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Does the horny man think women want him too? Effects of male sexual arousal on perceptions of female sexual willingness

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ABSTRACT

Disputes over acquaintance rape typically center on the issue of whether the alleged victim consented to sex. Disputed sexual encounters often take place when one or both involved parties is sexually aroused, and this arousal might influence the extent to which the parties perceive sexual consent. Two studies tested the effects of men's sexual arousal on their interpretations of the extent to which 25 hypothetical female behaviors reflected sexual willingness. Arousal was manipulated via written fantasies (Study 1) or exposure to erotic material (Study 2). Manipulated arousal and individual differences in rated arousal were each associated with greater perceptions of female sexual willingness. Manipulated arousal was significant only for single men in Study 2. Findings suggested present-state sexual arousal affects single men's interpretations of women's sexual willingness. Men's sexual arousal might prominently contribute to misunderstandings in sexual communication.

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Sexual assault; sexual arousal; rape; overperception; perceived consent

What does it mean when a woman agrees to accompany a man to his apartment for a nightcap after a date? Does it mean she is willing to have sex with him? What will the man *think* it means? And, what might affect how he interprets her behavior? Our research addresses the latter question. Specifically, how might a man's level of sexual arousal affect his interpretation of her willingness to have sex, and why is this question important?

A commonly disputed issue in cases of alleged acquaintance rape is that of whether the alleged victim had consented to sex (Villalobos, Davis, & Leo, 2016). These cases are often gender-typed such that the accused is a man and the alleged victim is a woman (see Edwards et al., 2015, for review of sexual assault incidence rates). Often, whereas the alleged victim claims that she had clearly indicated nonconsent, the accused claims that the alleged victim did nothing to clearly indicate nonconsent and/or that she instead behaved in a way that indicated consent (Anderson, 2002). Assuming that such disagreements might sometimes reflect honest differences in interpretation of the alleged victim's behaviors and intentions, a large body of research has addressed the basis of such misunderstandings (for reviews, see Davis & Villalobos, 2014; Farris, Treat, Viken, & McFall, 2008; Villalobos et al., 2016; Wegner & Abbey, 2016; Wood, Rikkonen, & Davis, 2019).

Most pertinent to our studies are surveys and vignette experiments assessing differences in the extent to which women report that their own behaviors (or those of other women) reflect sexual interest or willingness versus the extent to which men perceive them to do so. This line of research has generally indicated that women reporting on the meaning of their own behaviors indicate that they reflect less sexual interest/willingness as compared to men assessing the implications of women's behaviors. This phenomenon has become known as the *overperception bias* (see Farris et al., 2008, for review), and has been widely interpreted as indicating that men incorrectly oversexualize the meaning of women's behaviors.

Recently, however, several studies have indicated that this sex difference is eliminated when men and women both report their perception of the meaning of specific behaviors when performed by women generally (Perilloux & Kurzban, 2015; Wood & Davis, 2016, 2017; Wood et al., 2019), or that some of the difference is accounted for by women's underreporting of their own actual intentions (e.g., Engeler & Raghubir, 2018). These findings suggest that previously observed sex differences might be in part a matter of actor-observer differences in attribution or reporting of sexual intentions. Additionally, Wood et al. (2019) review evidence that whereas this difference is obtained when rating *how likely* the woman is to be willing, the opposite obtains when participants are asked to indicate whether the behavior *definitely* means the woman is willing. That is, women are more likely to agree that they perform many behaviors if, and only if, they are willing to have sex (compared to both men and women reporting on other women's behavior). Alcohol and drug use are exceptions, in that observers overattribute sexual intentions (both likely and definite intentions) compared to women reporting on themselves. Thus, though more complex and behavior specific than initially recognized, the weight of evidence suggests that when judging the import of many behaviors, observers of either sex tend to impute somewhat greater likelihood of sexual interest/willingness than the woman herself intends (just not definite interest for most behaviors).

Sexual arousal as context for judgments of sexual consent

Although most laboratory studies ask participants to judge the implications of specific women's behaviors in what might be viewed as a cold and (relatively) rational personal state (e.g., Treat, Viken, Farris, & Smith, 2016), sexual interactions tend to take place in very different personal contexts. Participants might be intoxicated (Wray, Simons, & Maisto, 2015) and one or both might be in a state of sexual arousal or other emotional states. Alcohol or strong emotions, for example, can impair cognition and rational, controlled processes (e.g., Loewenstein, 1996). Emotions and situation-specific goals might serve as primes that direct interpretation toward confirmation of expectations. These goals can also form the basis of "motivated social perception" (e.g., Spencer, Fein, Zanna, & Olson, 2003) or "functional projection" (e.g., Maner et al., 2005) whereby interpretation conforms to the perceiver's desires. Such processes can affect both immediate interpretation of participants' communications and behaviors, as well as long term memories of the interaction (see Davis & Loftus, 2015, for discussion of these processes regarding sexual interactions).

Sexual arousal is likely to provide a lens through which the woman's behaviors are interpreted, possibly leading the man to overperceive the degree to which the behaviors reflect sexual interest or willingness (Murray, Murphy, von Hippel, Trivers, & Haselton, 2017). One basis for prediction of the effects of sexual arousal on perception of another's sexual interest lies in the propositions underlying the theory of alcohol myopia (Steele & Josephs, 1990). Alcohol myopia theory addresses circumstances in which competing cues exist relevant to specific behaviors: some promotional and others inhibitory. In many situations the person might have a motive to enact specific behaviors, such as to be affectionate or aggressive, to speak up in social situations, or to have sex. But performance of the behavior can be inhibited by awareness of other internal (e.g., concerns about performance or intimacy) or external factors (e.g., social disapproval, lack of a condom) discouraging the behavior (Steele & Josephs, 1990). The theory proposes that alcohol narrows attention to immediate concerns and salient, impulse-consistent cues at the expense of attention to other potentially inhibitory cues relevant to the salient impulse. In a sexual encounter, one's own sexual arousal promotes strong impulses toward sexual behavior (e.g., George & Stoner, 2000). Accordingly, we suggest that sexual arousal might lead to perceptual processes and outcomes similar to those associated with alcohol.

This logic is consistent with research showing that intense emotional states can lead the person to focus on how to resolve or satisfy the emotion quickly, without sufficient consideration of reasons to avoid the behaviors (see Loewenstein, 1996). Loewenstein (1996) further suggested that intense visceral states tend to focus attention inwardly and to undermine concern for others. Generally, strong emotions can compromise executive functions, including control of attention, and can

increase impulsivity (see Davis & Leo, 2012 for review). In effect, sexual arousal can exert a strong attentional and motivational pull such that sexual cues draw increased attention at the expense of others, and interpretation of situational cues (including a potential sexual partner's behaviors) is shifted toward consistency with one's sexual desires.

Unfortunately, tests of these propositions have been rare thus far, though results have been consistent with this logic. For example, generally, sexual arousal tends to shift motivation toward satisfaction of immediate, rather than longer term desires (see Kim & Zauberman, 2013, for review). Consistent with a salient immediate desire to have sex, sexually aroused (vs. nonaroused) males find females more attractive (e.g., Ditto, Pizarro, Epstein, Jacobson, & MacDonald, 2006; Stephan, Berscheid, & Walster, 1971), perceive women's faces as reflecting greater sexual arousal (e.g., Maner et al., 2005), find potentially disgusting sexual material less disgusting (e.g., Stevenson, Case, & Oaten, 2011), and report greater willingness to engage in more sexually coercive behaviors, unsafe sex (without a condom), or more undesirable sex (with an unattractive or older woman; see Ariely & Loewenstein, 2006; Blanton & Gerrard, 1997; Bouffard & Miller, 2014). Specifically, Bouffard and Miller (2014) found that men's self-reported sexual arousal, rather than the experimental manipulation of arousal, was predictive of men's ratings of a women's sexual willingness in a dating scenario. Individual differences associated with propensity to become aroused might be the basis of the observed correlation between sexual arousal and perceived sexual interest.

We applied logic from Loewenstein (1996) and Davis and Leo (2012) to issues of sexual consent to test whether a visceral state like sexual arousal can causally influence men's perceptions of women's sexual intent. Although previous research has found correlational support for the hypothesis that sexual arousal is associated with increased perceptions of sexual willingness (e.g., Bouffard & Miller, 2014), the current studies provide experimental tests of the effects of manipulated sexual arousal on men's perceptions of women's sexual intent. Support for our hypotheses could indicate that present-state sexual arousal uniquely contributes to overperceptions of sexual consent.

Overview of the current research

This research was designed to further test the hypothesis that sexually aroused men (vs. nonaroused men) will perceive women's behaviors as reflecting greater sexual willingness. This hypothesis was tested in two studies. As a manipulation of sexual arousal in Study 1, men wrote a narrative about either an arousing or nonarousing encounter with a date. In Study 2, men rated either arousing photos of women in lingerie or less arousing photos of women in winter clothing.

We hoped to avoid the problem of ceiling effects (or dilution of the arousal manipulation) that can arise when all participants are exposed to a potentially arousing stimulus, as was the case for the Bouffard and Miller (2014) study. While Bouffard and Miller (2014) used videos to induce arousal (or nonarousal), they also used a vignette about a sexual encounter between a man and woman as part of their dependent measure, written from the first person point of view from the man, which might have created sexual arousal even in their control group. Thus, in both studies we measured perceived sexual intentions in a way intended to minimize arousal created by the experimental procedure itself. That is, after completing the manipulation, men rated a series of hypothetical behaviors by women for the extent to which they reflected sexual willingness. We predicted that the arousal manipulations would result in greater attributions of sexual intent to women's hypothetical behaviors.

Study 1: method

Study 1 utilized a simple one-factor between-subjects design, with level of arousal as the independent variable and a composite measure of perceived female sexual willingness as the dependent variable. This study was approved by the Institutional Review Board (IRB) at a large western university.

Participants

Our sample was constrained to heterosexual males because hypotheses specifically concerned male's perceptions of female behaviors that could indicate sexual willingness. All men participated online. Participants signed up on SONA for a study titled "Sexual Thinking and Communications Study for Men." Participants came from two SONA participant pools, one in the psychology department and another multi-department pool.

Sixty-three participants who either (1) did not follow instructions for the manipulation of arousal or (2) indicated they were not heterosexual males ($n = 22$ from the arousal condition and $n = 41$ from the nonarousal condition) were removed from our sample. Nineteen participants indicated they were not heterosexual, and 31 participants failed to comply with the manipulation instructions. These participants wrote a narrative irrelevant to the prompt or held down a single keyboard key to meet the length requirement to proceed in the survey. The final sample contained 201 heterosexual undergraduate men aged 18–46 years ($M = 20.99$, $SD = 4.30$). Of the participants, 121 were White, 35 were Hispanic, 19 were Asian, 13 were Black, 4 were Pacific Islander, 3 were Native American, and 6 selected "other." One hundred eighty-one participants were between the ages of 18–26, 13 were between 27–35 years, and the remaining 7 were over age 35.

Procedure

Participants followed a link to the study from the university research sign-up page. Initial instructions informed participants that the purpose of the study was to learn more about how men think about sex and dating. Participants read that they would be asked to write about two dating scenarios to help the researchers learn about dating and sexual fantasies. Participants were asked to write both arousing and non-arousing fantasies so that the cover story was identical between conditions. The second fantasy was irrelevant for tests of hypotheses. The order in which participants wrote the fantasies was counterbalanced so that participants wrote either the arousing or non-arousing fantasy before completing the dependent measure, and wrote the second fantasy after the dependent measure. Participants were also told that between the two dating fantasies they would be asked to report on how they would interpret the implications of various behaviors conducted by women for whether or not the woman would be willing to have sex. Thus, the study was analyzed as a between-subjects design because each participant responded to the dependent measures only once, immediately after writing their first narrative. The second narrative appeared after the dependent measures and was intended only to maintain the cover story.

Participants were informed that the survey would consist of four sections: one with some background questions including demographics and questions about relevant dating and sexual experience and two sections in which they were to write a dating narrative, separated by a section in which they would be asked about the meaning of a variety of behaviors conducted by women.

Measures

The study utilized a total of five measures: a demographic questionnaire, a sexual experiences questionnaire, a manipulation of sexual arousal, a manipulation check, and a composite dependent measure of perceived sexual willingness. Supplemental materials and all measures for both studies are available at <http://www.osf.io/mpq84>.

Demographic questionnaire

Demographic questions included sex, age, race, and sexual orientation. Two 9-point rating scales assessed political orientation (from "very conservative" to "very liberal") and religiosity (from "not at all religious" to "very religious").

Sexual experiences questionnaire

Participants rated (a) the degree to which they were conservative vs. liberal regarding sexual behavior, (b) the degree to which they are willing to have casual sex with persons they have just met (when not in a serious relationship), (c) how experienced they were with dating, and (d) the likelihood they would have sex with a new partner by the first, third, and tenth date. Participants also indicated how many sexual partners they have had and whether they were currently in a romantic relationship.

Manipulation of sexual arousal

Participants wrote two narratives: one before the dependent measures and one after. The narrative written before the dependent measure served as the experimental manipulation, whereas the second narrative served solely to maintain the study's cover story.

The section for the arousing narrative was labeled "Your Most Arousing Fantasy." Participants were instructed to "write about a scenario involving a sexual interaction that you would (or have) found extremely arousing; something, for example, that you might think of while masturbating to arouse yourself as much as possible. In the space below write your arousing sexual fantasy. Write a minimum of 1,500 characters (about 500 words), describing in detail who is involved and what, exactly, you and the other(s) are doing."

For the control condition, participants were instructed to "Write about your idea of a date with a person who you end up having no interest in seeing again. What kind of things about the date might make you not want to see the person again? In the space below, write about your date with whom you have no interest in seeing again or having sex. Write a minimum of 1,500 characters (about 500 words), describing in detail who is involved and what, exactly, you and the other(s) are doing."

Manipulation check

Following each narrative, participants responded to the items "How sexually aroused do you feel after writing about this date?" and "How bored do you feel after writing about this date?" on scales from 1 (*not at all*) to 10 (*extremely*).

Perceived sexual willingness

Following the manipulation check, participants in both conditions indicated their perceptions of the sexual intent underlying 25 hypothetical behaviors performed by women, ranging from those likely to reflect less sexual intent (e.g., goes out to lunch with him; wears perfume; initiates conversation), moderate sexual intent (e.g., sits or stands close to him; gives him her phone number; dresses sexily; agrees to an invitation to watch a movie alone at his house) to fairly strong sexual intent (e.g., touch his bare genitals; spend the night with him; sends him full-body naked pictures). Each of the hypothetical behaviors was pilot tested to help ensure variability in perceptions between items. See the Appendix on the Open Science Framework for the complete Sexual Intent Perceptions Questionnaire (SIP-Q).

The measure of sexual intent was a measure of perceived "definitiveness" of a behavior for sexual willingness from Davis, Follette, and Merlino (1999). Participants indicated whether women (1) *often* do this even when they are *not willing* to have intercourse, (2) *sometimes* do this even when they are *not willing* to have intercourse, or (3) *never* do this *unless willing* to have intercourse. Thus, higher numbers indicated participants perceived the behavior to more strongly indicate willingness to have intercourse. Davis et al. (1999) suggested that a behavior is regarded as a definite indicator of sexual willingness if the perceiver believes women never perform it except when willing to have intercourse, as opposed to doing it often even when not willing.

Study 1: results

The manipulation check indicated the arousal manipulation was successful ($t(199) = 24.43, p < .001, d = 3.44$). The arousal group ($M = 6.57, SD = 2.16$) reported significantly higher arousal levels than

the non-aroused group ($M = 1.2$, $SD = .43$). Assuming small effect sizes, the study was reliably powered. No analysis was performed with power less than .89.

Perceived sexual willingness

We combined all 25 items on the Sexual Intent Perceptions Questionnaire (henceforth SIP-Q) into a composite mean score, which we used as the main dependent variable. Reliability analyses indicated the measure was highly reliable ($\alpha = .92$, $\omega = .95$, root mean square residual = .04).

Ratings of perceived sexual intent

As expected, mean scores on the measure of perceived sexual willingness indicated that the aroused group perceived significantly higher levels of sexual intent in women's behaviors ($M = 1.92$, $SD = .33$) than the non-aroused group ($M = 1.81$, $SD = .35$): $t(199) = -2.22$, $p = .03$, $d = .31$. Although there was no significant interaction between relationship status and arousal condition ($p = .21$), the effect of arousal appeared to be largely driven by people who reported that they were single ($n = 118$, $t(116) = -2.1$, $p = .04$, $d = .39$), with the aroused group ($M = 1.94$, $SD = .35$) having a larger mean than the non-aroused group ($M = 1.81$, $SD = .32$). For those who reported being in a relationship, the effect of the arousal manipulation was nonsignificant ($t(81) = -.94$, $p = .35$, $d = .2$) although the means were in the expected direction ($M_{\text{aroused}} = 1.89$, $SD_{\text{aroused}} = .30$; $M_{\text{nonaroused}} = 1.81$, $SD_{\text{nonaroused}} = .38$). There was no significant difference in arousal between single and non-single participants ($t(199) = -.19$, $p = .85$).

As expected, some of the specific women's behaviors were generally perceived as not reflecting sexual intentions. Because such floor effects might compromise the tests of our hypotheses, we examined a new composite measure of all behaviors that at least 10% of the sample agreed indicated sexual willingness. This new, shorter composite measure (henceforth SIP-QS) was composed of 10 of the 25 possible original questions and was reliable ($\alpha = .86$, $\omega = .90$, root mean square residual = .05). The SIP-QS contained 4 questions we originally believed indicated strong intent, 5 that indicated moderate intent, and 1 that indicated less intent. The range of percentage of participants who indicated that, "women sometimes do X when not willing" was 34.8%-65.8%, so the selected questions allowed for ideal variance in responses. For the SIP-QS, the difference between the non-aroused group ($M = 2.16$, $SD = .41$) and the aroused group ($M = 2.33$, $SD = .37$) was more pronounced than the original measure of perceived sexual willingness for the full sample ($t(199) = -3.01$, $p = .003$, $d = .42$). As with the original measure of perceived sexual willingness (although there was no significant interaction between relationship status and arousal condition), the difference was larger for single participants ($t(116) = -3.11$, $p = .002$, $d = .57$; $M_{\text{aroused}} = 2.35$, $M_{\text{nonaroused}} = 2.12$) and nonsignificant for participants who reported being in a relationship ($t(81) = -.89$, $p = .37$). The means for this group were again in the expected direction ($M_{\text{aroused}} = 2.30$, $SD_{\text{aroused}} = .36$; $M_{\text{nonaroused}} = 2.23$, $SD_{\text{nonaroused}} = .38$).

Effects of individual differences in arousal

Bouffard and Miller (2014) found that whereas their manipulation of arousal did not affect perceived sexual intent, individual differences in rated arousal in response to their dating scenario did. The latter finding was replicated here, in addition to the effect of manipulated arousal. The zero-order correlation between rated arousal on the manipulation check and the measure of perceived sexual willingness was .18 ($p < .01$). Other individual difference measurements of number of sexual partners (log transformed for normality), attitudes toward casual sex, and willingness to have sex on the first date were all unrelated to the measure of perceived sexual willingness ($ps > .29$), although dating experience approached significance ($r = .14$, $p = .054$). Further, arousal was unrelated to these individual differences ($ps > .16$).

Table 1. Correlations between relevant variables in Study 1.

Variables	SIP-QS	SIP-Q	Attitudes toward Casual Sex	Number of Sex Partners	Arousal	Dating Experience	Willingness to have Sex on the First Date
SIP-QS	1	-	.08	.04	.24*	.17*	.04
SIP-Q		1	.07	.01	.18*	-.04	.03
Attitudes Toward Casual Sex			1	.55*	.10	.31*	.15*
Number of Sex Partners				1	-.02	.51*	.41*
Arousal					1	.09	.09
Dating Experience						1	
Willingness to have Sex on the First Date							1

* $p < .05$, ^m $p < .10$

These findings were equivalent for the SIP-QS. Once again, self-reported arousal was positively correlated with perceptions of sexual willingness ($r = .24$, $p < .001$). No other individual difference measures were significantly correlated with perceptions of sexual willingness ($ps > .24$) with the exception of dating experience ($r = .17$, $p = .02$). See Table 1 for all correlations.

Study 1: discussion

The results of Study 1 both replicate and extend the findings of Bouffard and Miller (2014). Although those authors did find that individual differences in arousal were associated with increased perception of a woman's sexual willingness, they did not find an effect of manipulated arousal. Our Study 1 found both effects. Individual differences in rated arousal were associated with perceptions that specific women's behaviors reflected greater sexual willingness. Manipulated arousal also increased perceptions that specific behaviors reflected sexual willingness.

The link between individual differences in arousal and perceived sexual intentions might be explained by any number of individual differences confounded with the tendency to be or become sexually aroused in response to sexual stimuli. Hence, Study 1 also included several measures of men's sexual experiences and attitudes that might explain the link between individual differences in arousal and perceived sexual intentions. None, however, were significantly related to self-reported arousal, and therefore do not explain the observed association between arousal and scores on the measure of perceived sexual willingness.

Thus far, then, the results seem to indicate that when interpreting sexual intent from women's behaviors, single males are influenced by present-state sexual arousal. Although one might suspect that past experience in romantic and sexual situations might affect how men interpret sexual intentions, results suggested that the experiences we assessed do not significantly influence men's interpretations of women's sexual willingness.

Study 2: method

Study 2 used slightly altered methods to replicate and extend the findings of Study 1. In Study 2, men rated images of women as a manipulation of arousal. Men also responded to a slightly modified measure of perceived sexual willingness with more straightforward wording and wider scale points. This study was also approved by the Institutional Review Board (IRB) at a large western university.

Participants

For Study 2, we used both online and in-lab samples to increase the speed of data collection. Participants ($N = 222$) signed up for a study titled "Sexual Thinking and Communications Study for Men." Some participants ($n = 117$) came from a multidisciplinary participant pool. These

participants completed the study online at a location of their choosing. Others ($n = 105$) came from the Department of Psychology participant pool. These participants also completed the study online but came to the laboratory and used a lab computer to do so. Participants were aged 18–45 years ($M = 28.89$, $SD = 3.42$). Of all participants, 143 were White, 28 were Asian, 21 were Hispanic, 16 were Black, 4 were Pacific Islander, and 3 were Native American, and 7 selected “other.”

Participants for the fully online study followed a link from the sign-up page in SONA to the survey. Participants in the lab version came to the lab and participated individually. For all in-lab participants, a male experimenter offered a brief introduction to the study summarizing the same information as contained in the survey itself before directing participants to the website link to begin the study.

Procedure

Initial instructions in the survey informed participants that the purpose of the study was to learn about how men think about sex and dating. Participants were informed that the survey would consist of three parts: The first part would inquire about personal background characteristics, including some questions concerning sexual experiences. The second part would concern men’s judgments of women’s clothing items. Participants would view photos of women and answer questions about their clothing. The final part would concern how men interpret women’s behaviors. Participants who completed the study in-lab did so privately in a small room that contained only one computer. For all in-lab sessions, a male research assistant prepared the survey on the computer and left the room, closing the door behind him, so the participant could complete the study alone.

Measures

The measures from Study 1 were used to assess demographics, sexual experiences, and self-rated sexual arousal. Relationship status was the only demographic question that differed from Study 1. In Study 1, participants identified as either in a romantic relationship or not (i.e., single or non-single). In study two, participants chose between “single,” “dating around,” “long term relationship,” “engaged,” and “married.” We categorized all participants who selected any option other than single as non-single and collapsed all non-single responses into one comparison group. In addition to this difference, the SIP-QS was slightly modified for Study 2.

Modified measure of perceived sexual willingness

Participants in both conditions indicated their perceptions of the sexual intent underlying the same 25 hypothetical behaviors of women from Study 1. For Study 2, we slightly modified the wording of the original questionnaire items to make them as clear as possible to participants. Instead of asking “How likely would a woman be to participate in these behaviors with a man if she were not willing to have sex” with a 3-point scale (i.e., Study 1), we instructed men to “imagine that a woman engages in each of these behaviors” and then indicate “how likely it is that this behavior means she wants to have sex” using a 7-point scale. See the Appendix for the full measure.

Arousal manipulation

The arousal manipulation was adapted from the methods of Chiou, Wu, and Cheng (2017). Participants rated a series of pictures of women. In the arousal condition, men viewed 10 pictures of nearly nude women of varying body types and ethnicities wearing “sexy” lingerie. The men viewed the pictures one at a time and answered five questions about each picture (i.e., how appealing her figure, breasts, hair, and skin were and how sexually arousing the woman was). These questions helped ensure that men’s attention was drawn to arousing stimuli and increased men’s depth of processing of each image.

In the non-aroused condition, the men viewed 10 pictures of different women of various body types and ethnicities dressed in winter clothing. Again, the men viewed each picture one at a time and answered five questions about each picture. These questions asked men their opinions of the women's scarves, hats, coats, etc. Participants rated how appealing the color, texture, design and quality of the clothing was, and how sexually arousing her clothing was. All participants responded to a single item manipulation check asking, "How sexually aroused are you at this moment?" rated from 1 (*Not at all aroused*) to 7 (*Extremely aroused*).

Study 2: results

We first removed 12 participants who explicitly indicated in their survey that they were not heterosexual. The final sample consisted of 215 undergraduate males with a mean age of 20.88 years ($SD = 3.42$). Assuming small effect sizes, the study was well powered. No analysis was performed with power less than .92.

Manipulation check

The manipulation check for both the lab ($t(88) = 3.7, p < .001, d = .73$) and online ($t(104) = 2.91, p = .004, d = .54$) samples indicated that the manipulation was successful: Men in the aroused condition reported significantly higher arousal ($M_{\text{online}} = 3.12, SD_{\text{online}} = 1.88; M_{\text{in-lab}} = 2.94, SD_{\text{in-lab}} = 1.82$) than men in the non-aroused condition ($M_{\text{online}} = 2.18, SD_{\text{online}} = 1.48; M_{\text{in-lab}} = 1.84, SD_{\text{in-lab}} = 1.19$). There was no overall difference in the amount of arousal reported between the online and lab samples ($t(194) = -.78, p = .44$). In-lab participants ($M = 3.6$) reported higher perceptions of sexual intent compared to online participants ($M = 3.1, t(205) = 3.45, p = .006$). Importantly, the effect of our manipulation did not differ between the in-lab and online samples on either of our outcome variables. For this reason, and because there were no other differences on relevant variables and no differences in response to our independent variable, we proceed with the data combined.

Although the manipulation check was successful, ratings of arousal in the aroused condition were much lower ($M = 2.99, SD = 1.84$) than in the arousal condition for Study 1 ($M = 6.57, SD = 2.16$), although the scale for Study 1 (endpoints from 1–10) was slightly larger than in Study 2 (endpoints from 1–7). The arousal condition in Study 1 yielded a mean arousal score well above the midpoint, whereas in study 2 the aroused participants reported arousal below the midpoint. In Study 1, the difference in arousal means across conditions was over half the entire scale (difference of 5.37 units on a 10-point scale), whereas in Study 2 the mean difference between arousal conditions was only .96 units on a 7-point scale, or a 14% difference.

Ratings of sexual intent

Because we slightly adjusted the measure of perceived sexual willingness, we ran reliability analyses to ensure the measure remained effective. The new questionnaire was slightly more reliable than the questionnaire from Study 1 ($\alpha = .96, \omega = .97, \text{RMSR} = .03$).

Effects of arousal

There was no significant difference between the arousal group ($M = 3.47, SD = 1.09$) and the nonarousal group ($M = 3.26, SD = 1.09$) on the measure of perceived sexual willingness ($t(208) = 1.40, p = .16$), although the means were in the expected direction. As in Study 1, some of the items on the measure of perceived sexual willingness had very little variance in responses and were generally not perceived as reflecting sexual willingness. These low-variance questions corresponded to the low-variance items from Study 1, so we examined a composite measure of the same 10 items used in Study 1 (i.e., the SIP-QS) to remove items that created floor effects. This time, there was a significant interaction between relationship status and the arousal manipulation ($F(1,205) = 5.42$,

$p = .02$) on the SIP-QS ($\alpha = .92$, $\omega = .94$, $\text{RMSR} = .02$). The interaction followed the pattern expected based on the results of study 1. As in Study 1, single participants ($n = 108$) showed significant differences in interpretations of sexual intent between arousal conditions ($t(92) = 2.34$, $p = .02$), with the arousal group ($M = 5.12$, $SD = 1.83$) interpreting significantly more sexual intent than the non-aroused group ($M = 4.54$, $SD = 1.35$). This difference was nonsignificant for non-single participants ($n = 107$, $t(102) = -.87$, $p = .39$).

Effects of individual differences in arousal

For the full measure of sexual willingness, there were no significant correlations with dating experience (log transformed for normality), number of sexual partners (log transformed for normality), willingness to have sex on the first date, or attitudes toward casual sex. Only reported arousal was significantly related to interpretations of sexual intent ($r = .18$, $p = .009$).

For the SIP-QS, number of sexual partners ($r = -.13$, $p = .09$) was about as related to interpretations of sexual intent as was self-reported arousal ($r = .12$, $p = .09$), although number of sexual partners functioned opposite to our expectations. There were no significant correlations between attitudes toward casual sex, willingness to have sex on the first date, or dating experience and our dependent measure. Nevertheless, as noted above, the number of sexual partners was not related to arousal. Moreover, the other individual measures were unrelated to the SIP-QS ($ps > .63$). Replicating Study 1, dating experience (log transformed for normality), number of sexual partners (log transformed for normality), willingness to have sex on the first date, and attitudes toward casual sex were unrelated to interpretations of sexual intent ($ps > .19$). Further, all of these individual difference measures were unrelated to reported arousal (all $ps > .15$). See Table 2 for all correlations.

Study 2: discussion

Study 2 yielded less powerful results than Study 1, as the overall difference between the experimental and control groups was nonsignificant. We suspect these differences are due to the less successful arousal manipulation used in Study 2 compared to Study 1. This explanation is consistent with past research that demonstrated relatively small effects of arousal when manipulated by visual stimuli (e.g., videos; Bouffard & Miller, 2014) compared to our Study 1 narrative-writing manipulation. It is likely that our Study 1 paradigm produced a more powerful manipulation of arousal than either video stimuli (Bouffard & Miller, 2014) or our Study 2.

Across our two studies, actively writing about sexual fantasies produced more sexual arousal than viewing visual stimuli. However, Study 2 did extend Study 1 in that we again observed that higher self-reported arousal was related to higher perceptions of sexual willingness, and that these two variables were unrelated to other individual differences in experiences in romantic and sexual situations. Additionally, despite the smaller effect of the visual arousal manipulation, it did

Table 2. Correlations between relevant variables in Study 2.

Variables	SIP-QS	SIP-Q	Attitudes toward Casual Sex	Number of Sex Partners	Arousal	Dating Experience	Willingness to have Sex on the First Date
SIP-QS	1	-	0	-.13 ^m	.12 ^m	-.03	.03
SIP-Q		1	0	-.10	.18*	-.04	.03
Attitudes Toward Casual Sex			1	.39*	.06	.22*	.58*
Number of Sex Partners				1	-.01	.36*	.36*
Arousal					1	-.10	-.05
Dating Experience						1	
Willingness to have Sex on the First Date							1

* $p < .01$, ^m $p < .10$

significantly affect perceived sexual intent among single people. However, this pattern applied only for the SIP-QS and not the full measure of perceived sexual willingness as described in Study 1.

General discussion

Together the results of Studies 1 and 2 further support the link between men's sexual arousal and perceptions of women's sexual willingness. In Study 1, the arousal manipulation led men to interpret more sexual intent from women's behaviors, and this result was most powerful for those who were single. Study 2 appeared to have a less powerful arousal manipulation, and thus only induced higher interpretations of sexual intent in single men. Unsurprisingly, the type of manipulation used to induce arousal does seem to matter, sexual fantasies exerting a stronger effect than visual stimuli. Results demonstrated that single men's perceptions of women's sexual willingness, and in turn their consent to sex, can be affected by present-state sexual arousal.

In Study 1, the effect of arousal on perceptions of sexual willingness was medium-sized ($d = .39$) for single participants but nonsignificant for non-single participants, although the interaction between arousal condition and relationship status was non-significant. We observed a significant interaction between these variables in Study 2, despite the comparatively less powerful manipulation of arousal. The difference in the observed interaction could have been due to the way relationship status was coded in both studies. In Study 1, participants who had regular contact with potential sexual partners but who were not in an "official" relationship might have indicated that they were single. Comparatively, Study 1 reduced the ambiguity of responses by asking participants to self-categorize simply as single or non-single.

Both studies supported the findings of Bouffard and Miller (2014) that self-reported sexual arousal is positively related to interpretations of sexual intent underlying women's behaviors. Both studies also establish preliminary evidence that single men rely more strongly than those in relationships on present-state sexual arousal when interpreting women's sexual intentions. Given the dearth of literature on this specific topic we cannot rule out the possibility that individual differences in arousal are confounded with other individual differences, but we found no evidence of such a confound with any difference measured in these two studies. None were correlated with self-reported arousal.

It should also be noted that differences in self-reported arousal are a function of both individual differences in tendencies to be sexually aroused or to become sexually aroused in response to sexual stimuli, *and* the manipulation of arousal. Thus, it may be premature to speculate regarding the nature of individual differences that might explain our results or those of Bouffard and Miller (2014).

One individual difference that should receive closer attention is relationship status. Only Study 2 found a significant interaction between relationship status and arousal condition, and neither showed a difference in self-reported arousal between single and non-single participants. Despite these inconsistencies, we still observed more powerful effects of the arousal manipulation for single (vs. non-single) participants in both studies. Arguably, the issue of misperception of sexual intent is most important for the single population.

Although our studies did not test any explanations of this effect of relationship status, the effect might be explained in part by differences in motivated cognition. Perhaps those in relationships, who regularly have their sexual needs satisfied, do not feel any need to perceive sexual intent in women's behaviors. In contrast, aroused single men are more motivated to perceive sexual interest among women because sex for these men is a relatively scarce resource. Or, when aroused, men in relationships might think of their partners and have no need to see sexual interest in other women. Single men might not direct their sexual interest to a specific woman and therefore might read more into the behavior of all women.

This difference might also be due to the reference population men are thinking of when they answer these questions. If men in relationships are imagining what it means when their partners, who they are extremely familiar with, engage in these sometimes-ambiguous behaviors, they might be able to think up many more reasons for these behaviors besides desiring sex. Single men might

only be thinking about women abstractly, and without specific knowledge of qualities like personalities, political and religious preferences, etc., might be less able to think up reasons for ambiguous behaviors outside of sexual interest.

At this point, this difference needs replication before it can be considered reliable. Only one study showed a significant interaction between relationship status and manipulated arousal, even though both studies showed the simple effect of arousal was significant within single males and not within non-single males. Importantly, for the more powerful manipulation of arousal (that of Study 1), the effect of the arousal manipulation was significant overall. For the weaker manipulation of arousal (that of Study 2), the manipulation was successful only for single men. The possibility remains that with an even more powerful arousal manipulation than that of Study 1, the manipulation might be comparably effective for both populations.

Limitations and future directions

Our studies provided the first demonstration that manipulated sexual arousal alters the extent to which men perceive women's behaviors to reflect greater sexual willingness. However, our effects were either relatively small (Study 1) and/or limited to single participants (both studies). One goal of future research should be to develop stronger manipulations of arousal in order to determine whether a more robust effect of arousal occurs across both single and non-single populations.

Secondly, the most consistent finding across our two studies and the prior study conducted by Bouffard and Miller (2014) is the relationship between self-reported arousal and perceptions of sexual intent. Though interesting and potentially important, this finding is correlational and includes both individual difference variance and variance due to the manipulation. Is arousal the causal factor, or is arousal confounded with other individual differences that explain the greater perception of sexual intent? We were unable to find individual differences in sexual experiences and attitudes that were associated with self-reported arousal with potential to explain the association of arousal with perceived sexual intent.

One avenue for future research is to explore the relationship of individual differences that are associated with the magnitude of the "overperception bias" (Wegner & Abbey, 2016). These authors examined the relationship of individual differences such as narcissism, hostile masculinity, impersonal sexual orientation, alcohol use, and impulsive sensation seeking to the tendency to "overperceive" sexual interest. If such characteristics are also associated with the tendency to be chronically more sexually aroused, or to more easily become aroused in response to sexual stimuli, they may help to explain the link between reported sexual arousal and perceived sexual intent. Additionally, our participants were mainly young White men, and it is possible that older populations or men of color might respond differently to our stimuli.

Future research might also examine the relationship between male sexual arousal and perceptions of female sexual willingness with other methods. More powerful manipulations of arousal are needed. More variety in methods for measuring perceived sexual willingness can also help establish the generality of arousal effects. It is important to keep in mind that perceived sexual willingness must be measured in a way that does not itself create arousal and dampen effects of the arousal manipulations.

Finally, there are a variety of pathways by which sexual arousal could influence the perpetration of sexual assault. Male arousal might directly lead to honest and heightened perceptions of female sexual willingness, as shown in the current studies, but perceptions that are mistaken nonetheless. Sexual arousal might also decrease the importance men place on receiving true willing consent from a woman, which could partially explain Bouffard and Miller's (2014) findings that sexual arousal is related to the endorsement of more coercive strategies for obtaining sex. Aroused men might also behave more impulsively than non-aroused men (Loewenstein, 1996). Impulsiveness as a trait has been shown to be related to overperception of female sexual willingness (Wegner & Abbey, 2016), and situationally induced impulsiveness may have similar effects. All of these possibilities are important avenues for further research.

Disclosure statement

No potential conflict of interest was reported by the authors.

Data availability statement

The data described in this article are openly available in the Open Science Framework at <https://1osf.io/mpq84/>

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References

- Anderson, M. J. (2002). From chastity requirement to sexuality license: Sexual consent and a new rape shield law. *George Washington Law Review*, 70, 51–162.
- Ariely, D., & Loewenstein, G. F. (2006). The heat of the moment: The effect of sexual arousal on sexual decision making. *Journal of Behavioral Decision Making*, 19, 87–98. doi:10.1002/bdm.501
- Blanton, H., & Gerrard, M. (1997). Effects of sexual motivation on men's risk perception for sexually transmitted disease: There must be 50 ways to justify a lover. *Health Psychology*, 16, 374–379. doi:10.1037/0278-6133.16.4.374
- Bouffard, J. A., & Miller, H. A. (2014). The role of sexual arousal and overperception of sexual intent within the decision to engage in sexual coercion. *Journal of Interpersonal Violence*, 29(11), 1967–1986. doi:10.1177/0886260513515950
- Chiou, W., Wu, W., & Cheng, W. (2017). Sexy women can tempt men down the road of immorality: Exposure to sexy stimuli leads to increased dishonesty in men. *Evolution and Human Behavior*, 38, 616–625. doi:10.1016/j.evolhumbehav.2017.02.001
- Davis, D., & Villalobos, J. G. (2014). Language and the law: Illustrations from cases of disputed sexual consent. In T. Holtgraves (Ed.), *Handbook of language and social psychology* (pp. 438–458). New York, NY: Oxford University Press. doi:10.1093/oxfordhb/9780199838639.013.014
- Davis, D., Follette, W. C., & Merlino, M. L. (1999). Seeds of rape: Female behavior is probative for females, definitive for males. In *Psychological expertise and criminal justice* (pp. 101–140). Washington, DC: American Psychological Association.
- Davis, D., & Leo, R. A. (2012). Interrogation-related regulatory decline: Ego depletion, failures of self-regulation, and the decision to confess. *Psychology, Public Policy, and Law*, 18, 673–704. doi:10.1037/a0027367
- Davis, D., & Loftus, E. F. (2015). Remembering disputed sexual encounters: A new frontier for witness memory research. *Journal of Criminal Law and Criminology (Invited contribution)*, 105(4), 811–851.
- Ditto, P. H., Pizarro, D. A., Epstein, E. B., Jacobson, J. A., & MacDonald, T. K. (2006). Visceral influences on risk taking behavior. *Journal of Behavioral Decision Making*, 19, 99–113. doi:10.1002/bdm.520
- Edwards, K. M., Sylaska, K. M., Barry, J. E., Moynihan, M. M., Banyard, V. L., Cohn, E. S., ... Ward, S. K. (2015). Physical dating violence, sexual violence, and unwanted pursuit victimization: A comparison of incidence rates among sexual-minority and heterosexual college students. *Journal of Interpersonal Violence*, 30(4), 580–600. doi:10.1177/0886260514535260
- Engeler, I., & Raghurir, P. (2018). Decomposing the cross-sex misprediction bias of dating behaviors: Do men overestimate or women underreport their sexual intentions? *Journal of Personality and Social Psychology*, 114, 95–100. doi:10.1037/pspi0000105
- Farris, C., Treat, T. A., Viken, R. J., & McFall, R. M. (2008). Sexual coercion and the misperception of sexual intent. *Clinical Psychology Review*, 28, 48–66. doi:10.1016/j.cpr.2007.03.002
- George, W. H., & Stoner, S. A. (2000). Understanding acute alcohol effects on sexual behavior. In J. R. Heiman & C. M. Davis (Eds.), *Annual review of sex research* (Vol. 11, pp. 92–124). Allentown, PA: The Society for the Scientific Study of Sexuality.
- Kim, B. K., & Zauberman, G. (2013). Can Victoria's Secret change the future? A subjective time perception account of sexual-cue effects on impatience. *Journal of Experimental Psychology: General*, 142(2), 328–335. doi:10.1037/a0028954

- Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Process*, 65, 272–292. doi:10.1006/obhd.1996.0028
- Maner, J. K., Kendrick, D. T., Neuberg, S. L., Becker, D. V., Robertson, T., Hofer, B., ... Schaller, M. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology*, 88, 63–78. doi:10.1037/0022-3514.88.1.63
- Murray, D. R., Murphy, S. C., von Hippel, W., Trivers, R., & Haselton, M. G. (2017). A preregistered study of competing predictions suggests that men *do* overestimate women's sexual intent. *Psychological Science*, 28(2), 253–255. doi:10.1177/0956797616675474
- Perilloux, C., & Kurzban, R. (2015). Do men overperceive women's sexual interest? *Psychological Science*, 26, 70–77. doi:10.1177/0956797614555727
- Spencer, S. J., Fein, S., Zanna, M. P., & Olson, J. M. (2003). *Motivated social perception: The Ontario symposium* (Vol. 9). New York, NY: Psychology Press.
- Steele, C. M., & Josephs, R. A. (1990). Alcohol myopia: Its prized and dangerous effects. *American Psychologist*, 45, 921–933. doi:10.1037/0003-066X.45.8.921
- Stephan, W., Berscheid, E., & Walster, E. (1971). Sexual arousal and heterosexual perception. *Journal of Personality and Social Psychology*, 20, 93–101. doi:10.1037/h0031943
- Stevenson, R. J., Case, T. I., & Oaten, M. J. (2011). Effect of self-reported sexual arousal on responses to sex-related and non-sex-related disgust cues. *Archives of Sexual Behavior*, 40, 79–85. doi:10.1007/s10508-009-9529-z
- Treat, T. A., Viken, R. J., Farris, C. A., & Smith, J. R. (2016). Enhancing the accuracy of men's perceptions of women's sexual interest in the laboratory. *Psychology of Violence*, 6(4), 562–572. doi:10.1037/a0039845
- Villalobos, J. G., Davis, D., & Leo, R. A. (2016). His story, her story: Sexual miscommunication, motivated remembering, and intoxication as pathways to honest false testimony regarding sexual consent. In R. Burnett (Ed.), *Vilified: Wrongful allegations of person abuse* (pp. 129–142). Oxford, UK: Oxford University Press. doi:10.1093/acprof:oso/9780198723301.003.0010
- Wegner, R., & Abbey, A. (2016). Individual differences in men's misperception of women's sexual intent: Application and extension of the confluence model. *Personality and Individual Differences*, 94, 16–20. doi:10.1016/j.paid.2015.12.027
- Wood, E. F., & Davis, D. (2016). Perceived and actual probative and definitive value of sexual behaviors in college students: Which behaviors have most potential for miscommunication?. *Society for Personality and Social Psychology*, (January).
- Wood, E. F., & Davis, D. (2017). Perceived versus actual links between intoxication and sexual availability. *American Psychology Law Society*, (March).
- Wood, E. G., Rikkinen, K., & Davis, D. (2019). Defining, communicating and interpreting sexual consent. In W. T. O'Donohue, & P. Schewe (Eds.), *Handbook of sexual assault and sexual assault prevention* (pp. 399–421). New York, NY: Springer.
- Wray, T. B., Simons, J. S., & Maisto, S. A. (2015). Effects of alcohol intoxication and autonomic arousal on delay discounting and risky sex in young adult heterosexual men. *Addictive Behaviors*, 42, 9–13. doi:10.1016/j.addbeh.2014.10.037