

## **Affect and Sexual Responsivity in Men With and Without a History of Sexual Aggression**

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*Despite increased attention to understanding risk factors for sexual aggression, knowledge regarding the emotional and sexual arousal patterns of sexually aggressive men remains limited. The current study examined whether sexually aggressive men exhibit unique profiles of affective responsivity, in particular to negatively valenced stimuli, as well as sexual arousal patterns that differentiate them from nonaggressive men. We presented 78 young men (38 sexually aggressive; 40 nonaggressive) with a series of videos designed to induce positive, sad, or anxious affect. Affect and subjective sexual arousal were assessed following each film and erectile responses were measured continuously. Sexually aggressive men reported significantly higher levels of sexual arousal following both the positive and negative conditions as compared to nonaggressive men. Erectile responses of sexually aggressive men were significantly greater than nonaggressive men's following the positive affect induction. Self-reported positive affect, but not negative affect, was a significant predictor of subjective sexual arousal for both groups of men. Compared to nonaggressive men, sexually aggressive men showed significantly weaker correlations between subjective and physiological sexual arousal. Findings suggest that generalized heightened propensity for sexual arousal may be a risk factor for sexually aggressive behavior.*

Rape and sexual assault are prevalent in the United States, with reports indicating that approximately 15% of women have experienced completed rape since age 14 (Kolivas & Gross, 2007) and 32% of women have experienced sexual coercion (Basile, 2002). In addition to the increased risk for victims to experience lasting negative psychological and physical health consequences (Jozkowski & Sanders, 2012), rape and sexual assault result in an estimated \$8.3 billion in health care costs and

productivity loss in the United States annually (Max, Rice, Finkelstein, Bardwell, & Leadbetter, 2004). Because of the significant psychological, physical, and monetary costs associated with acts of sexual aggression, researchers have attempted to identify factors contributing to their occurrence. Studies suggest that a multitude of psychological, cultural, and contextual factors may contribute to the perpetration of sexual aggression, which includes the use of verbal coercion, drugs or alcohol, authority, or physical force to obtain sex from an unwilling partner (Abbey & Jacques-Tiura, 2011; Baumeister, Catanese, & Wallace, 2002; Bondurant & Donat, 1999; Bouffard & Miller, 2014; Loewenstein, Nagin, & Paternoster, 1997). Despite increased attention to this issue, research focused on

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nonincarcerated sexually aggressive versus nonaggressive men is scarce. The ability to identify unique characteristics of sexually aggressive men is crucial for the development of successful interventions for reducing the frequency of sexual coercion, sexual assault, and rape.

Perpetrators of sexual aggression are heterogeneous, and evidence suggests that psychological profiles of these individuals may differ by type of offense (Abbey & Jacques-Tiura, 2011; Carvalho & Nobre, 2011). A number of studies have investigated the influence of affect and personality variables on committing different types of sexual aggression (Abbey & Jacques-Tiura, 2011; Carvalho & Nobre, 2012; Murray-Close, Holland, & Roisman, 2012; Purdie, Abbey, Jacques-Tiura, 2010). However, the majority of this research focuses on acts of completed or attempted rape or relies on samples of incarcerated offenders. Because over two-thirds of rape victimizations are not reported to authorities (Truman & Planty, 2012), convicted offenders may not be representative of the majority of sexually aggressive men. Moreover, less extreme forms of sexual aggression, such as verbal coercion or threats, are far more common than forcible rape and may also have lasting detrimental psychological effects for victims (Abbey & Jacques-Tiura, 2011).

Certain characteristics of sexual aggressors, such as deficiencies in cognitive planning and increased impulsivity (Bernat, Calhoun, & Adams, 1999; Carvalho & Nobre, 2012; LeBreton, Baysinger, Abbey, & Jacques-Tiura, 2013) and holding callous sexual beliefs (Abbey & Jacques-Tiura, 2011; Baumeister et al., 2002; LeBreton et al., 2013), are relatively well documented, while the potential contribution of affect in the decision to engage in sexual aggression is less understood. Subclinical levels of psychopathic traits have been linked to what has been termed “calloused attitudes” toward women and endorsement of rape myths, suggesting that these characteristics may be common in a subset of individuals who engage in sexual coercion (Baumeister et al., 2002; Lalumière & Quinsey, 1996; LeBreton et al., 2013). Psychopathic traits, such as emotional underreactivity and lack of remorse for one’s actions, have been found to be related to physiological underreactivity as measured by electrodermal activity (EDA; see Fowles, 2000 for review) and salivary cortisol (O’Leary, Loney, & Eckel, 2007). Peterson, Janssen, Goodrich, and Heiman (2014) were the first to document this pattern of physiological hyporeactivity within a community sample of nonconvicted sexually aggressive men. In their study, electrodermal responses as participants were exposed to positive- and negative-affect-inducing film stimuli and cortisol levels were measured. Sexually aggressive compared to nonaggressive men demonstrated lower EDA reactivity to an anxiety-provoking video, as well as lower overall cortisol levels. This pattern of hyporeactivity, particularly to anxiety-eliciting stimuli, could explain why some sexually aggressive men exhibit a lack of concern for the consequences of their behavior. If sexually aggressive men are less affected by emotional stimuli than nonaggressive

men, then negative emotional cues in their environment, such as a woman’s nonconsent, may be less salient.

Difficulties in emotion regulation have also been linked to risky sexual decision making and to sexual aggression (Artime & Peterson, 2012; Gillespie, Mitchell, Fisher, & Beech, 2012; Howells, Day, & Wright, 2004; Miller, Vachon, & Aalsma, 2012), and a positive relationship between trait negative affect and sexual offending has been examined and supported in at least one review (Howells et al., 2004). It has been theorized that negative affect may lead some individuals to cope with their negative emotions by seeking out sexual experiences (Ward & Siegert, 2002). For example, Bancroft, Janssen, and Strong (2003) found that increased sexual interest while depressed or anxious was positively associated with depression proneness as well as lower levels of sexual inhibition, suggesting a potential relationship between an individual’s predisposed affect and sexual arousal patterns. If sexually aggressive men are more prone to negative affect, as the extant literature suggests, and exhibit patterns of sexual arousal different than those of nonaggressive men, then the question arises of whether negative emotional states are associated with sexually aggressive acts themselves.

It is possible that some sexually aggressive men belong to a subgroup of men who experience increased levels of sexual arousal in negative emotional states (Bancroft et al., 2003). Laboratory studies have documented a positive relationship between sexual arousal and sexual aggression in men with and without a history of aggression perpetration (Bouffard & Miller, 2014; Spokes et al., 2014). In studies that included manipulations of sexual arousal, convicted sexual offenders (Abel, Barlow, Blanchard, & Guild, 1977; Lalumière & Quinsey, 1994) and nonconvicted men reporting use of sexually aggressive tactics (Lohr, Adams, & Davis, 1997; Marx, Gross, & Adams, 1999) have shown greater subjective and physiological sexual responses compared to nonaggressive men. However, these studies typically focused on deviant sexual arousal in sexually aggressive men and used erotic materials depicting use of violence or force by the male actor. Violence and nonconsensual cues may induce negative affect in some individuals, potentially influencing the level of sexual arousal experienced. In addition, if sexual arousal precedes and increases the likelihood of sexually aggressive behavior, studies examining the effects of nonconsensual erotic material on sexually aggressive men may address only the ability of perpetrators to maintain their arousal during the act of aggressing. Men scoring higher on measures of rape myth acceptance (Malamuth, Check, & Briere, 1986) and men who self-report using sexually aggressive tactics (Bernat et al., 1999) also exhibit higher levels of sexual arousal in studies examining the effect of consensual erotic material on men’s sexual arousal. However, such studies still do not address the possibility that factors such as affect may inhibit or facilitate sexual arousal in sexually aggressive men prior to sexual activity. To our knowledge, no study has

investigated the potential causal impact of different affective states on the sexual arousal of men with and without histories of sexual aggression.

### CURRENT STUDY

To investigate differential sexual response patterns within a community sample of men with and without a history of sexual aggression—and to test the possibility of negative affect playing a key role in the sexual arousal of sexually aggressive men—we used an experimental affect induction designed to examine two key questions:

- RQ1:** Do aggressive and nonaggressive men demonstrate different patterns of subjective and physiological sexual arousal to consensual sexually explicit stimuli?
- RQ2:** Does positive or negative affect differentially influence the sexual arousal of aggressive and nonaggressive men?

We hypothesized that (a) sexually aggressive men would exhibit greater erectile responses and report higher subjective sexual arousal compared to nonaggressive men and (b) negative affect would positively predict subjective and physiological sexual arousal of sexually aggressive men, but not of nonaggressive men, in the two negative affect conditions. We also hypothesized that (c) sexually aggressive men would experience significantly higher levels of sexual arousal than nonaggressive men in general due to the heightened levels of sexual arousal typically found within men with a history of sexual aggression (Bernat et al., 1999; Lohr et al., 1997) and due to the possibility that nonaggressive men's sexual responses would be diminished by negative emotions in the negative affect conditions (Bancroft et al., 2003). If negative affect is predictive of sexual arousal in sexually aggressive men, but not in nonaggressive men, this would provide evidence for the proposed mechanism by which negative emotionality of perpetrators and acts of sexual aggression are related.

### METHOD

The data for this study were drawn from a larger project that examined differences in physiological activity (i.e. cortisol and EDA) between sexually aggressive and nonaggressive men (Peterson et al., 2014).

#### Participants

Participants were recruited from a sexually transmitted infection (STI) clinic primarily serving low-income patients in and around a large Midwestern city, as well as Craigslist advertisements and online subject pools accessible to

students, faculty, and staff at a large Midwestern university. After completing a questionnaire, participants were asked to indicate if they would be interested in participating in future research on men's sexual decision making. Participants who indicated interest were eligible for participation in the laboratory study if they met the following criteria: between 18 and 30 years old, self-identified as heterosexual, had at least one vaginal intercourse partner in their lifetime, unmarried, and tested negative for human immunodeficiency virus (HIV). Efforts were made to include approximately equal numbers of Black/African American and White/European American participants in the current study, as well as approximately equal numbers of aggressive and nonaggressive men based on questionnaire responses. A total of 90 men participated in the laboratory study; however, data loss due to technical issues and equipment malfunction resulted in a final sample of 78 men ( $M_{age} = 24.44$ ;  $SD = 3.27$ ). Of these men, 41 identified as White/European American, 33 identified as Black/African American, three identified as multiracial, and one identified as Moroccan. The average income of participants was less than \$30,000 a year. On average participants had completed 14.1 years of education, equivalent to high school plus two years of college ( $SD = 2.29$ ; range = 9–23 years).

Men were classified as sexually aggressive (SA) or nonsexually aggressive (NSA) based on their responses to questions on the Sexual Strategies Scale (SSS; Strang, Peterson, Hill, & Heiman, 2013). Men were classified as SA if they reported previously using verbal coercion, age/authority, an individual's impairment or intoxication, threats, or physical force to engage in oral, anal, or vaginal sex with a female partner. Of the 38 men who reported engaging in at least one of these sexually aggressive behaviors, 35 reported using verbal coercion, 13 reported taking advantage of or inducing a woman's intoxication, and two men reported using force. The remaining 40 men in the sample denied ever engaging in these behaviors and were classified as NSA.

#### Procedure

A male researcher greeted participants and briefed them on study procedures. Participants discussed any concerns with the researcher before signing the consent form and were then seated in a small, private room furnished with a comfortable chair and video viewing equipment. After the researcher placed electrodes for tracking electrodermal activity and facial electromyography (data from these measurements are not reported here), participants were given instructions for self-placement of the genital measurement device. Participants were then left alone, with intercom contact with the researcher, for the remainder of the study, which lasted approximately 60 minutes. All participants received \$50 for participation.

Table 1 outlines laboratory procedures relevant to the current study. Participants were first shown a neutral video

**Table 1** *Order of Laboratory Tasks and Measures Obtained for the Current Analysis*

Order	Introduction	Task	Measures	Time
1	Orientation to lab and placement of devices	First neutral video	(1) PANAS	10 minutes
2			(2) Subjective Sexual Arousal (3) RigiScan	7 minutes
3	First affect induction (positive or negative)	First erotic video	(1) PANAS	7 minutes
4			(1) PANAS (2) Subjective Sexual Arousal (3) RigiScan	8 minutes
5	Second neutral video (return to baseline period)			10 minutes
6	Second affect induction (positive or negative)		(1) PANAS	7 minutes
7	Second erotic video		(1) PANAS (2) Subjective Sexual Arousal (3) RigiScan	8 minutes

*Note.* Positive and negative affect induction order was counterbalanced across participants. For the negative affect induction, participants were randomly assigned to view an anxiety- or sadness-inducing video.

to acclimate them to the laboratory and obtain baseline measures. Participants were then presented with either a positive- or negative-affect-inducing video. For the negative affect induction, participants were randomly assigned to view either an anxiety-inducing ( $n = 45$ ) or sadness-inducing ( $n = 33$ ) video. Following the first affect induction (either positive or negative), participants viewed an erotic video. The erotic video was followed by a return to baseline period, in which participants watched another neutral video. Participants were then exposed to a second affect-inducing video (either positive or negative). The order of positive and negative affect inductions was counterbalanced across participants, and all participants underwent exactly one positive and one negative affect induction. For example, if participants received the positive affect induction first, then they received the negative affect induction second. Following the second affect induction, participants viewed a second erotic video. All videos were approximately five minutes in length. Measures of affect and subjective arousal were administered following each video, including the neutral videos. Procedures for this study were approved by the institutional review board (IRB) at the Indiana University School of Medicine.

### Measures and Materials

**Sexual Strategies Scale.** The SSS contains 23 behaviorally specific items measuring the use of a variety of sexual coercion strategies, which include use of verbal coercion, use of intoxication, and use of physical force to obtain oral, anal, or vaginal intercourse. For example, participants are asked, “Which of the following have you used to convince a woman to have sex (oral/anal/vaginal) with you when she did not want to?” The question is then followed by items such as “Blocking her if she tries to leave the room” (classified as physical force), “Getting her drunk/high” (classified as use of intoxication), and “Telling her lies” (classified as verbal coercion). The SSS has been

shown to result in higher rates of reported sexual coercion when compared with other measures of sexual aggression history (Strang et al., 2013; Testa, Hoffman, Lucke, & Pagnan, 2015). This is likely due to the fact that SSS uses less legalistic language than other measures and thus is less likely to invoke socially desirable responding.

**Positive and Negative Affect Schedule.** Affect was measured using the Positive and Negative Affect Schedule (PANAS) developed by Watson, Clark, and Tellegen (1988). The PANAS is a 20-item measure of affective state that is widely used in emotion literature. Each item asks about the current experience of a specific emotion and is endorsed on a scale from 1 (*Very slightly or not at all*) to 5 (*Extremely*). Subscales of the PANAS provide separate scores for positive and negative affect. A sample positive subscale item is “Indicate to what extent you feel PROUD right now,” while a sample negative subscale item is “Indicate to what extent you feel DISTRESSED right now.” Scores on the positive and negative subscales can range from 10 to 50, with higher scores indicating higher levels of affect. Internal consistency of the PANAS has been shown in previous studies, with Cronbach’s alphas of .85 for the positive and .88 for the negative subscales (Carvalho & Nobre, 2012). Cronbach’s alphas for the current sample were .89 for the positive subscale and .89 for the negative subscale at baseline.

**Subjective Sexual Arousal.** Subjective sexual arousal was measured using a 5-item questionnaire designed to assess the cognitive, physiological, and motivational aspects of sexual desire experienced by participants (Heiman, 1977). Participants were asked to rate each item on a scale from 1 (*Not at all*) to 5 (*Extremely*). Sample items include “To what degree do you feel sexually aroused?” and “To what extent do you feel penile erection?” Total scores on the subjective arousal measure can range from 5 to 25, with higher scores indicating greater arousal. Cronbach’s

alpha for this measure was .84 for the combined samples of SA and NSA men.

**Physiological Sexual Arousal.** Erectile responses were obtained using a RigiScan device (Timm Medical Technologies; for a review of its reliability and validity, see Janssen, Prause, and Geer, 2007). The RigiScan has two loops, one that can be placed around the base of the penis and the other just behind the corona, and measures penile circumference in millimeters at 15-second intervals and penile rigidity at 30-second intervals after a 20% increase in circumference is detected. As in previous research (e.g., Janssen, Goodrich, Petrocelli, & Bancroft, 2009; Samson & Janssen, 2014), we used mean base rigidity for our analyses.

**Affect-Inducing Videos.** Videos made of film clips were used to induce either a neutral, positive, sad, or anxious affect. All videos lasted approximately five minutes. Neutral videos consisted of two separate scenes from a nature documentary about ocean life. A clip from *The Natural* was presented as the positive affect induction. The anxiety-inducing video was a scene from *The Silence of the Lambs*, and the sadness-inducing video was a scene from *Sophie's Choice*. The affect-inducing films have been utilized in previous research (Gross & Levenson, 1995; Janssen, Hahn, & Rullo, 2005) and were found to be effective at inducing feelings of the target affect while minimizing the experience of other emotions (e.g., anger).

**Erotic Videos.** Before beginning the experiment, participants were allowed to view 10-second previews of eight possible erotic videos, which depicted a racially diverse set of actors, and then choose two clips to view during the experiment. The erotic videos were previously used in studies of sexual response (Janssen, Carpenter, & Graham, 2003) and were rated as highly sexually arousing by male participants. All erotic film clips depicted a consensual male–female sexual encounter that included acts of petting, fellatio, and penile–vaginal intercourse.

## RESULTS

### Demographic Variables and Baseline Measures

Analyses were conducted using IBM SPSS Statistics 20. Independent *t* tests and chi-square tests were performed to examine differences in demographic and baseline values of key variables between aggressive and nonaggressive men. There were no significant group differences in demographic characteristics such as age, race, education, or income.

### Manipulation Check

To examine the effectiveness of the affect induction videos in producing the expected change in affect, two separate

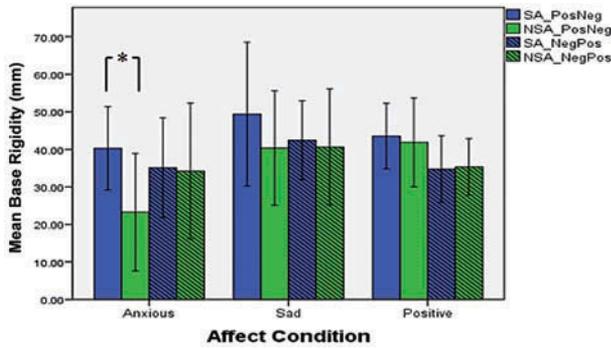
analyses of variance (ANOVAs) were conducted to assess differences in positive affect and negative affect between each of the conditions, with negative affect induction (sad or anxious) as a between-subjects factor and affect condition (positive or negative) as a within-subjects factor. This was supported by main effects of affect condition on negative PANAS score,  $F(2, 150) = 22.74, p < .01, \eta_p^2 = .229$ , and positive PANAS score,  $F(2, 140) = 7.69, p < .01, \eta_p^2 = .099$ . Participants reported significantly higher levels of negative affect following the anxious and sadness inductions as compared to baseline and the positive condition ( $M = 14.7, SD = 5.8$  for anxious;  $M = 17.9, SD = 7.3$  for sad;  $M = 11.4, SD = 2.0$  for positive;  $M = 11.9, SD = 2.2$  for baseline;  $p = .01$ ), and higher levels of positive affect as compared to the negative conditions ( $M = 25.3, SD = 9.8$  for positive;  $M = 22.3, SD = 7.9$  for anxious;  $M = 22.7, SD = 9.7$  for sad;  $M = 25.4, SD = 8.1$  for baseline;  $p < .01$ ). In addition, SA and NSA men did not differ in positive or negative PANAS scores following any of the affect conditions. A detailed comparison of SA and NSA men's self-reported affect can be found in Peterson et al. (2014).

### Subjective Sexual Arousal

A two-way mixed ANOVA was performed to examine differences in subjective arousal scores between SA and NSA men, with negative affect induction (sad or anxious), condition order (positive then negative or negative then positive), and aggression group as between-subjects factors and affect condition (positive or negative) as a within-subjects factor. A main effect of aggression group emerged,  $F(1, 70) = 5.7, p < .03, \eta_p^2 = .08$ . Sexually aggressive men reported significantly higher levels of sexual arousal than nonaggressive men following the positive ( $M = 17.6, SD = 4.1$  and  $M = 15.1, SD = 4.5$ , respectively) and negative ( $M = 17.4, SD = 3.7$  and  $M = 15.2, SD = 4.3$ , respectively) affect inductions. There were no other significant main effects or interactions.

### Physiological Sexual Arousal

RigiScan data were analyzed using measures of average rigidity at the base of the penis, referred to as “mean base rigidity.” Participants whose penile circumference changed less than 5 mm within both affect induction conditions were classified as “nonresponders” and excluded from RigiScan data analysis, consistent with other psychophysiological studies utilizing explicit sexual film stimuli (e.g., Cerny & Janssen, 2011; Janssen et al., 2009). A total of 14 nonresponders (eight SA men and six NSA men) were removed, with the remaining participants ( $n = 64$ ) being eligible for inclusion. To examine differences between SA and NSA men's penile responses, we performed a two-way mixed ANOVA using negative affect induction (sad or anxious), condition order (positive then negative or negative then positive), and aggression group as between-subjects factors, affect condition (positive or negative) as a within-subjects factor, with mean base rigidity as the outcome variable. A significant three-way



**Figure 1.** Three-way interaction: Aggression group  $\times$  Affect condition  $\times$  Condition order. Sexually aggressive men exhibited significantly greater physiological sexual responses than nonaggressive men when the anxious condition followed the positive condition ( $M = 36.32$ ,  $SD = 18.5$  versus  $M = 23.3$ ,  $SD = 16.9$ , respectively;  $p < .05$ ). Error bars: 95% confidence interval.

interaction of aggression group  $\times$  affect condition  $\times$  condition order,  $F(1, 70) = 4.75$ ,  $p < .01$ ,  $\eta_p^2 = .10$ , emerged (Figure 1). When the positive induction preceded the negative induction, SA men who received the anxiety induction exhibited significantly greater physiological sexual responses than NSA men who received the anxiety induction ( $M = 36.32$ ,  $SD = 18.5$  versus  $M = 23.3$ ,  $SD = 16.9$ , respectively;  $p < .05$ ). When the positive induction preceded the negative indication, there were no differences between SA and NSA men who received the sad induction in terms of physiological responses. When the negative induction preceded the positive induction, there were no differences between SA or NSA men in either the anxious or the sad conditions.

### Affect and Sexual Arousal

We then tested whether positive or negative affect, as measured by PANAS, predicted subjective sexual arousal, and if the relationship between affect and subjective sexual arousal differed by aggression group. Two separate multiple regression analyses were conducted for the positive and negative affect conditions to evaluate positive PANAS and negative PANAS as predictors of subjective sexual arousal, with aggression group as a dichotomous moderator. Results for the negative affect condition indicated that positive PANAS was a statistically significant predictor of subjective sexual arousal,  $b = .34$ ,  $t(3.17)$ ,  $p < .01$ . Aggression group made a marginally significant contribution to the model,  $b = .21$ ,  $t(1.93)$ ,  $p = .058$ , such that the SA group reported greater subjective arousal than the NSA group. Taken together, positive PANAS and aggression group accounted for 19% of the variance in subjective sexual arousal in the negative affect conditions,  $F(2, 75) = 8.03$ ,  $p < .01$ ,  $\eta_p^2 = .19$ . In step 2 of the regression, we added interaction terms for aggression group and PANAS subscores to the model. A significant interaction of positive PANAS  $\times$  aggression group emerged,  $b = .766$ ,  $t(4.54)$ ,  $p < .001$ , such that the effect of positive PANAS on subjective sexual arousal following the negative condition was greater for

SA men than for NSA men. This new model accounted for 37% of the variance in subjective sexual arousal following the negative condition,  $F(5, 77) = 10.03$ ,  $p < .001$ ,  $\eta_p^2 = .37$ . Results for the positive affect condition indicated that aggression group ( $b = .23$ ,  $t(2.10)$ ,  $p = .04$ ) was a significant predictor of subjective sexual arousal. Positive PANAS made a marginally significant contribution to the model ( $b = .19$ ,  $t(1.70)$ ,  $p = .09$ ). Taken together, aggression group and positive PANAS accounted for 18% of the variance in subjective sexual arousal in the positive affect condition,  $F(2, 75) = 3.56$ ,  $p = .03$ ,  $\eta_p^2 = .18$ . In step 2 of the regression, we added interaction terms for aggression group and PANAS subscores to the model. No significant interaction effects emerged. Negative PANAS was not a significant predictor of subjective sexual arousal for SA or NSA men in either condition.

The effect of positive PANAS, negative PANAS, and aggression group on physiological sexual arousal was also assessed using two separate multiple regression analyses. Surprisingly, none of these variables, or interactions between aggression group and PANAS subscores, were predictive of SA or NSA men's penile responses in either condition (all  $ps > .10$ ). The effect of positive PANAS and negative PANAS on physiological sexual arousal did not differ for SA and NSA men.

### Exploratory Follow-Up Analyses

Because we did not expect to find different results for participants' subjective and erectile responses, we decided to examine the concordance between self-reported and physiological sexual arousal for each aggression group (Table 2). For NSA men, significant correlations between subjective arousal and penile rigidity emerged for the positive and anxious conditions ( $r = .417$  and  $.636$ , respectively,  $ps < .05$ ). Correlations following the sadness induction were nonsignificant; however, the significant interaction between aggression group, affect condition, and condition order could have obscured this finding. Interestingly, no significant correlations between subjective and physiological sexual arousal emerged in any of the affect induction conditions for SA men. The difference between SA and NSA men's concordance was statistically significant following the anxious induction,

**Table 2** Erectile Responses by Condition Order

Condition	Sexually Aggressive (SA) Men	Nonaggressive (NSA) Men
Positive	.274	.417*
Anxious	.323	.636*
Sad	.153	.288

*Note.* Correlations between NSA men's subjective arousal and erectile responses following the positive and anxious conditions were statistically significant ( $ps < .05$ ). No significant correlations between subjective and physiological sexual arousal emerged in any affect conditions for SA men. \*Subjective and physiological sexual arousal concordance (Pearson's  $r$ ).

$Z = 1.81$ ,  $p = .04$ , but not the positive or sadness inductions.

## DISCUSSION

This study is the first to investigate the influence of affect on sexual arousal in response to consensual sexual stimuli within a community sample of men with a self-reported history of sexual aggression perpetration. Our findings support research that has documented a heightened propensity for sexual excitation in sexually aggressive men (Bernat et al., 1999; Lohr et al., 1997; Marx et al., 1999). This overall propensity toward greater subjective sexual arousal was contrary to our hypothesis that negative affect would be uniquely predictive of sexual arousal in sexually aggressive men. In fact, only positive affect was predictive of subjective sexual arousal for both groups. Importantly, these findings may limit conclusions drawn from studies documenting increased sexual arousal to “deviant” erotic stimuli in sexually aggressive men; it may not be that sexual arousal increases specifically in response to sexually violent media but instead that sexual arousal is simply high in response to all sexual stimuli.

Interestingly, in the negative affect condition, the relationship between positive affect and subjective sexual arousal in nonaggressive men was weaker than the relationship in men with a history of sexual aggression. Although there were no significant group differences in levels of positive or negative affect in response to the negative video, it seems that the arousal-facilitating effect of positive affect was dampened by the negatively valenced emotional stimuli in nonaggressive men, but not in sexually aggressive men. Similarly, a recent study found that inducing feelings of happiness resulted in greater physiological sexual arousal to sexually violent media than when a neutral mood induction preceded the erotic stimulus (Lalumière, Fairweather, Harris, Suschinsky, & Seto, 2016). In the present study, we were unable to compare sexual arousal following affect induction relative to a neutral baseline because a sexually arousing film did not immediately follow the neutral video. However, findings such as those of Lalumière and colleagues (2016) and the current study may be relevant for how sexual behavior occurs in the real world. For example, if an individual at risk for sexual aggression perpetration is enjoying himself at a party (resulting in positive affect) and then is sexually rejected by an acquaintance (a negative emotional stimulus), his preexisting level of positive affect may continue to drive a high level of sexual arousal even in the presence of the woman’s refusal.

Indeed, one possible consequence of heightened subjective sexual arousal is the influence these feelings might exert on an individual’s processing of information (Janssen, Everaerd, Spiering, & Janssen, 2000). The social information-processing model contends that behavior is influenced in three stages: (1) the decoding stage, in which the individual perceives and interprets incoming stimuli; (2) the

decision-making stage, in which the individual decides how to respond; and (3) the enactment stage, in which the individual executes the response (McFall, 1982). Feelings of sexual arousal may alter individuals’ perceptions of social cues by causing individuals to attend to environmental stimuli that are most salient to their sexual arousal, influencing processing at the decoding stage. The tendency for some men with a history of sexual aggression to overestimate a woman’s sexual interest is well documented (Abbey, 1982; Bondurant & Donat, 1999; Farris, Viken, & Treat, 2010; Shea, 1993). Positive correlations have also been found between men’s sexual arousal and the perception of women’s sexual interest (Bouffard & Miller, 2014; Maner, Delton, & Kenrick, 2005; Murphy, Coleman, & Haynes, 1986). If men at increased risk of sexually aggressive behavior experience more frequent and/or higher levels of sexual arousal, as the current findings suggest, this may result in disrupted processing of social and sexual cues at the decoding stage and partially explain the decision to engage in sexual aggression.

Alternatively, or perhaps in conjunction with disruptions at the decoding stage, subjective arousal may influence processing at the decision-making stage by increasing perceived benefits and decreasing perceived costs of engaging in risky sexual behavior, such as sexual coercion or assault (Dudley, 2005). When laboratory paradigms designed to measure men’s sexual aggression included a sexual arousal manipulation, aroused participants with and without histories of sexual aggression were more likely to endorse a variety of sexually coercive behaviors compared to their nonaroused counterparts (Bouffard & Miller, 2014; Davis, Norris, George, Martell, & Heiman, 2006; Hald & Malamuth, 2015; Loewenstein et al., 1997; Spokes, Hine, Marks, Quain, & Lykins, 2014).

Studies examining temperamental differences in sexually aggressive men have suggested that sexual aggressors may be characterized by heightened levels of negative affect, and that these negative emotional states may contribute to sexual offending or lead men with poor emotional regulation skills to seek out sexual experiences in an attempt to cope with these emotions (Carvalho & Nobre, 2013; Hall & Hirschman, 1992). In the current study, negative affect was not predictive of SA men’s subjective sexual arousal within any of the affect induction conditions. A relationship between negative affect and sexually aggressive behavior may exist, but it is possible that this pattern is present only in men with a more severe history of sexual aggression. Most of the SA participants in this study reported engaging in relatively milder forms of sexual aggression, such as verbal coercion, and thus likely differ from samples of convicted sexual offenders or nonincarcerated rapists. Alternatively, heightened levels of negative emotional reactivity or trait negative affect may be present in some sexually aggressive men but are not directly related to their sexual arousal. The weak, non-significant correlation between subjective and

physiological sexual arousal in sexually aggressive men also supports a potential disconnect between emotional and physiological states in at least some men with a history of sexual aggression.

The significant three-way interaction between aggression group, affect condition, and affect order was unexpected and somewhat contrary to our hypothesis that sexually aggressive men would exhibit greater erectile responses following both negative affect inductions. Sexually aggressive men did exhibit greater erectile responses than nonaggressive men following the anxious induction, but only when the positive induction preceded the anxious induction. However, it was not that sexually aggressive men's physiological sexual arousal was magnified under these circumstances; rather, the physiological sexual responses of the nonaggressive men were diminished. It is possible that the nonaggressive men in this study were more sensitive to affective changes and the order in which they occurred, or that the sexually aggressive men were less likely to be impacted by anxiety-inducing stimuli once sexually aroused, or both.

The current study has several potential limitations. Although the use of a racially diverse community sample was a significant strength, participants were recruited from STI clinics that served primarily lower-income populations, which may limit the generalizability of our findings. Although rates of nonresponding in studies utilizing psychophysiological measures vary widely, it is still possible that the nonresponders in our sample differ systematically on traits and personality variables that were outside the focus of this study. In addition, our modest sample size and relatively low levels of reported sexual aggression could have prevented the detection of some significant effects. The current sample primarily included men who reported using verbally coercive tactics only. A larger sample of men reporting use of more varied or extreme sexual aggression tactics would enable comparisons within the group of sexually aggressive men (e.g., comparing men with a history of verbal coercion versus sexual assault) and possibly reveal effects that were not apparent in the current study. This possibility is worth examining in future research.

Our study supports the existence of differential propensities for sexual excitation in sexually aggressive and nonaggressive men. High levels of subjective sexual arousal in sexually aggressive men, not diminished by affective state, may contribute to the decision to engage in sexual aggression. In addition, our findings suggest a decoupling of subjective and physiological sexual arousal in sexually aggressive men, as evidenced by the low concordance between reported sexual arousal and erectile responses. Investigation of the underlying mechanisms for differences in sexual arousal patterns and whether these patterns are characteristic of other samples of sexually aggressive men deserves further attention. In addition, future research should examine the impact of other risk factors for sexually aggressive behavior, such as alcohol consumption, and the

ways in which they interact with state and trait variables to influence the likelihood of sexual aggression, as this research could be a valuable contribution to the development of effective sexual violence prevention efforts.

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