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# Why Do Some Men Misperceive Women's Sexual Intentions More Frequently Than Others Do? An Application of the Confluence Model

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## Abstract

Although many researchers have documented men's tendency to misperceive women's friendliness as a sign of sexual interest, few have examined individual differences in men's attitudes and past experiences that might predict their likelihood of making these types of misjudgments. We applied an expanded version of Malamuth, Sockloskie, Koss, and Tanaka's (1991) Confluence model to predict frequency of misperception of women's sexual intent with a sample of 356 male college students. Using structural equation modeling, hostile masculinity, impersonal sex, and drinking in dating and sexual situations predicted men's frequency of misperception. Furthermore, the more risk factors men possessed, the more times they misperceived women's sexual intentions. Suggestions are made for theory development and future research incorporating situational as well as personality measures in longitudinal studies.

### Keywords

sexual perception; misperception of sexual intent; sexual assault; Confluence model; alcohol

Both women and men frequently report that their sexual intentions have been misperceived by someone of the opposite sex, although substantially more women than men report that their level of sexual interest was overperceived (Abbey, 1987; Haselton, 2003; Koss & Oros, 1982). For example, Koss and Oros (1982) found that 70% of the female and 53% of the male college students in their survey reported that the level of sexual intimacy they desired from a member of the opposite sex had been misperceived at least once. Similarly, Abbey (1987, Study 1) found that 72% of college women and 60% of college men reported that

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someone of the opposite sex had misperceived their friendliness as a sexual come-on. Among those students who had been misperceived, the average number of misperceptions was 4.8. These findings are typically explained in terms of the ambiguous meaning of many nonverbal and verbal cues (P. A. Anderson, 1985; Fichten, Tagalakis, Judd, Wright, & Amsel, 1992; Kowalski, 1993). People may be signaling sexual interest when they smile, stand close, give a compliment, or pat someone of the opposite sex on the arm; however, they also may be signaling friendship or attention. The multiple meanings associated with flirtatious cues contribute to frequent misunderstandings, particularly early in an interaction (Henningsen, 2004; Koeppel, Montagne-Miller, O'Hair, & Cody, 1993).

Although most misperceptions of sexual intent are quickly resolved, they have been linked to men's perpetration of sexual assault and sexual harassment (Abbey, 1987; Abbey, McAuslan, & Ross, 1998; Stockdale, 1993). The primary purpose of this article is to determine the extent to which the Confluence model (Malamuth, Sockloskie, Koss, & Tanaka, 1991), which has been used to predict college men's sexual assault perpetration, can also be used to predict their misperception of women's sexual intent. Additionally, this study expands the Confluence model by adding a pathway focused on the role of alcohol. The relevant literature is briefly reviewed below and then the study is described.

## MEN'S PERCEPTIONS OF WOMEN'S SEXUAL INTENT

Two types of experimental research support the naturalistic studies described above. In the first type, previously unacquainted men and women interact with each other in the laboratory and then rate their own and their partner's behavior. Men consistently report that their female partners behaved more sexually than the women rated themselves (Abbey, 1982; Abbey, Zawacki, & McAuslan, 2000; Edmondson & Conger, 1995; Saal, Johnson, & Weber, 1989). This phenomenon has been labeled *misperception* because men interpret women's behavior differently from how it was intended. When interacting with a potential sexual partner, sexual schema may be more salient to men than to women because traditional gender role scripts require men to initiate dating and sexual relationships (Abbey, 1982; Koukounas & Letch, 2001; Shotland & Craig, 1988). Evolutionary theorists have suggested that men's reproductive goals are better achieved by overperceiving rather than underperceiving women's level of sexual interest (Haselton, 2003; Haselton & Buss, 2000). Both of these theoretical perspectives support the hypothesis that men set a lower threshold than women do for labeling behavior as sexual. Because men are watching for signs of sexual interest, their expectations can bias their perceptions of women's behavior (Snyder & Stukas, 1999).

In the second line of research, women and men respond to videotapes, photographs, or vignettes about female and male targets by rating each target's level of sexual intent. Men consistently rate female targets as behaving more sexually and being more interested in engaging in sexual activities with their male companion than women do (Abbey & Harnish, 1995; Abbey & Melby, 1986; Botswick & Delucia, 1992; DeSouza, Pierce, Zanelli, & Hutz, 1992; Muehlenhard, 1988; Vrij & Kirby, 2002). For example, in a study conducted by Koukounas and Letch (2001), participants viewed a videotape of an interaction between a man and a woman. Eye contact, touch, physical proximity, and the woman's clothes were

manipulated such that participants saw film segments that varied in their level of cue intensity (e.g., no eye contact, no touch, and modest clothes vs. mutual eye contact, hand holding, and revealing clothes). Stronger cues produced higher ratings of the woman's sexual intent; however, at each cue level men perceived the female target as acting more sexually than women did. Similarly, C. B. Johnson, Stockdale, and Saal (1991) found that male students perceived a female target as behaving in a sexier manner toward a male professor than did female students, regardless of the level of sexual harassment depicted in the interaction. An actor's intent cannot be assessed in response to staged photographs or videotaped interactions; consequently, this phenomenon has been labeled *overperception* or *sexualized perception*.

## PREDICTORS OF MEN'S PERCEPTIONS OF WOMEN'S SEXUAL INTENT

Only a few studies have focused on distinguishing men who are prone to misperceiving women's sexual intentions from men who are not. Measures of stereotypic attitudes toward women and rape myth acceptance have been associated with misperception (Abbey & Harnish, 1995; Bondurant & Donat, 1999; Fisher & Walters, 2003; Vrij & Kirby, 2002). For example, Kowalski (1993, Study 2) found that men with high scores on Burt's (1980) measures of sex role stereotyping, adversarial sexual beliefs, and rape myth acceptance perceived a female target's mundane cues as connoting more sexual interest than did men with low scores on these measures. Some researchers have found main effects of participant gender and attitudes toward women and rape, suggesting that their effects are independent (Vrij & Kirby, 2002). Other researchers have found interaction effects suggesting that only men with strong stereotypes are likely to oversexualize women's friendly cues (Abbey & Harnish, 1995).

## ALCOHOL'S EFFECTS ON PERCEPTIONS OF SEXUAL INTENT

Several lines of research have linked perceptions of sexual intent with alcohol consumption. In one alcohol administration study, participants were randomly assigned to drink alcohol or tonic and then they interacted with someone they didn't know of the opposite sex for 15 minutes (Abbey et al., 2000). There were main effects of participant gender and alcohol consumption such that men perceived their female partners as behaving more sexually than the women rated themselves, and participants who consumed alcohol rated themselves and their partners higher on sexuality measures than did sober participants.

In another line of research, participants read a vignette about a couple on a date. When the woman in the story was drinking alcohol, she was perceived by male and female raters as being more sexually available than was a nondrinking woman (Abbey & Harnish, 1995; George, Gournic, & McAfee, 1988; George et al., 1997). The authors of these studies suggest that their findings support the hypothesis that men may oversexualize the behavior of drinking women.

In line with the findings from these experimental studies, focus groups with male bar drinkers have demonstrated that stereotypes about women bar drinkers are widespread (Parks & Scheidt, 2000). Focus group participants frequently expressed the belief that women visited bars with the purpose of gaining men's attention or having a sexual

encounter, and that women who drank a lot of alcohol were sexually “easy” or “loose” (Parks & Scheidt, 2000, p. 934). These stereotypes are likely to encourage some men to perceive any sign of friendliness from a drinking woman as a sexual come-on.

## THE CONFLUENCE MODEL OF SEXUAL ASSAULT

In a series of studies, Malamuth and his colleagues have found empirical support for the Confluence model of sexual assault perpetration (Dean & Malamuth, 1997; Malamuth, Addison, & Koss, 2000; Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Malamuth et al., 1991). This theory posits that two different constellations of traits and behaviors increase the likelihood that a man will commit sexual assault: hostile masculinity and impersonal sex. These proximal risk factors work independently and synergistically, such that men with high scores on both factors are hypothesized to be most likely to commit sexual assault (Malamuth et al., 1991). The Confluence model has been replicated by several independent research teams in ethnically diverse college and community samples in the United States and Europe (Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Hall, Teten, DeGarmo, Sue, & Stephens, 2005; Martín, Vergeles, Acevedo, Sánchez, & Visa, 2005; Wheeler, George, & Dahl, 2002).

Men who score high on the hostile masculinity construct distrust women and enjoy dominating them (Malamuth et al., 1995). They use sex as a way of demonstrating their power over women as opposed to viewing sex as an expression of love. Although attitudes supporting violence against women are contemporaneous with hostile masculinity, they are frequently modeled as predictors of the hostile masculinity concept rather than components of it (Malamuth & Brown, 1994; Malamuth et al., 1991; Malamuth et al., 1995). Malamuth and colleagues (1991) suggested and found that the attitudes supporting coercion construct predicted the hostile masculinity construct. To distinguish between attitudes and motives, and in keeping with Malamuth’s strategy, we grouped three attitudes-about-women scales together as conceptual antecedents of hostile masculinity. Numerous researchers have found that perpetrators, in comparison to nonperpetrators, have greater hostility toward women, stronger sexual dominance motives, more traditional attitudes toward gender roles and sexual relationships, and greater acceptance of rape myths (Abbey & McAuslan, 2004; Abbey et al., 2006; Hall et al., 2005; Koss & Dinero, 1988; Malamuth et al., 1991; Malamuth et al., 1995; Martín et al., 2005; Murnen, Wright, & Kaluzny, 2002; Wheeler et al., 2002). Men who are hostile toward women are likely to frequently misperceive women’s sexual intentions because they believe that women are disingenuous and play games to get what they want from men.

Men who score high on the impersonal sex construct prefer casual, uncommitted sexual relationships (Malamuth et al., 1995). They view sex as a source of physical gratification rather than as part of an enduring, intimate relationship. In support of this hypothesis, many researchers have found that perpetrators, in comparison to nonperpetrators, have consensual sex at an earlier age, have more dating and consensual sexual partners, and have more positive attitudes about casual sexual relationships (Abbey et al., 1998; Koss & Dinero, 1988; Malamuth et al., 1991; Malamuth et al., 1995; Martín et al., 2005; Senn, Desmarais, Verberg, & Wood, 2000; Zawacki, Abbey, Buck, McAuslan, & Clinton-Sherrod, 2003).

Men who engage in impersonal sex are likely to frequently misperceive women's sexual intentions for two reasons. First, their large number of dating partners creates more opportunities for misperception to occur. Second, their quick decisions about which women to sexually pursue are likely based on stereotypes about the meaning of women's verbal and nonverbal cues, thereby leading to some correct attributions but also many misperceptions (Bondurant & Donat, 1999; Kanin, 1985).

The Confluence model also includes several distal factors that indirectly contribute to sexual assault because of their influence on hostile masculinity and impersonal sex. Growing up in a violent home environment is hypothesized to increase the likelihood of engaging in delinquent behaviors in adolescence, which in turn increases the likelihood of developing hostile attitudes toward women and an impersonal orientation toward sex (Malamuth et al., 1991). Men with histories of delinquency typically surround themselves with like-minded peers who reinforce their disparaging attitudes about women (Abbey et al., 2006; Ageton, 1983; G. M. Johnson & Knight, 2000). Thus, the peer norms that develop about women and sex in delinquent subcultures are hypothesized to encourage misperception of women's sexual intentions. Adolescent delinquency has been linked to sexual assault perpetration in community, college, and incarcerated samples of perpetrators (Abbey et al., 2006; Ageton, 1983; Calhoun, Bernat, Clum, & Frame, 1997; G. M. Johnson & Knight, 2000; Malamuth et al., 1991; Zawacki et al., 2003).

As noted above, risk factors in the Confluence model are hypothesized to have synergistic effects so that men with high scores on both hostile masculinity and impersonal sex should be most likely to commit sexual assault. For example, Malamuth et al. (1991) found that the interaction between impersonal sex and hostile masculinity in hierarchical multiple regression analyses explained an additional 4% of the variance in sexual assault. Although many researchers have replicated the main effects described by the Confluence model, very few have included a test of the synergy hypothesis. Those researchers who report testing the interaction effect have found that it explains additional variance beyond the main effects of hostile masculinity and impersonal sex (Malamuth et al., 1995; Wheeler et al., 2002; Yost & Zurbriggen, 2006); however, the vast majority of researchers have not evaluated this aspect of the model (Calhoun et al., 1997; Dean & Malamuth, 1997; Hall et al., 2005; Lim & Howard, 1998; Martín et al., 2005; Mosher & Danoff-Burg, 2005; Senn et al., 2000).

Malamuth and his colleagues have frequently evaluated the synergy hypothesis through risk analysis (Dean & Malamuth, 1997; Malamuth, 1986; Malamuth et al., 1995; Malamuth et al., 2000). Median or tripartite splits are used to place men in high- or low-risk groups on each variable. These are then summed and the relationship between the number of high-risk scores and frequency of sexual assault is evaluated. The results of these analyses have also supported the hypothesis that men with high scores on components of both hostile masculinity and impersonal sex commit the most sexual assaults. Although Malamuth and colleagues often employ risk analysis, we are not aware of any other researchers who have used this method.

## OVERVIEW OF THIS STUDY AND HYPOTHESES

This study builds on past research in two ways. First, we applied Malamuth et al.'s (1991) Confluence model to men's misperception of women's sexual intent. As shown in Figure 1, hostile masculinity and impersonal sex were hypothesized to be positively associated with frequency of misperception. Second, a third pathway focused on alcohol consumption was evaluated. As can be seen in Figure 2, we hypothesized alcohol consumption in dating and sexual situations to be positively associated with frequency of misperception.

As in Malamuth et al.'s (1991) model, additional risk factors were included that were hypothesized to indirectly increase the frequency of misperception through their effects on more proximal indicators. The more strongly men endorsed attitudes that encourage violence toward women, the higher their scores were expected to be on hostile masculinity and impersonal sex. The more acts of delinquency men committed in adolescence, the higher their scores were expected to be on impersonal sex and drinking in dating and sexual situations. The more strongly men endorsed stereotypes about drinking women, the higher their scores were predicted to be on hostile masculinity and drinking in dating and sexual situations. Finally, men's usual alcohol consumption was expected to be positively related to impersonal sex and alcohol consumption in dating and sexual situations. Additionally, hostile masculinity, impersonal sex, and alcohol consumption in dating and sexual situations were hypothesized to have greater effects in combination than individually. Based on past research, this hypothesis was examined through interaction terms and through risk analysis.

## METHOD

### Participants

Participants were 356 male students from a large, urban university. Fifty-seven percent ($n$ = 203) were Caucasian, 30% ($n$ = 109) were African American, 6% ($n$ = 21) were Arabic or Middle Eastern, 3% ($n$ = 11) were Asian or Pacific Islander, 2% ($n$ = 6) were Hispanic, and 2% ($n$ = 6) reported another ethnic background. Participants' ages ranged from 19 to 48 and the median age was 24 years old. Because of the study's focus on dating and sexual experiences with women, participants were required to be single and to have dated a woman in the past year. Participants were recruited through flyers, classroom announcements, and enrollment lists supplied by the registrar's office.

### Procedures

Students completed self-administered questionnaires in small groups of 2 to 5 individuals. Large classrooms were used so that participants could be seated far apart. The experimenter explained the information sheet and questions were individually answered. After completing the survey, participants placed them in an unmarked envelope that they sealed and handed to the experimenter. Participants were thanked for their time and given $20 compensation.

### Measures

**Frequency of misperception—**To assess how often participants had misperceived a woman's friendliness, they were asked, "How many times has a woman been friendly to

you, only for you to discover that you had misperceived her friendliness as a sexual come-on—she was trying to be nice but you assumed she was sexually attracted to you?" This single item measure has been used in several studies and demonstrated good criterion-related validity through its consistently significant, positive relationship with sexual assault perpetration (Abbey, 1987; Abbey et al., 1998; Abbey, McAuslan, Zawacki, Clinton, & Buck, 2001).

Past researchers have been satisfied with this single-item measure of the number of self-reported lifetime misperceptions presumably because they used it as one of many predictors of sexual assault. For the purposes of this study, additional evidence of criterion-related validity was generated from a subsample of this study's participants ($n$ = 150) who later participated in an alcohol administration study. One of the strongest methods to demonstrate the validity of a measure is to show that it correlates significantly with a behavioral criterion (James, 1973; Ozer, 1999). The laboratory study was designed to investigate the effects of past sexual assault perpetration and acute alcohol consumption on men's perceptions of a female confederate (Abbey, Zawacki, & Buck, 2005). Participants conversed for 20 minutes with a female confederate who was friendly and attentive but not flirtatious or sexual. The interaction was videotaped and trained observers coded the interaction. The outcome measure used in this study was significantly associated with judgments made 1 month later by three different sets of raters: participants, confederates, and observers. Participants' perceptions of confederates' sexual attraction to them were significantly correlated with participants' self-reported frequency of misperception, $r$ = .21, $p$ < .01. The sexual attraction index was comprised of four items in which participants rated the extent to which the confederate was sexually attracted to them, wanted to date them, wanted to have sex with them, and wanted to participate in future studies with them. Confederates' ratings of the extent to which participants were sexually attracted to them were significantly correlated with participants' self-reported frequency of misperception, $r$ = .21, $p$ < .01. Independent coders' ratings of participants' discussion of sex during the conversation were also significantly correlated with participants' self-reported frequency of misperception, $r$ = .34, $p$ < .001. These moderate effect sizes (Cohen, 1988) are of comparable magnitude to those that have been accepted as evidence of criterion-related validity in meta-analyses (C. A. Anderson & Bushman, 1997; Hurtz & Donovan, 2000). As evidence of discriminant validity, participants' ratings of the confederates' friendliness were unrelated to their self-reported frequency of misperception, $r$ = −.02, *ns*.

**Hostile masculinity—**The construct of hostile masculinity was operationalized as sexual dominance using Nelson's (1979) measure. This eight-item measure has been used by other researchers as an indicator of hostile masculinity and has been found to be internally consistent and to have strong convergent validity (Malamuth, 1986; Malamuth et al., 1995; Wheeler et al., 2002). Sample items include "I have sexual relations because I like the feeling that I have someone in my grasp" and "I have sexual relations because I like the feeling of having another person submit to me." Responses were made on 4-point Likert-type scales with options that were anchored by 1 (*not important at all*) to 4 (*very important*). Cronbach's coefficient alpha was .86.

**Impersonal sex—**The impersonal sex construct was operationalized behaviorally as having many sexual partners and attitudinally as holding positive attitudes about casual sex. To assess the behavioral portion of this construct, participants were asked how many consensual sexual intercourse partners they had in their lifetime and the number of women they had sex with "on one and only one occasion."

To measure the attitudinal portion of this construct, two items adapted from Simpson and Gangestad's (1991) Sociosexual Orientation Index assessed participants' endorsement of casual sexual relations. The items, "Sex without love is OK," and "I enjoy 'casual' sex with different partners," were rated on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. Cronbach's coefficient alpha for this two-item attitude measure was .76.

**Alcohol consumption in dating and sexual situations—**Frequency and quantity of alcohol consumption during dating and sexual situations were assessed with four items used in previous dating and sexual behavior studies (Abbey et al., 1998). First, participants were asked how often they drank alcohol when on a date and responded using a 6-point scale with options that ranged from 1 (*nearly every time or every time*) to 6 (*never*). They were then asked how many drinks they usually consumed on a date and responded using an 8-point scale with options that ranged from 1 (*zero drinks*) to 8 (*13 or more drinks*). Two parallel items were asked about drinking when having sex. Frequency scores were reverse coded, and then quantity and frequency scores were multiplied.

**Attitudes encouraging violence toward women—**Modified versions of three of Burt's (1980) measures of rape-supportive attitudes were included: rape myth acceptance, adversarial sexual beliefs, and acceptance of interpersonal violence. The modifications, which included updating some language and adding items to scales with low alphas, produced internally consistent scales in earlier research (Abbey & McAuslan, 2004). A sample rape myth item from the 13-item scale is "If a girl engages in necking or petting and she lets things get out of hand, it is her fault if her partner forces sex on her." A sample adversarial sexual beliefs item from the 9-item scale is "Most women are sly and manipulating when they are out to attract a man." A sample acceptance of interpersonal violence item from the 11-item scale is "It is all right for a man to hit his girlfriend if she flirts with others." Responses were made on 7-point Likert-type scales with options ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's coefficient alphas were .80, .80, and .72, respectively.

**Delinquency—**Frequency of engaging in delinquent behaviors before age 18 was assessed with a 13-item scale previously used by the second author (Abbey & McAuslan, 2004) that was based on measures developed by other researchers (Jessor & Jessor, 1973; Tremblay, Pagani-Kurtz, Mâsse, Vitaro, & Pihl, 1995). Sample items included "How often did you take little things that didn't belong to you?" and "How often did you take a car or motorcycle for a joy ride?" Responses were made on 6-point scales with options ranging from 0 (*never*) to 5 (*5 or more times*). Cronbach's coefficient alpha was .87.

**Stereotypes about drinking women—**Beliefs related to women's sexual behavior when drinking were assessed using an eight-item scale developed by the authors, based on

previous research (Abbey & Harnish, 1995; George et al., 1997; Parks & Scheidt, 2000). A sample item is “Women who drink in bars alone are looking for a sexual invitation.” Responses were made on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. Cronbach’s coefficient alpha was .89.

**Usual alcohol consumption—**Two standard open-ended questions about the frequency and quantity of alcohol consumption during the past 30 days were used to assess usual alcohol consumption (Hilton & Clark, 1987). Responses to these items were multiplied to create a quantity by frequency measure of total volume of alcohol consumed.

## RESULTS

### Descriptive and Bivariate Analyses

The number of times men reported having misperceived a woman’s friendliness as a sexual invitation ranged from 0 to 100. Of participants, 54% reported misperceiving a woman’s sexual intent at least once, and among those participants who had misperceived, the median number of misperceptions was three.

Frequency of misperception, number of sexual partners, number of one-time sexual partners, and usual alcohol consumption were skewed; thus, they were winsorized to three standard deviations above or below the mean so that the distribution of scores approximated the normal distribution (Wilcox, 2001). Table 1 provides the winsorized means and standard deviations for all measures as well as the bivariate correlations between them. All of the hypothesized predictor variables were significantly correlated with frequency of misperception, although the magnitude of the correlations was modest. The two strongest bivariate correlations were with number of casual sexual partners and hostile masculinity. The greater the number of casual sex partners and the stronger the hostile masculinity, the higher was the frequency of misperception.

### Structural Equation Modeling Analyses

The proposed structural equation model was evaluated using LISREL 8.30 (Jöreskog & Sörbom, 1999). Maximum likelihood estimation was selected because it is robust to violations of normality (Chou & Bentler, 1995). Model fit was assessed with several absolute and incremental fit indexes including chi-square, root mean square error of approximation (RMSEA), normed fit index (NFI), nonnormed fit index (NNFI), and comparative fit index (CFI; Bentler, 1990; Bentler & Bonett, 1980; Bollen, 1989; Browne & Cudeck, 1993). Although a nonsignificant $\chi^2$ demonstrates that the model fits well, it is dependent on sample size and significant values are often accepted if other indicators of fit are good. RMSEA values less than .05 and NFI, NNFI, and CFI values greater than .90 indicate excellent fit (Browne & Cudeck, 1993; Hoyle, 1995).

**Measurement model—**As can be seen in Table 2, each of the concepts shown in Figure 1 was estimated with one to three observed indicators, many of them being multi-item scales. All of the estimated standardized lambdas were of reasonable magnitude, ranging from .46 to .91. For constructs composed of one multi-item scale, lambda was set at the square root of

the scale's reliability coefficient; theta was set at the value equal to the variance of the scale multiplied by the quantity (1 −reliability; Hayduk, 1989; Loehlin, 1998). The lambda for single-item measures was arbitrarily set at .95 to acknowledge measurement error (Andrews, 1984).

**Replication of Confluence model—**As can be seen in Figure 1, the model that replicated the Confluence model fit the data relatively well, $\chi^2$ (24, $N$ = 356) = 76.82, $p$ < .01, NFI = .93, NNFI = .93, CFI = .95, RMSEA = .079. Both hostile masculinity and impersonal sex were significantly positively related to men's frequency of misperceiving women's sexual intent. Furthermore, attitudes that encourage violence toward women were significantly positively related to hostile masculinity and impersonal sex. Also, delinquency during adolescence was significantly positively related to impersonal sex. This model accounted for 10% of the variance in frequency of misperception.

**Extension of Confluence model—**As can be seen in Figure 2, the model that extended the Confluence model by adding a path associated with alcohol consumption fit the data reasonably well, $\chi^2$ (53, $N$ = 356) = 139.03, $p$ < .01, NFI = .92, NNFI = .92, CFI = .95, RMSEA = .068. Alcohol consumption in dating and sexual situations was significantly positively related to men's frequency of misperceiving women's sexual intentions. Delinquency, stereotypes about drinking women, and usual alcohol consumption were all significantly positively related to drinking in dating and sexual situations. Attitudes encouraging violence against women and stereotypes about drinking women were significantly positively related to hostile masculinity. Contrary to hypothesis, only delinquency was significantly related to impersonal sex. There were two nonsignificant pathways. Attitudes encouraging violence toward women and usual alcohol consumption were not significantly related to impersonal sex. In follow-up analyses in which the distal variables were allowed to have direct relationships with frequency of misperception, none of the betas were significant and the fit of the model was not improved. Overall, this model explained 12% of the variance in frequency of misperception, indicating that the alcohol path accounted for an additional 2% of unique variance.

## Synergistic Effects

The synergistic effects of the model were examined through traditional interaction effects and through risk factor analysis. Although interactions can be modeled in structural equation models, the effects can be difficult to interpret (MacCallum & Austin, 2000). Thus, we followed the lead of other Confluence researchers (Malamuth et al., 1991; Wheeler et al., 2002) and used hierarchical linear regression to examine the interactions between hostile masculinity, impersonal sex, and drinking in sexual situations. All variables were first standardized, and then composite scores for each construct were formed by averaging the standardized variable scores. On the first step, the main effects of hostile masculinity, impersonal sex, and drinking in sexual situations were entered and they were all significant (β = .18, .19, and .12, respectively; $p$s < .05). On the second step, the two-way interaction terms were entered; and on the third step, the three-way interaction term was entered. The only significant effect was the impersonal sex by drinking in sexual situations interaction (β = .15, $p$ < .01).

The nature of this interaction was explored by graphing the simple slopes at ±1 standard deviation of each predictor. As shown in Figure 3, among men who seldom drank alcohol in sexual situations, their level of impersonal sexual orientation was unrelated to how frequently they misperceived women's sexual intentions. In contrast, among men who frequently drank alcohol in sexual situations, the higher their level of impersonal sexual orientation, the more frequently they misperceived women's sexual intentions.

Risk analysis was also conducted to examine the hypothesis that men with high scores on multiple risk factors would most frequently misperceive women's cues. Tripartite splits were formed for hostile masculinity, impersonal sex, and drinking in dating and sexual situations. Participants were considered as having a high score on a risk factor if their score was in the top third of the distribution. The number of high scores was summed to create a risk index with scores ranging from 0 (*not high on any proximal construct*) to 3 (*high score on all 3 proximal constructs*). To evaluate possible curvilinear effects, a quadratic term was also computed by squaring the risk index score. Hierarchical multiple regression was performed with frequency of misperception regressed on the risk index in the first step and on the quadratic term in the second step. As can be seen in Figure 4, as the number of risk factors increased, the number of misperceptions increased in a linear ($\beta = .32$, $t[354] = 6.41$, $p < .001$) and quadratic ($\beta = .31$, $t[353] = 2.18$, $p < .05$) fashion. The slope became steeper as the number of risk factors increased from 1 to 2 and from 2 to 3, and men who scored in the highest third of the distribution on all three predictors reported the highest number of misperceptions.

## DISCUSSION

Few researchers have examined individual differences in men's attitudes and past experiences that might predict their likelihood of misperceiving women's friendly cues as sexual. As found in past research, the stronger participants' attitudes were supportive of violence against women, the more frequently they had misperceived a woman's sexual intent (Bondurant & Donat, 1999; Fisher & Walters, 2003; Vrij & Kirby, 2002). We extended this past research by examining attitudes toward women within the framework of the Confluence model (Malamuth et al., 1991). In a structural equation model, the effect of attitudes supporting violence against women on misperception was mediated by hostile masculinity. Hostile masculinity was operationalized with a measure that focuses on obtaining sexual gratification through having power over one's partner (Nelson, 1979). These men's sense of superiority and power may be enhanced by believing a woman is sexually attracted to them. Men who misperceive women for this reason are unlikely to care about women's actual motives and may even find pleasure in women's discomfort about their sexual advances. Furthermore, men who score high on hostile masculinity may not take a woman's refusal seriously because they believe women are untrustworthy and disingenuous.

In further support of the Confluence model, impersonal sex was also positively related to frequency of misperception. Men who misperceive women's friendly cues as sexual because of their strong interest in having frequent casual sexual experiences appear to be motivated by a desire for sexual experiences rather than a desire for power. They may intentionally

make sexual overtures toward any woman who displays friendly behavior, knowing that some women will refuse them but that with enough attempts they will eventually be successful in their quest for sexual gratification.

These findings extend past research on the Confluence model by adding a path focused on alcohol consumption. Men who drink alcohol in dating and sexual situations are more likely to misperceive women's friendliness as sexual interest because of alcohol's psychological and pharmacological effects. Most people expect alcohol to increase sexual arousal and sexual disinhibition (George & Norris, 1991). Alcohol impairs higher order cognitive processing, making it difficult for people to focus on multiple, conflicting cues (Finn, Justus, Mazas, & Steinmetz, 1999; Giancola, 2000). This can create a self-fulfilling prophecy whereby an intoxicated man is likely to interpret any ambiguous cues from a female companion as a sign of sexual interest (Snyder & Stukas, 1999).

A compelling aspect of the Confluence model is its emphasis on the synergy between different risk factors. Although some researchers have found that the interaction between hostile masculinity and impersonal sex explained additional variance (Malamuth et al., 1991; Wheeler et al., 2002), few researchers have conducted the analyses necessary to test this aspect of the model (Calhoun et al., 1997; Dean & Malamuth, 1997; Hall et al., 2005; Lim & Howard, 1998; Martín et al., 2005; Mosher & Danoff-Burg, 2005; Senn et al., 2000). In this study, the interaction between hostile masculinity and impersonal sex was not significant, although the interaction between impersonal sex and drinking in dating and sexual situations was significant. This finding needs to be replicated; however, it suggests that alcohol may encourage men with a strong impersonal sexual orientation to miss or ignore cues that signal a woman's disinterest. Men with a highly impersonal sexual orientation who drink alcohol in potentially sexual situations may be most prone to developing self-fulfilling prophesies that link drinking with sex.

As found in past examinations of the Confluence model, men who had high scores on multiple risk factors had higher scores on the outcome measure than would be predicted by an additive model (Dean & Malamuth, 1997; Malamuth et al., 1995). The 6% of the sample who had high scores on all three proximal risk factors engaged in significantly more misperceptions than did other participants. Men who have strong desires to dominate women and to have frequent casual sexual relations and who are often intoxicated in dating and other potential sexual situations appear to be highly motivated to interpret any positive cue from a woman as a sign of sexual interest.

## Limitations and Directions for Future Research

This study has several limitations that suggest directions for future research. Causal direction cannot be established with cross-sectional data. Prospective studies that follow men through adolescence and young adulthood are needed to examine how these beliefs develop and reinforce each other. The temporal links between hostile masculinity and impersonal sex are of particular interest. Are young men more likely to first develop negative attitudes about women and use them to justify impersonal sexual relationships or do they begin to have frequent sexual relationships and then develop negative attitudes toward women? It is likely that there are feedback loops involved, such that some young

men who hold traditional attitudes about women may treat their partners poorly, which may then lead to relationships low in intimacy and trust, which may then strengthen their negative attitudes about women. In Malamuth and colleagues' (1995) 10-year longitudinal study, early sexual experiences at Time 1 predicted sexual promiscuity at Time 2, which predicted hostile masculinity at Time 2, which in turn predicted impersonal sex at Time 2. Another important temporal issue has to do with how the experience of misperception is resolved. Some men may learn from their mistakes and become more adept at reading women's cues. Others may become resentful of women they misperceive, and this may strengthen their preexisting hostility toward women.

Although the variables included in this study explained a significant amount of variance in misperception frequency, they accounted for a relatively small amount of the total variance. Similarly, the fit of the model was good but not excellent. A few of the measures that are usually used to assess the Confluence model were not included in this study. It is possible that more variance would have been explained if childhood experiences with violence and hostility toward women had been assessed. The integration of individual difference variables, such as narcissism, impulsivity, attachment style, empathy, and social skills, into the Confluence model should enhance its predictive power. For example, narcissists' penchant for self-importance may increase the likelihood that they interpret a woman's friendly cues as sexual (Baumeister, Catanese, & Wallace, 2002). Impulsive men may be frequent misperceivers because in their haste to react they may take any positive cue from a woman as a sign of sexual interest. Men with an avoidant attachment style may often misperceive because they are motivated to have sexual relationships to enhance their feelings of power and to look good in front of their friends (Schachner & Shaver, 2004). Men who have low levels of empathic understanding may be more apt to misperceive because they lack the ability to take the woman's perspective. Relatedly, men with poor social skills may have difficulty reading women's cues in any interpersonal exchange, incorrectly assuming that their own sexual attraction is mutual. Misperceptions of all sorts arise because people base their judgments about others' thoughts and intentions on their own thoughts and intentions (Maner et al., 2005; Nickerson, 1999; Ross & Sicoly, 1979). Thus, misperception of sexual intent is not a unique process; however, it is exacerbated by stereotypes about women and sexual behavior that encourage some men to distrust women.

Studies are also needed that examine situational factors in addition to alcohol that encourage misperception in naturalistic settings. An important dimension that is typically ignored is the type of relationship between the man and the woman. Does the misperception occur between two strangers chatting at a crowded party or bar, or on a first date as they say good night, or between steady dating partners regarding what level of sex they want to share? In some instances the woman may not be at all sexually interested in the man; in other instances she may not be interested in sex at this time or in the level of sex he desires. The types of situational and individual difference variables that are most likely to predict misperception of a stranger in a bar may differ from those most likely to predict misperception of a dating partner.

Another limitation is that a single question was used to assess misperception of sexual intent. Although this item demonstrated good convergent, criterion-related, and discriminant

validity (Abbey, 1987; Abbey et al., 1998; Abbey et al., 2001), one important goal for future research is to develop internally consistent multi-item scales. Relatedly, self-reports of misperception require individuals to realize that they have misperceived someone else. If a man is persistent in his sexual advances with a disinterested woman, it seems likely that she will make her disinterest clear. However, some men may never get the message. Laboratory studies could be developed in which men watch staged interactions in which a female character accepts or rejects a male character's sexual advances using a variety of different direct and indirect strategies. Participants' ability to accurately perceive the woman's response could be evaluated. Given the strong relationship between men's frequency of misperception of sexual intent and sexual assault perpetration (Abbey et al., 1998; Abbey et al., 2001) such studies could become the basis for prevention programs which identify young men who are prone to misperceiving women's cues and provide them with intensive skills training.

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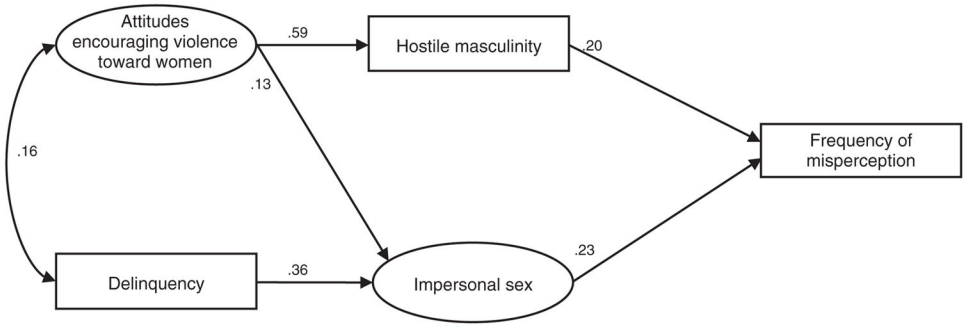


**Figure 1.**

Replication of Malamuth, Sockloskie, Koss, and Tanaka's (1991) Confluence model.

NOTE: Loadings are standardized. All significant paths are shown at $p < .05$.

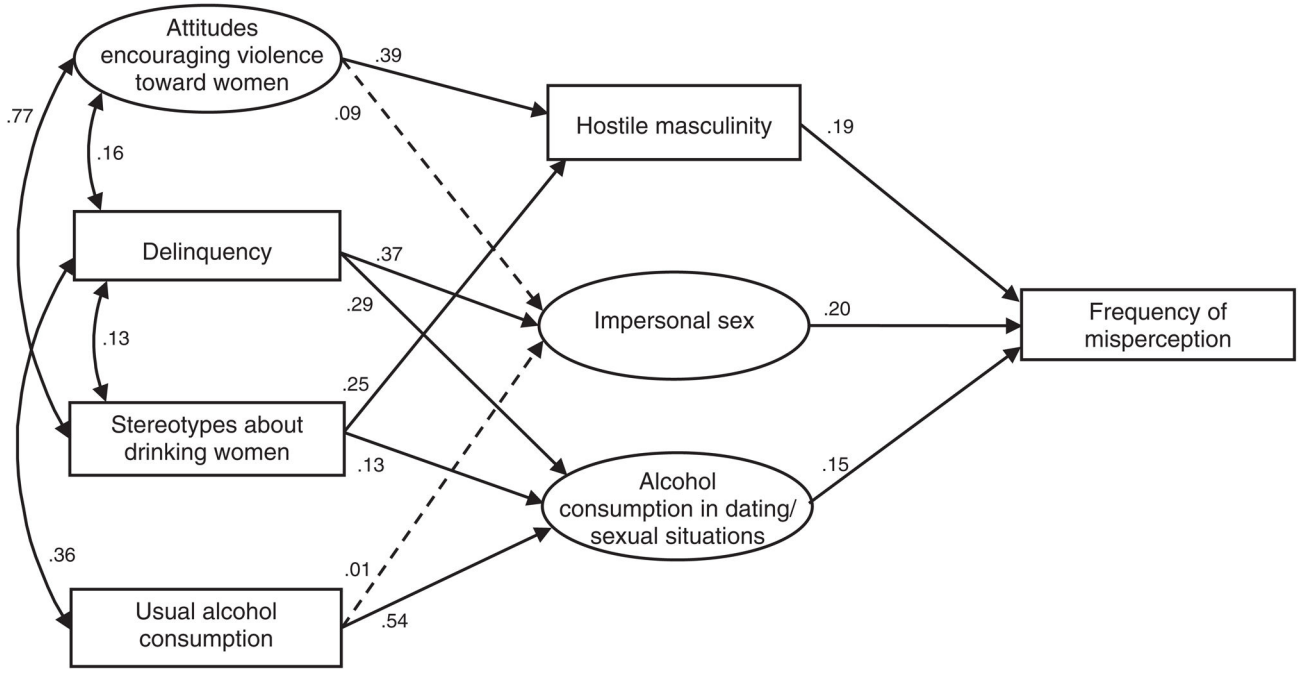


**Figure 2.**

Replication of Malamuth, Sockloskie, Koss, and Tanaka's (1991) Confluence model with alcohol variables.

NOTE: Loadings are standardized. All significant paths are shown at $p < .05$. Dashed lines indicate nonsignificant pathways. All distal constructs were allowed to correlate; however, only significant relationships are shown.

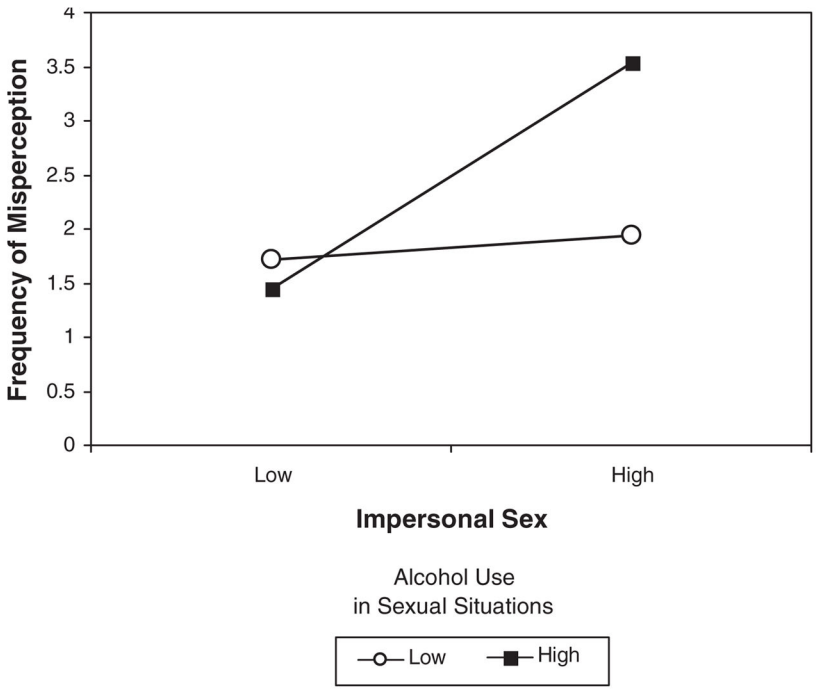


**Figure 3.**

Frequency of misperception as a function of the interaction between impersonal sex and drinking in sexual situations.

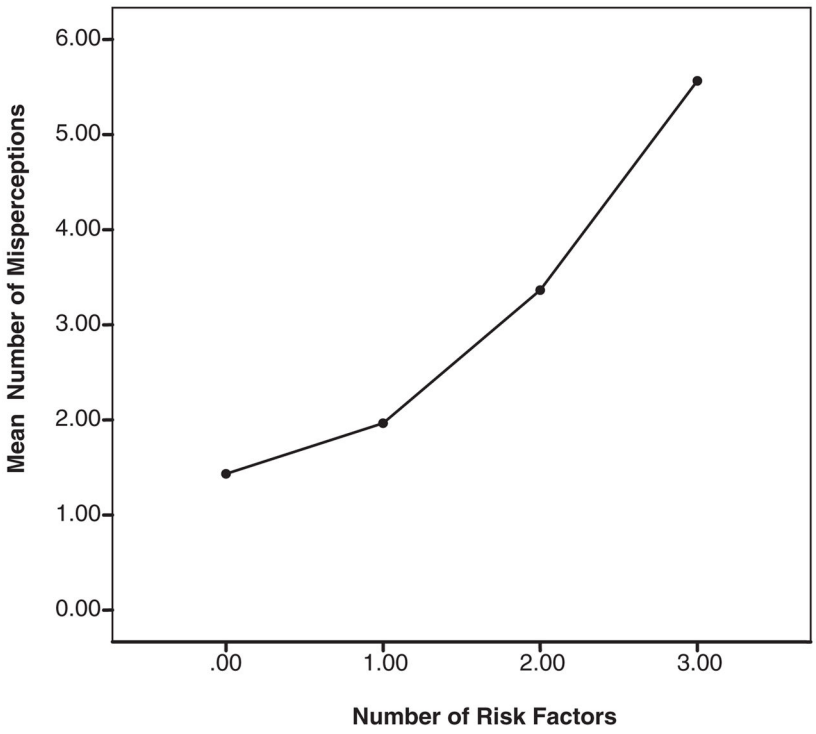


**Figure 4.**

Frequency of misperception as a function of the number of constructs on which participants scored in the upper third of the distribution.

NOTE: The number of participants categorized into each group is as follows: 0 risk factors, *n* = 119; 1 risk factor, *n* = 129; 2 risk factors, *n* = 85; 3 risk factors, *n* = 23.

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**TABLE 1**

Means, Standard Deviations, and Correlations for Variables in Structural Equation Model ($N$ = 356)

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Frequency of misperception | — | | | | | | | | | | | | |
| 2. Hostile masculinity | .23 | — | | | | | | | | | | | |
| 3. Number of sexual partners | .22 | .14 | — | | | | | | | | | | |
| 4. Number of casual sex partners | .25 | .14 | .82 | — | | | | | | | | | |
| 5. Casual sex attitudes | .18 | .24 | .42 | .39 | — | | | | | | | | |
| 6. Drinking during dates | .18 | .05 | .18 | .14 | .30 | — | | | | | | | |
| 7. Drinking during sex | .17 | .13 | .18 | .19 | .37 | .60 | — | | | | | | |
| 8. Rape myth acceptance | .14 | .44 | .08 | .06 | .06 | .05 | .14 | — | | | | | |
| 9. Adversarial sex beliefs | .13 | .44 | .19 | .17 | .20 | .11 | .14 | .63 | — | | | | |
| 10. Acceptance of interpersonal violence | .16 | .48 | .16 | .13 | .22 | .10 | .18 | .67 | .58 | — | | | |
| 11. Delinquency | .18 | .14 | .28 | .32 | .35 | .35 | .34 | .03 | .20 | .16 | — | | |
| 12. Stereotypes about drinking women | .11 | .50 | −.01 | .02 | .10 | .14 | .18 | .63 | .50 | .55 | .11 | — | |
| 13. Usual drinking | .12 | .04 | .12 | .12 | .26 | .50 | .52 | .04 | .10 | .04 | .32 | .10 | — |
| Mean | 2.35 | 1.88 | 14.75 | 4.76 | 3.68 | 9.12 | 8.27 | 2.25 | 3.12 | 2.08 | 1.91 | 2.41 | 33.60 |
| Standard deviation | 3.29 | 0.66 | 17.57 | 6.31 | 1.78 | 5.92 | 6.94 | 0.86 | 1.05 | .78 | 1.15 | 1.12 | 33.06 |

NOTE: Correlations ≥ .11 are significant at $p < .05$.

## TABLE 2

Construct Loadings ($N$ = 356)

| Indicator | Construct loading (Λ1) |
|---|---|
| Misperception of sexual intent | 0.95 |
| Hostile masculinity | 0.93 |
| Impersonal sex | |
| Number of sexual partners | 0.90* |
| Number of casual sex partners | 0.91* |
| Attitudes toward casual sex | 0.46* |
| Alcohol consumption during sexual situations | |
| Drinking during dates | 0.76* |
| Drinking during sex | 0.79* |
| Attitudes accepting violence toward women | |
| Rape myth acceptance | 0.84* |
| Adversarial sex beliefs | 0.74* |
| Acceptance of interpersonal violence | 0.79* |
| Delinquency | 0.93 |
| Stereotypes about drinking women | 0.94 |
| Usual drinking | 0.95 |

NOTE: For single-item indicators, the construct loading was set at .95 to reflect measurement error. For single indicators based on a multi-item scale, the construct loading was set at the square root of the reliability coefficient.

* $p < .001$.