific HIV prevention behavior. Individuals lacking a sense of self-efficacy are prone to handle situations ineffectively; this is true even when the individual possesses the knowledge and ability to do so (Bandura, 1990).

It is likely that specific social and structural barriers faced by LIF that may directly or indirectly impact self-efficacy for HIV prevention were not addressed in the intervention. Latina immigrant farmworkers endure nearly all the issues male farmworkers face, as well as some that are largely unique, such as sexual harassment violence from their supervisors and co-workers. Sexual assaults are often fostered by significant power imbalances between

employers and themselves. Latina farmworkers that are victims often face systematic barriers—exacerbated by their undocumented immigration status—to reporting these abuses (Human Rights Watch, 2012; Southern Poverty Law Center, 2008). It seems probable that these vulnerable circumstances could add to psychological stress experienced by LIF and in turn significantly impact self-efficacy.

In terms of cultural consistency, the present findings suggest a need to adapt SEPA to address the cultural context in which LIFs live that may impact their self-efficacy HIV prevention behaviors with their partner. For instance, traditional gender roles (machismo and marianismo) frequently inhibit communication between partners and promote traditional and rigid roles that could have an impact on the levels of self-efficacy for HIV prevention (Cianelli, Ferrer, & McElmurry, 2008). An adapted version of the SEPA intervention could highlight social, structural, and cultural barriers that may specifically impact self-efficacy among LIFs.

Given that participants in the pilot study had been in the United States briefly, we posit that their lack of familiarity with their new social environment may have hindered the intervention's capacity to influence changes in self-efficacy. For instance, an overarching theme in our pilot study findings indicated participants' fear of the "unknown," referring to the broad and more encompassing formal socio-legal structure that shapes the social context of everyday life in the United States. Moreover, they expressed resistance to engaging with the formal society even when engaging in minor social exchanges (e.g., seeking information from a social agency) (Rojas et al., 2014). Future research should explore the impact of low levels of social capital on self-efficacy for HIV in the farmworker community.

Acculturative stress, in particular, has been associated with increased HIV-risk behavior patterns among Latina immigrants (Loue, Cooper, & Fiedler, 2003). Acculturative stressors consist of psychological and/or social stressors experienced by immigrants due to an incongruence of beliefs, values, and other cultural norms between their country of origin and country of reception. Main sources of acculturative stress include language barriers, undocumented immigration status, economic barriers, the perceived context of the immigrant receiving community, and discrimination (Cabassa, 2003). Negative impacts of acculturative stress may be particularly relevant among LIFs when adapting to pressures of living in a new country. Among Latino immigrants, acculturative stress has been found to be highest during their first 10 years in the United States (Gil & Vega, 1996).

Most studies on the influence of immigration on Latina immigrants' HIV risk behaviors have examined long-time residents (Kinsler et al., 2009); new findings reveal that Latina immigrants are particularly at risk for increased HIV risk behaviors in their early years of arrival (Sastre et al., 2015). Hence, an adapted version of the SEPA intervention among LIFs could potentially include specific strategies for reducing the most common problems related to acculturative stress in this population.

Evidence suggests that acculturation itself can negatively impact Latina women's HIV risk behaviors (vs. Latino men), increased sexual risk taking, and alcohol use (Lara, Gabmoa, Kahramanian, Morales, & Bautista, 2005). Other investigations have documented the

protective effects of acculturation on HIV risk due to more exposure to HIV information and testing and to other social factors related to more time in the United States such as establishing support networks, familiarity with resources, and so on (Levy et al., 2006). Results from the present study indicate LIFs with higher acculturation and education, and those reporting lower levels of traditional Latina gender values (marianismo) had more HIV knowledge. More years in the United States was also associated with higher rates of condom use. Perhaps more importantly HIV knowledge was found to mediate increased condom use in this sample, suggesting that HIV knowledge remains an important contributing factor to decreasing HIV risk behavior among Latinas in the farmworker community. The fact that more acculturated women reported higher HIV knowledge but not higher levels of safe sex negotiation or self-efficacy points to other key socio-cultural barriers to HIV risk behaviors outside of exposure to U.S. culture that need to be further explored in this population.

The present study also highlights important policy implications regarding HIV in the farmworker community. Among undocumented farmworkers fear relating to immigration status is common. Providers have observed that fear is heightened among undocumented immigrants as a result of increased border enforcement, potential changes in national immigration policies, and increased public attention to these issues (NCFH, 2016).

Confounding the problem is the current lack of overall healthcare for farmworkers and their inability to easily access HIV prevention and treatment services. Farmworkers often lack health insurance and even when care is available at no or low cost, barriers such as transportation, nontraditional work hours, fear due to immigration status, stigma, and discrimination hinder them from obtaining services (Farmworker Justice, 2016).

Public policy decision makers should ensure that migrant and seasonal farmworkers are identified as a priority population in need of health care, including HIV-supportive services, so that adequate dedicated funding is provided for them. One convincing argument for investing in dedicated farmworker health-care programs may be to emphasize the broader public health impact if communicable diseases are not addressed within this population. Increased dedicated funding is also needed to provide equitable access to health care and basic survival needs of farmworkers, regardless of immigration status (Statewide AIDS Services Delivery Consortium Advisory Group, 2007).

Limitations

Findings from the present study should be interpreted in light of certain limitations. First, the data on women's behavior were self-reported and, therefore, subject to error due to poor recall or social desirability. In order to help women recall events, interviewers used the recalling aid of asking women for the last 3 months first and then for the last 6 months of the activity in question. Second, some measures had lower reliability for this sample of Latina women than expected based on past research with HIV risk interventions. However, HIV outcome measures used in previous SEPA efficacy trials were utilized in the present study in an effort to adequately replicate and/or compare findings with the target population. Third, the study included only one 6-month follow-up. Previous studies have shown some initial gains in HIV risk variables for women in SEPA compared to the control condition appeared

to decline over a full year. For example, in Peragallo et al. (2012), HIV knowledge increased through the first 6 months of the follow-up period, but knowledge was at a level that was indistinguishable from the control condition at the 1-year follow-up. Fourth, study participants appeared to be at relatively low risk for HIV as indicated by a lower than expected incidence of substance use, or multiple partners. However, most participants engage in unprotected sex with their main partners, which has been reported to be the main form of HIV infection for Latinas in the United States. Fifth, the present study did not measure stressors that may be specific to the farmworker community (hazardous work conditions, migration patterns, etc.). Last, this study is based on an ongoing pilot study utilizing a relatively small and nonclinical convenient community based sample and it has all the limitation-characteristics of such studies including not having a comparison group.

Conclusion

Despite the listed limitations, the present study sheds light on the effectiveness of a culturally tailored intervention within an underrepresented and marginalized sample of immigrant women impacted by HIV/AIDS-related health disparities. This work has important implications in regard to tailoring treatment services to the specific needs of Latinas in the farmworker community. Gaining the trust of farmworkers is key when engaging this high-risk, underserved population (McCoy, Hlaing, Ergon-Rowe, Samuels, & Malow, 2009). Thus, the use of a community-based participatory research model—such as the one utilized in the present study—is of primary importance. The use of CBPR in the development of effective interventions for the farmworker community not only promotes community awareness of HIV prevention, but can potentially improve the process and outcomes of the research (Isler et al., 2014). Because the overwhelming majority of farmworkers is foreign born, it is essential to employ staff and design programs that reflect this diversity and respect different cultures and backgrounds.

These partnerships have the capacity to increase support of community-based organizations with expertise in serving farmworkers for the purpose of conducting large-scale, targeted outreach and developing culturally tailored HIV preventions focusing on Latina farmworkers and possibly their partners (Nyamathi et al., 2004).

In regard to cultural consistency, HIV prevention can be especially challenging due to socio-cultural and structural barriers faced by LIFs (Villegas et al., 2013). Working in conjunction with stakeholders and the target community to determine relevant and culturally appropriate risk reduction messages and intervention strategies for reducing/preventing HIV among LIFs is key. Through a CBPR approach that builds strong ties and trust between farmworkers and the communities in which they live, prevention efforts are more likely to be successful and thereby lead to the reduction and eventual elimination of existing HIV-related health disparities impacting this particularly underserved population.

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Table 1Sample Demographics (*N* = 110)

	<i>N</i>	%
Marital status		
Single	21	19.1
In a relationship	35	31.8
Married	54	49.1
Documentation status		
Documented	34	30.9
Undocumented	76	69.1
Country of origin		
Mexico	67	60.9
Guatemala	19	17.3
Cuba	3	2.7
Other Central American	12	10.9
Other South American	9	8.1
Employed		
Yes	55	50
No	55	50
Education		
Less than high school	77	16.9
Some high school	60	54.5
High school diploma	31	28.2
Greater than high school	19	17.3
	Mean (SD)	Range
Age	34.28 (6.92)	19–50
Household annual income	\$23,541 (\$10,503)	\$1800–80,000
Years in the United States	7.96 (1.81)	3–10

Table 2

Change in HIV Prevention Outcomes

Paired <i>t</i> -Test Analysis						
	Baseline Mean (SD)	Post-Test Mean (SD)	95%CI		<i>t</i>	<i>p</i>
			Lower	Upper		
HIV knowledge	6.86 (2.62)	9.49 (2.24)	-3.07	-2.20	-11.98	108 <0.001***
Self-efficacy	22.23 (4.13)	23.12 (3.67)	-1.71	-0.06	-2.13	106 0.04*
Intentions safe sex negotiation	10.09 (2.41)	11.07 (1.54)	-1.41	-0.53	-4.40	106 <0.001***

McNemar's Test Analysis					
	Baseline (<i>n</i>) %	Post-Test (<i>n</i>) %	χ^2	η^2	<i>p</i>
Condom use always in past 30 days	Yes: (19) 17.3	Yes: (37) 33.6	16.50	0.15	1 <0.001**
	No: (91) 82.7	No: (73) 66.4			

* $p < 0.05$

**

* $p < 0.01$

 $p < 0.001$.

Table 3

Results for Mixed Model and GEE of Predictors on HIV Prevention Outcomes

	<u>HIV Knowledge</u>		<u>Self-Efficacy</u>		<u>Negotiation</u>		<u>Condom Use</u>	
	β	SE	β	SE	β	SE	β	SE
Intervention (post vs. pre)	2.63***	0.29	0.89	0.52	0.96**	0.27	0.16***	0.05
Age	0.01	0.02	-0.01	0.04	-0.02	0.02	0.01	0.01
Years in United States	-0.06	0.09	-0.15	0.15	-0.15	0.08	0.04*	0.02
Education								
More than high school	1.04*	0.49	1.47	0.86	0.05	0.45	0.13	0.10
High school	1.87*	0.36	0.75	0.64	0.34	0.34	0.04	0.08
Less than high school					Ref			
Documentation status ^a								
Documented	-0.46	0.37	1.26	0.65	0.43	0.34	-0.01	0.08
Undocumented					Ref			
Marital status								
Married	-0.75	0.43	0.80	0.75	0.08	0.39	-0.22*	0.10
In a relationship	-1.04*	0.46	0.10	0.81	-0.40	0.42	-0.09	0.11
Single					Ref			
Cultural factors								
Acculturation	0.65*	0.28	-0.03	0.50	0.01	0.26	0.004	0.06
Marianismo	-0.07***	0.02	-0.03	0.03	-0.02	0.02	-0.0003	0.003

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ ^a 0 = undocumented; 1 = documented.