

Sexual Assault of Women

Prevention Efforts and Risk Factors

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Most North American universities offer sexual assault prevention programs focusing on attitude change. However, the few program outcome evaluations suggest that these programs may not be effective. This review summarizes the research on sexual assault program evaluation. It is apparent that the most promising avenue for sexual assault prevention may be self-defense training, which is presently not an integral component of typical prevention programs. The substantial body of research on risk factors for sexual assault is also reviewed, and it is concluded that existing rape prevention programs could be improved by focusing on these factors.

Keywords: *self-defense training; sexual assault; sexual assault prevention programs*

Sexual assault is an unfortunately common event with severe health consequences for its victims. In a national survey of women in the United States, Resnick, Kilpatrick, Dansky, Saunders, and Best (1993) concluded that 13% of women had been victims of a forcible rape. The psychological and physical effects of a sexual assault can be disabling and chronic. Studies have shown that more than 90% of adult victims meet symptomatic criteria for post-traumatic stress disorder in the week subsequent to the sexual assault, and as many as 47% continue to be symptomatic 9 months after the assault (Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). Kimerling and Calhoun (1994) followed a group of victimized women from 1 week until 1 year subsequent to their rape and compared them to a control group matched by age, race,

marital, and economic status. The victim group reported more psychological and physical symptoms throughout the year following the rape as well as more primary care medical visits. This discrepancy between the victim and the control groups in number of physician visits continued to increase 1 year following the rape. There is some indication that symptoms may persist past 1 year and continue after a decade to cause serious psychological damage in about 15% of assaulted women (Kilpatrick, Saunders, Veronen, Best, & Von, 1987).

Rape prevention programs have become common on university campuses and in other high-risk settings. Almost exclusively, rape prevention programs have, to date, been designed to change beliefs and attitudes assumed to increase the probability of men perpetrating a sexual crime and of women failing to take sufficient precaution. Below, we examine the research on the effectiveness of these typical rape prevention programs. This is followed by a discussion of the effectiveness of another kind of program, self-defense. We then review the research on risk factors for sexual assault and discuss these findings in relation to the standard rape prevention program model. We conclude by discussing suggestions for improved rape prevention programs and for future research.

The method for this review was a systematic search with a time period spanning from 1970 to 2002 using three major databases: Medline, PsychINFO, and Cumulative Index to Nursing and Allied Health Literature. Key words included *sexual assault, rape, risk factors, self-defense, and resistance*. Only studies with an empirical component were included. A meta-analysis was considered but deemed premature due to the scope of this review. We were not interested in a quantitative analysis of the relative effectiveness of various prevention program outcomes. Rather, we hoped to explore how prevention programs may be more meaningfully connected to the ultimate purpose, namely a reduction in sexual assault crimes.

EXISTING RAPE PREVENTION PROGRAMS

The literature indicates that existing rape prevention programs fall into two broad categories: (a) attitude change programs that are primarily educational in format and (b) self-defense programs

focusing on deterrence strategies once rape is imminent. Considerably less attention has been devoted to the latter category.

ATTITUDE CHANGE PROGRAMS

To date, prevention efforts have primarily focused on the first category of didactic attitude change programs. These programs typically consist of a 1- to 2-hour educational workshop based on the assumption that a decrease in rape-supportive attitudes will result in a decrease in the actual incidence of rape. Program components typically include some or all of the following: information on the prevalence of sexual assault, debunking rape myths, discussions of sex role stereotypical behaviors, and practical suggestions for safe dating behaviors. Interestingly, as Lonsway (1996) pointed out, despite the increasing popularity of these educational programs, efforts to empirically evaluate them are minimal. In a comprehensive review including all published rape education programs targeting both men and women (provided that the program had an evaluative component), Lonsway found that out of 21 programs focusing explicitly on attitude change, only about half resulted in decreased rape-supportive attitudes following the conclusion of the program. It is worth noting that in 2 of these programs, this desired change was true only for women; the men reported an actual increase in rape-supportive attitudes. Moreover, even the successful trials did not demonstrate continued success during long-term follow-up.

Researchers addressing the long-term stability of attitude changes concur that improved attitudes immediately following program delivery typically rebound to preprogram levels within 2 to 5 months (Anderson et al., 1998; Heppner, Humphrey, Hillenbrand-Gunn, & DeBord, 1995). In addition to evaluating the longer term outcome, these and other studies also compared two different formats: a video presentation versus a drama presentation interacting with the audience. There is some indication that an interactional format may be the most effective in the short-term but resembles video presentation formats by ceasing to be effective in the longer run (Gilbert, Heesacker, & Gannon, 1991; Gray, Lesser, Quinn, & Bounds, 1990; Heppner et al., 1995).

Surprisingly, few studies have included outcome measures addressing whether attitude changes translate into behavior

changes, and even fewer studies have included the definitive outcome variable, a reduction in sexual assaults. These two bodies of research are reviewed below.

Behavioral measures have typically consisted of asking participants to engage in prosocial activities deemed to enhance women's safety. For example, Gilbert et al. (1991) used a behavioral test consisting of a phone appeal measure in which male participants received a phone call asking them to volunteer time for a women's safety project. Three variables were assessed: willingness to volunteer, number of positive comments made regarding the project, and length of time spent talking about the project. At 1-month follow-up, the treatment group was significantly different, in the expected direction, from the control group regarding their willingness to listen and the number of positive comments made but not with regard to willingness to spend time on the project. Interestingly, Rosenthal, Heesacker, and Neimeyer (1995) replicated this study and found the opposite, that is, a significant difference in willingness to donate time but no difference on the other two variables. Although these results indicate that some behavior changes may be possible in the very short term, it is still not clear what, if any, the relationship between prosocial activities and rape incident reduction may be.

Only two researchers (Breitenbecher and Gidycz) and their colleagues have assessed rape reduction as an outcome measure in a total of four studies (Breitenbecher & Gidycz, 1998; Breitenbecher & Scarce, 1999; Gidycz et al., 2001; Hanson & Gidycz, 1993). The prevention programs administered in these studies included components similar to other programs (i.e., information on the prevalence of sexual assault, debunking of rape myths, discussions of sex role stereotypical behaviors, and practical suggestions for safe dating behaviors). There were some modifications in a couple of the studies. Of women without a prior history of sexual assault, those participating in the 1993 prevention program were less likely to report a sexual assault over the 9-week follow-up period than women who did not participate in the program. Women with a preexisting history of sexual assault, however, showed no benefit from the program. In an effort to specifically target women with a prior assault history, Breitenbecher and Gidycz (1998) expanded the standard intervention by including a discussion of the increased vulnerability associated with previ-

ous victimization. However, at 9-week follow-up, there was no difference in terms of a reduction in sexual assault between the women with and the women without a history of prior sexual assault. The authors speculated that vulnerability factors associated with previous victimization (e.g., depression, anxiety, learned helplessness, low self-esteem), which were not addressed in their intervention, might mediate revictimization. Breitenbecher and Scarce (1999) evaluated the effect of a 1-hour sexual assault education program in a study of college women. At 7-month follow-up, the participants were assessed for knowledge about sexual assault and experience of sexual victimization. Compared to the control group, the educational program appeared to be effective in increasing knowledge about sexual assault, but there was no reduction in the actual incidence of sexual assault for either group. Finally, Gidycz et al. (2001) evaluated a prevention program at two university sites. This program was a slightly modified version of previous programs in that there was an increased emphasis on delivering the information in a personally relevant manner by presenting local statistics and encouraging active and personal discussions of videos depicting rape survivors. At 2-month follow-up, there were no differences on any of the measures between the experimental and the control groups, but at 6-month follow-up, those women who had been moderately victimized during the 2-month follow-up period were significantly less likely to be revictimized later.

These prevention interventions appear to have only a weak effect on the incidence of first-time sexual assault. There may be some reduction in the rate of revictimization, although this finding needs to be replicated. The results are consistent with the conclusions arrived at by Breitenbecher (2000), who stated, following a comprehensive review of the relative effectiveness of the various constructs in rape prevention programs (e.g., attitudes, behavioral intentions, self-reported behaviors, directly observed behaviors, self-reported sexual victimization, and self-reported sexual aggression), that there is insufficient evidence to support the longer term effectiveness of existing rape prevention programs. It is possible that the lower revictimization rate in the Gidycz et al. (2001) study was due to program format variables, such as encouraging a more personal discussion of the presented material.

More than a decade ago, Koss and Dinero (1989) suggested that rape prevention programs should cease to emphasize attitude change and stereotyped sex role behavior given the absence of empirical support for such interventions. It is, therefore, somewhat distressing to note that most rape prevention studies published since 1989 have primarily focused on attitude change. Attitudes expressed in a classroom discussion may not have much bearing on actual dating behaviors for both men and women (Nurius, 2000).

SELF-DEFENSE PROGRAMS

Self-defense programs focus directly on increasing a woman's preparedness for a violent threat. Self-defense training is not, however, part of standard rape prevention programs but is taught for a fee in most communities. According to our literature search, and concurring with the findings of Ullman (1997b), there has been no experimental test of the effects of self-defense training on women's likelihood of being raped. Anecdotal evidence suggests that women trained in self-defense are three times less likely to be raped (Leland-Young & Nelson, 1987).

Some studies, primarily doctoral dissertations, have evaluated the impact of self-defense training on women's self-esteem, self-efficacy, anxiety, and depression. Results show that self-defense training may be effective in terms of increasing self-efficacy and reducing anxiety and that these gains are maintained at 6-month follow-up (Cox, 1999; Shim, 1998). Interestingly, a prior history of sexual victimization did not have any effect on the assessed dependent variables.

Some researchers suggest a caveat in self-defense training. Furby, Fischhoff, and Morgan (1989) found that women trained in self-defense expected a 50% reduction in their likelihood of being raped. Although this is a positive finding, the researchers argued that more information on the actual effectiveness of the various strategies is needed to avoid any misconceptions. Easton, Summers, Tribble, Wallace, and Lock (1997) agreed that women may in general be overly optimistic about their ability to defend themselves. About 52% of the women in the Easton et al. study stated that they would resist a stranger without a weapon, and about 22% stated that they would resist in the presence of a weapon.

However, less than 20% of the surveyed women had taken self-defense training. The authors concluded that more women need to take self-defense training to improve their ability to successfully resist.

Despite the lack of empirical evaluation of self-defense programs, indirect support for the efficacy of these programs may be derived from the growing body of research showing that the strategies typically taught in self-defense programs (e.g., assertive and physically aggressive behavior) may indeed be the most effective in successfully resisting a sexual assault. Below, we discuss the research findings on various sexual assault resistance strategies.

RESISTANCE STRATEGIES

Several studies have addressed the efficacy of various resistance strategies aimed at avoiding a sexual assault and at reducing the impact of an attempted assault. Ullman (1997b) has provided a thorough review of this literature.

Ullman (1997b) outlined several categories of types of resistance that sexual assault victims employ: forceful physical resistance (wrestling, punching, biting, scratching, kicking, using a weapon, executing martial arts), nonforceful physical resistance (pulling away, fleeing, shielding oneself), forceful verbal resistance (yelling, screaming, threatening), nonforceful verbal resistance (pleading, talking, reasoning, begging, crying), physiological resistance (urinating, defecating, vomiting), and trickery (conning the offender).

Of these strategies, forceful physical resistance, forceful verbal resistance, and fleeing have consistently been found to be the most effective, whereas nonforceful verbal resistance has been related to rape completion (Bart & O'Brien, 1984; Block & Skogan, 1986; Page, 1997; Zoucha-Jensen & Coyne, 1994). Physiological resistance strategies and trickery have not been subjected to empirical evaluation. Some researchers have found that women were more likely to resist if the perpetrator was known to them (Atkeson, Calhoun, & Morris, 1989), whereas others have not found that victim resistance varied depending on whether the perpetrator was a stranger or a partner (Ullman & Siegel, 1993).

Although some authors have found a link between forceful resistance and an increased risk for injury (Block & Skogan, 1986; Ruback & Ivie, 1988), others have not (Ullman & Knight, 1992; Zoucha-Jensen & Coyne, 1994). It is noteworthy that the injuries stemming from resistance tend to be minor, that is, cuts and bruises. Only 4% of the women in the Ruback and Ivie (1988) study suffered major injuries, such as broken bones. Similarly, Block and Skogan (1986) found that only 3% of rape victims in their study required overnight hospitalization, and they concluded that the risk for serious injury during a sexual assault is not high. However, crimes with fatal outcomes were not considered in their data set. Knowing that injury in the form of a completed rape is likely in the absence of any resistance, we can with greater confidence advocate resistance in sexual assaults.

RISK FACTORS FOR SEXUAL ASSAULT

This discussion is divided into two types of risk factors: those more distal in a temporal sense to the sexual assault and those more proximal. These risk factors vary considerably in their practical implications for rape prevention programs.

DISTAL RISK FACTORS

The following distal risk factors have been examined with respect to their relationship to rape vulnerability: demographics, mental and emotional disabilities, sorority membership, and prior sexual assault and sexual abuse.

Of these variables, demographics are the most distal. They may nevertheless account for a substantial variance in sexual assault risk. The literature on ethnicity and attempted and completed rape suggests that Native Americans and African Americans are at increased risk for this type of crime, with Native American women being twice as likely to suffer a sexual assault as are White women (Lodico, Gruber, & DiClemente, 1996; Russell, 1984). Single marital status has also been associated with an increased risk for sexual assault (Russell, 1984). Low socioeconomic status women appear to be more vulnerable to stranger rape than women higher in economic status. These demographic findings

suggest that some subpopulations of women may be in greater need of rape prevention skills than other populations.

Women with mental or emotional difficulties also appear to be at increased risk for sexual assault relative to the general population. A wide spectrum of emotional difficulties, ranging from schizophrenia to low self-esteem, appear to be risk factors (Darves-Bornoz, Lemperiere, Degiovanni, & Gaillard, 1995; Koss & Dinero, 1989; Resnick, et al., 1993; Sobsey & Doe, 1991; Vicary, Klingaman, & Harkness, 1995). Levine-MacCombie and Koss (1986) found that women who felt guilty and blamed themselves at the time of the sexual assault were less successful in resisting the assault. Layman, Gidycz, and Lynn (1996) found that a substantial number of women who had been raped did not actually conceptualize their assault as rape. When compared to those women who did acknowledge that they had been raped, results showed that acknowledgment was associated with more forceful resistance, and more hyperarousal. This finding is consistent with research on personality variables indicating that women who are successful at resisting sexual assaults are less likely to suffer from death anxiety, are more dominant and socially poised, and have stronger beliefs in their own ability to control events in their lives (Amick & Calhoun, 1987; Burnett, Templer, & Barker, 1985). However, these results were obtained after the assault, and it is difficult to ascertain the degree to which they may be a consequence and not a cause of the positive sexual assault outcome.

Compared with nonsorority college women, sorority women have been found to report more frequent nonconsensual sexual contacts and to be more accepting of rape myths (e.g., "In the majority of rapes, the victim is promiscuous or has a bad reputation") and of sexual violence (e.g., "Being roughed up is sexually stimulating to some women") (Kalof, 1993). This finding should be viewed with some caution as it is based on a single study. It does suggest, however, that certain locations, such as university sororities, may be in particular need of rape prevention interventions.

Finally, one of the strongest predictors of sexual assault is a prior history of sexual victimization, whether as an adult (Gidycz, Coble, Latham, & Layman, 1993; Hanson & Gidycz, 1993; Sorenson, Siegel, Golding, & Stein, 1991) or as a child (see Messman & Long, 1996, for a comprehensive review of the rela-

tionship between childhood sexual abuse and adult sexual assault). Maker, Kemmelmeier, and Peterson (2001) investigated a number of risk factors and found that child sexual abuse before age 16 was by far the strongest predictor of later sexual assault. Humphrey and White (2000) found that sexual abuse before age 14 nearly doubled the risk of later adolescent revictimization and that sexual victimization among university women was much higher for those with a history of sexual assault in early adolescence (4.6 times compared to nonchildhood victims). According to Knowles (1993), repeatedly assaulted women, compared to nonassaulted women, reported that they more frequently engaged in sex role stereotypic behaviors, including submissive behaviors, in their interactions with men. They were also found to be more closely acquainted with their perpetrators. According to Norris, Nurius, and Dimeff (1996), prior sexual victimization may present a barrier to resistance in previously assaulted women in that they reported more concern with embarrassment and rejection. The mediating factors between repeated sexual victimization experiences are currently not well-known. A review of the research on this topic (Breitenbecher, 2001) found that situational factors, including most of the proximal risk factors reviewed below, and general psychological maladjustment were the most salient risk factors for revictimization.

Ullman (1997a) found that women who had been sexually victimized in both childhood and adulthood had lower self-worth and tended to blame themselves for their difficulties. Self-blame in this study was also related to poorer recovery. Self-blame may lead to a vicious cycle in which victims who blame themselves begin to revise their self-perceptions in a distorted and negative manner. For example, victims of repeated sexual assaults may interpret their assaults as providing confirmation for some prior negative perception, such as "I am dirty and disgusting." These distorted self-perceptions are referred to as *stuck points* in the cognitive literature on treatment for sexual assault (Resick & Schnicke, 1993). Not only do these women's cognitive schemas become altered in distorted ways, but there is also a risk that these women will adjust their behavior and environment selection according to their negative self-perceptions and, for example, find themselves in milieus with strong traditional sex role expectations.

Interestingly, in the review by Breitenbecher (2001), the research on attributional styles (e.g., global negative statements about oneself) was mixed in that some studies were able to discriminate victimized from nonvictimized women on this variable, whereas others were not. The same review article, however, also indicated that a sense of being personally effective and in control of one's life—a characteristic that would presumably be related to one's attributional style—was negatively correlated with revictimization among college women.

PROXIMAL RISK FACTORS

The following proximal risk factors have been examined in relation to rape vulnerability: dating location, behavior and frequency, alcohol use, attitudes and beliefs, assertiveness and communication, and ability to detect danger cues.

Not surprisingly, private places appear to be less safe compared with more public places. Miller and Marshall (1987) found that 75% of reported assaults occurred in private living quarters (home, apartment, fraternity house, or residence hall) and another 15% in parked cars. Muehlenhard and Linton (1987) found that 81% of sexual assaults occurred in cars or private places. In a study by Mynatt and Allgeier (1990), 62% of sexual assaults occurred in either the victim's or the assailant's home. The results of these studies suggest that the likelihood of sexual assault increases in a secluded, private environment.

The probability of being sexually assaulted may be related to the man initiating the date, paying for the expenses, and doing the driving (Muehlenhard & Linton, 1987). Contrary to these findings, however, Korman and Leslie (1982) found that women who shared dating expenses were more likely to report unwanted sexual activity. Unfortunately, their definition of unwanted sexual activity was ambiguous, which makes their results harder to interpret: Participants were asked to report instances of sexual intimacy that they found to be offensive and displeasing. Also, participants were asked to report to what extent they generally paid their own way on dates. They were not asked if they, or their date, paid the expenses on their sexual assault dates. To draw firm conclusions about the relationship between who pays for the date and sexual assault, more research needs to be conducted.

Dating frequency and number of consensual sexual partners may represent risks for sexual assault. Several studies unequivocally concur that sexual activity commencing and continuing in early teenage years is associated with a higher risk for sexual assault (Corbin, Bernat, McNair, & Calhoun, 1996; Erickson & Rapkin, 1991; Koss & Dinero, 1989; Mynatt & Allgeier, 1990; Vicary et al., 1995). It does not seem sensible, however, that rape prevention programs should encourage women to restrict their number of sexual partners as a means of avoiding rape. Similar to how women receive, or should receive, education about how to protect themselves against sexually transmitted diseases and pregnancy, women need to know more about how to protect themselves against rape in order to increase their individual freedom and well-being.

Alcohol use has been the most researched risk factor for sexual assault, and education about alcohol consumption may be the most important safety measure a woman can take. Although the studies vary in their design, they all show that alcohol is a significant risk factor. The majority of studies have relied on a retrospective design, involving women with reported past assaults, to assess both general alcohol intake and intake specifically at the time of the sexual assault. Researchers have found that women who in general consumed alcohol once or more per week were significantly more likely to be sexually assaulted (Canterbury, Grossman, & Lloyd, 1993; Koss & Dinero, 1989).

It is not possible to know from these results if sexually assaulted women drink more in response to having been sexually assaulted or if their preexisting drinking habits contributed to their being assaulted. Given the powerful impact of sexual assault on mental health, it is likely that many victims increase their alcohol consumption as a means both to deal with the negative effects of the assault and to cope better with future sexual interactions (Corbin et al., 1996).

A number of studies have assessed alcohol consumption at the time of the assault. Although these reports are retrospective, they nevertheless provide more convincing evidence that alcohol consumption may represent a specific risk for sexual assault. A number of studies have found that the majority—with figures ranging from 40% to 65%—of sexually assaulted women reported heavy alcohol intake preceding the sexual assault (Frintner & Rubinson,

1993; Harrington & Leitenberg, 1994; Miller & Marshall, 1987; W. Wilson & Durrenberger, 1982). Women have also reported that their judgment was impaired as a result of alcohol intake, rendering them incapable of consenting (Kalof, 1993).

From these studies it is clear that there is a strong association between alcohol intake and sexual assault. It is nevertheless difficult to ascertain the degree to which alcohol consumption may actually precipitate a sexual assault. According to Ullman, Karabatsos, and Koss (1999), alcohol use appears to play both an indirect (i.e., women who consume alcohol are statistically more likely to experience sexual assault) and a direct role (i.e., a significant number of women report drinking immediately prior to a sexual assault). Although we do not know exactly how alcohol intake may increase a woman's risk for sexual assault, the data in the reviewed studies suggest that alcohol interferes with the ability to detect danger as well as to resist more promptly. In dating situations, a lack of resistance may be misinterpreted as consent. Although alcohol intake has been identified as a significant risk factor for sexual assault, there is some indication that this is especially the case for first-time assaults, given that the research is less unequivocal when revictimized women are studied (Breitenbecher, 2001).

The role of attitudes and beliefs has also been investigated as a risk factor. The results consistently show that women and men who endorse a variety of rape myths, unlike men and women who do not endorse such myths, tend to view sexual assault victims as more likely to be sexually aroused, to blame the victims, and to have difficulty identifying resistance to rape (Garcia, 1998; Kopper, 1996; Quinn, 1991; Ryckman, Kaczor, & Thornton, 1993).

These results point to the importance of intervening at the level of beliefs in sexual assault prevention programs. As discussed earlier in this article, however, there is only limited support for the proposal that attitude changes produce behavioral changes in the form of rape avoidance. It is possible that the problem lies in the difficulty of truly achieving and maintaining attitude changes over time, a task quite different from simply role-playing an attitude. Hence, it would seem important that rape prevention programs include ways of consolidating new, adaptive beliefs.

Miscommunication about sex and lack of assertiveness have emerged as potential risk factors. The results are somewhat

mixed, indicating that high assertiveness in general is positively related to exposure to sexual coercion (Mynatt & Allgeier, 1990), while low assertiveness, both generally and specifically in sexual situations, increases the risk of a sexual assault (Corbin et al., 1996; Myers, Templer, & Brown, 1984). It is possible that sexual assertiveness is a specific protective factor against sexual coercion, whereas general assertiveness may be unrelated to sexual coercion. The question of the degree to which assertiveness deficits may increase vulnerability to rape has received surprisingly little attention (Parrot, 1996). More research is needed on this important topic and in particular on the distinction between general and sexually specific assertiveness.

Recently, attention has been directed to another potential risk factor, perception of danger. Breitenbecher (1999) used a design involving a video depicting a heterosexual interaction where participants were asked to indicate at what point they perceived the woman to be in danger of a sexual assault. Breitenbecher did not find an association between inability to detect danger and self-reports of having been sexually assaulted. There was, however, some indication that previously assaulted women had difficulties detecting danger. A. E. Wilson, Calhoun, and Bernat (1999) investigated the possibility that previously sexually assaulted women would take longer to perceive a certain heterosexual situation as dangerous compared to women without such a history. In this study, women listened to a tape recording of an intimate interaction between a male actor and a female actor and were asked to indicate when they perceived the woman to be in danger of a sexual assault. Consistent with expectations, women with a history of prior multiple sexual victimizations showed poorer danger recognition ability than did either single-incident women or women with no prior history. Interestingly, among the prior victimization group, those with active post-traumatic stress disorder arousal symptoms were better able to detect danger, whereas those with no arousal symptoms took significantly longer to detect a high-risk situation. This finding parallels the finding by Layman et al. (1996) indicating that acknowledgment of rape was associated with more forceful resistance and hyperarousal trauma symptoms. The A. E. Wilson et al. (1999) study appears to have important implications for future investigations into mediating factors in sexual revictimization.

FUTURE RESEARCH DIRECTIONS

It is clear that alcohol use is intertwined with sexual victimization in some manner. More detailed investigative work using more sophisticated surveys as well as assessments of women attending sexual assault emergency rooms could help us understand how alcohol and drug intoxication increases women's vulnerability to sexual assault. Part of this vulnerability may be through alcohol-induced impairment of danger detection and ability to react and resist more immediately. Analogue experiments on alcohol intoxication, danger perception, and reaction time may be a viable avenue for addressing this important issue. It will also be important to distinguish between first-time and repeated sexual assault victims.

Also, given that forceful resistance may prevent completed sexual assaults, a prospective, longitudinal evaluation of forceful resistance training would be useful. There are some ethical concerns regarding the design of such a study, including a control group. However, consent to follow longitudinally (at least 5 years) women who enroll in self-defense courses, and then compare them to a natural, matched control group, may be feasible. In such a study, data collection on psychological resilience, including assertiveness, personality characteristics, and sex role perceptions, may also provide valuable data regarding psychological functioning prior to any assaults. This would be useful in further addressing the issue of mediating variables in sexual assault and, in particular, multiple sexual assaults over time.

IMPLICATIONS FOR RAPE PREVENTION PROGRAMS

In critically evaluating the literature on victim risk factors for sexual assault, it is important to think carefully about which factors are appropriate targets for change. It appears sensible to discourage women from becoming intoxicated with new male acquaintances and accompanying them to private settings. It also seems worthwhile to raise young women's awareness of the potential problems associated with stereotypical sex role behavior when dating. Similarly, it appears wise to train women in rape acknowledgment and active rape resistance strategies.

It does not seem useful to continue to spend resources on attitude change programs as currently delivered. According to our review, the design and evaluation of rape prevention programs should pay greater attention to specific self-protective skills and to general improvement in self-efficacy and self-esteem. We propose that university campus sexual assault prevention programs primarily focus on the actual practice of self-defense skills. Information about and rehearsal of other specific self-protective skills should also be included. This would involve the ability to identify an unwanted sexual encounter as an assault, awareness of one's drinking habits, and communication and assertiveness training. As much as possible, the program components should be personally relevant with local statistics and local assault accounts.

Although attitude change did not emerge as a strong prevention factor, some focus on this may prove useful, especially given that stereotypical gender perceptions may be implicated when assaulted women fail to identify their assault as a rape. According to Pollard (1992), who reviewed studies on judgments about victims and attackers, rape-supportive attitudes are tacitly condoned in our society. He concluded that women continue to be considered at fault if they have engaged in "incautious behaviors" leading to a sexual assault, although these same behaviors are considered legitimate for men. However, for attitude changes to be effective, they must be rehearsed over time in order to consolidate them. To this end, several sessions spread over at least 12 weeks may prove more effective. Cognitive restructuring, as included in cognitive-behavioral therapy for depression and anxiety disorders, may prove useful in terms of consolidating new beliefs and attitudes. This is already done in the treatment of women who have experienced a sexual assault. However, we are advocating, more importantly, the use of such strategies for prevention.

Finally, women with a prior history of sexual assault should be identified by encouraging disclosures within a context of safety and trust. Research has consistently found that being heard and supported following a disclosure is positively related to psychological recovery (Conte & Schuerman, 1987; Ullman, 1996). In addition to being offered a prevention program, previously victimized women should be offered longer term therapy to address the chronic psychological maladjustment characteristic of this group.

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