COMMUNICATION AS A PROTECTIVE FACTOR: EVALUATION OF A LIFE SKILLS HIV/AIDS PREVENTION PROGRAM FOR MEXICAN ELEMENTARY-SCHOOL STUDENTS

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Literature suggests that communication is a protective factor against high-risk sexual behavior. This study assessed the impact of a fourth-grade communication-centered life skills program on attitudes, norms, self-efficacy, behaviors, and intentions toward communication about difficult subjects. Participants included 1,581 low-income Mexican elementary-school children, divided into experimental and control groups. Teachers were trained to replicate the program as part of the school curriculum over 15 to 20 weeks. Students completed self-report questionnaires before and after the program. Multilevel analyses demonstrated the program’s statistically significant positive impact on communication about attitudes, self-efficacy, intentions, and behavior; perception of sociocultural norms regarding communication transformed as a result of the program. Gender significantly predicted differences in communication: with respect to attitudes, self-efficacy, and intentions. The results show that early intervention programs targeting communication about difficult subjects can prevent risky sexual behavior and its consequences (e.g., HIV/AIDS) and influence perception of norms and gender roles.

BACKGROUND

PROTECTIVE FACTORS

Evidence has shown that the development of protective factors and the practice of safe behaviors should be introduced at an early age before individuals begin to engage in high-risk behavior rather than attempting to modify already established behaviors (Gaskins, Beard, & Wang, 2002; Gilliam, Eke, Aymer, & O’Neil, 2001; Maypole, Schonfeld, O’Hare, Showalter, & Cicchetti, 1998). However, targeting spe-
cific HIV/AIDS preventive behaviors (e.g., protected sex) in elementary school poses a challenge because children often struggle to perceive risks before behaviors take place (Kirby, 2002; Maypole et al., 1998; Schonfeld, 2000).

Life skills prevention programs teach skills and knowledge required for the practice of preventive behaviors and the foundation of protective factors (Rotheram-Borus, Mahler, & Rosario, 1995; Schaalma, Abraham, Gillmore, & Kok, 2004; World Health Organization [WHO], 1997). These factors enhance the probability of positive outcomes (autonomy, high self-esteem, and successful school performance), and reduce the probability of negative outcomes (risky sexual behavior, school failure, delinquency, and drug use) (Elias & Tobias, 1996; Gaskins et al., 2002; Kirby, 2002; Schonfeld, 2000).

Nonsexual factors can be identified and targeted in early prevention programs to predict future (non-) engagement in high-risk sexual activity later in life (DiIorio, Pluhar, & Belcher, 2003; Dwivedi, 2004; Gomby, Larner, Stevenson, Lewit, & Behrman, 1995; Kirby, 2001; WHO, 1997). Programs focusing on the development of non-sexual protective factors reflect a recent shift toward positive youth development programs, embodying the belief that developing the assets and strengths in youth can protect them from engaging in high-risk sexual behaviors (Larson, 2000; Leffert et al., 1998; Vesely et al., 2004). Studies have shown correlations between the reduction of high-risk sexual behaviors and several protective factors such as communication, self-efficacy, decision-making, knowledge about sexuality and HIV/AIDS, and sociocultural norms (Danklefs, 2004; Feeney, 1999; Flay, 2002; Goodson, Evans, & Edmundson, 1997; Kirby, 2001; Vesely et al., 2004).

Therefore, in preadolescent populations, comprehensive prevention programs (including targeted behaviors and general life skills) may be more effective in establishing protective factors that will have an impact on future behavior (Flay, 2002; Kirby & DiClemente, 1994; Orlandi & Dalton, 1998). Because skill building takes place as part of the developmental process, it requires specific age appropriate activities and contents in order for children to process information at their level (Bok & Morales, 1998; Gaskins et al., 2002; Schonfeld, 2000; Whitt, 1995).

**COMMUNICATION AS A PROTECTIVE FACTOR**

Communication is a protective factor important for the prevention of high-risk sexual behavior, and parent-child communication is an effective means of encouraging adolescents to adopt responsible sexual behaviors (DiIorio et al., 2003; Karofsky, Zeng, & Kosorok, 2001; Vesely et al., 2004). Studies have shown that parent-child communication has been significantly correlated with the reduction of high-risk sexual behaviors in adolescence (DiIorio, Kelley, & Hockenberry-Eaton, 1999; Fulkerson et al., 2006; Karofsky et al., 2001; Parera & Suris, 2004), birth control use (Vesely et al., 2004) and the delayed onset of first sexual intercourse (DiIorio et al., 1999; Karofsky et al., 2001). In addition, research has demonstrated that as children grow older they are more willing to discuss increasingly difficult subjects, such as those dealing with sexuality (DiIorio et al., 1999). Therefore, early development of communication skills contributes to positive youth development and increases youth self-efficacy and intentions to practice safe behaviors.

**MEXICAN CONTEXT**

Although information regarding sexuality and HIV/AIDS prevention is available to the general in public in Mexico, many youth receive ambiguous and contradictory information from mass media and families and within schools (Amuchastegui, 2001;
Hernandez & Dionisio, 1996; Huerta–Franco, Diaz De Leon & Malacara, 1996). Adolescents express psychological barriers to communication such as embarrassment, lack of trust, and fear of talking to the opposite sex parent (Magnani, Karim, Brown, & Hutchinson, 2005).

Mexico’s sociocultural context presents a unique challenge for HIV/AIDS prevention. In addition to teaching knowledge and skills, the programs must alter significant misconceptions and psychological barriers prevalent among youth, including myths, taboos, and a general culture of silence (Pick, Givaudan, & Aldaz, 1996). Institutions such as the church, the school, and the family have considerable influence on children’s values and perceptions regarding sexuality but often present mixed messages, maintain gender inequality, and promote double standards maintaining the prevalence of these sociocultural norms (Amuchastegui, 2001). A qualitative study conducted in Mexico City demonstrated that many adolescents believed that their parents would not talk about matters regarding sexuality because they would be encouraging their children to engage in sexual intercourse (Pick & Givaudan, 1996).

Schools represent an ideal place to provide children with factual information and protective factors that can help reduce the possibility of high-risk behaviors in adolescence (Magnani et al., 2005; Wilder & Schoech, 2002). A recent survey in Mexico demonstrated that over 95% of the 20 million parents surveyed by the National Federation of Parents agreed that sex education should be part of the basic school curriculum and that teachers should be trained to provide these programs (Alcántara, 2006).

Sexual activity begins at a young age in Mexico, reinforcing the need to start educational programs early. The National Council of Population reports the average age for first sexual activity at 15.9 years, down from 17.2 years in 1995 (CONAPO, 2004). Because many Mexican youth often receive information about sexuality from contradictory and informal sources, they often lack the systemized knowledge and skills to make healthy decisions regarding sexual relations. A national reproductive health survey in 2003 Censar estimated that 60% do not use contraceptives in their first sexual encounter, and the average age for first pregnancy is 20 years (Secretary of Health, 2003).

The high incidence of unplanned pregnancies and sexually transmitted infections among adolescents also highlights the need of programs for youth. As of June 2006, Mexico’s National AIDS Registry reported 105,170 cases (83.1% men and 16.9% women); 92.2% of total accumulated cases resulted from sexual transmission, including heterosexual and homosexual transmission (CENSIDA, 2006). The largest percentage of reported AIDS cases (78.7%) falls between the ages of 15 and 44 years (CENSIDA, 2006). Considering the time lapse between initial HIV infection and AIDS, these statistics indicate the need for prevention programs that target youth in elementary school and adolescence, before the onset of sexual activity.

Although past literature has focused on antecedents to high-risk sexual behaviors, there have been few longitudinal studies of programs implemented at early ages in developing countries. The proposed research seeks to add to the literature, the evaluating of the Yo Quiero, Yo Puedo (I Want to, I Can...prevent HIV/AIDS) life skills education program for elementary-school students in Mexico (Pick & Givaudan, 2007). The program is an analysis of the first year of a 3-year longitudinal study designed to target protective factors in elementary-school children (e.g., communication about difficult topics) as a means of preventing risky sexual behavior and changing attitudes about HIV/AIDS in adolescence. The following analysis of the fourth-grade program tests the hypothesis that the life skills program for fourth grade—specifically
targeting communication behaviors—will have a significant impact on five variables (attitudes, perceived sociocultural norms, self–efficacy, behaviors, and intentions) toward communication about difficult topics.

The integrative model of behavioral prediction suggests that there are a limited number of psychological variables that influence behavioral performance, and this model has frequently been applied to HIV/AIDS prevention research (Albarracin, Fishbein, & Middlestadt, 1998; Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Fishbein, 2000). This conceptual model incorporates aspects from the health belief model (Rosenstock, Strecher, & Becker, 1994), social cognitive theory (Bandura, 1998), the theory of reasoned action (Ajzen & Fishbein, 1980), and the theory of planned behavior (Ajzen, 1991). The variables defined in this study are based on Fishbein’s (2000) model: (a) attitudes: the person’s overall feelings of favorableness or unfavorableness toward performing the behavior; (b) perceived sociocultural norms: perceptions of what others think constitutes appropriate behavior and what others are doing; (c) self–efficacy: the individual’s belief that he or she can perform the behavior even under numerous difficult circumstances; (d) behaviors: actions involving a target, context, and time period; and (e) intentions: the individual’s purpose as determined by the attitudes, perceived norms, and self–efficacy toward performing the behavior. The literature demonstrates that the most effective programs target specific behaviors (e.g., communication) rather than broad behavioral categories (Fishbein, 2000). Accordingly, the program targeted each of the aforementioned variables with a specific emphasis on communication about difficult subjects.

METHODS

THE SETTING

The results presented refer to the first year of a 3–year longitudinal study conducted with Mexican schoolchildren of low socioeconomic level (N = 1581) from Hidalgo and Campeche, two states in Mexico with a high index of marginalization (measures utilized by the Mexican National Council of Population as socioeconomic indicators of development) (Anzaldo & Prado, 2005). Both states also have a relatively high HIV/ AIDS prevalence in relation to the population, all through sexual contact (CENSIDA, 2006).

PARTICIPANTS AND DESIGN

The first year of the program was conducted with fourth graders from 45 schools (23 in Campeche and 22 in Hidalgo). The experimental and control sites were randomly designated at the level of the school (9 experimental and 13 control schools in Hidalgo; 11 experimental and 12 control schools in Campeche). Within each experimental school, all of the children received the program; the students that received the program in both states totaled 752 and the control group 829. The fourth-grade participants ranged in age from 9 to 12, spoke Spanish, and attended public schools in urban settings; 52% of the total sample were girls (817), and 48% were boys (764). The proportion of boys and girls was similar in both control and experimental groups. A pretest measure was administered to all participants at the start of the school year, and a posttest was administered at the end of the school year; only the 1581 children who were evaluated before and after the program was implemented were considered for the statistical analysis. With only a small amount of attrition in both the experimental and control groups, it is unlikely that this problem significantly affected the results obtained in the statistical analysis.
THE PROGRAM

The 30-hour life skills program “I Want to, I Can...prevent HIV/AIDS”, was implemented as part of the fourth-grade school curriculum over the course of 15 to 20 weeks throughout the year. *Yo Quiero, Yo Puedo* life skills methodology is interactive, aiming to shape positive attitudes and develop interpersonal skills (Pick & Givaudan, 1996). The main goal of the approach is to enhance children’s ability to take responsibility, make healthier choices, resist negative pressures, and avoid high-risk behaviors. The purpose of the fourth-grade curriculum is to provide the students with life skills on which they can build more specific knowledge and competencies in the following years of the program. Colorful and interactive workbooks were organized into 14 different themes that included specific program contents for each grade level; each lesson included exercises that emphasized skills development and encouraged the children to analyze, express emotions, communicate, think creatively, reflect, and solve problems. Teaching methods were youth centered, gender sensitive, and participatory; common classroom strategies include working in groups, brainstorming, role-playing, storytelling, debating, and participating in discussions and audiovisual activities. The following is a list of the broad themes and specific program contents for the fourth-grade program:

**Life Skills**
1. Organization and productivity
2. Self-esteem
3. Problem-solving and negotiating
4. Creativity
5. Responsibility and decision-making
6. Gender differences
7. Communication (observing, listening, and communicating)
8. Expressing feelings

**Health Care**
9. Personal hygiene
10. Sexuality
11. Nutrition and health
12. Caring for the environment

Additionally, three games were designed for fourth grade, each with specific didactic objectives related to human physiology, anatomy, sexuality, basic HIV/AIDS awareness, and self-knowledge. The games focused on the proper names for human anatomy because focus groups and pilot versions of the program demonstrated cultural barriers and taboos toward communication about sexuality and the body. Sensitizing the children to use proper terms when describing the body increased their comfort levels and helped them overcome psychological barriers to communication about difficult topics (e.g., sexuality, substance abuse, and adolescent development). The three games created specifically for the fourth-grade curriculum included the Roulette of Self-Knowledge: designed to help the children get to know each other and increase the cohesion of the group; the Lottery of Sexual Organs: designed to teach the children the names of the sexual organs and how to identify their functions; and the Marathon of Sexuality: designed to teach the children biological, social, and psychological facts about sexuality.
TEACHER TRAINING

Four experienced facilitators trained the teachers in experimental groups (40 hours). The training objectives were to (a) improve the teacher’s personal life skills (e.g., self-knowledge, verbal and nonverbal communication, problem-solving, decision-making, negotiation, emotional management, ability to empathize, and take personal responsibility); (b) provide them with factual information about HIV/AIDS, sexuality, anatomy, and adolescent development; and (c) facilitate their capacity to implement the prevention program in their classroom. The teacher training workshops utilized the same participatory methodology as the student curriculum, which facilitated the development of the teachers knowledge and skills and exposed them to innovative teaching methodology and activities that they were expected to replicate in the classroom. The teachers were encouraged to apply newly acquired skills to their daily activities, to refine their communication and problem-solving techniques, and to reflect on personal development. Each teacher also received a teaching manual summarizing the factual knowledge, 14 thematic lessons, program methodology, strategies for more effective communication, and examples of the participatory activities emphasized in the trainings. Distributing a manual with systematic guidelines also standardized the delivery and evaluation of program among the experimental schools in Hidalgo and Campeche.

The facilitators evaluated the teacher’s level of skills and knowledge after the training and conducted field visits using a standardized observation guide three times throughout the school year. The observation guide evaluated the teacher as a program facilitator (communication skills, gender awareness, conflict management, responsibility, and self-esteem), the classroom (physical space and interactions between students and teachers), and the teacher’s management and delivery of the program contents (verbal and nonverbal communication, knowledge and management of the theme, utilization of didactic materials, delivery of exercises and activities, and the fulfillment of the general objectives of the program). IMIFAP staff also provided support for the teachers after each evaluation in order to standardize the implementation of the program and ensure the quality of the curriculum implementation.

MEASURES

The evaluation instruments were designed to measure the program’s outcome on five dependent variables regarding communication about difficult subjects: attitudes, norms, self-efficacy, intentions, and behaviors. To design the questionnaires, focus groups were conducted with parents and teachers to identify the most salient difficult topics for Mexican schoolchildren to discuss. Original items were created, pilot-tested, and revised by an external and independent evaluation team. The self-report questionnaire was administered to every student (in the control and experimental group) at the beginning and end of each school year.

To assess the attitudes, the items were phrased, “How much would you like to talk with an adult about [difficult topic]?” Responses were scored on a 4-point scale ranging from 1 (not at all) to 4 (a lot). Items for norms about communication began, “According to the adults you trust, how acceptable is it to talk to them about [difficult topic]?” Responses ranged from 1 (unacceptable) to 4 (very acceptable). Self-efficacy items were constructed to measure the ability of the child to communicate when psychological and logistical barriers were present: “If the adult that you trusted most was [insert barrier to communication], you would be able to speak to them about [difficult topic].” Items were scored 1 (no) or 2 (yes). Behavior items questioned past behaviors: “How many times have you spoken with an adult that you feel confident with about
TABLE 1. Reliability and Variance Explained in Principal Component Analysis (PCA) by Attitudes, Norms, Intentions and Behaviors Regarding Communication About Difficult Subjects

<table>
<thead>
<tr>
<th>Scale</th>
<th>N Items</th>
<th>Cronbach's Alpha</th>
<th>Variance Explained in PCA (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>12</td>
<td>.802</td>
<td></td>
</tr>
<tr>
<td>Taboo topics</td>
<td>5</td>
<td>.732</td>
<td>24.41</td>
</tr>
<tr>
<td>Romantic topics</td>
<td>4</td>
<td>.629</td>
<td>15.30</td>
</tr>
<tr>
<td>Threatening/Unpleasant topics</td>
<td>3</td>
<td>.505</td>
<td>12.71</td>
</tr>
<tr>
<td>Norms</td>
<td>12</td>
<td>.834</td>
<td></td>
</tr>
<tr>
<td>Taboo topics</td>
<td>5</td>
<td>.780</td>
<td>23.36</td>
</tr>
<tr>
<td>Romantic topics</td>
<td>4</td>
<td>.663</td>
<td>17.97</td>
</tr>
<tr>
<td>Threatening/Unpleasant topics</td>
<td>3</td>
<td>.478</td>
<td>14.29</td>
</tr>
<tr>
<td>Intentions</td>
<td>12</td>
<td>.842</td>
<td></td>
</tr>
<tr>
<td>Taboo topics</td>
<td>5</td>
<td>.682</td>
<td>24.40</td>
</tr>
<tr>
<td>Romantic topics</td>
<td>4</td>
<td>.583</td>
<td>16.24</td>
</tr>
<tr>
<td>Threatening/Unpleasant topics</td>
<td>3</td>
<td>.433</td>
<td>56.84</td>
</tr>
<tr>
<td>Behaviors</td>
<td>12</td>
<td>.787</td>
<td></td>
</tr>
<tr>
<td>Taboo topics</td>
<td>5</td>
<td>.754</td>
<td>22.56</td>
</tr>
<tr>
<td>Romantic topics</td>
<td>4</td>
<td>.664</td>
<td>14.57</td>
</tr>
<tr>
<td>Threatening/Unpleasant topics</td>
<td>3</td>
<td>.503</td>
<td>13.99</td>
</tr>
<tr>
<td>Self–efficacy</td>
<td>12</td>
<td>.807</td>
<td></td>
</tr>
</tbody>
</table>

[difficult topic] Responses were scored on a 3–point scale: 1 (never), 2 (once), or 3 (two or more times). Finally, items to test intentions were phrased, “How likely is it that you talk to an adult you trust, during this school year, about [difficult topic]?” Responses were scored on a 4–point scale from 1 (not probable) to 4 (very probable). All scales demonstrated high internal consistency as shown in Table 1.

A principal components analysis on the set of items of each scale consistently showed that for attitudes, sociocultural norms, behaviors, and intentions, the items grouped into three factors that could be interpreted in terms of conversation topics, namely: (a) taboo subjects, (b) romance and sexuality, and (c) threatening/unpleasant subjects. This led us to the construction of three subscales for each of the scales attitudes, sociocultural norms, behaviors, and intentions, for which information on internal consistency is included in Table 1. The results of a similar analysis of the items in the self–efficacy scale were rather different, which was expected given that the barriers to communication included in these items introduced an additional source of variation.

MULTILEVEL ANALYSIS

For each of the above mentioned (sub)scales, a multilevel analysis was conducted to test the hypothesis whether the program had a positive impact on these dependent variables. In particular, the following model was fitted to the data:

\[ Y_j \sim N(m_j, \sigma^2) \]

with \( m_j = B_0 + B_\delta St_i + B_{Int} Int_i + B_{Age} Ag_i + B_{Sex} Sex_j + B_{Base} Base_j + u_j \)

and \( u_j \sim N(0, \sigma^2) \),

where \( Y_j \) is the posttest score on the dependent variable under study of student \( j \) in school \( i \). The predictors in the equation are State (\( St_i = 1 \) if school \( i \) is in the state of

1. These topics were labeled taboo because they are all related to stigmatized behaviors in Mexico that are often taboo to discuss.
Campeche and Sti = 2 if it is in Hidalgo), condition (Inti = 1 if school i received the program and 0 otherwise), gender (Sexij = 1 if student j from school i is male and 0 if female), age (Ageij), and baseline score (Baseij, which is the pretest score of student j in school i). Baseline levels of the constructs were included as predictors to control for individual differences at the start of the study. Both pre– and posttest measurements were composite scores (averages of self–reported ratings across all items in the scale). To facilitate the interpretation, all independent variables (except baseline score) were grand mean centered prior to the analysis.

**RESULTS**

The results (see Table 2) indicate that after controlling for the other effects in the equation, the intervention had a positive impact on communication attitudes (B = .335, p < .001), self–efficacy (B = .342, p < .001), intentions (B = .309, p < .001), behavior (B = .161, p < .01), and perceived sociocultural norms about communication (B = –.149, p < .001). Figure 1 provides a graphical representation of the intervention effects.

Gender significantly predicted communication, attitudes (B = .082, p < .01), self–efficacy (B = .085, p < .01), and intentions (B = .092, p < .05): Girls were significantly more likely to report positive attitudes, self–efficacy, and intentions toward discussing difficult topics. State and age did not have a significant predictive effect on any of the other variable constructs.

To determine the variables in predicting communication behaviors about difficult topics in Mexican school children three additional regression equations were computed, one for each conversation topic. The composite scores for the different constructs were equivalent to the averages of the item scores for a given topic. Subsequently, the model presented in the equation was fitted to these composite scores.

The same multilevel model was used to predict conversation topics; coefficients were estimated three times, once for each conversation topic. Table 2 presents standardized beta weights for the three regression computations: behaviors on taboo topics (B = .175, p < .001), behaviors on romantic topics (B = .157, p < .001), behaviors on threatening/unpleasant topics (B = .059, p < .05). Gender significantly predicted one type of conversation topic: Boys were more likely to discuss threatening and unpleasant topics (B = –.149, p < .001).

**TABLE 2. Estimates of the Fixed Effects Associated With the Control and Intervention Variables Predicting Communication About Difficult Subjects**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intervention Effect</th>
<th>Maturation Effect</th>
<th>Control Variable Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B_int</td>
<td>B0</td>
<td>B_state</td>
</tr>
<tr>
<td>Attitudes</td>
<td>0.335***</td>
<td>0.865***</td>
<td>0.055</td>
</tr>
<tr>
<td>Self–efficacy</td>
<td>0.342***</td>
<td>1.152***</td>
<td>0.142</td>
</tr>
<tr>
<td>Norms</td>
<td>–0.149***</td>
<td>1.874***</td>
<td>0.002</td>
</tr>
<tr>
<td>Intentions</td>
<td>0.309***</td>
<td>1.125***</td>
<td>–0.016</td>
</tr>
<tr>
<td>Behaviors</td>
<td>0.161**</td>
<td>0.424*</td>
<td>0.002</td>
</tr>
<tr>
<td>Behaviors on Taboo</td>
<td>0.175***</td>
<td>0.472***</td>
<td>0.061</td>
</tr>
<tr>
<td>Behaviors on Romantic</td>
<td>0.157***</td>
<td>0.452***</td>
<td>–0.019</td>
</tr>
<tr>
<td>Behaviors on Threatening / Unpleasant Topics</td>
<td>0.059*</td>
<td>0.795***</td>
<td>–0.043</td>
</tr>
</tbody>
</table>

*Note. B_int: Intervention effect for students in experimental schools. B0: Effect of time (maturing) between the first and second measurement occasion. B_state: Gender effect (positive values indicate an advantage for children from Hidalgo). B_sex: Sex effect (positive values indicate an advantage for females). B_age: Age effect (positive values indicate an advantage for older children). B_base: Effect of baseline (first measure) score. *p < .05. **p < .01. ***p < .001.*
FIGURE 1: Expected increments for communication about difficult topics (4th grade).
DISCUSSION
The results indicate that providing a school–based skills and HIV prevention program in fourth grade (N = 1,581) had a significant impact on communication about difficult topics in all five constructs: attitudes, norms, self–efficacy, behaviors, and intentions. These results are in line with findings that skills–building programs for young children increase adolescent comfort levels communicating difficult subjects with trusted adults (Givaudan, Ramon, Camacho, & Pick, 1997; Givaudan, Van de Vijver, & Poortinga, 2005).

The process of implementing a life skills approach that sensitized children to difficult subjects from an early age was shown to have a significant impact on communication. The purpose of the fourth-grade program was to provide the children with a toolbox of skills (with an emphasis on communication) that would prepare them to discuss increasingly difficult topics with parental figures throughout the longitudinal study. As a result, the children were able to overcome psychosocial barriers (e.g., fear and shame) and to develop the competencies (e.g., communication skills and behaviors) that are proven protective factors for high-risk adolescent behavior (Basen–Engquist et al., 1999 ; Dwivedi & Harper, 2004; Gomby, 1995). One of the teachers commented on the children’s learning process:

The students learned about sexuality and the parts of the body. Now they can talk without so many problems and with confidence...They learned to respect and accept their body...[and] that they can improve their health. They have the confidence to say 'yes' or 'no' in a sexual relationship.

Comprehensive teacher training may also have been an important factor because provision of factual information and confidence with materials are essential for effective and engaging lessons (Farquhar, 1990; Oshi & Nakalema, 2005; Pineo, 2002). Effective school programs have demonstrated the importance of motivating teachers with participatory teaching skills and in–depth training programs (Kealey, Peterson, Gaul, & Dinh, 2000; Pineo, 2002). Qualitative results from the teacher observation guides demonstrated that as a result of the training: teachers tended to become more flexible and fair with classroom rules, their relationships with the students improved, violent behavior and attitudes toward the students decreased, communication in the classroom and with parents improved, they became more receptive to different teaching methods, and they were more motivated as educators and more confident in the classroom.

Another salient result of the program was the experimental group’s transformed perception of the sociocultural norms, representing another positive result of the intervention. One of the teachers commented on the normative challenges of sexuality education in Mexico, citing the initial reaction of the children’s parents to the program: “The parents were afraid from the beginning, many didn’t agree that they should talk to their children about sex.” These results have positive implications because as the other communication variables increased, the children began to question the normative status quo. One of the possible explanations for this change is that the new attitudes, intentions, skills, and behaviors may have resulted in an increasingly critical vision of their sociocultural environment. Kirby’s (2002) review of 300 studies on risk and protective factors for adolescent sexual risk–taking demonstrated that perception of social norms was a dominant factor in adolescents practicing safer–sex behaviors. Consequentially, the student’s transformed perceptions about social practices and norms that they previously accepted represents an additional positive result of the intervention.
It is also interesting to note how gender influenced the children’s attitudes, intentions, and self-efficacy toward communication. Girls reported positive attitudes, intentions, and self-efficacy toward communicating about difficult topics, and boys reported increased communication behaviors specifically about threatening and unpleasant topics. These classifications fall along traditional gender stereotypes in Mexican society, thus illustrating that the normative prevalence of established gender roles often presents an obstacle to behavior change. Research has demonstrated that gender of the child and parent is often correlated with the amount and content of discussions about difficult subjects; both genders are more likely to discuss difficult topics with their mothers (DiIorio et al., 1999; DiIorio et al., 2003). Thus, an essential aspect of communication life skills programs is to address normative gender behaviors and stereotypes. Future programs should focus on gender differences and stereotypes regarding communication, especially attitudes and intentions of boys.

Finally, the results indicate that the program successfully improved the children’s behaviors toward discussing taboo subjects, romance and sexuality, and threatening and unpleasant topics. Because changing communication behaviors is one of the main goals of the program, the results demonstrate the importance of incorporating participatory life skills programs in the Mexican school curriculum. These positive results may be associated with the program’s focus on reducing psychological barriers such as fear and shame. The possibility of talking about these topics in a society where norms, pena (embarrassment/shame), and taboos often dictate behavior has profound implications for future programs.

LIMITATIONS

The Mexican national school curriculum follows a traditional structure, and most teachers are required to adhere to a standardized national curriculum. Therefore, the teachers found it difficult to manage their classroom time to incorporate the new curriculum components, especially when they lacked the support of the school directors. Many also struggled to incorporate creative and participatory lessons in the classroom curriculum.

The impact of the program also might have been stronger if the parents and the school directors also participated in the trainings. Studies have shown that parent–child communication is correlated with reduction in risky sexual behaviors (DiIorio et al., 2003; Karofsky et al., 2001).

Finally, several schools in both the control and experimental groups in Hidalgo had other government and privately funded programs that may have biased the results. Some of additional programs provided classroom lectures about sexuality and self-esteem and included teacher training modules in sexuality and substance abuse prevention. However, few of these programs followed the participatory teaching methodology implemented in the “I want to, I can...prevent HIV/AIDS” curriculum.

CONCLUSIONS AND RECOMMENDATIONS

This study has broad implications for future HIV/AIDS/STI prevention programs for Latinos. Programs starting in elementary school are cost-effective and if translated into policy could have a significant impact on future high-risk behaviors. Future studies should also follow the students for longer periods because the impact of protective factors on sexual behaviors can only be determined after an individual becomes sexually active (Siegel, Aten, & Enaharo, 2001).
REFERENCES


