

Sexual possibility situations and sexual behaviors among young adolescents: the moderating role of protective factors.

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Abstract:

Purpose

To examine sexual possibility situations (SPS) and protective practices associated with involvement in intimate sexual behaviors and the initiation of sexual intercourse among young adolescents and to determine if protective factors moderate the relationship between SPS and sexual behaviors.

Methods

Data for these analyses were obtained from the baseline assessment for adolescents conducted as part of an HIV prevention study called “Keepin’ it R.E.A.L.!” The study was conducted with a community-based organization (CBO) in an urban area serving a predominantly African-American population. In addition to items assessing SPS, intimate sexual behaviors, and initiation of sexual intercourse, adolescents provided information on the following protective factors: educational goals, self-concept, future time perspective, orientation to health, self-efficacy, outcome expectations, parenting, communication, values, and prosocial activities. Background personal information, including age and gender, was also collected. The analyses were conducted on data from 491 predominantly African-American adolescents, 61% of whom were boys. Variables were combined to form SPS and protective indices that were used in the first set of regression analyses. In a second set of analyses, the indices were unbundled and individual variables were entered into regression analyses.

Results

Both SPS and protective indices explained significant portions of variance in intimate sexual behaviors, and the SPS index explained a significant portion of variance in the initiation of sexual intercourse. The regression analysis using the unbundled SPS and protective factors revealed the following statistically significant predictors for intimate sexual behaviors: age, gender, time alone with groups of peers, time alone with a member of the opposite sex, behavior self-concept, popularity self-concept, self-efficacy for abstinence, outcome expectations for abstinence, parental control, personal values, and parental values. A similar regression analysis revealed that age, time alone with a member of the opposite sex, and personal values were significant predictors of initiation of sexual intercourse.

Conclusions

These results provide evidence for the important role of protective factors in explaining early involvement in sexual behaviors and show that protective factors extend beyond personal characteristics to include both familial and peer factors.

Keywords: sexual behavior | sexual experience | adolescents | sexual risk | risk and protective factors | adolescent health

Article:

A primary interest of investigators has been to identify characteristics of adolescents and environmental situations that place them at risk for becoming involved in problem behaviors. The results of their studies have often shown that adolescents who are male, live in single-parent homes, live in disadvantaged situations, and associate with peers participating in these behaviors are at higher risk for smoking 1, 2 and 3, substance use 3, 4 and 5, and initiating sexual intercourse during their early teen years 6 and 7. Researchers have also studied protective factors, which Jessor et al [8] defined as factors that can both directly influence behavior and moderate the relationship between risk and behavior. Researchers exploring the direct relationship between protective factors and problem behaviors have found that adolescents who display high levels of self-esteem, connectedness to school, or participation in prosocial activities are less likely to engage in behaviors that compromise their health or well-being 2, 7 and 8. Other protective factors include association with peers who model conventional behaviors, parental monitoring, involvement, and expectations 3, 5, 7 and 8.

Although both risk and protective factors have been identified, the interaction between these types of factors is not completely understood. We know that many adolescents grow up in single-parent households amid poverty and violence, yet don't become involved in risky behaviors. These outcomes suggest that strong protective factors operating simultaneously with risk factors might counterbalance and even negate the most deleterious effects of negative influences. Thus, an interesting but understudied question in the research devoted to adolescent problem behaviors

is: To what extent can protective factors ameliorate the risk of adolescents engaging in problem behaviors?

Jessor et al found that adolescent participants who scored high on risk and low on protection displayed higher problem behavior index scores than did participants who scored high on both risk and protection [8]. Thus, it appeared that the effects of adolescents' exposure to risk could be attenuated by concurrent exposure to protective factors. In their subsequent analyses in which they "unpacked" the risk, protective, and problem behavior composite indices and explored the respective components separately across the four problem behaviors, alcohol use, drug use, delinquent-type behavior, and early initiation of sexual intercourse, peer influences and attitudes toward deviance proved to be the strongest predictors.

In the present study, we sought to build upon Jessor et al's [8] work by exploring the role of protective factors as moderators of the association between risk and two behaviors, intimate sexual behaviors and early initiation of sexual intercourse. We used Jessor's definition of risk, which he defined as characteristics or conditions associated with a higher likelihood of undesirable health outcomes ([8], p. 240). Jessor et al [8] identified the opportunity to engage in the problem behavior as one such risk. In the present study, we choose exposure to or participation in sexual possibility situations (SPS) as the risk situation. According to Paikoff [9], sexual possibility situations are those in which a boy and girl are alone together without adult supervision. Paikoff demonstrated that such situations serve as opportunities among preadolescents to engage in sexual behaviors including sexual intercourse [9]. In a second study assessing factors associated with SPS, Paikoff et al [10] found that parenting support served as a protective factor in families where the mother had her first child as a teenager. They also found that parents' education and employment influenced the child's involvement in SPS.

In the present study, we were interested in determining if the likelihood of sexual behaviors for adolescents who reported exposure to SPS would vary across levels of protective factors. The moderating influence of protective factors could be implied from findings demonstrating that adolescents reporting both high risk and high protection are less likely to indicate involvement in sexual behaviors compared with adolescents reporting high risk and low protection.

To answer these questions, we first had to determine if exposure to or participation in SPS increases the likelihood of sexual behavior or intercourse among our sample of 11–14-year-old, predominantly African-American adolescents. Second, we had to determine if there was a

negative association between protective factors and intimate sexual behaviors including sexual intercourse, and third, we had to determine if the outcomes associated with SPS could be attenuated by commonly reported protective factors.

This study, which incorporates aspects of both the problem behavior theory of Donovan et al [11] and the SPS framework by Paikoff [9], has the potential to draw upon both perspectives and to add to our knowledge about the role of risk and protective factors in adolescent sexuality.

Methods

Procedures

Data for the present study were obtained from the baseline assessment conducted as part of an HIV prevention study called “Keepin’ it R.E.A.L.!” which tested the efficacy of an intervention for mothers and their adolescents in delaying the initiation of sexual intercourse for adolescents. The study was conducted in collaboration with a large community-based organization (CBO) that provides after-school and summer supervision for children ages 6 to 18 years. The CBO manages 16 sites in a large metropolitan area in a southeastern state and provides organized programs for its members, including sports, college preparation, leadership, and academic programs. Eleven sites were included in the present study. Mothers of adolescent members 11–14 years of age were contacted to determine eligibility and interest in participation. Mothers who were interested were given a brief description and then screened for eligibility. Mothers were eligible if they had an adolescent between the ages of 11 and 14 years who attended the CBO, and they had lived with their adolescent for the past year. Adolescents were required to be between 11 and 14 years of age at the time of the baseline interview and to have resided with their mother for the past year. Female legal guardians of adolescents were eligible to participate if they had lived with the adolescent and performed in the mother’s role for the previous year. A final requirement was that the mother and adolescent both agree to participate in the study.

Mothers and their adolescents first completed baseline interviews. The baseline interview included the assessment of factors related to the study outcomes of sexual intercourse and use of HIV risk reduction practices among adolescents. Information was collected on other variables that were thought to influence the outcomes of the intervention. These variables included self-efficacy, outcome expectations, sex-based communication, self-concept, future time perspective, and parenting. Background personal information such as age, gender, and race was also collected.

Before conducting the interviews, both mothers and adolescents gave consent to participate in the study. Mothers signed a consent form for themselves as well as one for their adolescent; the adolescent also signed an agreement to participate in the study. The interviews were conducted separately for mothers and adolescents by trained interviewers and took about 60 minutes to complete. Both mother and adolescent participants were paid \$20.00 for the baseline interview. The institutional review board of the researchers' university and the CBO approved the study.

Measures

Outcome variables

Intimate sexual behaviors

Seven items selected by the investigators and based on a review of the literature measured participants' involvement in sexually intimate behaviors other than sexual intercourse. The first item in the series is: "Have you ever held hands with a boy/girl?" The items progress in degree of intimacy to items asking about holding hands and touching. Participants respond with either "yes" or "no" to each item, and total scores are obtained by summing responses. Higher scores correspond to participation in more types of intimate sexual behaviors. The alpha coefficient for the 7-item scale was .80.

Sexual intercourse

To measure initiation of sexual intercourse, participants were asked: "Have you ever had sexual intercourse?" Those who responded "yes" were considered to have had sexual intercourse.

Risk variables

Sexual possibility situations

The Sexual Possibility Situation Measure developed by Paikoff [9] was used to assess involvement in sexual possibility situations. Two items measured participation in SPS. The first measured the frequency of time participants spent with groups of boys and girls. To measure frequency, participants were asked: "How many times have you been with a group of kids in private places with no adults around in the past year?" Possible responses range from 0 "never" to 8 "almost every day." The second measured the time spent with a member of the opposite sex: "How many times have you been with a boy/girl in private places with no adults around in the past year?" Responses range from 0 "never" to 8 "almost everyday." The responses to the single items were used in the analyses.

Protective variables

Educational goals

To assess participants' value of education, they were asked three items regarding their educational goals. These items were: "How important is doing well in school for you?", "How far would you like to go in your education?", and "How well do you do in school." All three items have five to seven possible response choices with higher values associated with greater importance in school or better grades. Responses to the three items were combined to yield a total score ranging from 3 to 17.

Self-concept

The Piers-Harris Children's Self-Concept Scale [12] was used to assess self-concept of the participants. Four of the original six subscales were used in this study and of these, two were included in the present analyses. These two are the behavior (16 items) and popularity (14 items) subscales. Items on each subscale are measured on a dichotomous yes/no scale. Total responses are summed for each subscale to yield a total score. A sample item for the behavior subscale is "I get into a lot of fights," (recoded) and for the popularity subscale, "I am easy to get along with." The alpha coefficient was .70 for the behavior subscale and .66 for the popularity subscale.

Future time perspective

The participants' perception of their future was measured by the 25-item Heimberg Future Time Perspective Inventory [13]. A sample item is: "I have great faith in the future." Each item is rated on a scale from 1 "strongly disagree" to 5 "strongly agree." The alpha coefficient for this sample of responses was .79.

Orientation to health

The participants' perception of healthy behaviors was assessed using a 16-item scale [14]. Each item is rated on a 5-point scale from 1 "safe and healthy to do" to 5 "risky or dangerous." The behaviors included smoking, holding a gun, and wearing seatbelts. The alpha coefficient for this sample of responses was .80.

Self-efficacy for abstinence

The participants' confidence in their ability to resist involvement in intimate sexual behaviors and sexual intercourse was assessed using a 12-item scale developed by the investigators. The measure was based on the definition of self-efficacy as presented by Bandura [15]. The scale is composed of items related to three types of self-efficacy for abstinence: refusal for situations that lead to sex; avoidance of situations that lead to sex; and convincing others to avoid situations that lead to sex. A sample item is: "How sure are you that you can say no to sex even though your friends think you should have sex?" Each item is measured on a 7-point scale from 1 "not sure at all" to 7 "completely sure." Total scores are found by summing responses to each item, and total possible scores range from 12 to 84, with higher scores corresponding to higher levels of confidence in resisting pressures to engage in sexual behaviors. Coefficient alpha for the responses of participants in this sample was .89, indicating an adequate degree of internal consistency.

Outcome expectations

The participants' perception of outcomes associated with the choices of engaging or not engaging in sexual intercourse was assessed using a 19-item scale developed by the investigators and based on social cognitive theory [15]. A sample item is: "If you do not have sex, your mother will approve." Each item is rated on a 5-point rating scale from 1 "strongly disagree" to 5 "strongly agree." Total scores are found by reverse coding negatively written items and summing responses to individual items. Total possible scores range from 19 to 95, with higher scores corresponding to more positive outcome expectations related to not having sex. The value of the alpha coefficient was .89.

Parental involvement

Participants' perception of parental involvement was assessed using a scale composed of 14 items based on the work of Lamborn et al [16]. Response options for each item range from 1 "strongly disagree" to 5 "strongly agree." A sample item is: "Your mother helps you out when you have a problem." Total possible scores range from 14 to 70, with higher scores corresponding to the perception of greater maternal support. The alpha coefficient for responses from the current sample of participants was .85.

Parental control

A 6-item scale measured participants' perception of the amount of control that their mothers exert. The items addressed how late at night the adolescent was allowed to interact with friends. Response options for each item range from 1 "not allowed" to 5 "as late as you want." A sample

item is: “What is the latest you can stay out with friends on school nights (Sunday—Thursday) with no adults present?” The alpha coefficient for responses from the current sample of participants was .74.

General communication

The quality of general communication with one’s mother was assessed with the Parent-Adolescent Communication Scale. The 18 items developed for this scale were adapted from the work of Barnes and Olson [17] and Armsden and Greenberg [18]. Each item is rated on a 5-point scale from 1 “never true” to 5 “always true,” with higher scores indicating more positive mother-adolescent general communication. A sample item is: “You are very happy with how you and your mother talk together.” The alpha coefficient for this scale based on the current responses was .90.

Personal values

The participants’ perception of teenagers having sex was measured with an 8-item scale developed by the investigators. A sample item is: “You think you should not have sex until you are married.” Each item is rated on a 5-point scale from 1 “strongly disagree” to 5 “strongly agree.” Negatively worded items are reverse scored before summing responses to obtain a total score. Total possible scores range from 8 to 40, with higher scores corresponding to more conservative views about teens having sex. The alpha coefficient for responses from the current sample of participants was .81.

Parental values

The participants’ perception of their parents’ attitudes toward adolescent sexuality was assessed using an 8-item scale. The eight items are the same items used to assess personal values. However, the wording is changed so that the participants evaluate his/her perception of the mother’s values related to adolescent sexuality. The coefficient alpha for responses from the current sample of participants was .76.

Peer values

The participants’ perception of their friends’ attitudes toward adolescent sexuality was assessed using the same 8-item scale with the wording modified so that the participants evaluate his/her

perception of friends' values related to adolescent sexuality. The coefficient alpha for responses from the current sample of participants was .81.

Prosocial activities

To assess involvement in prosocial activities, participants were asked about their participation in 38 different programs that were sponsored by the CBO. Adolescents responded "yes" or "no" to the query about ever having been involved in programs such as field trips, leadership club, and sports programs. Total scores are found by summing the number of activities in which the adolescent participated, with higher scores corresponding to a greater involvement in activities.

Data analysis

The data analytic strategy used in this study was similar to that described by Jessor et al [8]. To examine the moderating effect of protective factors on the association between SPS and intimate behaviors and initiation of sexual intercourse, SPS and protective indices were created. An index of SPS was calculated by taking the sum of the two sexual possibility items. The protective index was obtained by dichotomizing those variables identified as being protective in nature and then summing to obtain a cumulative index of protective factors. For all but one of the protective variables, the score associated with the 80th percentile score was designated as the cut point to indicate the presence of the protective factor. For the educational goals variable, the score associated with the 85th percentile was used as the cut point. These values were chosen to provide some assurance that the protective factor was actually present. Whereas the indices described above were not intended to function as scales, the alpha reliability estimates were .64 and .68 for the SPS and protective indexes, respectively. The Pearson correlation between the SPS and protective indexes was $-.23$ ($p < .001$).

A two-step process was used to analyze the data. First, hierarchical regression analysis was used to assess the moderator effect for protective factors. For these analyses, the SPS index, protective index, and SPS-protective interaction term were entered in sequential blocks. Age and gender were entered in the first block as control variables. A multiple linear regression was used to assess the outcome of intimate sexual behavior and a multiple logistic regression for the outcome of initiation of sexual intercourse. In the second step, regression analyses were conducted to evaluate the associations between the specific components of SPS and protection and the outcome variables of intimate sexual behavior and initiation of sexual intercourse. In these analyses, the individual components of the SPS and protective indexes were used in their original

form. Again, age and gender were entered in the first block, followed by the two SPS variables and then the protective variables.

Because the primary goal of this study was to examine the moderating effect of protective factors on SPS with respect to young adolescents engaging in intimate sexual behaviors, the interaction terms in the two main analyses were of particular interest. Specifically, we were interested in determining whether the effect of SPS on sexual behaviors would be different across the various levels of protection.

Results

Sample characteristics

The sample for this study consisted of 491 boys and girls, 61.5% of who were boys (Table 1). The participants ranged in age from 11 to 14 years, with a mean of 12.3 years ($SD = 1.1$). Most (98.6%) were African-American. Slightly more than 90% lived with their biological mother and 56.2% lived in a household with an adult male.

Table 1. Descriptive Statistics of Adolescent Background Characteristics

	% (n)
Gender	
Females	38.5 (189)
Males	61.5 (302)
Age in years (Mean, SD, Range)	(12.3, 1.1, 11–14)
Race/Ethnicity	
African-American	98.6 (484)
Person considered mother/mother figure	
Biological/adoptive	90.8 (455)
Grandmother	4.7 (23)
Other	4.5 (13)
Adult male in the home	56.2 (276)

	% (n)
Biological/adoptive	46.8 (129)
Stepfather	35.1 (97)
Other	18.1 (50)

Outcomes

The regression analysis focusing on the association of SPS and protective indices with intimate sexual behaviors indicated that approximately 48% of the variance in intimate sexual behavior was explained by the combination of variables. In the first step, age and gender were entered and explained 27% of the variance ($F[2,488] = 91.79, p < .001$). The SPS index was entered in the second step, accounting for an additional 18% of variance ($F[1,487] = 162.34, p < .001$). The protective index was then entered in the next step and accounted for an additional 2% of the variance ($F[1,486] = 17.1, p < .001$). In the fourth and final step, the interaction term for SPS and protection was entered into the model. As noted in Table 2, the R^2 change at this step was not statistically significant, but the overall model was statistically significant ($F[5,485] = 88.18, p < .001$). The regression coefficients for age, gender, SPS index, and protective index are all statistically significant and in the hypothesized direction. Although the coefficient for the interaction term is not statistically significant ($p = .12$), it is in the hypothesized direction (Figure 1). Thus, as can be seen in Figure 1, there is a main effect of SPS (i.e., the line depicting high SPS is consistently higher than the line depicting low SPS). The divergent paths of these two lines show the nature of the nonsignificant interaction. Although the line depicting low SPS remains relatively constant across the levels of protection, the line depicting high SPS shows a consistent decline from low to high protection.

Table 2. Hierarchical Regression Analysis With Intimate Behaviors as the Outcome Variable

Predictors	B at Final Step	R ²	R ² Change
Demographic control variables			
Age (centered on age 11 years)	.53**		
Gender	-.82**	.273**	
SPS index	.27**	.455**	.182**
Protective index	-.08*	.474**	.019**
SPS × protection interaction	-.02	.476**	.003

Unstandardized regression coefficients.

* $p < .01$

** $p < .001$.

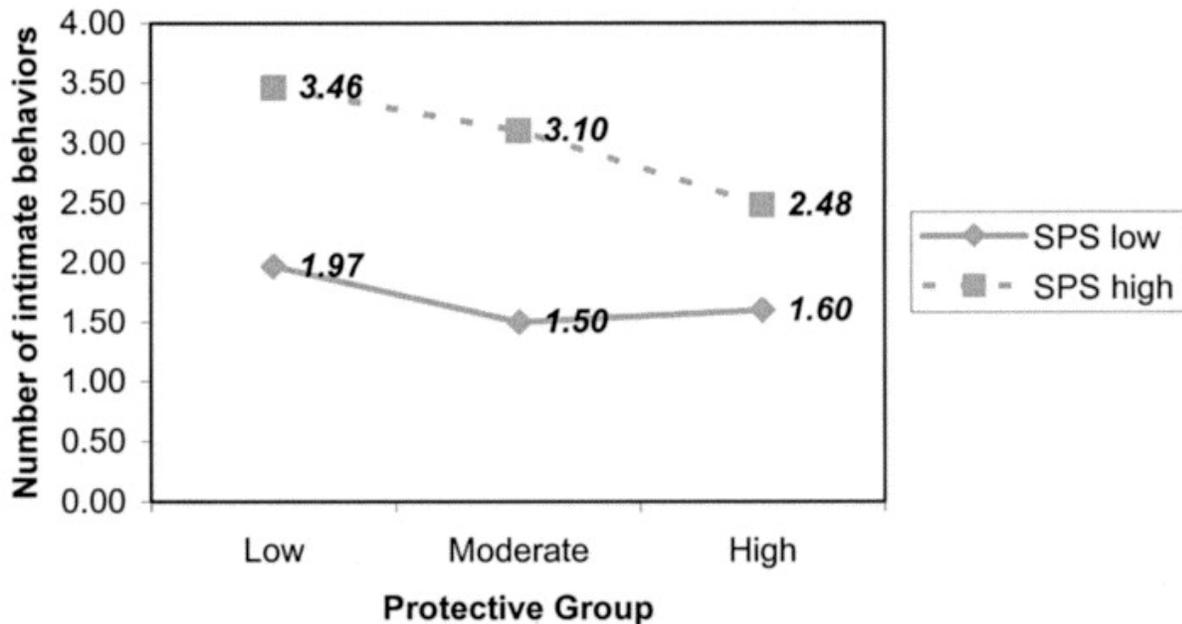


Figure 1. Adjusted (age and gender) means for high and low SPS by protective group (low, moderate, and high).

In a similar analysis using logistic regression to assess the outcome of sexual intercourse, age and gender were entered in the first step and both were significant predictors of initiation of sexual intercourse $\chi^2(2) = 38.64, p < .001$ (Table 3). In the second step, the sexual possibility index was added to the model. The results of this analysis indicated a strong overall model $\chi^2(3) = 83.96, p < .001$. Based on the difference between the values of the Chi-squares of the two models, the addition of the SPS index score added significantly to the model $\chi^2(1) = 45.31, p < .001$. As in the previous analyses, exposure to SPS was a positive predictor of initiation of sexual intercourse. The protective index was added in the third step, with the overall model being statistically significant, $\chi^2(4) = 92.49, p < .001$, as well as the step, $\chi^2(1) = 8.54, p < .01$. Although a trend can be seen in Figure 2 in which adolescents reporting high SPS show a consistent decline in initiation of sexual intercourse from low to high protection, the addition of the interaction term in the final step did not add to the ability to predict sexual intercourse. It should be noted that the protective index, although not statistically significant, approached statistical significance ($p = .07$) in the final model.

Table 3. Hierarchical Logistic Regression Analysis With Onset of Sexual Intercourse as the Outcome Variable

Predictors	B	Odds Ratio
Demographic control variables		
Age (centered on age 11 years)	.59*	1.80
Gender	-.62	.54
SPS index	.25*	1.28
Protective index	-.31	.74
SPS × protection interaction	.007	1.01

* $p < .001$.

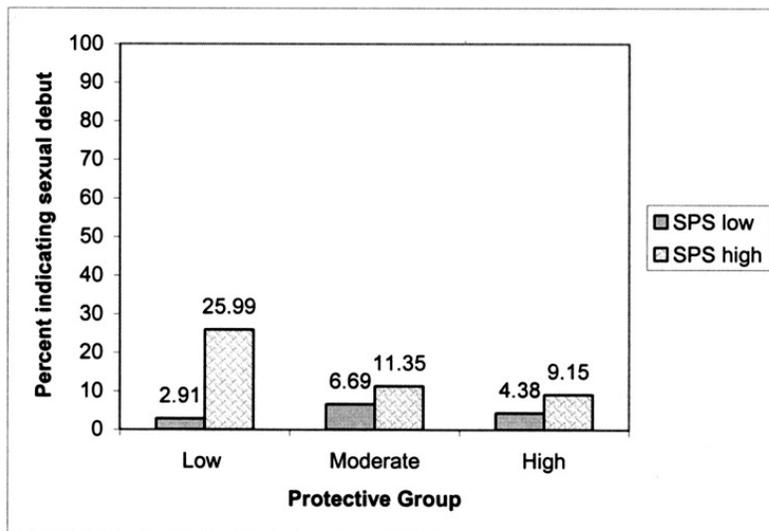


Figure 2. Percent of adolescents indicating initiation of sexual intercourse by SPS and protective group.

Multiple regression analysis was used to examine the relationships of the individual components of both SPS and protection with intimate sexual behaviors. The results of this analysis are reported in Table 4. Age and gender were entered in the initial step as demographic controls. These two variables accounted for 27% of the variance. The SPS components were added in the second step and accounted for an additional 19% of the variance. In the final step, the components of the protective index were entered into the model and accounted for an additional 9% of the variance. In the final model, which explained 55% of the variance, age, gender, time

alone with a group, and time alone with the opposite sex were all statistically significant predictors. In terms of the protective variables, behavior self-concept, popularity self-concept, self-efficacy for abstinence, outcome expectations for abstinence, parental control, personal values, and parental values were all statistically significant predictors.

Table 4. Hierarchical Regression Analysis of the Separate SPS and Protective Components With the Intimate Behaviors Score

Predictors	Pearson r	Beta at final step	R ²	R ² Change
Demographic control variables				
Age	.44***	.27***		
Gender	-.29***	-.14***	.273***	
SPS components				
Time alone with a group	.47***	.11**		
Time alone with a opposite sex	.51***	.23***	.465***	.192***
Protective components				
Educational goals	-.12**	.06		
Self-concept—behavior	-.19***	-.08*		
Self-concept—popularity	.19***	.10**		
Future time perspective	-.05	.04		
Orientation to health	-.22***	-.01		
Self-efficacy for abstinence	-.31***	-.08*		
Outcome expectations for abstinence	-.40***	-.09*		
Parental involvement/support	-.08*	.02		
General communication	-.19***	-.04		
Parental control	-.41***	-.11**		
Personal values	-.47***	-.16**		
Parental values	-.19***	.12**		
Peer values	-.43***	-.08		

Predictors	Pearson r	Beta at final step	R ²	R ² Change
Prosocial activities	.06	.03	.554***	.089***

Partial standardized regression coefficients.

* $p < .05$

** $p < .01$

*** $p < .001$.

The results for the logistic regression using the individual components of SPS and protection to predict initiation of sexual intercourse can be found in Table 5. Although the final model was quite strong overall, $\chi^2(18) = 116.25$, $p < .001$, only three variables were found to be statistically significant predictors, age, time alone with the opposite sex, and personal values. A final analysis including only these three variables yielded a comparable finding $\chi^2(6) = 95.00$, $p < .001$.

Table 5. Hierarchical Logistic Regression Analysis of the Separate SPS and Protective Components With the Initiation of Sexual Intercourse as the Outcome

Predictors	B	Odds Ratio
Demographic control variables		
Age	.45*	1.57
Gender	-.30	.74
SPS components		
Time alone with a group	.13	1.14
Time alone with a opposite sex	.31***	1.36
Protective components		
Educational goals	-.06	.95
Self-concept—behavior	-.00	1.00
Self-concept—popularity	-.49	.62
Future time perspective	-.30	.74
Orientation to health	-.22	.80
Self-efficacy for abstinence	-.19	.83

Predictors	B	Odds Ratio
Outcome expectations for abstinence	-.13	.87
Parental involvement/support	-.41	.66
General communication	.37	1.45
Parental control	-.41	.67
Personal values	-1.04**	.35
Parental values	.51	1.66
Peer values	-.27	.76
Prosocial activities	1.04	2.83

* $p < .05$

** $p < .01$

*** $p < .001$.

Discussion

The purpose of this study was to examine risk and protective practices associated with involvement in intimate sexual behaviors and the initiation of sexual intercourse among adolescents 11–14 years of age. We were particularly interested in determining if protective factors would moderate the relationship between SPS factors and sexual behaviors in our sample of predominately African-American youth.

The results of our study demonstrated that both the SPS and the protective factor indices explained significant portions of variance in intimate sexual behaviors. Thus, the higher the score on the SPS index, the more likely the respondents were to be involved in intimate sexual behaviors, and the higher the score on the protective index, the lower the involvement in intimate sexual behaviors. Because the protective index was entered in the analysis after the SPS index, these results suggest that protective factors account for unique variance over and above that explained by SPS alone. These results also provide evidence for the important role of protective factors in explaining early involvement in sexual behaviors. This interpretation would have been strengthened further if we had also found that respondents simultaneously exposed to high SPS and high protective factors reported fewer intimate sexual behaviors than those exposed to high SPS without the benefit of protective factors. Although this interaction was in the correct direction and explained an additional component of variance in the regression equation, it failed to reach statistical significance.

In the second analysis of intimate sexual behaviors, we explored the individual contributions of the SPS and protective factors. In this analysis, age, gender, time alone with groups of peers, and time alone with a member of the opposite sex were significant predictors of intimate sexual behavior. In addition, the protective factors that were statistically significant were behavior self-concept, popularity self-concept, self-efficacy for abstinence, outcome expectations for abstinence, parental control, personal values, and parental values. These results suggest protective factors extend beyond personal characteristics and include both familial and peer factors. Although Jessor et al [8] did not examine family characteristics, they did find that perception of friends' behavior and a positive orientation to school were powerful protective factors. Resnick et al [7], in a study of risk and protective factors associated with health risk behavior, found that parent-family connectiveness, parental disapproval of sexual activity, and perceived school connectiveness were protective against early initiation of sexual intercourse. Our results extend the findings of these and other studies that demonstrate the role of personal and social factors in controlling problem behaviors.

Two of the statistically significant regression coefficients in our analysis, parental values and popularity self-concept, were the opposite of what was expected. That is, participants noting strong parental sanctions against teen sex and those most popular were more likely to be involved in intimate sexual behaviors. Both the Pearson correlation coefficient and the regression coefficient for popularity self-concept were positive, suggesting that higher popularity self-concept is related to increased levels of intimate behaviors. Because several items on the popularity self-concept subscale address issues related to boy-girl relationships, this finding is not surprising.

The results of our analysis suggest that it may be important to consider the effect of parental values in light of the interaction between adolescent and parental values. Further research exploring the effect of discrepancies in adolescent and parent values and the influence of peer values may be useful in explaining risk behaviors in adolescents.

With regard to initiation of sexual intercourse, our results showed that the SPS factor index explained a significant portion of variance over and above that explained by demographic variables of age and sex. However, although the protective factor index was negatively correlated with initiation of sexual intercourse, demonstrating the desired positive relationship, the contribution was not statistically significant. Likewise, the interaction between SPS and protective factors was not statistically significant. A possible reason for the lack of significance

might be traced to the sample size, as only 55 respondents (11%) reported initiation of sexual intercourse. Nonetheless, findings of main effects of demographic variables and SPS are consistent with those in the literature 7 and 8.

The regression analysis using the unbundled SPS and protective factors revealed three statistically significant predictors, age, time alone with a member of the opposite sex, and personal values. Older respondents who spent more time alone with members of the opposite sex and whose personal values included sex as a normal activity for teens were more likely to have reported experience with sexual intercourse. Previous work shows that children whose parents provide less monitoring and supervision are at higher risk for the early initiation of sexual intercourse 19, 20, 21 and 22. Presumably, children who are not monitored have more opportunities to spend time with other children, and greater time spent with other children as assessed in this study has been linked to early initiation of sexual intercourse 9 and 10.

Limitations

There are several limitations of the study that should be mentioned. First, because this was an analysis of cross-sectional data, the interpretation of the findings is limited to associations, and causality cannot be implied. Second, the self-report nature of the data raises the possibility that some participants might have been reluctant to admit to being sexually active. Finally, the participants in the study were recruited from a community-based organization that offers after-school programming for youth. It is likely that these participants are different in some ways from their peers who attend the same schools or live in the same neighborhoods.

Conclusions

The present study adds to the accumulation of evidence for the protective role of family and friends in reducing the risk of early initiation of sexual intercourse. These findings also suggest approaches for the development of risk-reduction programs for youth. The results of the study also show that children whose parents provide less monitoring and supervision are at a higher risk for early involvement in sexual behaviors including sexual intercourse.

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