

## Feasibility testing a family level intervention to prevent risky sex behaviors among middle school age Latinas

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Bartlett, R., McCoy, T. P., Kelley, A., Beamon, E. R., Holmes, T., Shelton, T., Wallace, D. (2018). Feasibility testing a family level intervention to prevent risky sex behaviors among middle school age Latinas. *Journal of Transcultural Nursing*, 29 (2), 131-138. DOI: 10.1177/1043659616689289

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### **Abstract:**

**Purpose:** In this article, we report a pilot study that tested the feasibility and initial efficacy of a culturally, linguistically, and developmentally tailored risky sex prevention intervention for middle school-age Latinas and their mothers. **Design:** We used a one-group pre-test, post-test, and 3-month post-intervention follow-up design. Data were collected at three points on aspects of the girls' communication, beliefs, and behaviors. **Results:** Promising results included improvements in girl's self-efficacy regarding condom communication and condom consistent use, and in mother-teen sexual risk communication. There were also trends in demonstration of fewer risky sex behaviors. **Discussion:** These findings suggest that the "Latina-Girls Empowered through Mind and Mission" (L-GEMM) intervention for young Latinas and their mothers is feasible and warrants further testing. **Implications:** Nurses are uniquely positioned to deliver risky sex preventive interventions to young Latinas. Including mothers and tailoring interventions to build on cultural strengths are important for success.

**Keywords:** Latina | intervention | middle school | risky sex

### **Article:**

In the United States, Latinas are four times as likely as their white counterparts to contract HIV, and most of the new HIV diagnoses among Latinas are attributable to heterosexual contact (Centers for Disease Control and Prevention [CDC], 2013). In the southern U.S. state of North Carolina, where the Latino population increased from approximately 77,000 residents in 1990 to 845,000 residents in 2012 (Carolina Population Center, 2014), the rate of HIV infection among adolescent and adult Latinas was 9.2/100,000 in 2014, the latest year for which data are available, while the rate for white adolescent and adult women was 1.7/100,000 (North Carolina Department of Health and Human Services [NC DHHS], 2015). Latino girls in North Carolina

also have higher teenage pregnancy rates (102.6/1,000) than white adolescents (63/1,000; NC DHHS, 2012).

“Risk factors” that put Latino girls at risk for HIV infection and early pregnancy include having sex at an early age, sex with multiple partners, sex without using a condom, and sex while under the influence of drugs or alcohol (HIV/AIDS and Hispanic/Latino Youth, 2015). Sexual risk behaviors among young Latinas are associated with a variety of antecedents. Living in poverty (in 2014, in North Carolina, 41% of young Latinas were living in poverty and were younger than 17 years of age; Pew Research Center, 2014), having lower educational attainment, and lower quality/lack of health insurance significantly limits an adolescent’s awareness of sexual risk factors and their consequences like HIV infection (CDC, 2015). In addition, level of acculturation to American values, experiences with discrimination, and having language barriers make Latina youth more susceptible to engaging in sexual risk behaviors associated with HIV transmission (Castillo-Mancilla et al., 2012; CDC, 2015).

Many Latina youth lack sexual health information because their culture may not encourage communication about sex between parents and children. This lack of communication may be attributed to individual factors related to the parent including personal language barriers, discomfort, and naiveté to the sexual topic (CDC, 2015; Larson, Sandelowski, & McQuiston, 2012). In addition, Latina youth may not have access to consistent health care, and therefore, may not receive adequate information about sexual risk from a health care provider (HCP). Studies have shown that increased communication between adolescents and their parents is associated with a delay in sexual intercourse and fewer risky behaviors (CDC, 2015). Lack of communication with parents and HCPs about sex may contribute to Latina youth being less knowledgeable or successful in negotiating condom use with a sexual partner when compared to non-Latina youth (CDC, 2015). As a result of little education and communication with caregivers about sexual health, many Latina youth lack sexual assertiveness and often inhibit communicating their opinions and feelings about sex with their sexual partner (Cardoza, Documet, Fryer, Gold, & Butler, 2012).

Risky sex prevention interventions with Latino adolescents have yielded some improvements in HIV knowledge, condom use among the sexually active, sexual assertiveness, delaying sexual intercourse, and some measures of family functioning (Cardoza, et al. 2012; Lee, Dancy, Florez, & Holm, 2013). However, most interventions with Latinas have had only small effects on sexual practices (Cardoza et al., 2012; Lee et al., 2013). The “¡Cúdate!” (Take Care of Yourself) intervention, was designated by the CDC as an effective, evidence-based sexual risk reduction intervention for the Latino population between the ages of 13 and 18 years of age. Research has found that those in the intervention group were less likely (than control participants) to report having sexual intercourse, had fewer sex partners, reported less unprotected sex, increased intentions to use condoms, and had higher self-efficacy (CDC, 2013; Serowoky, George, & Yarandi, 2015; Villarruel, Jemmott, & Jemmott, 2006). Follow-up studies also found that the ¡Cúdate! intervention stimulated healthy communication about sex, condom use, and correct condom application for Mexican adolescent boys and girls (Larson, Ballard, Nuncio, & Swanson, 2014). These results support the notion that a culturally tailored intervention for Latina youth can be effective, especially for young adolescents (Douglas et al., 2014).

While the evidence-based ¡Cuídate! intervention, and others, focus primarily on the individual, a broad family-level approach is necessary for more successful HIV prevention among the population of young Latinas in the United States. The inclusion of a parental component would likely prove beneficial in improving communication between adolescents and parents that may further improve sexual health. This study aimed to build on interventions like ¡Cuídate! by including parental engagement in a risky sex prevention intervention for young Latinas. The L-GEMM intervention targeted 11- to 14-year-old girls from the rural south. This intervention doubled the amount of time the girls received sexual education, added an aspect of intervention that involved the mother/female caregiver of the young girl and included a service-learning component. Research has found that “at risk” youth benefit from service learning activities through a channeling of positive assets and being allowed to communicate and collaborate with others to learn confidence and become empowered (Nelson & Sneller, 2011; Sieving et al., 2014). Through these strategies, the authors hoped to evoke an increase in self-efficacy and assertiveness among the young Latinas beyond that gained from education.

The intervention for this project was guided by a broad risk and protective factors framework (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995) and by the goal of promoting ethnic pride among young Latinas. An initial aim of this study was to develop a culturally-based intervention for young adolescent Latinas and their mothers. The intervention was designed to reduce sexual risk behaviors among Latino girls by building on the strengths of their Latino cultural values to promote familismo, by enhancing communication between mothers and daughters, and by promoting maternal monitoring of girls’ behaviors. This study aimed to test the feasibility and preliminary efficacy of this intervention. Toward that end, data were collected examining middle school–age Latino girls’ self-efficacy to use condoms, sexual assertiveness, and communication with their mothers. As a function of this aim, the study also hoped to observe a decrease in the girls’ sexual risk behavior (as well as a maintenance of sexual nonrisk behaviors for those girls not engaging in sexual risk) from preintervention to immediately post-intervention, and at a 3 months follow-up.

## **Method**

The feasibility and initial efficacy of the Latina–Girls Empowered through Mind and Mission (L-GEMM) intervention were examined using a one-group pre-test, post-test, and 3-month post-intervention follow-up design (Campbell & Stanley, 1963). The study was conducted over a 14-month period in schools in the rural south and was approved by the university institutional review board.

### **Participants**

Fifteen middle school–age Latinas (most of whom had parents originating from Mexico) participated in the intervention. Inclusion criteria for girls were self-identification as Latino (or mixed ethnicity that included Latino); age 11 to 14 years; in Grades 6, 7, or 8 at the time of recruitment; ability to understand spoken English; available transportation home after meetings and intervention activities; a regular phone contact number; and a mother figure willing to participate in the study. Girls who had had a live birth or were pregnant were not eligible.

Fourteen mothers (one mother had two daughters participate in the study) agreed to participate in the intervention. Inclusion criteria for mothers were being at least 21 years of age, identification by the girl participant as her primary caretaker, residence at least 50% of the time in the home with the girl, ability to understand spoken English or Spanish, a regular contact phone number, and willingness to arrange transportation home after child participant sessions.

## Procedure

Recruitment began by asking school principals to generate a master list of all Latinas in their school. A preliminary letter was sent to the mother–daughter pairs on the list to inform them of the study. A school official called every third mother–daughter pair on the list and invited them to attend a recruitment session. Calls continued until 12 to 15 mother–daughter pairs agreed to attend a recruitment meeting. Latina students provided assent and parental consent was obtained to participate in the 12-week intervention that included 12 hours of education and 12 hours of service learning; mothers received 3 hours of individual education. Data were collected at baseline, immediately post-intervention (on a separate data collection day following the last service learning opportunity), and 3 months post-intervention (6 months from baseline). During these three evaluation time points, girls' questionnaires were administered, taking approximately 60 minutes to complete. Mothers were also evaluated at three different time points, during which time they completed questionnaires; this took about 15 minutes. If a girl was absent from school and thus missed an education session, she received a brief review at the next session of the prior week's content since this review was made routinely for the entire group. If a girl was absent from a service learning session, the session was made up with the study staff.

Each girl and mother received a monetary incentive for each education session, service learning session, data collection, and evaluation session. Mothers also received transportation money. The amounts ranged from \$5 for each education session or service learning session attended by the girls to \$40 for the final data collection with the mothers. The approximate amounts received totaled \$130 for the girls and \$290 for mothers.

## Intervention

***Girl Participants' Group Education.*** The education portion of the intervention consisted of a 2-hour session each week (for 6 weeks) of culturally, age, and developmentally appropriate training. These sessions were led by a Latina registered nurse (RN), after school, in a private location within the school. The intervention consisted of six modules: communication skills, sexual assertiveness, healthy relationships, sexuality and sexually transmitted infections (STIs), risky sex behaviors and HIV, and protection against HIV.

The girls were trained in how to communicate about their wishes (verbally and nonverbally), how to speak clearly to avoid misunderstandings, and how to successfully negotiate issues of machismo and marianismo; they also learned the benefits of communicating in this manner to avoid or successfully negotiate risky sex situations. They were taught characteristics of healthy relationships (i.e., mutual respect, trust, support, communication, and equality), basic anatomy and physiology of the male and female reproductive systems, the physical and emotional aspects of sexuality, and HIV-related information. While educational instruction was used to disperse

information, the use of role-playing via vignettes and scenarios, reading of poems and excerpts from books, and having open discussions promoted in-depth understanding of material and bonding among the girls. Group discussions included strategies for protecting against HIV—addressing abstinence, assertiveness regarding one’s body, avoidance of unprotected sex, proper condom use, avoidance of substance use/abuse, monogamy, testing for HIV, and determining the HIV status of potential sex partners.

The girls repeated the study mantra, “Latina—Girls Empowered through Mind and Mission” twice at every meeting with their intervention nurse and were referred to as GEMMs—highly valued and precious. DVDs in which Latino actors were portrayed in positive ways were shown, and stories/poems written by Hispanic women about pertinent topics were used (e.g., excerpts read and discussed from “The House on Mango Street” by Sandra Cisneros; “Estrella’s Quinceanera” by Malin Alegria; “Call Me Maria,” by Judith Cofer Ortiz). These tools were used to engender cultural pride within the girl participants; while the movies and poems were compositions by women of varying Hispanic backgrounds, our sample demographic was made up mostly of Mexican American participants. Likely seeing Hispanic women in empowering positions superseded the need for country of origin of the girls and empowered example to match entirely. At the end of the intervention, a young Latina college student spoke to participants about her ethnic/cultural pride and her journey to success to develop feelings of empowerment and self-efficacy. The sessions were well received by the girls as they were actively engaged in group discussions and taught via active, developmentally and age-appropriate strategies. Additionally, the research team provided regular breaks and healthy snacks to promote active engagement.

***Girl Participants’ Service Learning.*** Following the completion of the education sessions, the service learning component of the intervention was initiated (2 hours per week over 6 weeks). The girls volunteered in a community setting with opportunities to practice the communication strategies learned in the group education sessions, supervised by the same study RN from the education sessions. The goal of practicing communication skills in nonsexual situations was to facilitate their use by girl participants in risky sex situations. The setting for service learning provided participants opportunities to read to children (individually and in groups), help supervise play time, organize and lead age-appropriate individual and group games (with support), and initiate a conversation with a staff member. Girls were given positive verbal feedback and guidance from study staff during each service learning experience about how they were doing in meeting objectives. Each service learning session ended with a debriefing in the form of a group discussion between the girl participants and the RN, reviewing the communication and assertiveness strategies that were practiced, the way each girl felt while using these strategies, and ways these strategies might help them in future risky sex situations.

***Mothers’ Individual Education.*** Three 1-hour education sessions were conducted by the intervention RN with each mother at a place of the mother’s choice. These sessions were conducted by the same staff member each time and occurred during the weeks when the girls were in the education portion of the intervention. Mothers received education and engaged in discussion about their daughter’s physical and emotional development in her preferred language (most education sessions were conducted in Spanish), including the importance of providing emotional support, monitoring behavior, communicating with their daughters, and helping their

daughters to effectively and appropriately deal with issues of machismo and marianismo. Nurses discussed the importance of maternal monitoring and modeling for a teen's decisions about drug use and sex.

### Staff Training

To ensure fidelity and consistency of the intervention, the two Latina RNs who delivered the intervention were trained together by the principal investigator (PI) for 8 hours. Student nurses were also trained in their responsibilities (e.g., data collection, how to help the RNs) by the study PI. The training included a complete review of the intervention manual, including: information about the content, delivery method, verbal/nonverbal behavior, human subjects' protection, and a review of basic psychiatric assessment skills. Training also included practicing the use of role play scripts, demonstration of intervention delivery, the opportunity to openly ask questions to explore potential problematic issues that might arise, and scenarios to identify and manage anxiety among girls or mothers. Validity checks were made of the first three intervention sessions for the girls and selected mothers by the PI or other staff member in person. Using a scale of 1 to 10 on implementation accuracy, if a rating less than 9 was observed on either content or delivery method, immediate retaining took place before another girl or mother session was held.

### Measures

#### Girls' Surveys

**Demographic data.** Seventeen items adapted from the Add Health Survey (Harris et al., 2009) were used to collect information about things such as grade in school, activities in which the girl participated outside of school, living circumstances, and church attendance.

**Adolescent Condom Self-Efficacy Scale.** This 14-item measure (Hanna, 1999) was used to assess three self-efficacy factors in condom use: five items assessing *communication ability* ( $\alpha = .77$ ), three items assessing *consistent use ability* ( $\alpha = .72$ ), and six items assessing *correct use ability* ( $\alpha = .78$ ). Reliability in the current study was .85 for communication, .64 for consistent use, and .80 for correct use ability.

**Sexual Assertiveness Scale.** This tool contains 12 items (2 subscales) taken from the Sexual Assertiveness Scale for Women (Morokoff et al., 1997), addressing assertiveness in refusing sexual activity ( $\alpha = .71$ ) and in taking measures to prevent pregnancy and sexually transmitted infections ( $\alpha = .83$ ). Girls were told before administration of this tool that if they had never been sexually active to imagine what they would do if they were in any of these situations. Reliability in the current study was  $\alpha = .74$ .

**Mother-Teen Sexual Risk Communication Scale.** An eight item self-report tool (Hutchinson, 2007) was used to measure communication between girls and their mothers in regard to sexual risk. This scale is internally consistent ( $\alpha = .93$ ) and has acceptable test-retest reliability ( $r = .88$  over 2 months). The tool has been used with Latino adolescent females (Hutchinson & Montgomery, 2007). Reliability in the current study was  $\alpha = .89$ .

**Adolescent Sexual Activity Index–Female (ASAI-F).** A shortened version (13 items) of a tool developed by Hansen, Wolkenstein, and Hahn (1992) was used to measure sex behaviors typical of adolescents (Hansen, Paskett, & Carter, 1999). Internal consistency is high for females, Cronbach’s  $\alpha = .94$ , reliability in the current study was  $\alpha = .90$ .

**Sex Behavior Questionnaire.** This questionnaire consists of 10 questions developed by the first author and the research team that asked girls about their sex behaviors; this included whether or not they had ever had sex (vaginal, oral, or anal), the number of their partners within the past 3 months, the number of times they had had each type of sex while using and not using a condom, and the number of times they had used alcohol or drugs prior to having sex.

**Risky sex.** As mentioned, “risk factors” have been identified that are associated with subsequent HIV transmission and unintended pregnancies. The study chose to focus on four factors: ever having sex, multiple sexual partners, sex while using drugs or alcohol, and sex without a condom. “Risky” sex status was operationalized as a girl having had sex prior to the intervention; the girls were designated as having “no risk” if she reported never having had sex. Girls who had “no risk” preintervention and reported “no” for all four risk factors at both follow-up points were categorized as “still having no risk.” If they endorsed at least one of these behaviors, they were categorized as “now has some risk.” Girls who denied any additional risk behaviors post-intervention were categorized as “risk decreased”; those who showed increased sexual risk behaviors post-intervention, were categorized as “risk increased.”

## Mothers’ Surveys

**Demographic data.** The mothers’ demographic tool, adapted from the Add Health Survey (Harris et al., 2009), was available in English and Spanish and asked about languages of fluency, zip code, marital status, age, church attendance, health insurance, and education.

## Data Analysis

With a sample of 15 participants there was sufficient power ( $\geq 80\%$ ) a priori to detect an effect size of at least 0.34 at the  $\alpha = .05$  level of statistical significance over the three time points using blocked analysis of variance (ANOVA; single-arm repeated measures), assuming a correlation of 0.5 between measures. Descriptive statistics were used to summarize the characteristics of the girls and mothers using frequency and percentages for categorical measures, and mean, standard deviation (SD), and range for continuous measures. Linear mixed-effects ANOVA models were used to model continuous study outcomes while taking into account repeated measures, using a covariance pattern modeling approach (Fitzmaurice, Laird, & Ware, 2004) and Kenward–Roger denominator degrees of freedom (Kenward & Roger, 1997). Least-squares means were estimated and tested for significant differences along with 95% confidence intervals (CIs). Full information maximum likelihood was used as the estimation approach when there was missing data. For the Sex Behavior Questionnaire items, cross-tabulation tables of sex behaviors were examined over time points. All analyses were performed in SAS Version 9.3 (SAS Institute, Cary NC). A two-sided  $p$  value  $< .05$  was considered statistically significant.

## Results

Characteristics of the 15 participating girls are shown in Table 1. The average age of the girls was  $12.5 \pm 0.8$  years, with a range of 11 to 14 years; 11 girls (73%) were in the seventh grade and the other four were in the sixth grade. All 15 girls spoke both Spanish and English. On average, girls attended 5.5 of six intervention education sessions ( $SD = 0.63$ ). Nine girls completed all six education sessions (60%), five completed five sessions (33%), and one completed four sessions (7%). All girls attended all service-learning sessions.

**Table 1.** Demographics of the L-GEMM Girl Participants ( $N = 15$ ).

Girl characteristic	$N$ (%) or $M \pm SD$ (Min, Max)
Girl's age (years)	$12.5 \pm 0.8$ (11, 14)
11	2 (13)
12	4 (27)
13	8 (53)
14	1 (7)
Race/ethnicity	
Hispanic/Latino	15 (100)
Grade	
6	4 (27)
7	11 (73)
Repeated a grade/held back a grade? (Yes)	4 (27)
Do you work? (Yes)	4 (27)
Hours of work per week <sup>a</sup>	$1.4 \pm 2.4$ (0, 6)
Who lives with you? List all	
Mother	15 (100)
Father	8 (53)
Brother(s)	6 (40)
Sister(s)	5 (33)
Other	5 (33)
Attend church? (Yes)	14 (93)
Activities besides church	
Parties	1 (7)
Sports	2 (9)
Visit with family	1 (7)
Dances lessons	1 (7)
Yearbook club	1 (7)
None	9 (60)

Note: L-GEMM = Latina-Girls Empowered through Mind and Mission.

<sup>a</sup>Of those reporting yes to "Do you work?"

All 14 mothers completed three education modules and data collection time points.

Characteristics of the mothers are provided in Table 2. The average age of the mothers was 40.6 ( $\pm 8.4$ ) years; eight mothers (57%) reported being married; their average number of children was 3.7 ( $\pm 1.4$ ). Eight-six percent of mothers reported their daughter had health insurance, compared to 43% for themselves.

Model-based mean scores on the outcome measures over time are given in Table 3, along with differences between time points. There was a significant mean increase in condom communication ability among the girls from preintervention to 3-month follow-up (mean increase = 4.1 points,  $p = .04$ ) and in condom consistent use ability among the girls from



preintervention to immediately post (mean increase = 2.1 points,  $p = .03$ ) and from preintervention to 3-month follow-up (mean increase = 2.1 points,  $p = .02$ ). Also, significant mean increases in mother–teen sexual risk communication were reported by the girls both post-intervention (mean increase = 4.4 points,  $p = .01$ ) and at follow-up (mean increase = 5.2 points,  $p = .02$ ). No significant differences in sexual assertiveness or sexual activity index scores were reported by the girls from preintervention to post-intervention or follow-up.

**Table 2.** Demographics of the L-GEMM Mother Participants ( $N = 14$ ).

Mother characteristic	$N$ (%) or $M \pm SD$ (Min, Max)
Mother's age (years)	40.6 $\pm$ 8.4 (30, 57)
Race/ethnicity: Hispanic/Latino	14 (100)
Marital status	
Single	1 (7)
Married	8 (57)
Living with someone	2 (14)
Divorced	1 (7)
Separated	2 (14)
Been a single parent, ever (Yes)	8 (57)
Years of being a single parent <sup>a</sup>	8.5 $\pm$ 5.4 (2, 18)
No. of children	3.7 $\pm$ 1.4 (2, 6)
No. of people living with	5.2 $\pm$ 2.3 (2, 9)
Work outside the home? (Yes)	7 (50)
Hours per week usually worked <sup>b</sup>	33.9 $\pm$ 10.2 (20, 45)
Attend church? (Yes)	14 (100)
No. of times attending church per month	3.9 $\pm$ 2.2 (1, 10)
Have health insurance? (Yes)	6 (43)
Does your daughter have health insurance? (Yes)	12 (86)
Daughter had routine physical exam, past year	13 (93)
Given birth in past 12 months? (Yes)	1 (7)
Divorce in the past 12 months? (Yes)	0

Note: L-GEMM = Latina–Girls Empowered through Mind and Mission.

<sup>a</sup>Only among those eight reporting ever being a single mother. <sup>b</sup>Only among those seven reporting working outside the home.

**Table 3.** Model-Based Mean Scores Over Time for Girls' Outcomes ( $N = 15$ ).

	Time point			Mean differences	
	Pre (Time 1), $M$ [95% CI]	Post (Time 2), $M$ [95% CI]	Follow-up (Time 3), $M$ [95% CI]	Time 1 versus Time 2, $M$ [95% CI]	Time 2 versus Time 3, $M$ [95% CI]
CSE: Communication ( $\alpha = .85$ )	17.94 [14.61, 21.27]	21.47 [19.13, 23.81]	22.07 [19.76, 24.38]	3.53 [-0.40, 7.46]	4.13* [0.25, 8.01]
CSE: Consistent use ( $\alpha = .64$ )	11.6 [10.01, 13.19]	13.67 [12.76, 14.57]	13.67 [12.57, 14.77]	2.07** [0.25, 3.89]	2.07** [0.31, 3.82]
CSE: Correct use ( $\alpha = .80$ )	20.43 [17.03, 23.82]	22.27 [19.42, 25.12]	23.31 [20.76, 25.87]	1.84* [-2.68, 6.36]	2.89 [-1.65, 7.43]
Sexual assertiveness ( $\alpha = .74$ )	51.00 [46.25, 55.75]	52.47 [48.77, 56.16]	51.80 [46.78, 56.82]	1.47 [-2.04, 4.98]	0.80 [-3.31, 4.91]
MTSRC ( $\alpha = .89$ )	19.93 [15.63, 24.24]	24.33 [19.65, 29.02]	25.10 [19.92, 30.29]	4.40*** [1.47, 7.33]	5.17** [1.05, 9.29]
ASAI ( $\alpha = .90$ )	2.33 [0.90, 3.76]	2.20 [0.65, 3.76]	2.40 [0.98, 3.82]	-0.13 [-0.85, 0.59]	0.07 [-1.31, 1.45]

Note: CSE = Condom Self-Efficacy; MTSRC = Mother-Teen Sexual Risk Communication; ASAI = Adolescent Sexual Activity Index.

\* $p < .05$ . \*\* $p \leq .03$ . \*\*\* $p \leq .01$ .

## Risky Sex

At preintervention, three girls (20%) reported having had sex prior to the intervention and were therefore categorized as having “risky” sexual behaviors. Two girls (13%) reported having sex with two or three different people in the past 12 months, and one girl (7%) reported having sex with two different people in the past 30 days. The girls who reported that they had had sex in the 30 days prior to starting the intervention reported fewer sexual experiences immediately post-intervention. These girls who were sexually active in the 30 days prior to the intervention reported not having sexual intercourse within 30 days when assessed at the 3-month follow-up. Of the three girls who had risk preintervention, only one had an increase in risk behaviors. Twelve girls (80%) reported that they had never had sex during the preintervention assessment and were categorized as having “no risk.” Of these 12 girls, all of them reported continuing to abstain from sex just following the intervention. Ten of these girls continued to report abstinence at the 3-month follow-up; two girls experienced “some risk” behaviors, categorizing them as now having “some risk” 3 months after the intervention.

## Discussion

The purpose of this study was to examine the effectiveness of a sexual health intervention for Latino girls (with the involvement of their maternal figure). There were demonstrated improvements in self-efficacy in condom communication and condom consistency, as well as mother–teen sexual risk communication. Girls not yet sexually active maintained this status for 3 months post-intervention, and some girls decreased their risky sex behaviors at 3 months post-intervention. These findings are consistent with other research that found that an increase in adolescent–parent communication on sexual risk topics had a positive impact on risky sex behaviors of adolescents (Harris, Sutherland, & Hutchinson, 2013).

Including mothers and promoting communication between mothers and daughters were important components of this intervention and may have contributed to the positive results. Examination of the mechanisms by which L-GEMM promotes mother–daughter communication, positive parenting, and parental monitoring could help to inform future family-centered prevention interventions aimed at reducing HIV risks. Also, interventions based on preintervention sexual risk scales and sexual activity indices rather than on identified age-groups might better demonstrate the effectiveness of L-GEMM.

With the addition of a service-learning component, this intervention aimed to supplement programs like ¡Cuidate! In the L-GEMM intervention girls were supervised and guided in practicing communication and assertiveness skills. This guidance, practice, and then debriefing provided girls with the chance to gain experience in the use of new communication strategies in a safe environment. This practice may result in the girls using these protective strategies when faced with risky situations. Logistics of providing service-learning opportunities was challenging related to finding appropriate locations and arranging for girl transportation to and from sites. Future research may explore a variety of types of service-learning activities to examine their feasibility and effects.

As the main focus of this study was to examine the feasibility of this new type of intervention with this group, the study did not have a control group with which to compare intervention results. After examining the results from this pilot study, future research should include larger samples, a control group, and be powered to isolate the effects of the intervention.

The sexual assertiveness and sexual activity indices did not significantly improve post-intervention. Lack of significant results on the sexual assertiveness measure may have been related to verbiage in the scale (double negatives included in some questions, e.g., “I refuse to let my partner touch my breasts if I don’t want that, even if my partner insists”). There may have been a floor effect with the index of sexual activity (ASAI), as the average score at baseline was approximately 2.33 (scores can theoretically range from 0 to 10). In addition, the use of this measure may not have been sensitive enough for detecting change with longitudinal analyses. While this ASAI finding may be a limitation, this may also be a beneficial finding. The study may have intervened early enough before many had a chance to engage in sexual behaviors. In the future, it will be important to increase the sample size of participants with the goal of obtaining a more representative distribution of sexual activity among Latina adolescents.

Another potential limitation of the study was that the only post-intervention assessment was 3 months following the program. Programs like ¡Cúdate! followed girls 6 and 12 months post-intervention and found continued success of their interventions (Larson, Ballard, Nuncio, & Swanson 2014; Villarruel et al., 2006). Future research with L-GEMM should continue follow-ups longer than 3 months to validate ongoing beneficial outcomes. With sufficient resources, post-intervention assessments may include 12-, 18- and 24-month time points to assess retention of intervention effects and evaluate need for booster activities.

The classification of “Latino” encompasses many subpopulations. According to the Health Resources and Services Administration (2012), the Latino population can consist of individuals from Puerto Rico, Cuba, Mexico, South America, and so on—who all speak different dialects of Spanish. Because the Latino population is in need of sexual risk interventions to decrease disease transmission, there is need to tailor interventions toward these specific subpopulations in order to increase their efficacy (Villarruel et al., 2005). However, future studies may not need to separate subpopulations of Mexican and Central American youth as research has indicated that individuals from these countries may not differ vastly from one another to the point where their specific subpopulation would predict different outcomes (Protes & Rumbaut, 2001).

Despite some limitations, the evidence from this feasibility study suggests that L-GEMM provides a useful framework for addressing the disproportionate burden of HIV among Latina youth. L-GEMM emphasizes the importance of Latino culture and uses Latina role models to promote positive identity and self-efficacy. Including mothers in the intervention was key in that this promoted communication between mothers and girls on this challenging topic and provided a designated time and place for mothers to provide support to their daughters. Findings suggest that the intervention is feasible in an after school-type setting, and it is acceptable to Latino girls and mothers. It appears that L-GEMM can be delivered in multiple community settings (i.e., after-school, recreation, and nonprofit settings often used to deliver education-type programs) to decrease risky sex and HIV infection among Latinas in the United States and is in need of further study.

## **Acknowledgements**

Our thanks to the girls and mothers who participated in the intervention and who gave thoughtful feedback about its further development. Our thanks go to many staff members and students who helped with this study and to Elizabeth Tornquist for editing this manuscript.

## **Authors' Note**

The content is the sole responsibility of the authors and does not necessarily represent the official views of the National Institute for Minority Health and Health Disparities or the National Institutes of Health.

## **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## **Funding**

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This project was partially supported by Grant P20MD002289 from the National Institute for Minority Health and Health Disparities/ National Institutes of Health.

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