Psychology of Violence
2016, Vol. 6, No. 4, 562–572

2152-0828/16/$12.00 http://dx.doi.org/10.1037/a0039845

Enhancing the Accuracy of Men's Perceptions of Women's Sexual Interest in the Laboratory

Teresa A. Treat
University of Iowa

Richard J. Viken
Indiana University

Coreen A. Farris
RAND Corporation, Pittsburgh, Pennsylvania

Jodi R. Smith
University of Iowa

Objective: We evaluate a novel feedback-based procedure designed to enhance the accuracy of men's judgments of women's sexual interest in the laboratory, as misperception of sexual interest is implicated in male-initiated sexual aggression toward acquaintances. ***Method:*** In an initial rating task, 183 undergraduate males judged the sexual interest of women in full-body photographs; the women varied along sexual interest, clothing style, and attractiveness dimensions. Half of the participants received feedback on their ratings. In a related transfer task, participants indicated whether women in photographs would respond positively to a sexual advance. History of sexual aggression and rape-supportive attitudes were assessed. ***Results:*** Participants relied substantially on both affective and nonaffective cues when judging women's sexual interest. High-risk men relied less on affect and more on attractiveness. Feedback enhanced focus on women's affective cues and decreased focus on nonaffective cues for both low-risk and high-risk men. Feedback affected transfer performance indirectly, via altered cue usage in the training task. ***Conclusions:*** The current work documents high-risk men's altered focus on women's affective and nonaffective cues and provides encouraging support for the potential use of a cognitive-training paradigm to enhance men's perceptions of women's sexual-interest cues, albeit to a lesser degree for high-risk men.

Keywords: cognitive training, multilevel modeling, rape-supportive attitudes, sexual aggression, sexual perception

Male-initiated sexual aggression toward female acquaintances is a major public-health problem on college campuses. Approximately 20% to 25% of college women experience an attempted or completed rape, with the overwhelming majority occurring with someone known to the victim (Fisher, Cullen, & Turner, 2000; Krebs, Lindquist, Warner, Fisher, & Martin, 2007). Amendments to the Campus Security Act of 1990 mandated the provision of sexual-assault prevention programs for all universities and colleges receiving federal funding, and a wealth of primarily didactic programs have been developed and disseminated nationwide. Unfortunately, Anderson and Whiston (2005) documented that the effects of existing prevention programs on both the incidence of aggression and behavioral intentions to engage in aggression are inadequate (mean weighted effect sizes = .101, .136, respectively), highlighting the pressing need for basic-science research that may foster the development of novel strategies to augment existing prevention approaches. Thus, the overarching goals of the current work are (a) to investigate whether men at greater risk of sexual aggression show altered focus on women's affective and nonaffective cues when judging women's sexual interest and (b) to evaluate whether the provision of feedback on men's perceptions of women's sexual interest enhances the accuracy of both low-risk and high-risk men's perceptions in the laboratory. Importantly, this is but a first step in the development of a more comprehensive cognitive-training approach designed to produce more lasting change in men's perceptions of women's dating-relevant cues.

Theoretical models of sexual coercion and aggression between acquaintances implicate a variety of attitudinal, personality, contextual, historical, and perceptual factors (e.g., Abbey, Jacques-Tiura, & LeBreton, 2011; Thompson, Koss, Kingree, Goree, & Rice, 2011). Abbey et al. (2011) recently expanded Malamuth, Sockloskie, Koss, and Tanaka's (1991) influential Confluence Model to include misperception of women's sexual interest as a proximal predictor of sexual aggression, in addition to other proximal factors (heavy alcohol consumption, hostile masculinity, and sociosexuality) and several distal factors (childhood victimization, adolescent delinquency, and psychopathy traits). Misperception of sexual interest refers to erroneous perception of the magnitude of a person's sexual interest. Misperception of sexual interest could

This article was published Online First November 9, 2015.

Teresa A. Treat, Department of Psychological and Brain Sciences, University of Iowa; Richard J. Viken, Department of Psychological and Brain Sciences, Indiana University; Coreen A. Farris, RAND Corporation, Pittsburgh, Pennsylvania; Jodi R. Smith, Department of Psychological and Brain Sciences, University of Iowa.

Correspondence concerning this article should be addressed to Teresa A. Treat, Department of Psychological and Brain Sciences, 11 Seashore Hall East, University of Iowa, Iowa City, IA 52242. E-mail: teresa-treat@uiowa.edu

be considered an error in affective processing where, for example, friendliness or happiness is mistaken for sexual interest, or sadness is mistaken for sexual acquiescence. The inclusion of sexual-interest misperception in the expanded Confluence Model is supported by a burgeoning literature that links impoverished processing of women's sexual interest to increased risk of sexually coercive or aggressive behavior toward acquaintances among college-aged males, as indicated by a self-reported history of sexual aggression or endorsement of rape-supportive attitudes (see Farris, Treat, Viken, & McFall, 2008b). For example, Abbey et al. (2011) showed in path analyses of data from 470 single men that the self-reported tendency to misperceive women's friendliness as sexual interest directly predicted self-reported coercive and aggressive behavior. Moreover, Abbey et al. (2011) showed that endorsement of rape-supportive attitudes and heavy alcohol consumption indirectly predicted self-reported aggression via elevated misperception of sexual intent. The current research team also has shown in several studies that high-risk men, in comparison with low-risk men, show decreased attention to, sensitivity to, and memory for women's dating-relevant affective cues, such as sexual interest, friendliness, sadness, and rejection (Farris, Viken, Treat, & McFall, 2006; Farris, Viken, & Treat, 2010; Treat, McFall, Viken, & Kruschke, 2001; Treat, Viken, Kruschke, & McFall, 2011). Misperception of a woman's sexual interest could increase the likelihood of subsequent aggression via a number of even more proximal potential mechanisms, including increased misperception of later sexual nonconsent cues, dismissal of later nonconsent cues as token resistance, and perception of later nonconsent cues as purposely inciting frustration and thus justifying violence.

Other nonaffective characteristics of the woman, such as her clothing style and attractiveness, also may influence perceptions of a woman's sexual interest and likely response to a sexual advance, particularly among men at greater risk of exhibiting sexual aggression. Treat et al. (2001) demonstrated that high-risk men, in comparison to low-risk men, attended relatively less to women's affect than to women's physical characteristics when viewing full-body photos of women from newsstand magazines. Farris et al. (2006) showed that men's sensitivity to college women's dating-relevant affective cues in full-body photos declined when the depicted women were dressed more provocatively, and the magnitude of the influence of clothing style on decisions about women's sexual interest increased reliably among men who endorsed more rape-supportive attitudes (see Farris, Treat, & Viken, 2010, for an altered replication). A number of empirical studies also have demonstrated that attractive persons are more likely than unattractive persons to be perceived as receptive and sexually interested. Most relevant to the current work, Perilloux, Easton, and Buss (2012) demonstrated in a speed-dating study that men are more likely to overperceive the sexual interest of more attractive women.

The current study extends this prior work by evaluating whether nonaffective cues interfere with men's processing of women's affective cues when affect, clothing style, and attractiveness compete simultaneously and independently for attention while men judge women's sexual interest. Moreover, we examine whether such interference is stronger among men at greater risk of sexual aggression. Typically, clothing style and attractiveness are more "omni-directional cues" that can be perceived by all men in the social environment and that are constant across the period of time that the woman is in a specific context (Farris et al., 2008b). Thus, these more static cues are less likely to be diagnostic of a woman's response to a specific man at a particular point in time, unless the woman has dressed for a specific man, such as on a date. In contrast, nonverbal affective cues like facial expression, use of hands, or body stance frequently are more "uni-directional cues" that can be directed to a specific man at a specific point in time. Even in the circumstance in which a woman is on a date with a specific man, her fluctuating affective response to him presumably is more indicative of her momentary receptivity than her dress and attractiveness. Overall, the more dynamic and contextualized uni-directional, affective cues are likely to be more diagnostic of a woman's response to a specific man at a particular point in time than the omni-directional, nonaffective cues (Farris et al., 2008b).

This perspective suggests that enhancing a man's focus on a woman's dating-relevant affective cues and decreasing his focus on her physical characteristics when attempting to discern her level of sexual interest in him at a particular point in time ultimately may decrease the likelihood of coercive sexual interactions. As a first step in evaluating the feasibility of changing what men focus on when judging women's sexual interest, the current project evaluates a performance-based procedure designed to enhance the accuracy of men's sexual-interest judgments in the laboratory. The Sexual-Interest Rating Task (hereafter Rating Task) serves as a platform for the provision of feedback. Participants judge the sexual interest of women in full-body photographs. Sexual interest ranges from extremely rejecting to extremely sexually interested, as judged by experts, and is communicated by facial expression and body posture. Extensive ratings from experts and undergraduates provide information on the sexual-interest, provocativeness-of-dress, and attractiveness of each woman. After making each rating, half of the participants receive feedback based on expert judgments of the woman's sexual interest. This kind of trial-by-trial feedback is a well-established facilitator of perceptual learning and decision making (Healy, Schneider, & Bourne, 2012), particularly for rule-based category structures like the one we consider here (e.g., Maddox, Love, Glass, & Filoteo, 2008).

Multilevel modeling methods are used to characterize each participant's reliance on the three dimensions when judging women's sexual interest. At the lowest (first) level of the model, multiple-regression equations predicting participant judgments from women's characteristics are fit separately but simultaneously to all participants' data. The estimated regression coefficients (or partial slopes) index *utilization of*, or *reliance on*, each characteristic. A participant with a high *utilization coefficient* for attractiveness, for instance, weights attractiveness heavily when judging women's sexual interest. In other words, this participant would judge the more attractive of two women to be feeling more sexually interested, even if the women were expressing the same degree of sexual interest. Thus, the average values of these regression-based utilization coefficients tell us how much the average participant relies on the three women's characteristics when rating women's sexual interest. At the highest (second) level of the model, participant-specific variation in the utilization coefficients is predicted by participant-specific characteristics, such as whether feedback was provided and whether the participant endorsed a history of sexual aggression. For example, we evaluate whether a self-reported history of sexual aggression is associated

with decreased reliance on affective cues and increased reliance on nonaffective cues. Our overarching focus on clinically relevant individual differences in cue reading and weighting is consistent with theoretical perspectives in social psychology that focus on the integration of multiple cues in social perception and decision making (e.g., Dougherty & Thomas, 2012; Karelaia & Hogarth, 2008). Additionally, Karelaia and Hogarth (2008) suggested that multilevel modeling methods may provide a useful analytic approach for simultaneous evaluation of nomothetic and idiographic questions when conducting cue-utilization research—precisely the questions of interest in the current project.

If it can be shown that feedback improves men's reliance on women's affect in the laboratory, then the next question is whether what is learned generalizes (or transfers) to performance on other cognitive tasks in a similar domain but with somewhat different characteristics (i.e., on a transfer task). To test this question, we evaluate whether receipt of feedback on the Rating Task affects performance on a transfer decision-making task. In the Sexual-Responsiveness Classification Task (hereafter the Classification Task or transfer task), participants again view photographs of women but now make decisions about the likely valence (positive or negative) of each woman's response to a man's sexual advance. Here too, we rely on multilevel modeling to characterize each participant's cue utilization when making these decisions. Then we evaluate whether individual differences in the computed utilization coefficients are related to feedback receipt on the Rating Task, to a history of sexual aggression, and to rape-supportive attitudes. Because our theoretical model suggests that some men who engage in aggression against women may not provide valid reports of their behavior, we conduct parallel analyses with endorsement of rape-supportive attitudes, a well-established correlate of self-reported perpetration of sexual coercion and aggression (e.g., Murnen, Wright, & Kaluzny, 2002). Finally, we examine whether feedback indirectly influences cue utilization on the Classification Task via altered reliance on women's characteristics in the Rating Task.

Overall, we evaluate five experimental and individual-differences hypotheses. First, we anticipate that the provision of trial-by-trial feedback when judging sexual interest will at least briefly enhance men's focus on women's affective cues and decrease men's focus on women's nonaffective cues (i.e., clothing style and attractiveness), as indicated by modified utilization of these cues in the Rating Task. Second, we expect that feedback-related changes in cue utilization will transfer to a decision-making task presenting similar photo stimuli, the Classification Task. Third, receipt of feedback is expected to influence transfer performance indirectly, via altered reliance on women's affective and nonaffective cues in the rating task. Fourth, men who report having engaged in sexually coercive or aggressive behavior, in comparison with their peers, are expected to show decreased reliance on women's affective cues, and increased reliance on their nonaffective cues, when judging women's sexual interest and making decisions about the potential valence of women's responses to a sexual advance. Parallel analyses will examine similar hypotheses for endorsement of rape-supportive attitudes. Fifth, we expect that the provision of feedback will exert a positive effect on these high-risk men, given the well-established effects of feedback on category learning (Healy et al., 2012; Maddox et al., 2008). The magnitude of the feedback effect may be smaller in magnitude for high-risk men than for their peers, however, given their tendency to focus less on women's affective cues.

Method

Participants

Participants were 183 heterosexual or bisexual undergraduate males who received partial course credit for completing the study. The sample size ensured that power was at least .80 to detect moderate-magnitude effects. The average age of participants was 19.51 years ($SD = 2.43$); 77.6% were Caucasian and 10.9% were Asian American/Asian; and 92.3% reported at least one serious or casual dating relationship in the last three years. Approval for the current project was obtained from the Institutional Review Board of the University of Iowa.

Photo Stimulus Set

Full-body photographs of undergraduate females were selected from a larger set containing 1127 photos of 81 women (see Farris et al., 2006). All models wore their own warm-weather clothing. The models were asked to display a variety of affective responses, including friendliness, sexual interest, rejection, and sadness. They were guided by an experienced photographer when needed to ensure better fidelity to the target response. Thus, the photos varied in sexual interest (extremely rejecting to extremely sexually interested) and clothing style (conservative to provocative) by design, and the models also varied naturally on attractiveness. The four authors developed coding definitions and procedures, which were refined with experience coding small samples of pilot stimuli (see Treat et al., 2011). All four authors rated each woman's sexual interest and provocativeness of dress. When judging the degree of sexual interest the woman was expressing on a rating scale from −10 to +10, raters were instructed "to focus only on the degree to which the woman is expressing sexual interest, and to ignore her clothing style, her attractiveness, your personal reactions to the woman or her clothing, etc." When judging the sexual provocativeness of the woman's clothing on a rating scale from 1 to 10, raters were asked "to focus only on the sexual provocativeness of the clothing and to ignore characteristics of the model completely, including her affect, her attractiveness, how she looks in the clothing, your personal reactions to the woman or her clothing, etc." Coding reliability among experts was high: the average bivariate correlation between raters was .92 for sexual interest and .86 for clothing style. More recently, 9 undergraduate women coded the sexual-interest and provocativeness-of-dress dimensions for these photos, using the same instructions. The inter-rater reliability of the undergraduate women's ratings was high (ICCs = .97, .95), and undergraduate and expert judges' average ratings converged strongly ($r = .97, .96$). A large sample of undergraduate men rated the women's attractiveness on a rating scale from 1 to 10 ($M = 4.13$, $SD = 1.63$). An average rating of sexual interest, provocativeness of clothing style, and attractiveness was computed for each photo. Correlations between the dimensions were minimized during stimulus selection for both tasks (all rs $< .35$).

Tasks and Measures

Sexual-interest rating task. Participants viewed 232 photographs of undergraduate females for 2 s apiece in a random order. Participants judged "how sexually interested versus rejecting 232 women feel," using "a scale that ranges from −10 = extremely rejecting, to 0 = neutral, to 10 = extremely sexually interested." Half of the participants received feedback based on experts' judgments. Figure 1 depicts the sequence of three events on each trial in the feedback condition. Remaining subjects made their judgments without receiving feedback.

Sexual-responsiveness classification task. Participants viewed 110 photos for 1 s apiece in a random order and decided whether "the woman you just viewed would respond positively or negatively to a man's sexual advance." Half of the photos had been viewed previously. The remaining photos were matched to a previously presented photo and depicted the same woman in the same outfit but expressing different affect. Whether the photo was "old" or "new" was unrelated to participant judgments and was dropped from further analyses.

Illinois Rape Myth Acceptance (IRMA). The IRMA is a 45-item questionnaire that assesses endorsement of rape-supportive attitudes (e.g., rape is justified) with good evidence of reliability and validity (Payne, Lonsway, & Fitzgerald, 1999). Alpha is .931 in the current sample. IRMA scores (M = 98.63, SD = 31.72) did not differ across feedback conditions.

Sexual Experiences Survey (SES). The SES is a 10-item behaviorally specific self-report measure of sexual coercion and aggression with reasonable reliability and validity (Koss, Gidycz, & Wisniewski, 1987). To correct positively skew, we scored the SES dichotomously, separating the sample into men who responded negatively to all items (noncoercive; n = 132, 72.1%) and men who responded affirmatively to one or more items (sexually coercive or aggressive; n = 51, 27.9%). The proportion of sexually coercive men did not differ across conditions.

Personal information questionnaire. Participants reported demographic characteristics (i.e., age, race/ethnicity, marital status, sexual orientation), as well as dating history (i.e., number of casual and serious dating relationships over the last three years).

Procedure

After completing an informed-consent statement, each participant was seated in a private booth in front of a computer. He then completed the tasks in the order described above.

Results

Sexual Interest Rating Task

Hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) with robust standard errors was used to analyze men's judgments of women's sexual interest. A 2-level regression analysis was conducted; participants' repeated ratings of women's sexual interest (level one) were nested within participants (level two). This analytic approach allowed us to represent simultaneously but separately the influences of women-specific characteristics on the average participant's judgments of sexual interest, and the idiographic influences of participant-specific characteristics on each participant's judgments.

The level-one equation below specified three standardized linear predictors of each participant's sexual-interest judgments: expert judgments of sexual interest and clothing style, and undergraduates' judgments of attractiveness. Thus, the intercept for the level-one equation (β_0) indexed the model-predicted judgment for a hypothetical woman displaying average sexual interest, clothing style, and attractiveness. The partial slopes in the level-one equation (β_1, β_2, and β_3) were the *utilization coefficients* of primary interest, which indicated each participant's reliance on, or weighting of, the three stimulus-specific characteristics. Predictors of variability in the participant-specific intercepts and slopes were included in the four level-two equations.

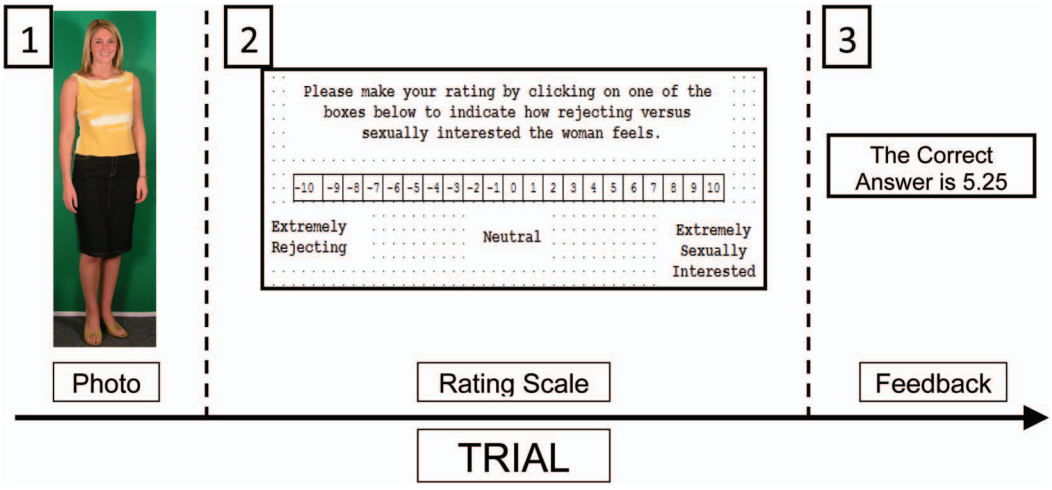

Figure 1. Sequence of three screens that appear on a single trial of Sexual-Interest Rating Task (photo presentation, rating scale judgment, provision of feedback) for participant who received feedback. See the online article for the color version of this figure.

Level-one equation for judgments of women's sexual interest:

$$\textit{Sexual interest judgment} = \beta_0 + \beta_1(\textit{Sexual interest}) + \beta_2(\textit{Clothing style}) + \beta_3(\textit{Attractiveness}) + r$$

The level-two equations below predicted individual differences in participant intercepts (β_0) and utilization coefficients for sexual interest, clothing style, and attractiveness (β_1, β_2, β_3). Three participant-specific predictors were evaluated: Feedback (effect coded, with 1 = feedback, −1 = no feedback), SES Group (effect coded, with 1 = endorsement of at least one sexually coercive or aggressive act ["Coercive"], −1 = no endorsement ["Non-Coercive]), and the Interaction between Feedback and SES Group. The regression coefficient for the Feedback effect on sexual-interest utilization (γ_{11}), for example, indicated half (given effect coding) of the model-predicted change in sexual-interest judgments associated with receipt of feedback, controlling for other participant characteristics. The intercept terms in each equation indicated the model-predicted values of the relevant parameter assuming average values for all predictors.

Level-two equations for participant-specific intercepts and slopes:

$$\beta_0 = \gamma_{00} + \gamma_{01}(\textit{Feedback}) + \gamma_{02}(\textit{SES group}) + \gamma_{03}(\textit{Interaction}) + \mu_0$$
$$\beta_1 = \gamma_{10} + \gamma_{11}(\textit{Feedback}) + \gamma_{12}(\textit{SES group}) + \gamma_{13}(\textit{Interaction}) + \mu_1$$
$$\beta_2 = \gamma_{20} + \gamma_{21}(\textit{Feedback}) + \gamma_{22}(\textit{SES group}) + \gamma_{23}(\textit{Interaction}) + \mu_2$$
$$\beta_3 = \gamma_{30} + \gamma_{31}(\textit{Feedback}) + \gamma_{32}(\textit{SES group}) + \gamma_{33}(\textit{Interaction}) + \mu_3$$

We present all reliable and trend-level findings for the utilization coefficients below. Table 1 presents the results of the modeling. The intercepts for the four parameters indicate the normative effects across all participants. The average intercept, γ_{00}, was −.125, indicating that the rating of sexual interest for the "average" woman was near the center of the response scale.

The average utilization of sexual interest, γ_{10}, was 2.734, indicating that participants' judgments significantly increased 2.734 points for each 1 *SD* increase in the woman's sexual-interest ratings. Similarly, participants' average utilization coefficients for clothing style and attractiveness (γ_{20}, γ_{30}) were significantly greater than zero at .438 and 1.076 points, respectively; women were judged to be expressing greater sexual interest when they wore more provocative clothing and were more attractive. The magnitude of all three effects was quite large—Cohen's *d*s were 3.210, 1.655, and 2.348 for sexual interest, clothing style, and attractiveness, respectively—indicating that the average participant relied substantially not only on women's affective cues but also on women's clothing styles and their attractiveness. These three woman-specific characteristics accounted for 58.18% of the variation in men's judgments across stimuli.

At Level Two, several significant predictors of variability in these utilization coefficients emerged. Feedback exerted reliable influences on participants' utilization of women's cues. Those who viewed feedback showed a substantial increase in utilization of sexual interest (γ_{11}, $d = 1.283$), a moderate decrease in utilization of clothing style (γ_{21}, $d = -.431$), and a moderate decrease in utilization of attractiveness (γ_{31}, $d = -.542$), consistent with our first hypothesis.

In evaluation of our fourth hypothesis, endorsement of at least one sexually coercive or aggressive act (SES Group) negatively predicted sexual-interest utilization at a trend level (γ_{12}, $d = -.282$) and positively predicted attractiveness utilization (γ_{32}, $d = .329$). SES Group did not predict increased reliance on clothing style, contrary to our fourth hypothesis (γ_{22}, $d = -.012$). Thus, those men at higher risk of displaying sexual coercion or aggression relied less than their peers on women's affect (at a trend level) and more on women's attractiveness. Supporting our fifth hypothesis, reliable interactions between SES Group and Feedback were not observed, indicating that men who reported a history of sexual aggression benefited from trial-by-trial feedback to a similar degree as men who reported no prior aggressive behavior.

In parallel analyses of our fourth hypothesis, we included rape-supportive attitudes (IRMA, centered) instead of SES Group as a

Table 1
Multilevel Modeling Results for Sexual Interest Rating Task

Parameter	Estimate	Standard error	*t* value	*df*	*p* value	*d* value
For intercept, β_0						
Intercept, γ_{00}	−.125	.102	−1.220	179	.224	−.182
Feedback, γ_{01}	.314	.102	3.077	179	.002	.460
SES group, γ_{02}	−.010	.102	−.102	179	.919	−.015
Interaction, γ_{03}	.010	.102	.387	179	.921	.058
For sexual interest slope, β_1						
Intercept, γ_{10}	2.734	.127	21.474	179	<.001	3.210
Feedback, γ_{11}	1.094	.127	8.582	179	<.001	1.283
SES group, γ_{12}	−.240	.127	−1.884	179	.061	−.282
Interaction, γ_{13}	−.210	.127	−1.646	179	.101	−.246
For clothing style slope, β_2						
Intercept, γ_{20}	.438	.040	11.074	179	<.001	1.655
Feedback, γ_{21}	−.114	.040	−2.886	179	.004	−.431
SES group, γ_{22}	−.003	.040	−.078	179	.938	−.012
Interaction, γ_{23}	−.031	.040	−.792	179	.429	−.118
For attractiveness slope, β_3						
Intercept, γ_{30}	1.076	.069	15.704	179	<.001	2.348
Feedback, γ_{31}	−.248	.069	−3.623	179	<.001	−.542
SES group, γ_{32}	.151	.069	2.203	179	.029	.329
Interaction, γ_{33}	.033	.069	.487	179	.627	.073

Level-Two predictor. Feedback effects were near identical to those observed in SES Group analyses. Not surprisingly, the continuous IRMA score proved to be more sensitive than the dichotomous SES Group variable; two additional effects were reliable in the IRMA analyses. Consistent with our fourth hypothesis, endorsement of rape-supportive attitudes negatively predicted sexual-interest utilization, $t(179) = -2.740$, $p < .01$, $d = -.410$. IRMA also reliably interacted with Feedback in predicting reliance on sexual interest, $t(179) = -2.347$, $p < .05$, $d = -.351$; the magnitude of the Feedback effect declined as rape-supportive attitudes increased. Nonetheless, Feedback substantially enhanced utilization of sexual interest cues, not only for those with rape-supportive attitudes one *SD* below the mean, $t(179) = 10.807$, $p < .001$, $d = 1.616$, but also those with attitudes one *SD* above the mean, $t(179) = 5.796$, $p < .001$, $d = .866$. Finally, consistent with our fourth hypothesis, endorsement of rape-supportive attitudes emerged as a reliable positive correlate of utilization of attractiveness, $t(179) = 2.369$, $p < .05$, $d = .354$. Clothing-style utilization was unrelated to rape-supportive attitude endorsement, contrary to our fourth hypothesis, $t(179) = 0.542$, *ns*, $d = .081$.

Sexual Responsiveness Classification Task

HLM with robust standard errors was used to analyze men's classifications of the valence of women's likely responses to a sexual advance. In a 2-level model, participants' repeated classifications at level one (positive or negative) were nested within participants at level two. Reported statistics are for a unit-specific model with robust standard errors.

The level-one equation modeled the log odds of a positive classification as a function of standardized ratings of women's sexual interest, clothing style, and attractiveness. Thus, the intercept for the level-one equation (β_0) indicated the model-predicted log odds of a positive classification for a hypothetical woman displaying average sexual interest, clothing style, and attractiveness. The partial slopes in the level-one equation (β_1, β_2, and β_3) indexed each participant's utilization coefficients for the three woman-specific characteristics when making classifications. Predictors of variability in these participant-specific intercepts and slopes were included in the level-two equations.

The level-two equations predicted individual differences in participant intercepts and utilization coefficients for sexual interest, clothing style, and attractiveness. As described for the previous task, three participant-specific predictors were evaluated: Feedback, SES Group, and the Interaction between Feedback and SES Group.

Table 2 presents the results of the modeling. The intercepts for the four parameters indicate the normative effects across all participants. The average log-odds of a positive classification, γ_{00}, was $-.023$, indicating that the model predicted a .493 probability that the "average" woman would respond positively to a sexual advance.

The average utilization of sexual interest, γ_{10}, was 2.241, indicating that the average log odds of a positive classification increased 2.241 points for each 1 *SD* increase in the woman's sexual-interest ratings. Similarly, participants' average utilizations of clothing style and attractiveness (γ_{20}, γ_{30}) were significant at .157 and .433 points, respectively. The magnitude of all three effects was quite large—*d*s were 3.726, .659, and 1.651 for sexual interest, clothing style, and attractiveness, respectively—indicating that the average participant relied not only on women's affective cues but also on women's clothing style and their attractiveness.

Several significant predictors of variability in the utilization coefficients emerged. Consistent with our second hypothesis, Feedback altered participants' utilization of sexual interest and attractiveness. Those viewing feedback on the rating task showed a large increase in sexual-interest utilization (γ_{11}, $d = .777$) and a small decrease in attractiveness utilization (γ_{31}, $d = -.382$).

Table 2
Multilevel Modeling Results for Sexual-Responsiveness Classification Task

Parameter	Estimate	Standard error	*t* value	*df*	*p* value	*d* value
For intercept, β_0						
Intercept, γ_{00}	−.023	.063	−.360	179	.719	−.054
Feedback, γ_{01}	−.065	.063	−1.034	179	.302	−.155
SES group, γ_{02}	.188	.063	2.976	179	.003	.445
Interaction, γ_{03}	−.038	.063	−.601	179	.548	−.090
For sexual interest slope, β_1						
Intercept, γ_{10}	2.241	.090	24.923	179	<.001	3.726
Feedback, γ_{11}	.467	.090	5.195	179	<.001	.777
SES group, γ_{12}	−.214	.090	−2.379	179	.018	−.356
Interaction, γ_{13}	−.085	.090	−.951	179	.343	−.142
For clothing style slope, β_2						
Intercept, γ_{20}	.157	.035	4.411	179	<.001	.659
Feedback, γ_{21}	−.019	.035	−.535	179	.593	−.080
SES group, γ_{22}	.012	.035	.335	179	.738	.050
Interaction, γ_{23}	.015	.035	.441	179	.660	.066
For attractiveness slope, β_3						
Intercept, γ_{30}	.433	.040	11.044	179	<.001	1.651
Feedback, γ_{31}	−.100	.040	−2.558	179	.011	−.382
SES group, γ_{32}	.008	.040	−.207	179	.836	−.031
Interaction, γ_{33}	−.076	.040	−1.927	179	.056	−.288

Unexpectedly, Feedback did not reduce reliance on clothing style (γ_{21}, $d = -.080$).

Endorsement of sexual coercion or aggression (SES Group) positively predicted the probability of a positive classification (γ_{02}, $d = .445$); Coercive participants anticipated that 54.32% of women would respond positively, whereas Non-Coercive participants predicted that 44.74% would respond positively. SES Group negatively predicted utilization of sexual interest (γ_{12}, $d = -.356$); Coercive men relied less than Non-Coercive men on women's affective cues, consistent with our fourth hypothesis. Contrary to this hypothesis, Coercive men did not rely more than Non-Coercive men on clothing style (γ_{22}, $d = .050$) or attractiveness (γ_{32}, $d = -.031$). SES Group interacted at a trend level with Feedback in predicting attractiveness utilization (γ_{33}, $d = -.288$), however. Consistent with our fifth hypothesis, feedback reduced reliance on women's attractiveness for Coercive men, $t(179) = -2.444$, $p < .05$, $d = -.365$, but not for Non-Coercive men, $t(179) = -.793$, *ns*, $d = -.119$.

Parallel analyses including IRMA produced similar results, consistent with our second hypothesis. Receipt of feedback on the rating task increased reliance on sexual interest, $t(179) = 6.521$, $p < .001$, $d = .975$, and reduced reliance on attractiveness, $t(179) = -2.301$, $p < .05$, $d = .344$, but not on provocativeness of dress. Rape-supportive attitudes also positively predicted the percentage of women whom participants classified as likely to respond positively, $t(179) = 2.508$, $p < .05$, $d = .375$. Higher IRMA scores were associated with moderately lower reliance on sexual-interest cues, $t(179) = -3.752$, $p < .001$, $d = .375$, as expected on the basis of our fourth hypothesis. These findings all were observed in the SES Group analyses. In the IRMA analyses, an additional reliable interaction emerged between Feedback and rape-supportive attitudes on sexual-interest utilization, $t(179) = -2.268$, $p < .05$, $d = -.339$. The magnitude of the Feedback effect decreased as attitudes increased, but remained large in magnitude. Those with attitudes 1 *SD* below the mean showed a strong Feedback effect, $t(179) = 6.044$, $p < .001$, $d = .903$; those with attitudes 1 *SD* above the mean showed a moderate effect, $t(179) = 3.095$, $p < .01$, $d = .463$.

Mediational Model for Feedback Effects

Path-analytic techniques (MacKinnon, 2008) were used to examine putative mechanisms by which Feedback during the Rating Task could influence cue utilization on the Classification Task. Utilization coefficients for woman-specific characteristics on the Rating Task were included as potential mediators. Correlations between mediators and between nonmediator dependent variables were included. Empirical-Bayes estimates of the utilization coefficients for the Rating and Classification Tasks were drawn from a simplified variant of the HLM analysis described above, in which the predictors at level two were eliminated. The path model was fit using a maximum-likelihood estimator in Mplus 7.1 (Muthén & Muthén, 1998–2012).

Figure 2 depicts the estimated model with standardized path coefficients. In support of our third hypothesis, indirect Feedback effects emerged on utilization of sexual interest, $Z = 8.841$, $p < .001$, clothing style, $Z = -3.033$, $p < .01$, and attractiveness, $Z = -2.167$, $p < .05$, on the Classification Task. In contrast, all direct Feedback effects on cue utilization on the Classification Task were small and unreliable (all ps $> .20$). When all mediators were removed, Feedback exerted effects on sexual-interest, clothing-style, and attractiveness utilization on the Classification Task, Zs $= 6.909$, -2.356, and -4.324, respectively. Thus, utilization of woman-specific characteristics on the Rating Task fully mediated the Feedback effects on cue

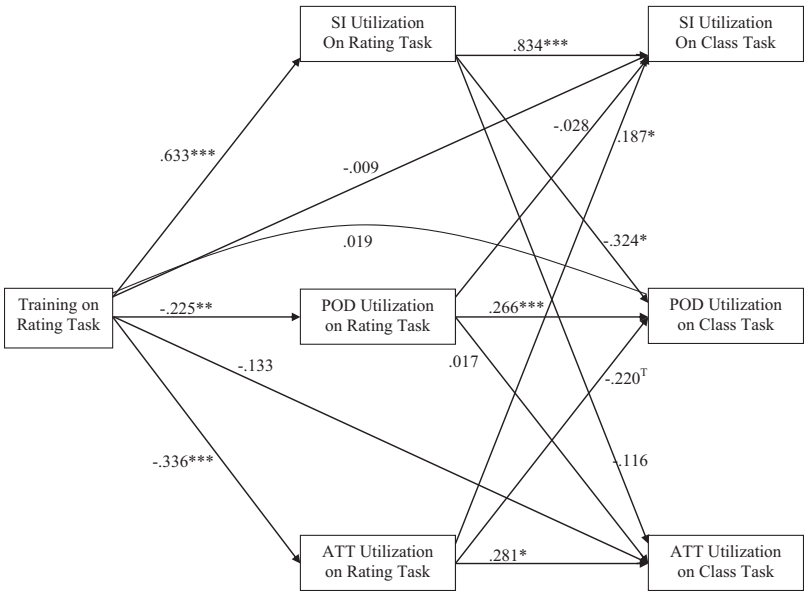

Figure 2. Path-analytic model specifying Feedback effect, via utilization coefficients on the Sexual-Interest Rating Task, on utilization coefficients on the Sexual-Responsiveness Classification Task. Coefficients are standardized estimates. *** $p < .001$, ** $p < .01$, * $p < .05$, T$p < .10$. SI = Sexual Interest; POD = Provocativeness of Dress; ATT = Attractiveness; Class = Classification.

utilization in the Classification Task. The full model accounted for 40.1% of the variation in sexual-interest utilization, 5.1% of the variation in provocativeness-of-dress utilization, and 11.3% of the variation in attractiveness utilization on the Rating Task. On the Classification Task, the full model accounted for 50.6% of the variation in sexual-interest utilization, 15.6% of the variation in provocativeness-of-dress utilization, and 20.6% of the variation in attractiveness utilization.

Discussion

The current study aimed (a) to characterize risk-linked correlates of the basis of college men's judgments about women's sexual interest, (b) to examine whether trial-by-trial feedback enhanced the accuracy of college men's sexual-interest judgments in the laboratory, and (c) to evaluate whether feedback enhanced accuracy for both high-risk and low-risk men.

Sexual Interest Rating Task

As expected, undergraduate men relied extensively on women's nonverbal affective cues when judging how women feel on the Rating Task ($d = 3.21$). This is encouraging. Because affect can be dynamic, contextualized, and "uni-directional" (i.e., directed at a particular person), it likely is the most diagnostic indicator of how a woman will respond to a particular man at a particular point in time. Potentially concerning is college men's simultaneous reliance on women's dress and attractiveness. These two more static and "omni-directional" characteristics of women also accounted for considerable variation in men's judgments (ds = 1.66 and 2.35). Non-negligible reliance on these less diagnostic indicators may foster circumstances in which men overestimate the sexual interest of attractive and provocatively dressed women and underestimate the sexual interest of less attractive and conservatively dressed women (see Perilloux et al., 2012). Particularly the attractiveness finding may exemplify a kind of motivated social (mis)perception, in which one's own affect is projected onto the affect of others in a way that is consistent with interpersonal goals (Maner et al., 2005; Maner, Miller, Moss, Leo, & Plant, 2012). Taken together, these three dimensions accounted for over half of the variation in ratings across women. These findings are broadly consistent with a social psychological literature documenting that the perception of affect can be influenced strongly by the context in which affect is being evaluated—in our case, the provocativeness of the woman's clothing and the attractiveness of the woman (e.g., Barrett & Kensinger, 2010; Kret & de Gelder, 2010).

Men who reported prior sexual coercion or aggression, and men who endorsed rape-supportive attitudes, relied to a lesser extent than their peers on affective cues when judging how sexually interested women feel, which is consistent with prior empirical work, with theoretical models in this area, and with our fourth hypothesis (Abbey et al., 2011; Farris et al., 2006, 2010; Treat et al., 2001, 2011, 2015). Further, high-risk men relied more on women's attractiveness, which may help to account for the greater frequency with which high-risk men report perceiving a woman to be sexually interested when she is not (e.g., Abbey et al., 2011). Overall, the findings suggest that processing of women's affective cues is compromised both nomothetically (i.e., college men in general attended to clothing style and attractiveness) and idiographically (i.e., high-risk men focused less on affect and more on attractiveness than their peers). Both findings are consistent with our past work (Farris et al., 2006) and with the qualitative impression that men may use provocativeness of dress and attractiveness to justify sexual aggression, even though they are what we have referred to as omni-directional cues. Thus, these errors may point to processes of considerable interest outside the laboratory.

Trial-by-trial feedback substantially increased men's focus on women's affective cues ($d = 1.28$) and reduced men's reliance on women's dress and attractiveness (ds = −.43, −.54), consistent with our first hypothesis. The feedback effect on sexual-interest utilization was smaller for high-risk men than for low-risk men (ds = .87 vs. 1.62). This is not surprising, given high-risk men's reduced focus on affective cues, and it underscores the need to extend and intensify our efforts to improve their cue-reading ability. Nonetheless, high-risk men who received feedback showed a substantial increase in sexual-interest utilization, consistent with our fifth hypothesis. In fact, the feedback effect was strong enough that high-risk men (1 *SD* above the IRMA mean) who received feedback showed higher utilization of sexual interest than low-risk men (1 *SD* above the IRMA mean) who had not received feedback. Moreover, the magnitude of the feedback effect on clothing-style and attractiveness utilization was similar for high- and low-risk men. Thus, feedback appears to be a promising vehicle for the enhancement of cue reading for both average and high-risk college men, consistent with a vast literature showing that feedback facilitates perceptual learning (e.g., Healy et al., 2012).

Sexual Responsiveness Classification Task

To evaluate the transfer of feedback effects, we examined performance on a Classification Task in which participants indicated whether women would respond positively or negatively to a sexual advance. Notably, participants reporting a prior history of sexual coercion or aggression, relative to their peers, anticipated that almost 10% more "average" women would respond positively to a sexual advance (54.3% vs. 44.7%, respectively). This is a compelling demonstration of high-risk men's overperception of the likelihood that a woman will respond favorably to a sexual advance, because levels of sexual-interest, clothing style, and attractiveness are held constant. The average participant again relied not only on women's affective cues ($d = 3.73$), but also on women's clothing style and attractiveness (ds = .66, 1.65), and sexual-interest utilization was reliably lower among high-risk participants ($d = -.36$), consistent with the findings on the Rating Task and with our fourth hypothesis.

Feedback on the Rating Task predicted a large increase in reliance on women's affective cues ($d = .78$) when determining the likely valence of a woman's response to a sexual advance on the Classification Task, consistent with our second hypothesis. Notably, endorsement of rape-supportive attitudes moderated this feedback effect. Whereas low-risk men (attitudes 1 *SD* below the mean) showed a strong feedback effect ($d = .90$), high-risk men (attitudes 1 *SD* above the mean) showed a moderate feedback effect ($d = .46$). This finding parallels that observed for the Rating Task and suggests that future research

needs to focus on enhancing the robustness and duration of the feedback effect among high-risk men. The provision of feedback on the Rating Task also resulted in a reduction in reliance on women's attractiveness ($d = -.38$). In sum, decision-making regarding a woman's responsiveness to a sexual advance focused less on attractiveness and more on affect among participants who earlier received feedback. The transfer of learning effects to a decision-making task underscores the promising nature of the feedback-based paradigm for the potential modification of real-world perception and decision making. Given the similarity of the Rating and Classification Tasks, however, it will be important to consider ways to strengthen the feedback effect, particularly among high-risk men.

Finally, path analyses revealed that the feedback effects on cue utilization on the Classification Task were mediated fully by altered focus on women's characteristics during the Rating Task, consistent with our third hypothesis. These results provide evidence that altered reliance on women's uni-directional and omni-directional cues may be the mechanism by which feedback influences later decision making.

Limitations

Future research should address several limitations in the current work. First, the generalizability of the current findings to more diverse populations is unknown, and other demographic information about the sample is unavailable. Second, the current work provides promising evidence of feedback effects on men's perceptions in the laboratory but no evidence regarding the duration or potential transfer of the effects to "real-world" perceptions and behavior. There are good theoretical reasons to expect perceptual processing of nonverbal cues will be linked to downstream behavior, and task performance in the current study was linked to self-reported sexual aggression and rape-supportive attitudes. Nonetheless, sexual perception outside the laboratory takes place in a more dynamic and complex context, including factors like verbal cues, past interpersonal history, differences in environmental setting, and intoxication. As discussed below, testing generalizability across sample, time, and setting will be important future steps, now that laboratory-based feedback and transfer effects have been established.

Research, Clinical, and Policy Implications

The present findings provide encouraging support for the use of feedback-based training to enhance the accuracy of men's perceptions of women's sexual-interest cues in the laboratory. This technique joins other emerging performance-based approaches to the modification of distorted clinically relevant perceptions. For instance, direct manipulation of attention by altered contingencies has shown promise as a way of influencing anxiety and depression related cognition (Beard, Sawyer, & Hofmann, 2012). Such performance-based bottom-up methods may be a useful complement to more traditional explicit methods of challenging cognitions or changing attitudes. Nonetheless, much work remains before the kind of active-learning approach employed in the present study could be evaluated as a component of existing efforts to address sexual aggression on college campuses.

First and foremost, the training program must be augmented in an effort to enhance the magnitude of the feedback and transfer effects, particularly for high-risk men, who show weaker but nonetheless sizable feedback effects. Increasing the dose of the procedure presumably would be helpful (e.g., increasing the number of trials, providing multiple sessions). Trial-by-trial feedback also could be supplemented by asking participants to judge at the end of each block how much they used the three cues when judging women's sexual interest and then providing feedback on their actual utilization of them. Feedback based on computation of individual cue utilization has been a component of a number of lens model studies ("cognitive/process feedback"; Karelaia & Hogarth, 2008). Such feedback might enhance participants' awareness of the basis for their decisions and allow them to consider whether to attempt to modify these ingrained perceptual patterns.

It also may prove helpful to provide explicit instruction regarding the relative importance of uni-directional versus omni-directional cues when judging a woman's interest in a particular man at a particular point in time. The use of explicit instruction echoes the didactic content of existing intervention efforts, but in this case the instruction would focus more on improving performance in a specific social task rather than on general admonishments to change. Explicit instruction could provide verbal and conceptual scaffolding that would facilitate acquisition and transfer, and perhaps also potentiate the value of feedback. In a recent meta-analysis of 199 lens model studies, Karelaia and Hogarth (2008) documented that explicit instruction regarding optimal utilization patterns ("task information feedback") notably improved participant achievement in category-learning tasks.

Once the procedure has been optimized for modification of cue utilization, particularly for high-risk men, we must examine its impact on relevant behavior within and beyond the laboratory context, particularly given the similarity of the training and transfer tasks used in the current study. For example, we might examine the effect of the procedure on various "near-transfer" tasks in the laboratory that can be construed as analogues for general or sexual aggression, including administration of shock to women and presentation of sexually explicit images or videos to women (e.g., Fischer & Greitemeyer, 2006; George et al., 2006). It also will be critical to evaluate the robustness of the transfer of learning to periods of alcohol intoxication (Abbey, Wegner, Woerner, Pegram, & Pierce, 2014). More than half of sexually aggressive episodes are associated with alcohol consumption by the perpetrator (e.g., Fisher, Daigle, Cullen, & Turner, 2003), men who drink heavily are more likely to report sexual perpetration (e.g., Abbey et al., 1994), and intoxicated men perceive women to be more sexually interested, show decreased sensitivity to women's affective cues, and perceive sexual aggression to be more acceptable (Abbey et al., 2000; Davis, 2010; Farris et al., 2010; Norris et al., 2002). We currently are evaluating whether completion of an augmented procedure with feedback and instructional components helps to buffer against the effects of alcohol on sexual perception.

Ultimately, should the augmented approach clear the hurdles outlined above, we must evaluate its "far transfer" on the frequency of sexual misperception experiences and the incidence of coercive and aggressive behavior in the "real world." Pending positive results, enhanced cognitive-training modules could be disseminated online, making them more accessible to

undergraduate men. The mere provision of information has not been sufficient to produce adequate change in men's sexually aggressive behavior (Anderson & Whiston, 2005). Perhaps the current work can point the way to improved prevention efforts that include both informational and active learning components.

References

Abbey, A., Jacques-Tiura, A. J., & LeBreton, J. M. (2011). Risk factors for sexual aggression in young men: An expansion of the confluence model. *Aggressive Behavior, 37,* 450–464. http://dx.doi.org/10.1002/ab.20399

Abbey, A., Ross, L. T., & McDuffie, D. (1994). Alcohol's role in sexual assault. *Drug and Alcohol Abuse Reviews, 5,* 97–123.

Abbey, A., Wegner, R., Woerner, J., Pegram, S. E., & Pierce, J. (2014). Review of survey and experimental research that examines the relationship between alcohol consumption and men's sexual aggression perpetration. *Trauma, Violence, & Abuse, 15,* 265–282. http://dx.doi.org/10.1177/1524838014521031

Abbey, A., Zawacki, T., & McAuslan, P. (2000). Alcohol's effects on sexual perception. *Journal of Studies on Alcohol, 61,* 688–697. http://dx.doi.org/10.15288/jsa.2000.61.688

Anderson, L. A., & Whiston, S. C. (2005). Sexual assault education programs: A meta-analytic examination of their effectiveness. *Psychology of Women Quarterly, 29,* 374–388. http://dx.doi.org/10.1111/j.1471-6402.2005.00237.x

Barrett, L. F., & Kensinger, E. A. (2010). Context is routinely encoded during emotion perception. *Psychological Science, 21,* 595–599. http://dx.doi.org/10.1177/0956797610363547

Beard, C., Sawyer, A. T., & Hofmann, S. G. (2012). Efficacy of attention bias modification using threat and appetitive stimuli: A meta-analytic review. *Behavior Therapy, 43,* 724–740. http://dx.doi.org/10.1016/j.beth.2012.01.002

Davis, K. C. (2010). The influence of alcohol expectancies and intoxication on men's aggressive unprotected sexual intentions. *Experimental and Clinical Psychopharmacology, 18,* 418–428. http://dx.doi.org/10.1037/a0020510

Dougherty, M. R., & Thomas, R. P. (2012). Robust decision making in a nonlinear world. *Psychological Review, 119,* 321–344. http://dx.doi.org/10.1037/a0027039

Farris, C., Treat, T. A., & Viken, R. J. (2010). Alcohol alters men's perceptual and decisional processing of women's sexual interest. *Journal of Abnormal Psychology, 119,* 427–432. http://dx.doi.org/10.1037/a0019343

Farris, C., Treat, T. A., Viken, R. J., & McFall, R. M. (2008a). Perceptual mechanisms that characterize gender differences in decoding women's sexual intent. *Psychological Science, 19,* 348–354. http://dx.doi.org/10.1111/j.1467-9280.2008.02092.x

Farris, C., Treat, T. A., Viken, R. J., & McFall, R. M. (2008b). Sexual coercion and the misperception of sexual intent. *Clinical Psychology Review, 28,* 48–66. http://dx.doi.org/10.1016/j.cpr.2007.03.002

Farris, C., Viken, R. J., & Treat, T. A. (2010). Perceived association between diagnostic and non-diagnostic cues of women's sexual interest: General Recognition Theory predictors of risk for sexual coercion. *Journal of Mathematical Psychology, 54,* 137–149. http://dx.doi.org/10.1016/j.jmp.2008.10.001

Farris, C., Viken, R. J., Treat, T. A., & McFall, R. M. (2006). Heterosocial perceptual organization: Application of the choice model to sexual coercion. *Psychological Science, 17,* 869–875. http://dx.doi.org/10.1111/j.1467-9280.2006.01796.x

Fischer, P., & Greitemeyer, T. (2006). Music and aggression: The impact of sexual-aggressive song lyrics on aggression-related thoughts, emotions, and behavior toward the same and the opposite sex. *Personality and Social Psychology Bulletin, 32,* 1165–1176. http://dx.doi.org/10.1177/0146167206288670

Fisher, B. S., Cullen, F. T., & Turner, M. G. (2000, December). *The sexual victimization of college women*. Washington, DC: National Institutes of Justice, Bureau of Justice Statistics.

Fisher, B. S., Daigle, L. E., Cullen, F. T., & Turner, M. G. (2003). Reporting sexual victimization to the police and others: Results from a national-level study of college women. *Criminal Justice and Behavior, 30,* 6–38. http://dx.doi.org/10.1177/0093854802239161

George, W. H., Stoner, S. A., Davis, K. C., Lindgren, K. P., Norris, J., & Lopez, P. A. (2006). Postdrinking sexual perceptions and behaviors toward another person: Alcohol expectancy set and gender differences. *Journal of Sex Research, 43,* 282–291. http://dx.doi.org/10.1080/00224490609552326

Healy, A. F., Schneider, V. I., & Bourne, L. E. (2012). Empirically valid principles of training. In A. F. Healy & L. E. Bourne, Jr. (Eds.), *Training cognition: Optimizing efficiency, durability, and generalizability* (pp. 13–39). New York, NY: Psychology Press.

Karelaia, N., & Hogarth, R. M. (2008). Determinants of linear judgment: A meta-analysis of lens model studies. *Psychological Bulletin, 134,* 404–426. http://dx.doi.org/10.1037/0033-2909.134.3.404

Koss, M. P., Gidycz, C. A., & Wisniewski, N. (1987). The scope of rape: Incidence and prevalence of sexual aggression and victimization in a national sample of students in higher education. *Journal of Consulting and Clinical Psychology, 55,* 162–170. http://dx.doi.org/10.1037//0022-006x.55.2.162

Krebs, C. P., Lindquist, C. H., Warner, T. S., Fisher, B. S., & Martin, S. L. (2007, December). *The campus sexual assault (CSA) study*. Washington, DC: National Institutes of Justice, Bureau of Justice Statistics.

Kret, M. E., & de Gelder, B. (2010). Social context influences recognition of bodily expressions. *Experimental Brain Research, 203,* 169–180. http://dx.doi.org/10.1007/s00221-010-2220-8

MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York, NY: Psychology Press.

Maddox, W. T., Love, B. C., Glass, B. D., & Filoteo, J. V. (2008). When more is less: Feedback effects in perceptual category learning. *Cognition, 108,* 578–589. http://dx.doi.org/10.1016/j.cognition.2008.03.010

Malamuth, N. M., Sockloskie, R. J., Koss, M. P., & Tanaka, J. S. (1991). Characteristics of aggressors against women: Testing a model using a national sample of college students. *Journal of Consulting and Clinical Psychology, 59,* 670–681. http://dx.doi.org/10.1037//0022-006x.59.5.670

Maner, J. K., Kenrick, D. T., Becker, D. V., Robertson, T. E., Hofer, B., Neuberg, S. L., . . . Schaller, M. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology, 88,* 63–78. http://dx.doi.org/10.1037/0022-3514.88.1.63

Maner, J. K., Miller, S. L., Moss, J. H., Leo, J. L., & Plant, A. (2012). Motivated social categorization: Fundamental motives enhance people's sensitivity to basic social categories. *Journal of Personality and Social Psychology, 103,* 70–83. http://dx.doi.org/10.1037/a0028172

Murnen, S. K., Wright, C., & Kaluzny, G. (2002). If "boys will be boys," then girls will be victims? A meta-analytic review of the research that relates masculine ideology to sexual aggression. *Sex Roles, 46,* 359–375. http://dx.doi.org/10.1023/A:1020488928736

Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Author.

Norris, J., Davis, K. C., George, W. H., Martell, J., & Heiman, J. R. (2002). Alcohol's direct and indirect effects on men's self-reported sexual aggression likelihood. *Journal of Studies on Alcohol, 63,* 688–695. http://dx.doi.org/10.15288/jsa.2002.63.688

Payne, D. L., Lonsway, K. A., & Fitzgerald, L. F. (1999). Rape myth acceptance: Exploration of its structure and its measurement using the Illinois Rape Myth Acceptance Scale. *Journal of Research in Personality, 33,* 27–68. http://dx.doi.org/10.1006/jrpe.1998.2238

Perilloux, C., Easton, J. A., & Buss, D. M. (2012). The misperception of sexual interest. *Psychological Science, 23,* 146–151. http://dx.doi.org/10.1177/0956797611424162

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.

Thompson, M. P., Koss, M. P., Kingree, J. B., Goree, J., & Rice, J. (2011). A prospective mediational model of sexual aggression among college men. *Journal of Interpersonal Violence, 26,* 2716–2734. http://dx.doi.org/10.1177/0886260510388285

Treat, T. A., Farris, C. A., Viken, R. J., & Smith, J. R. (2015). Influence of sexually degrading music on men's perceptions of women's dating-relevant cues. *Applied Cognitive Psychology, 29,* 135–141. http://dx.doi.org/10.1002/acp.3084

Treat, T. A., McFall, R. M., Viken, R. J., & Kruschke, J. K. (2001). Using cognitive science methods to assess the role of social information processing in sexually coercive behavior. *Psychological Assessment, 13,* 549–565. http://dx.doi.org/10.1037/1040-3590.13.4.549

Treat, T. A., Viken, R. J., Kruschke, J. K., & McFall, R. M. (2011). Men's memory for women's sexual-interest and rejection cues. *Applied Cognitive Psychology, 25,* 802–810. http://dx.doi.org/10.1002/acp.1751

Received September 1, 2014
Revision received June 8, 2015
Accepted August 20, 2015 ■