

Risky Sexual Behavior in American White College Women: The Role of Sex Guilt and Sexual Abuse

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Abstract

Ninety-five sexually active White American female college students participated in a questionnaire study about their sexual behavior in the past 12 months. A path model was tested in order to assess specific hypothesized predictors of risky sexual behavior. As predicted, participants with greater sex guilt reported using condoms more and having had fewer sexual partners. The findings of this study suggest that White American female college students are at some degree of risk due to risky sexual behavior. Taking into account attitudes about sexuality and past sexual abuse along with the requisite training in condom use self-efficacy may enhance the success of interventions designed to reduce risky sexual behavior among White American female college students.

Keywords

college women, condom use self-efficacy, risky sexual behavior, sex guilt, sexual abuse

Introduction

THE NEGATIVE CONSEQUENCES of unprotected sexual intercourse, including sexually transmitted diseases, AIDS and unplanned pregnancy, continue to be major health issues for college-aged women. In 2000, the Centers for Disease Control reported that approximately 41 percent of all new AIDS cases diagnosed between July 1999 and June 2000 for 13–19-year-old females were a result of heterosexual contact (CDC, 2000). In the same time period, 48 percent of women aged 20–24 diagnosed with AIDS had acquired it through heterosexual contact (CDC, 2000). It is estimated that 25,000 college students are currently infected with HIV (Mahoney, 1995). Two-thirds of all sexually transmitted diseases (STDs) occur in people under 25 years old and in adolescents (Mahoney, 1995). At least 1 million teenage girls get pregnant every year, and 58 percent of all abortions are to women under 25 years of age (Mahoney, 1995).

Recent evidence suggests that White women's sexual behavior is continuing to place them at risk for unwanted sexual outcomes. In a study done among students attending 17 universities, approximately .05% were HIV positive (Lewis, Malow, & Ireland, 1997). Although this number seems small, college students are often more sexually adventurous, more likely to have multiple sexual partners and use condoms inconsistently (Lewis et al., 1997). Hence, it is very important to understand how to reach college students and help them to understand the importance of preventive health practices, such as safer sex.

Although many young people who engage in risky sexual behavior (the non-use of condoms or contraception) are aware of the negative consequences, such behavior is still widespread (Mahoney, Thombs, & Ford 1995). Current research provides some possible explanations for this phenomenon, but questions still remain. In order for health care educators to properly provide the kinds of services needed for this at-risk population of young women, more information is needed to determine why risky sexual behavior is so prevalent and what kinds of education programs would help to reduce it (Abraham & Sheeran, 1994; Montgomery, Joseph, Becker, Ostrow, Kessler, & Kirscht, 1989; Rimberg & Lewis, 1994).

Health Belief Model

One of the most frequently used models of health behavior is the Health Belief Model (HBM) (Rosenstock, 1974). According to this model, health-related intentions and behaviors can be predicted from health-related perceptions, attitudes and values. Thus, beliefs and perceptions about susceptibility to and severity of a health threat, barriers to and benefits of preventive actions, general health motivation and a perceived sense of self-efficacy are considered influential factors in determining actual behavior (e.g. Kirscht & Joseph, 1989; Salazar, 1991). Women who perceive many barriers to using condoms may be less likely to initiate condom use in sexual encounters (Gomez & VanOss Marin, 1996). Condom use self-efficacy, or the ability to introduce and use condoms in a sexual encounter, has been shown to positively influence condom use among college women (Bradford & Beck, 1991; Bryan, Aiken, & West, 1997), but may also lead women to feel a false sense of security and lead to having more sexual partners (Gomez & VanOss Marin, 1996). Finally, perceived susceptibility (or vulnerability) to a threat is considered by many to be one of the most important motivational factors in the adoption of health-protective behaviors.

Research examining the utility of the HBM constructs in predicting women's HIV-related sexual risk reduction is limited and inconsistent (e.g. Carlson-Gielen, Faden, O'Campo, Kass, & Anderson, 1994; Wayment, Wyatt, Tucker, Romero, Vargas Carmona, Newcomb, Solis, Riederle, & Mitchell-Kernan, in press). The HBM has also been criticized for its focus on rational, cognitive processes and individual decision-making processes rather than interpersonal factors such as sexual communication and relationship dynamics that influence risk-taking practices (e.g. Brown, DiClemente, & Reynolds, 1991; Rosenthal, Hall, & Moore, 1992). For example, although people who perceive AIDS to be a serious health threat and feel personally vulnerable may initiate some self-protective behaviors, some women have reported being reluctant to request that their partners use condoms for fear of damaging valued relationships (Williams, 1991). The relationship between gender roles and risky sexual behavior is often overlooked in studies of

sexual behavior (Worth, 1989). Gomez and VanOss Marin (1996) examined the role of inequality within heterosexual relationships among Hispanic and White women as a predictor of unsafe sex and found that sexual power imbalance was a significant predictor of condom use (Gomez & VanOss Marin, 1996). Bryan et al. (1997) also found that the level of power a woman has within a heterosexual relationship could influence her insistence of condom use.

There are several other factors related to self-identity that may be especially relevant to late adolescent White women's decisions regarding sexual behavior. A woman's attitude about sexuality may impact her sexual decision making. For example, religiosity has been associated with being less likely to engage in risky sexual behavior (Nicholas & Durrheim, 1995). Furthermore, it was found that participants who experienced sex guilt (a generalized expectancy to self-mediated punishment for violating, or anticipating violating standards of proper sexual contact) were more likely to practice safe sex or be less likely to have sex, and therefore at less risk than those lower in sex guilt (Rimberg & Lewis, 1994). In a related vein, Bryan et al. (1997) found that women who had high levels of both acceptance of sexuality and control over the sexual encounter had better negotiation skills necessary in promoting condom use.

Adolescents' risky sexual behavior is often attributed to the propensity of adolescents having a present time orientation, or a preoccupation with immediate concerns, which may preclude full consideration that current actions may affect the future (Rothspan & Read, 1996). Having a present time orientation has been found to be associated with having more sexual experiences and more sexual partners (Worth, 1989) while a future time orientation is associated with a delay in the onset of sexual activity (Rothspan & Read, 1996).

Finally, recent research has focused on how a woman's sexual identity and subsequent sexual behavior may be affected by experiences with sexual abuse. A meta-analysis of child sexual abuse in college samples found that 27 percent of college women report events classifiable of childhood sexual abuse (Rind, Tromovitch, & Bauserman, 1998). Furthermore, for women, childhood sexual abuse is associated with

extremely negative impact on the self-concept (Nash & West, 1985). Prior studies utilizing community samples of White, African American and Hispanic women have also shown that women who were sexually abused as children are more likely to have had earlier sexual intercourse, lower self-esteem and were more likely to engage in risky sexual behaviors such as ineffective use of birth control, multiple partners and unintended and aborted pregnancies (Wyatt, Tucker, Romero, Vargas Carmona, Newcomb, Wayment, Burns, Loeb, Solis, & Mitchell-Kernan, 1997).

Purpose of the present study

This study has a twofold purpose. First, the impact of core HBM variables (barriers to condom use, condom self-efficacy, perceived susceptibility to STDs) on risky sexual behavior will be examined among single, White, college females. Second, this study aims to build on more recent research which suggests that specific psychosocial variables may be related to and influence these core HBM variables. It was predicted the HBM variables would be associated with less risky sexual behavior. Specifically, we predicted that women with more barriers to condom use, who had higher condom self-efficacy and who perceived themselves as more vulnerable to STD infection would report using condoms more often. Condom self-efficacy was believed to be predictive of having more sexual partners and perceived susceptibility was associated with having fewer sexual partners.

Psychosocial variables were expected to be associated with the HBM variables, and therefore indirectly associated with outcome variables. For example, sexual abuse was believed to negatively affect condom self-efficacy and increase barriers to condom use. Religiosity and sex guilt were predicted to be associated with more barriers to condom use and less condom self-efficacy. Endorsing less traditional sex roles was hypothesized to be associated with condom self-efficacy and fewer barriers to condom use.

Finally, some of the psychosocial variables were expected to directly predict outcomes. For example, it was hypothesized that sex guilt would be positively related to condom use and negatively associated with number of sexual partners. Women with non-traditional sex roles

were hypothesized to have more sex partners and be more likely to use condoms. Finally, it was hypothesized that women who had been sexually abused in childhood or adulthood would be more likely to have had more sexual partners and less likely to have used condoms.

Method

Participants

Single women between the ages of 18–30 were recruited from a university in the southwestern United States to participate in a study on sexuality and relationships. These students were given extra course credit for their participation. A total of 167 single White women were recruited for the study. Ninety-five women reported having sexual intercourse within the previous year, five reported that although they had been sexually active during their lifetimes, they had not been in the previous year, and 67 reported that they had never been sexually active. This article focuses on the 95 women who had been sexually active in the previous year.

Psychosocial variables

Religiosity Respondents answered 10 questions designed to assess their religious background and religious views concerning use of birth control, premarital sex, extramarital sex and abortion (Wyatt et al., 1997) using a five-point scale with appropriately labeled end points. Coefficient alpha for this scale was .80.

Sex guilt Each respondent answered nine questions taken from Bryan et al. (1997) that inquired about how comfortable she felt about her sexuality rated on a seven-point scale (1 = strongly disagree, 7 = strongly agree). Higher scale scores indicated more sex guilt. Coefficient alpha for this scale was .75.

Time orientation (Holman & Silver, 1998) Respondents answered a 28-item questionnaire designed to measure temporal orientation using a five-point scale (1 = not at all true to 5 = very true). The present temporal orientation and future temporal orientation subscales were significantly correlated and combined to create a scale in which higher mean scores indicated an orientation toward the future. Coefficient alpha for this scale was .77.

Gender role orientation (Spence, Helmreich, & Stapp, 1973) The 28-item Attitudes Toward Women Scale measured the extent to which participants felt about traditional and non-traditional roles for women in society. Each item was rated on a five-point scale (1 = agree strongly and 5 = disagree strongly). Higher scores indicated a pro-feminist viewpoint or less traditional views of women. Coefficient alpha for this construct was .87.

History of sexual abuse Respondents answered nine questions taken from the LASI (Wyatt et al., 1997) that assessed respondents' experiences with childhood and adult (since the age of 18) sexual abuse. Five questions inquired about childhood sexual abuse and four questions inquired about adult sexual abuse. Questions included 'Did anyone have intercourse with you against your will?' and 'Since the age of 18, has anyone tried to rape you?' A respondent received a '1' for each question if she answered 'yes'. Responses from the questions were summed to create an overall abuse index. Items were then recoded into four categories: 0 (no reported abuse), 1, 2 and 3 (answered 'yes' to three or more questions on abuse). Thus, higher scores on the index represent more experiences with lifetime sexual abuse.

Health Belief Model variables

Barriers to condom use (Hobfoll, Jackson, Lavin, Britton, & Shepherd, 1994) Respondents answered six questions that inquired about barriers to practicing safer sex using a four-point scale (1 = strongly agree, 4 = strongly disagree). Higher scores indicated that respondents perceived more barriers to using condoms. Coefficient alpha for this construct was .75.

Condom Use Self-efficacy Scale Respondents completed the 28-item Condom Use Self-efficacy Scale (Brafford & Beck, 1991). These items assessed respondents' feelings of confidence about being able to purchase condoms, put them on and take them off and negotiate their use with a new sexual partner. All items were rated on a five-point scale (0 = strongly disagree, 4 = strongly agree). A mean scale score was created, with higher scores indicating greater condom self-efficacy. Coefficient alpha for this scale was .90.

Perceived susceptibility to STDs Respondents answered five questions taken from Bryan et al. (1997) about how susceptible they felt to STDs using a seven-point scale with appropriately labeled end points. Higher scores indicated a greater sense of susceptibility to STDs. Coefficient alpha for this measure was .84.

Sexual behavior variables

Condom use in past year For each of the sexual partners listed above, respondents rated the frequency of their condom use with that individual using a five-point scale (1 = always, 5 = never). The second question asked respondents how often they engaged in vaginal intercourse without a condom (1 = never, 5 = always). Both of these items were reverse coded and were combined to form a measure of condom use, with higher scores indicating more condom use. Coefficient alpha for this measure was .75.

Number of sexual partners in past year

Respondents were asked to fill in the initials of all of the sexual partners that they had had in the year prior to the study. The number of sexual partners was summed and the range from the sample was 0–10 (10 was the limit set by the questionnaire). In order to normalize the variable, 12 respondents with a score of five or greater were given the score of 4, resulting in a five-point scale (range: 0 to 4).

Results

A total of 95 White female college students between the ages of 18–30 participated in the study. Sexually active participants were defined

as those having had sexual intercourse in the year prior to the study. Product moments for all of the variables measured in this study (e.g. mean, standard deviation, skewness and kurtosis) are listed in Table 1. First, the attitudes and sexual behavior of the sexually active participants will be described, followed by a test of the hypothesized relationships using EQS (Bentler, 1995), a structural equation-modeling program.

Description of sexually active participants

On average, the sexually active women reported few barriers to safe sex (1.7 on a four-point scale), moderate levels of condom use self-efficacy (3.2 on a five-point scale) and reported average scores on perceived susceptibility to STD infection (3.4 on a five-point scale). Women in this college sample appeared to be moderately religious (2.98 on a five-point scale), had somewhat lower sex guilt scores (2.1 on a five-point scale) and leaned toward having a future time orientation (3.3 on a five-point scale) and non-traditional sex-role attitudes (3.3 on a five-point scale). The average number of sexual abuse incidents was 1.4, with a range of 0–6.

Sexually active women in this sample ranged in risk in terms of specific sexual behaviors. Oral sex was reported to be a prevalent activity among this population, with 77.8 percent reporting engaging in the behavior 'sometimes', 'most of the time' or 'always'. About 60 percent of the women reported engaging in vaginal intercourse without a condom 'sometimes', 'most of the time' or 'always'. Frequency of anal sex among this population was very low, with only 2 percent reporting that they engaged in anal sex with a

Table 1. Descriptive information for sample of sexually active White college women ($N = 95$)

	<i>Mean</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
Religiosity	2.98	.95	-.17	-.65
Sex guilt	2.10	.75	.64	1.6
Time orientation	3.36	.45	-.17	.46
Gender role orientation	3.31	.41	-.34	.10
History of sexual abuse	1.40	1.6	.96	-.15
Barriers to condom use	1.68	.50	.33	-.83
Condom use self-efficacy	3.20	.47	-.14	-1.0
Perceived susceptibility to STDs	2.38	1.2	.80	.06
Condom use	3.20	1.3	.02	-1.2
Number of sexual partners	2.0	1.2	.73	-.97

Note: All scales are five-point scales, except Barriers to Condom Use (four-point scale), Sexual Abuse (range: 0 to 6) and Number of Sexual Partners (range: 0 to 4)

condom. Only 3 percent reported engaging in anal sex without a condom. Swallowing semen also had a low frequency of occurrence, with 28 percent of respondents answering that they engaged in the behavior 'sometimes', 'most of the time' or 'always'.

Nearly half of the sample (48%) had one sexual partner, 21 (22%) listed two partners, 11 (12%) reported three partners, five (5%) listed four partners and six (6%) listed five partners. Twelve women (12%) reported more than five partners in the past year. Approximately 19 percent reported using condoms 'always' with all sexual partners and reported 'never' having vaginal intercourse without a condom. Only 9 percent reported 'never' using condoms and 'always' having vaginal intercourse without a condom.

Analysis of hypothesized relationships among sexually active women

As outlined in the introduction, the goal of the study was to examine several specific hypotheses regarding the relationships between psychosocial variables (e.g. religious beliefs, individual difference variables, sexual abuse) and HBM variables to the frequency of condom use and number of sex partners in the previous year. In order to examine the hypotheses a path model analysis, using EQS (Bentler, 1995), was performed. The goal of the structural modeling program is to compare a covariance matrix generated from a particular sample with a covariance matrix generated by a hypothesized model. Kline (1998) discusses the issue of model fit and argues that because indices reflect different aspects of model fit, researchers should report four indices of model fit: the Chi-square (X^2) statistic, degrees of freedom and significance level; an index that describes the overall proportion of the explained variance (such as the Bentler CFI); an index that adjusts the proportion of the explained variance for model complexity (such as the Bentler-Bonett NNFI) and an index based on the standardized covariance residuals such as the SRMR. Kline (1998) suggests that 'favorable' model fit values are as follows: a non-significant goodness-of-fit X^2 statistic; an X^2 : d.f. ratio less than 3; values on the CFI and NNFI greater than .90; and a favorable value of the SRMR of .10 or less. The CFI and

NNFI range from 0 to 1; 0 reflects no fit, and 1 indicates a perfect fit.

The Maximum Likelihood method of parameter estimation was used. The path model that was tested consisted of specific predicted paths between the independent variables and the outcomes were specified. According to the criteria outlined by Kline (1998), the model fit was satisfactory ($X^2(27) = 15.39, p < .87, X^2$: d.f. = .57, CFI = 1.0; NNFI = 1.0, SRMR = .00).

Hypothesized relationships between predictor and outcome variables

Model results are presented in Fig. 1. Correlations among the independent variables and dependent variables are also included in the Figure. Women who were more religious reported more sex guilt (.15, $p < .05$), a future time orientation (.28, $p < .001$) and more conservative sex roles (-.21, $p < .01$). Sex guilt was associated with more perceived barriers to condom use (.28, $p < .01$) and lower condom self-efficacy (-.49, $p < .001$). In turn, both of these HBM variables were associated with condom use. Barriers to condom use was associated with less condom use (-.14, $p < .08$) and condom self-efficacy was related to greater condom use (.13, $p < .08$). Thus, the relationship between sex guilt and condom use was complex. The indirect relationship was negative (-.12, $p < .05$) but the direct relationship was positive (.16, $p < .05$). Sex guilt was also directly related to reporting fewer sexual partners (-.13, $p < .08$). Contrary to prediction, perceived susceptibility to STD infection was positively related to the number of sexual partners (.43, $p < .001$). Greater perceived susceptibility to STD infection was related to having a present time orientation (-.16, $p < .05$), and with holding more non-traditional sex role attitudes (.13, $p < .08$). Finally, sexual abuse was associated with reporting lower condom self-efficacy (-.17, $p < .05$) and more barriers to condom use (.11, $p < .10$). Again, given the relationship of barriers and self-efficacy to condom use, sexual abuse is indirectly predictive of less condom use (-.05, $p < .10$). Sexual abuse was also directly predictive of less condom use (-.15, $p < .05$). Future time orientation was indirectly associated with having fewer sexual partners in the past year (-.09, $p < .05$) and holding non-traditional sex roles indirectly predicted

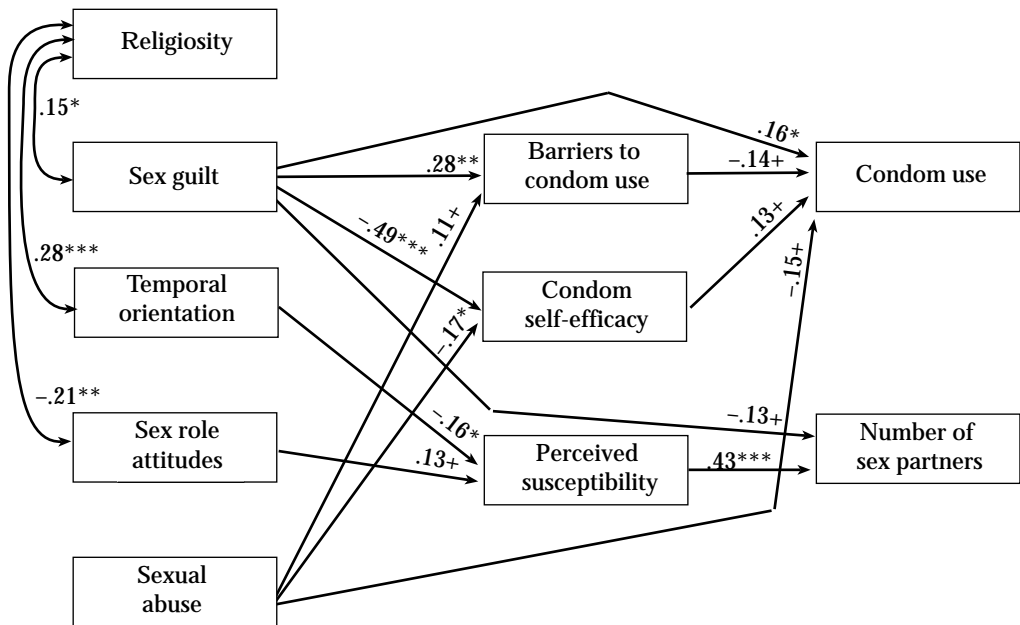


Figure 1. Final path model for White college females ($N = 95$).

Note: Path coefficients, equivalent to partial regression beta weights, are printed above each path

more sexual partners ($.05, p < .10$). The amount of variance in the dependent variables predicted by the model was as follows: frequency of condom use (8%), number of sex partners in previous year (20%).

Discussion

This study was designed to examine specific variables thought to influence White college women's use of condoms as well as the number of sexual partners they have. This study also builds on previous research in the area of risky sexual behavior by examining factors that have received relatively little attention in the literature, including religiosity, time orientation, sex roles and prior sexual abuse. Results of this study have implications for further research and contribute to the literature on college women's sexual risk-taking behavior.

Are White college women at risk?

White college women are at risk for STDs. A majority of the college women in this sample

reported unprotected vaginal intercourse and oral sex at levels found by other researchers (Millstein, Moscicki, & Broering, 1994). Sexual activities considered extremely high risk, such as unprotected anal sex, had a very low frequency of occurrence in this population, as has been found in another study with a comparable sample (Erickson, Bastani, Maxwell, Marcus, Capell, & Yan, 1995). In general, participants in this study had not had a large number of sexual partners in the year preceding the study, consistent with other studies of female college student populations (Rothspan & Read, 1996; Wulfert & Wan, 1993).

Women in our sample appeared to have been more motivated by a fear of pregnancy than a fear of STD acquisition, particularly those with a steady partner. Although 75 percent of the sample reported currently using birth control, only 19 percent reported always using condoms and a majority (60.3%) reported having vaginal intercourse without a condom at least 'sometimes', similar to previous findings with college women (Bryan et al., 1997). Other studies of ethnically diverse heterosexual college women

demonstrated that a fear of pregnancy is linked with greater condom use (Lewis et al., 1997; Wulfert & Wan, 1993). Thus, low use of condoms may reflect the fact that women rely on oral contraceptives, due to their primary fear of pregnancy.

Health belief predictors of risky sexual behavior

Women who had greater condom use self-efficacy reported fewer barriers to condom use and were more likely to have used condoms. This finding is consistent with research (Lewis et al., 1997; Mahoney et al., 1995). It is reassuring to note that condom self-efficacy can be learned through practice, and that males will often use condoms if asked by their female partner (Bryan et al., 1997). Similarly, women with greater perceived barriers to condom use demonstrated a trend toward being less likely to use condoms. These findings are similar to those reported in the literature (Gomez & VanOss Marin, 1996; Lewis et al., 1997; Rimberg & Lewis, 1994). Thus, condom self-efficacy and barriers to condom use, two HBM variables, were meaningful predictors of condom use among White college women. Including condom use self-efficacy skills in an intervention program designed to reduce avoid unwanted sexual outcomes should be a necessary aspect of any college health curriculum.

Contrary to our hypothesis, women who perceived themselves to be more susceptible to STDs were significantly more likely to have had a greater number of sexual partners. Although prior research on this finding is mixed (Wulfert & Wan, 1993), a review of 26 studies on perceived vulnerability and precautionary sexual behavior strongly suggests that the perception of susceptibility to HIV is a reflection of risky sexual behavior, particularly among college students (Gerrard, Gibbons, & Bushman, 1996). Such findings have important implications for the design of interventions with this population. These findings indicate that sexually active women do understand the factors that put them at risk for unwanted sexual outcomes, yet this knowledge alone may not be sufficient to change their sexual behavior. Interventions need to incorporate issues related to a woman's self-concept, such as her beliefs about sex and previous experiences with sex, as well as

relationship issues such as the balance of power within a relationship and communication about sex (Wyatt et al., 1997).

Psychosocial predictors of risky sexual behavior

As predicted, women reporting greater levels of sex guilt were significantly more likely to have used condoms in the past year and were significantly more likely to have had fewer sexual partners than women with lower scores. Interestingly, greater sex guilt was also associated with more barriers to condom use and lower condom use self-efficacy. Bryan et al. (1997) speculated that fear of HIV promoted high sex guilt individuals to avoid sexual activity, thereby influencing behavior more from fear than guilt (Rimberg & Lewis, 1994). Thus, while women in the current study who were higher in sex guilt actually reported being more likely to use condoms, they nonetheless felt less comfortable doing so. These findings are similar to those found by Rimberg & Lewis (1994), who reported that people with more sex guilt have less sexual activity, but are less effective contraceptive users. Thus, a better understanding of beliefs and emotions surrounding sexual behavior should be considered when designing intervention strategies. In particular, interventions aimed to reduce risky sexual behavior among highly religious women could focus on reducing barriers to condom use while simultaneously increasing condom use self-efficacy skills. Furthermore, interventions could also target the negative emotions associated with sex and strive to improve women's sexual self-concepts.

Women who had experienced sexual abuse in their lifetime demonstrated a trend toward being less likely to use condoms. This association has been found in similar studies (Hillis, Felitti, & Marchbanks, 2001; Wyatt et al., 1997). Women who have experienced sexual abuse in their lifetimes may feel powerless in sexual decision making or feel driven to have multiple sexual partners to feel desirable. That is, early sexual abuse may affect women's sexual self-concepts that ultimately lead to sexual behaviors where they are less protected from undesirable outcomes. Teaching these women the knowledge and skills to introduce and use condoms effectively may work to increase feelings of power in sexual situations and reduce risky

sexual behavior. Although the strength of the relationship between sexual abuse and number of sexual partners only approached significance in this sample, it is consistent with a growing number of study results.

Limitations

Several limitations of this study must be noted. First, this study was cross-sectional and utilized a sample of convenience. Therefore, we must be cautious in generalizing the findings to other populations of White women. The sample size in this study was small, which precludes cross-validation. Rather than the required 10:1 ratio of participants to questions, this study had a 5:1 ratio. The findings of this study, however, are not unlike those findings published with larger samples. Future studies should broaden their scope to more diverse and larger samples of White women and be longitudinal in nature. Although self-report methodologies are common in studies of college women's sexual behavior, future research would also benefit from interview methodologies, which are also common in sexual abuse studies. The fact that only a small proportion of the variance in the outcome variables were predicted by the model suggests that future research might explore additional factors thought to influence risky sexual behavior within the context of a sexual relationship. For example, the use of alcohol and other drugs have been shown to be a risk factor for engaging in risky sexual behavior (Flanigan, McLean, Hall, & Propp, 1990; Millstein et al., 1994). Other factors related to influences from peers and sexual partners should also be explored.

Conclusion

The findings in this study lend support to an existing literature that there exist important factors to consider in designing and implementing interventions with White female college students. It has been demonstrated in other research that women are sexually efficacious but often feel uncomfortable or less powerful than men do when it comes to sexual behavior. However, it has also been shown that men are more likely to use condoms if asked by a female partner (Bryan et al., 1997). Bryan et al. (1997) argue that the foci of prevention groups for

young women should include an understanding of STD vulnerability, one's acceptance of sexuality and self-efficacy for condom use. Gomez and VanOss Marin (1996) also suggest that prevention programs must examine several factors including power imbalances within heterosexual relationships and how cultural values dictate roles for women within sexual relationships.

It would seem that effective interventions should be twofold; the first aspect of a comprehensive intervention would be to help women to feel more control over sexual matters by teaching them that they are responsible for their own sexual health and have the right to make sexual decisions. This component would address any guilt over sexual matters that women may have, as well as help them to understand that the right to make healthy decisions is independent of the type of relationship (casual versus steady). The second part of the intervention could target condom use self-efficacy, as well as other safer sex measures. Prior research has demonstrated that college students are knowledgeable about STDs and safer sex measures, but tend not to employ them (Rosenthal et al., 1992). Teaching women to use condoms, role-playing conversations with sexual partners and reducing perceived barriers to condom use would be an effective means of preparing women to have healthy sexual encounters. Women who experience guilt over sexual matters may benefit from this type of intervention by learning to reduce barriers to condom use and feel more efficacious in using them. Women who have appraised their own sexual behavior as risky and feel susceptible to STDs because of it would also benefit. They would learn that they have the power to make sexual decisions, as well as the tools necessary to keep themselves protected from unwanted sexual outcomes. Women who had a history of sexual abuse would benefit in the same manner. An intervention specialist who understood behavior change models may be more likely to influence women to employ safer sex strategies and reduce perceived barriers to them. Reinforcing that women have choices and targeting the adaptable behaviors to increase safer sexual behavior may be the most effective measure.

Prior to designing interventions for college-aged White women, clinicians and researchers need to better understand the factors that

influence their risk-taking behaviors and efforts at sexual health promotion. Research that is guided by both cognitive models, such as the HBM, and psychosocial factors, related to a woman's attitudes about and experiences with sexuality, her social roles and her sexual self-concept, have important implications for intervention programs (Wayment et al., in press). Taken together, use of the Health Belief Model in combination with interpersonal and relationship factors may be the most effective way to examine the factors that predict women's risky and precautionary sexual behavior.

References

- Abraham, C., & Sheeran, P. (1994). Modeling and modifying young heterosexuals' HIV-preventive behavior: A review of theories, findings and educational implications. *Patient Education and Counseling, 23*, 173-186.
- Bentler, P. M. (1995). *EQS: Structural equations program manual*. Los Angeles, CA: BMDP Statistical Software.
- Brafford, L. J., & Beck, K. H. (1991). Development and validation of a condom self-efficacy scale for college students. *College Health, 39*, 219-226.
- Brown, L. K., DiClemente, R. J., & Reynolds, L. A. (1991). HIV prevention for adolescents: Utility of the Health Belief Model. *AIDS Education and Prevention, 3*, 50-59.
- Bryan, A. D., Aiken, L. S., & West, S. G. (1997). Young women's condom use: The influence of acceptance of sexuality, control over the sexual encounter, and perceived susceptibility to common STDs. *Health Psychology, 16*, 468-479.
- Carlson-Gielen, A., Faden, R. R., O'Campo, P., Kass, N., & Anderson, J. (1994). Women's protective sexual behaviors: A test of the Health Belief Model. *AIDS Education and Prevention, 6*, 1-11.
- Centers for Disease Control (CDC) (2000). website: <http://www.cdc.gov/hiv/pubs/facts/youh.htm>.
- Erickson, P. I., Bastani, R., Maxwell, A. E., Marcus, A. C., Capell, F. J., & Yan, K. X. (1995). Prevalence of anal sex among heterosexuals in California and its relationship to other AIDS risk behaviors. *AIDS Education and Prevention, 7*, 477-493.
- Flanigan, B., McLean, A., Hall, C., & Propp, V. (1990). Alcohol use as a situational influence on young women's pregnancy risk-taking behaviors. *Adolescence, 25*, 205-215.
- Gerrard, M., Gibbons, F. X., and Bushman, B. J. (1996). Relation between perceived vulnerability to HIV and precautionary sexual behavior. *Psychological Bulletin, 119*, 390-409.
- Gomez, C. A., & VanOss Marin, B. (1996). Gender, culture, and power: Barriers to HIV-prevention strategies for women. *The Journal of Sex Research, 33*, 335-362.
- Hillis, A., Felitti, V. J., & Marchbanks, P. A. (2001). Adverse childhood experiences and sexual risk behaviors in women: A retrospective cohort study. *Family Planning Perspectives, 33*, 206-211.
- Hobfoll, S. E., Jackson, A. P., Lavin, J., Britton, P. J., & Shepherd, J. B. (1994). Women's barriers to safer sex. *Psychology & Health, 9*, 233-252.
- Holman, E. A., & Silver, R. (1998). Getting 'stuck' in the past: Temporal orientation and coping with trauma. *Journal of Personality and Social Psychology, 74*, 1146-1163.
- Kirscht, J., & Joseph, J. (1989). The Health Belief Model: Some implications for behavior change, with reference to homosexual males. In V. Mays, G. Albee, & S. Schneider, (Eds.), *Primary prevention of AIDS* (pp. 111-127). Newbury Park, CA: Sage.
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: Guilford Press.
- Lewis, J. E., Malow, R. M., & Ireland, S. J. (1997). HIV/AIDS risk in heterosexual college students. *Journal of American College Health, 45*, 147-157.
- Mahoney, C. A. (1995). The role of cues, self-efficacy, level of worry, and high-risk behaviors in college student condom use. *Journal of Sex Education and Therapy, 21*, 103-116.
- Mahoney, C. A., Thombs, D. L., & Ford, O. J. (1995). Health belief and self-efficacy models: Their utility in explaining college student condom use. *AIDS Education and Prevention, 7*, 32-49.
- Millstein, S. G., Moscicki, A., & Broering, J. M. (1994). Female adolescents at high, moderate, and low risk of exposure to HIV: Differences in knowledge, beliefs and behavior. *Journal of Adolescent Health, 15*, 133-142.
- Montgomery, S. B., Joseph, J. G., Becker, M. H., Ostrow, D. G., Kessler, R. C., & Kirscht, J. P. (1989). The Health Belief Model in understanding compliance with preventive recommendations for AIDS: How useful? *AIDS Education and Prevention, 1*, 303-323.
- Nash, C., & West, D. (1985). Sexual molestation of young girls: A retrospective survey. In D. J. West (Ed.), *Sexual victimization* (pp. 1-92). Brookfield, VT: Gower Publishers.
- Nicholas, L., & Durrheim, K. (1995). Religiosity, AIDS, and sexuality knowledge, attitudes, beliefs, and practices of Black South-African first-year university students. *Psychological Reports, 77*, 1328-1330.
- Rimberg, H., & Lewis, R. (1994). Older adolescents and AIDS: Correlates of self-reported safer sex practices. *Journal of Research on Adolescence, 4*, 453-464.

- Rind, B., Tromovitch, P., & Bauserman, R. (1998). A meta-analytic examination of assumed properties of childhood sexual abuse using college samples. *Psychological Bulletin, 124*, 22-53.
- Rosenstock, I. M. (1974). Historical origins of the Health Belief Model. *Health Education Monographs, 2*, 1-8.
- Rosenthal, D., Hall, C., & Moore, S. M. (1992). AIDS, adolescents, and sexual risk taking: A test of the Health Belief Model. *Australian Psychologist, 27*, 166-171.
- Rothspan, S., & Read, S. J. (1996). Present versus future time perspective and HIV risk among heterosexual college student. *Health Psychology, 15*, 131-134.
- Salazar, M. K. (1991). Comparison of four behavioral theories: A literature review. *AAOHN Journal, 39*, 128-135.
- Spence, J. T., Helmreich, R., & Stapp, J. (1973). A short version of the attitudes towards women scale (AWS). *Bulletin of the Psychonomic Society, 2*, 219-220.
- Wayment, H. A., Wyatt, G. E., Tucker, B., Romero, G., Vargas Carmona, J., Newcomb, M., Solis, B. M., Riederle, M., & Mitchell-Kernan, C. (in press). Sexual risk taking and health promotion for single and married White women. *Journal of Applied Social Psychology*.
- Williams, L. B. (1991). Determinants of unintended childbearing among ever married women in the United States: 1973-1988. *Family Planning Perspectives, 23*, 212-215.
- Worth, D. (1989). Sexual decision-making and AIDS: Why condom promotion among vulnerable women is likely to fail. *Studies in Family Planning, 20*, 297-307.
- Wulfert, E., & Wan, C. K. (1993). Condom use: A self-efficacy model. *Health Psychology, 12*, 346-353.
- Wyatt, G. E., Tucker, B., Romero, G. J., Vargas Carmona, J., Newcomb, M. D., Wayment, H. A., Burns Loeb, T., Solis, B. M., & Mitchell-Kernan, C. (1997). Adapting a comprehensive approach to African American women's sexual risk taking. *Journal of Health Education, 28*, 52-60.