The Relationship Between Parent- Adolescent Communication and Safer Sex Behaviors in College Students[1]

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Abstract:

An increased incidence of HIV infection in adolescents has led researchers to examine factors that influence young people's sexual behaviors. One of these factors is parent-adolescent communication about sexuality. In this study, two measurements of this communication were developed and tested through a mailed survey instrument methodology, with a sample of 732 college students. The instruments were found to be psychometrically sound. An exploration of the associations between selected demographic variables, parent-adolescent communication about sexuality, and specific safer sexual behaviors was conducted using a Chi Square Automatic Interaction Detection statistical technique. Overall, the study findings suggest that race, gender, and communication with parents are important factors within the sexual activity of college students.

Article:

The spread of HIV during the 1990s has presented a worldwide challenge to health care practitioners, researchers, and educators. One group that appears to be at high risk for infection today is youth. According to the Centers for Disease Control and Prevention (CDC, 1997,1998a), HIV infection within adolescent populations has continued to increase. In 1996, the Office of National AIDS Policy estimated that at least two teenagers per hour, or 8,670 per year, become HIV infected, and this figure is expected to increase markedly through and beyond the year 2000 (Office of National AIDS Policy, 1996). A number of medical experts and researchers have begun to express concern about this next generation, for if HIV becomes widespread among today's teenagers, there is a real danger of losing tomorrow's adults (Stine, 1998).

College students are one of the adolescent/young adult groups that appear to be at high risk for HIV infection (Stine, 1998). In his AIDS Update 1998, Stine stated that college students have been found with a rate of HIV infection 10 times higher than the general heterosexual population. Also of concern is the statement that college students as a group tend to be more sexually active than other segments of the adult population (Caron, Bertran, & McMullen, 1987).

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Furthermore, studies show that college students are very knowledgeable about HIV/AIDS and methods of transmission (DiIorio, Parsons, Lehr, Adame, & Carlone, 1993).

As a result of the consistent finding that this awareness has not appreciably reduced risk-specific sexual behaviors in college students, researchers have begun to examine other factors that influence young people's sexual conduct. One of these factors is parent-adolescent communication and the relationship between these exchanges and young people's subsequent sexual behaviors. This research supports the objective of Healthy People 2000, a national prevention strategy for significantly improving the health of the American people, that targets HIV risk reduction and family-based communication regarding sexuality and sexual behavior (U.S. Department of Health and Human Services, 1990). This research also supports the nursing profession's recognition of the importance of family involvement in health promotion programs directed toward adolescents. Feetham (1997) noted that very few health promotion programs actively included a family-based context, and several nurse researchers emphasized the importance of studying parent-adolescent communication about sexuality (Carroll et al., 1999). Problems encountered in conducting this research include definition and type of communication, differences in parent-adolescent perceptions and reports about the nature of their communication, instruments used to measure the communication, and the specific characteristics of the communication and communication processes.

Fisher has done extensive research on parent-adolescent communication about sexuality (1986, 1987, 1988, 1989, 1990, 1993). In 1993, Fisher noted that the results of her and others' studies had yielded contradictory and inconsistent results with regard to the impact of this communication on adolescent sexual knowledge, attitudes, and behaviors. In reviewing the literature that covered a 22-year period, Fisher found inconsistent results even in similarly designed studies. To examine these issues, Fisher conducted a study in which nine scales used in previous examinations were administered to 363 college students and their parents. Results indicated that there were no significant correlations between the various measures of parent-child communication and the sexual activity and contraceptive use of these students. Thus, validity of the instruments currently available became one problem with studies conducted to date. Therefore, Fisher cautioned researchers to use multiple measures of parent-child communication in future studies, maintaining that additional instrument development in this area was essential.

The purpose of this study was to extend Fisher's work. Specific aims in this regard included

1. assessment of the psychometric properties of two scales to measure mother-adolescent and father-adolescent communication about sexuality, and
2. the exploration of associations between selected demographic variables, parent-adolescent communication about sexuality, and (a) age at initiation of sexual intercourse and (b) condom use.

METHOD

Procedures

The data for this study were obtained from the third year of a 3-year study on the safer-sex attitudes and behaviors toward safer sex in a large metropolitan area in the southeastern United States. As in the first 2 years, approval for the study was obtained from the review boards of the

six institutions that participated in the study. Once approval was obtained, a request was made to each registrar's office for current addresses of those students who had completed a survey during the first and/or second year of data collection. The lists were checked for address completeness, and those without a complete address were deleted from the sample.

Survey packets were assembled and included the study questionnaire, a cover letter containing the elements of informed consent, a $5 incentive, and a self-addressed, stamped return envelope. These survey packets were sent via first-class mail; a reminder postcard was sent 1 week after the first mailing, and a second survey packet was sent to the nonrespondents 3 weeks after the first mailing. A total of 2,389 questionnaires was sent to those students who had completed a survey at least once in the previous 2 years; 2.3% were returned unopened or identified through telephone follow-up as sent to the wrong address. Of the remaining 2,336 questionnaires mailed, 1,493 questionnaires were returned completed, representing a 63.9% adjusted response rate.

Sample

The analysis was limited to participants who were self-identified as White or African American, of single marital status, 18 to 25 years of age, academic status of senior or less, who reported having had vaginal, anal, or oral sexual intercourse at age 12 or older. The decision to limit the analysis to Whites and African Americans was because of low response by Asians and Hispanics, 6.1% and 3.6%, respectively. Also excluded from the analysis were all respondents with incomplete data.

The final sample for data analysis was 732. Of this sample, 61% were female, 50.8% were White, and the mean age was 20.03 (SD = 1.61). Because this was the third year of the study, the largest number of participants (42.1%) were seniors. Of the remaining participants, 34.2% were juniors and 23.1% were sophomores. Less than 1% reported freshman status.

Measures

Two instruments were developed to assess parent-adolescent communication: the Openness of Sexual Communication Scale (OSCS) and the Sex-Related Communication Scale (SRCS). In each scale, respondents answered items for both mothers and fathers, yielding four scales, which were examined for psychometric properties, gender differences in mean levels, and their performance as predictors of two dichotomized risk behaviors, which were age of first intercourse and consistent condom use.

OSCS. This scale was designed to measure perceived openness of parental communication about sex. Items for the scale were developed primarily from a review of the literature on parent-adolescent communication and the first author's experience with sex education. The scale is composed of four items, each rated on a 5-point agree/disagree scale and rated separately for mothers and fathers, allowing a scale for each parent. The four items are, "As I was growing up, my mother/father gave me sexual information in a nonjudgmental way"; "As I was growing up, my mother/father openly discussed sex with me and my siblings in our home"; "As I was growing up, my mother/father talked with me about sexual behaviors that were okay for someone my age"; and "As I was growing up, my mother/father would answer any question I asked about sex." Total scale scores are obtained by summing responses to individual items, and total

possible scores range from 4 to 20, with higher total scores corresponding to more perceived openness of communication.

SRCS. This scale was developed to measure the amount of discussion with one's mother and father about specific sex-related topics, including sexual intercourse, AIDS, sexually transmitted diseases, alcohol, pregnancy, and condom use. The scale, composed of 10 items, was developed from a review of the literature. Each item is rated on a 6-point scale, from 1 = none to 6 = a lot. As with the OSCS scale, each item is rated separately for mothers and fathers, allowing computation of mother and father scores. Total scores for mothers and fathers are found by summing responses to individual items. Total possible scores range from 0 to 60, with higher scores corresponding to greater discussion about a greater number of topics.

Age at first intercourse. This variable was measured by responses to three items assessing the age at which participants first willingly had vaginal, anal, or oral intercourse. Participants who had not had vaginal, anal, or oral sex responded, "Never had."

Condom use. This variable was measured using responses to the item, "How often do you use a condom?" The item was rated on a 5-point scale from 1 = never to 5 = always.

RESULTS

The first step in the analysis was the assessment of psychometric properties of the OSCS and the SRCS. Initial reliability analysis for the OSCS revealed that both the mother and father scales showed relatively high internal consistency, with Cronbach's alphas of .84 for responses of mothers and .85 for responses of fathers. Individual scores covered the range of possible scores from 4 to 20 for both mothers and fathers. Item-to-total correlations ranged from .58 to .74 for mothers and from .65 to .73 for fathers.

Initial reliability analysis for the SRCS revealed that the scales for mothers and fathers also displayed high levels of internal consistency, as reflected in Cronbach's alpha values of .92 for discussions with mothers and .93 for discussions with fathers. Individual scores covered the range of possible scores from 0 to 60 for both mothers and fathers. Item-to-total correlations for mothers ranged from .55 to .78 and for fathers from .57 to .77.

In the second step of the analysis, tests were conducted to assess construct validity. Based on ideas derived from the multitrait-multimethod approach (Campbell & Fiske, 1959), it was projected that the correlations between the two scales completed for the same parent (i.e., between OSCS and SRCS for mothers and between OSCS and SRCS for fathers) would be higher than the correlations between both scales completed for mothers and fathers (i.e., between OSCS for both parents and between SRCS for both parents). The next highest correlations would occur for cross-parent measures on the same construct (e.g., OSCS for mothers correlated with OSCS for fathers), and the weakest correlations would be across parents and across measures (e.g., OSCS for mothers correlated with SRCS for fathers and SRCS for mothers correlated with OSCS for fathers). As shown in Table 1, these expectations were confirmed.

The third step in the psychometric analysis was the assessement of construct validity through the testing of hypotheses on the mean values of the scales. Based on the parent-child communication litera-

Table 1: Correlations Between Communication Scales for Mothers and Fathers ($N = 732$)

	OSCS		*SRCS*	
Scale	*Mother*	*Father*	*Mother*	*Father*
OSCS				
Mother	—	.476**	.633**	.304**
Father	—	—	.222**	.591**
SRCS				
Mother	—	—	—	.502**
Father	—	—	—	—

Note: OSCS = Openness of Sexual Communication Scale; SRCS = Sex-Related Communication Scale.
**$p < .01$.

ture (Fisher, 1990; Miller, Kotchick, Dorsey, Forehand, & Ham, 1998; Nolin & Peterson, 1992; Whalen, Henker, Hollingshead, & Burgess, 1996), it was hypothesized that OSCS and SRCS scores would be higher for mothers than fathers; that female participants would rate levels of communication with parents higher than male participants; and that same gender (e.g., father-son, mother-daughter) communication would be higher than opposite sex communication (e.g., father- daughter, mother-son).

These questions were tested using two mixed-model ANOVAs. In both cases, gender of the respondent was the single between-subjects variable, and parent was the single within-subjects variable. The first analysis contrasted mother OSCS with father OSCS for all participants. As can be seen in Table 2, participants rated openness of communication higher for mothers than for fathers, $F(1, 730) = 74.98$, $p < .001$. When averaging responses for mother and father scales, male respondents rated overall levels of communication with parents somewhat higher than females, $F(1, 730) = 4.13$, $p = .042$. This unexpected finding was accounted for through a gender-by-parent interaction, $F(1, 730) = 62.01$, $p < .001$. Although males reported about the same levels of openness with mother and father (2.86 vs. 2.82), females reported considerably higher levels with mothers than with fathers (3.05 vs. 2.31).

The second analysis contrasted mother SRCS with father SRCS for all participants. As seen in Table 2, participants rated amount of

Table 2: Mean Communication Scores for Males and Females

	Males (n = *287*)		*Females* (n = *445*)		*Total* (N = *732*)	
Communication Scale	M	SD	M	SD	M	SD
OSCS						
Mother	2.86	1.17	3.05	1.22	2.97	1.21
Father	2.82	1.20	2.31	1.17	2.57	1.21
Total	2.84	1.05	2.68	1.02		
SRCS						
Mother	1.91	1.30	2.56	1.36	2.24	1.37
Father	1.63	1.26	1.30	1.29	1.47	1.29
Total	1.77	1.16	1.93	1.14		

Note: OSCS = Openness of Sexual Communication Scale; SRCS = Sex-Related Communication Scale.

communication higher for mothers than for fathers, $F(1, 730) = 269.53$, $p < .001$. Females showed a trend toward higher amounts of communication, $F(1, 730), = 3.49$, $p = .06$. These results are qualified by a parent-by-respondent gender interaction, $F(1, 730) = 111.77$, $p < .001$. Females rated amount of communication with mother considerably higher than with father, whereas males showed more moderate parent differences.

To explore predictors of age of first intercourse and consistent condom use, a chi-square analysis, called Chi Square Automatic Interaction Detection (CHAID), was conducted. CHAID is a statistical technique that divides a sample into mutually exclusive and homogeneous groups based on a single nominal or ordinal outcome (e.g., consistent condom use vs. inconsistent condom use) and several nominal or ordinal predictor variables (e.g., gender, race, education).

In the first step of the analysis, the procedure is to select the most significant predictor variable. It uses this variable to divide the entire sample into two or more mutually exclusive subgroups. For example, if gender is the most significant predictor of condom use, then two subgroups would result, one composed of males and one of females. In the second step, the analysis is performed again on each subgroup separately, and each subgroup is partitioned using the next variable that is most significant. Using the above example, if for males year in college is the next most significant variable, the sample of males would be divided by year in school; if for females the most significant variable is race, the female sample would be partitioned by race. The process continues at the next level (year of college for males and race for females) until there are no more significant predictors or until the sample size is too small. This sequential partitioning of the data may be represented in a tree diagram (see Figures 1 and 2), which allows for easy interpretation of complex interactions (for more detailed descriptions of the procedure, see Baron & Phillips, 1994; DiIorio, Dudley, & Soet,1998; Dudley, DiIorio, & Soet, 2000; Magidson,1993).

Using CHAID, age at first intercourse and consistent condom use were employed in separate analyses as the dependent variables. Age at first intercourse was dichotomized into those who reported initiating sex before the age of 18 and those who reported initiating sex at age 18 or later. Condom use was dichotomized into those who never used condoms or used them

inconsistently and those who used condoms every time or almost every time they had sex. Gender, ethnic group, OSCS, and SRCS were included as the independent variables in both analyses. In the CHAID analyses, the OCSC and SRCS scores were rounded to the closest integer values to facilitate interpretation.

Figure 1 shows the CHAID analysis for age of initiation of sexual intercourse. Ethnic group was the most significant predictor of age at first intercourse, with African American participants more likely to report initiation before the age of 18 than White participants (66.76% to 55.26%). Both African American and White participants were further differentiated by OSCS. White participants were divided into three groups regarding OSCS with mothers. White participants reporting the least open communication and those reporting the most open communication were more likely to initiate sex before age 18. White participants who reported moderate openness with mothers were more likely to wait until they were 18 or older to initiate sex. For African American participants, OSCS with fathers was most important in differentiating the participants.

Figure 2 shows the results of the analysis for consistent condom use. The strongest predictor of consistent condom use was gender, with male participants more likely than female participants to report consistent condom use. Female participants were further differentiated by race, with African American females more likely to use condoms than White females. African American females reporting more sex-related communication with mothers were more likely to use condoms consistently.

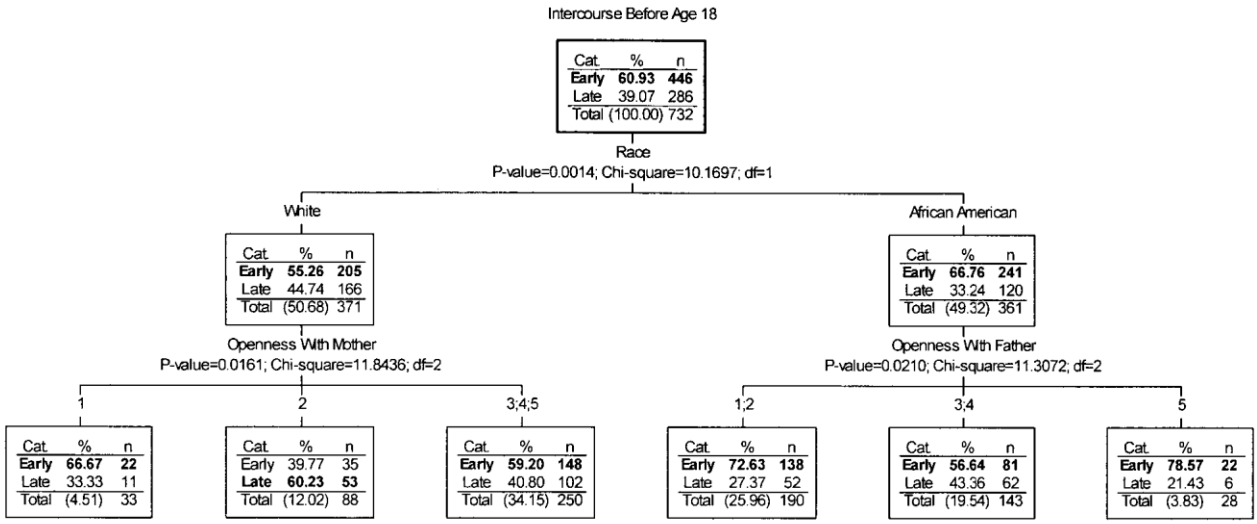

Figure 1: Chi Square Automatic Interaction Detection Analysis for Predictors of Age of First Sexual Intercourse

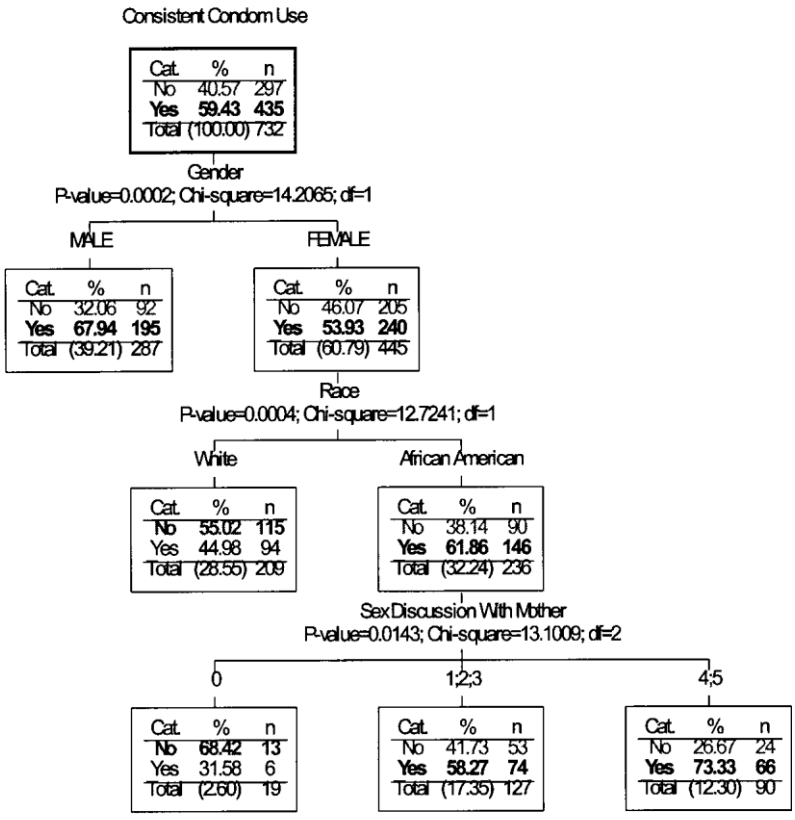

Figure 2: Chi Square Automatic Interaction Detection Analysis for Predictors of Consistent Condom Use

DISCUSSION

Previous efforts to investigate the relationship between parent-adolescent communication and sexual behavior have been called into question amid the lack of valid measures of quality and amount of communication. This study attempted the assessment of psychometric properties of two scales to measure parent-adolescent sex communication and to determine if selected demographic and sex-based communication characteristics were useful in explaining age of initial sexual intercourse and consistent condom use in a sample of college students.

The results demonstrate that the OSCS and the SRCS for both mothers and fathers appear to be psychometrically sound for this sample. Reliability estimates for all four scales were above .80, demonstrating relatively high levels of internal consistency. Evidence for construct validity was obtained in two ways: The scales correlated in the predicted directions with one another, and the ANOVA showed support for most of the hypothesized relationships. The unsupported hypothesis involved the combined score of openness with mothers and fathers. Although it was hypothesized that female participants would report more openness with mothers and fathers combined, male participants actually reported more openness with both parents combined. This finding appears to be related most to the magnitude of the larger scores of father-son openness; that is, male participants reported much higher scores on openness with father than did females. This finding suggests that fathers are more open in their communication about sex with their sons than they are with their daughters.

The CHAID analysis revealed race as the most important predictor of age of first intercourse. Previous research has identified several factors associated with earlier age of initiation of intercourse. Among these are race, gender, and parent-adolescent communication about sex. According to the most recent Youth Risk Behavior Survey (YRBS) (CDC, 1998b), 72.7% of African American respondents and 43.6% of White respondents were sexually active, and 48.9% of high school males and 47.7% of high school females were sexually active. Earlier studies have found that males tend to initiate sexual intercourse at earlier ages than do females (Warren et al., 1997). The findings from the current study, however, support the YRBS and suggest that race may be more important than gender in differentiating individuals who have sex before age 18 and that girls may be just as likely as boys to initiate sex before age 18.

Previous studies have been equivocal in findings related to the association between parent-adolescent communication about sex and the initiation of sexual intercourse. Some studies (e.g., Jaccard, Dittus, & Gordon, 1996) have found that there is no association between these exchanges and the time of initiation; that is, adolescents who talk to their parents about sex were no more likely than adolescents who do not to delay initiation of intercourse. However, some studies (e.g., DiIorio, Kelley, & Hockenberry-Eaton,1999) have found that adolescents who talk to their parents were less likely to have initiated sex.

The present CHAID analysis may help explain these conflicting findings. It appears that for White participants, the relationship between mother-adolescent communication and age of initiation of sexual intercourse may be curvilinear; that is, participants who reported the most open and those who reported the least open sex communication with mothers were both likely to have initiated sex early. For African American participants, father-adolescent communication shows the same general pattern; that is, large percentages of those with the most open communication and those with the least open communication had initiated sex prior to age 18.

The mechanisms for the association may take different forms. For example, more open communication may be a reflection of more liberal attitudes toward sex on the part of the parent and thus of less concern for the child's early initiation of sexual intercourse. However, openness may be a response to readiness observed in the child soon to begin or already having begun sexual behavior. In the latter two situations, the parent may respond by initiating a discussion about sex.

The mechanism of the association between least open communication and early initiation of intercourse may be a reflection of varying dynamics in the parent-adolescent relationship. Adolescents who lack guidance and boundary setting or those who receive overly strict and rigidly imposed limits might respond by initiating sexual intercourse at an early age. Also, parents might not recognize behaviors that indicate the adolescent is ready to initiate sex or has already done so. With regard to sons, Nolin and Peterson (1992) suggested that lack of communication with parents may lead to sons being less certain of family norms for sexual behavior and thus more susceptible to cultural messages encouraging casual sexual encounters.

The current study supported the findings of the YRBS study (CDC, 1998b) that showed male participants more consistent in condom use than female participants. Previous studies also have demonstrated that African Americans were more likely to use condoms than are other groups of

college students (Beckman, Harvey, & Tiersky,1996). The results of the CHAID analysis suggest that the consistent use of condoms for African American females may be facilitated by sex-related communication with mothers.

Strengths and Limitations

The study sample size allowed examination of gender and ethnic differences. In selecting participants for the analysis of the CHAID, we included only participants who provided responses for both mothers and fathers. In this selection, more African American participants were deleted from the sample, suggesting that they either do not live with the father or do not have a relationship with the father. Further analysis with African American college students living only with their mothers is warranted.

Other limitations include the use of retrospective data subject to error and a cross-sectional sample limiting the capacity for generalizability and interpretation of findings. Also, there was no information about depth, frequency, and length of conversations. In addition, although the initial psychometric testing indicated support for construct validity, further testing is needed to more fully address the broad construct of parent-adolescent communication about sexuality.

CONCLUSION

Overall, the findings of both CHAID models suggest that race, gender, and communication with parents are important in the sexual activity of college students. Race was the primary factor in the age at first intercourse model, with African Americans more likely to initiate sex before the age of 18. Openness of parent communication was also found to be significant. Interestingly, the importance of mother and father communication varied by race. For Whites, openness with the mother was the most important predictor of age at first intercourse, while for African Americans the most important predictor of age at first intercourse was openness with the father. Gender was the primary factor in the condom use model, with males more likely to report consistent condom use than females. For African American females, sex-related communication with mom was a strong predictor of condom use.

The study supports the need for further research on the role of parents in promoting safer sex behaviors in young people. To date, the literature reveals the mother as the primary provider of sexual education to her children, but current data, though minimal, show that the influence of the father is indeed important. Few studies were found that dealt specifically with fathers, and the participants in these studies were White. An extensive literature review found no studies related to African American, Hispanic, and Asian fathers.

It is increasingly important to approach AIDS prevention efforts from many fronts; parents are generally an accessible and often willing source of information for their children. As Meister (1993) noted, nursing has a long history of interest in and involvement with families, and this interest is increasingly focused on discovering methods of intersecting research and practice. The findings of the current study support the involvement of parents in the sexual education of their children, and they point to the need for development of programs to facilitate parent-adolescent communication. Nurses are in a prime position to develop, implement, and research such programs and ultimately to influence social strategies for addressing family health and well-being.

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