

Aggression Toward Sexualized Women Is Mediated by Decreased Perceptions of Humanness



Steven Arnocky¹, Valentina Proietti¹, Erika L. Ruddick¹, Taylor-Rae Côté¹, Triana L. Ortiz¹, Gordon Hodson² , and Justin M. Carré¹

¹Department of Psychology, Nipissing University, and ²Department of Psychology, Brock University

Psychological Science
2019, Vol. 30(5) 748–756
© The Author(s) 2019
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/0956797619836106
www.psychologicalscience.org/PS



Abstract

Researchers have argued that the regulation of female sexuality is a major catalyst for women's intrasexual aggression. The present research examined whether women behave more aggressively toward a sexualized woman and whether this is explained by lower ratings of the target's humanness. Results showed that women rated another woman lower on uniquely human personality traits when she was dressed in a sexualized (vs. conventional) manner. Lower humanness ratings subsequently predicted increased aggression toward her in a behavioral measure of aggression. This effect was moderated by trait intrasexual competitiveness; lower humanness ratings translated into more aggression, but only for women scoring relatively high on intrasexual competition. Follow-up studies revealed that the effect of sexualized appearance on perceived humanness was not due to the atypicality of the clothing in a university setting. The current project reveals a novel psychological mechanism through which interacting with a sexualized woman promotes aggressive behavior toward her.

Keywords

women's intrasexual competition, aggression, dehumanization, open data

Received 5/12/17; Revision accepted 12/21/18

I used to call women sluts and whores all the time. Because that's what society taught me: that that was OK and that it was what I was supposed to be doing.

Amber Rose, model and actress
(quoted in Hackman, 2015)

Women's aggression toward other women has been considered a tactic for intrasexual competition that evolved because it facilitated ancestral women's reproductive fitness (Arnocky & Vaillancourt, 2017). Research conducted in contemporary societies has suggested that women's aggression can allow perpetrators to physically, psychologically, or socially harm their same-sex rivals (Campbell, 1999; Vaillancourt, 2005, 2013); achieve and maintain status (Vaillancourt & Hymel, 2006); and bolster access to mating opportunities

(Arnocky, Sunderani, Miller, & Vaillancourt, 2012; Gallup, O'Brien, & Wilson, 2011). However, unlike men's aggression, which is more frequently characterized by direct physical and verbal behaviors (Archer, 2004), women's greater obligatory parental investment compels the use of less physically risky tactics, such as social aggression characterized by surreptitious rumor spreading, exclusion, and subtle derisive gestures (Campbell, 1999; Vaillancourt, 2005, 2013), processes often motivated by mating-related effort (e.g., Arnocky,

Corresponding Authors:

Steven Arnocky, Nipissing University, Department of Psychology, 100 College Dr., North Bay, Ontario P1B 8L7, Canada
E-mail: stevena@nipissingu.ca

Justin M. Carré, Nipissing University, Department of Psychology, 100 College Dr., North Bay, Ontario, P1B 8L7, Canada
E-mail: justinca@nipissingu.ca

Ribout, Mirza, & Knack, 2014; Giskevicius et al., 2009). Indirect and relational aggression, which is characterized largely by socially manipulative acts, can also bear on important social connections that are crucial for women's access to, and maintenance of, mating-relevant resources (Liesen, 2017).

Researchers have postulated that women might be more likely to behave aggressively toward sexualized women than toward nonsexualized women (Vaillancourt & Sharma, 2011). According to social-exchange theory, the value of sex (as a commodity) rises and falls with its availability (Baumeister & Vohs, 2004). Thus, women may place pressure on women who appear to make sex too readily available via aggressive tactics such as ostracism or derogatory gossip; this cultural suppression of female sexuality may then restrict the supply and artificially increase the price of sexual access (Baumeister & Twenge, 2002). Consistent with this theory, research has shown that women overwhelmingly prefer other women with fewer past sex partners as friends (Vrangalova, Bukberg, & Rieger, 2013), and women with many sex partners report having fewer female friends (Kreager & Staff, 2009). Also, women, more than men, have been found to express attitudes toward preventing the sexuality of friends (Arnocky, Sunderani, Albert, & Norris, 2014), and such mate-prevention attitudes have been found to be positively correlated with individual differences in intrasexual competitiveness (Buunk & Fisher, 2009).

Going beyond attitudes, recent evidence has indicated that women engaged in more verbal derogation and displayed more derisive body language toward a research confederate dressed in a sexualized way (Vaillancourt & Sharma, 2011). Moreover, women exposed to photos of the sexualized confederate reported being less willing to be friends with her or to introduce her to their boyfriend, compared with women who viewed photos of the same confederate dressed conventionally (Vaillancourt & Sharma, 2011). The underlying psychological mechanisms through which women behave aggressively toward sexualized women are not clear. One possibility is that women are more likely to dehumanize a sexualized woman, and this in turn facilitates aggressive behavior toward her. Dehumanization, especially animalistic dehumanization, refers to viewing an individual as being "less human" and thus failing to ascribe to that individual qualities that are deemed uniquely human (Haslam, 2006). Past research has shown that dehumanization of women occurs when they are deprived of uniquely human traits such as morality or personality (Vaes, Paladino, & Puvia, 2011). Human traits are often measured using ratings of personality characteristics, whereby the traits of Openness to Experience and Conscientiousness are typically rated as uniquely human (i.e., high humanness) and the traits of Neuroticism and Agreeableness are typically rated as

nonuniquely human (i.e., low humanness; Costello & Hodson, 2014; Hodson & Costello, 2007). Personality-based measurement of humanness has been shown to be sensitive to contextual information (such as playing violent video games) and has also been linked to aggression (e.g., Greitemeyer & McLatchie, 2011).

Recent evidence has indicated that showing women clips of a news anchor who was either more sexualized (wearing bright red lipstick and a dark jacket and skirt that accented her waist-to-hip ratio) or less sexualized (wearing no lip color and a shapeless dark-blue jacket and skirt that deemphasized her waistline) influenced trait attributions that women made of the news anchor (Grabe, Bas, Pagano, & Samson, 2012). Specifically, women who saw a sexualized woman were more likely to directly derogate her appearance effort, which reflects a negative evaluation of the target but is not necessarily an indication of aggression (i.e., behavior). Moreover, participants ascribed different personality characteristics to the more sexualized woman, rating her lower on agreeableness, conscientiousness, emotional stability, and intelligence, relative to a less sexualized female news anchor. Rating individuals lower on such personality traits, some of which can be considered to be uniquely human, might be indicative of dehumanizing the target. A separate line of research indicates that such dehumanization of a target is implicated in the promotion of aggressive behavior (Greitemeyer & McLatchie, 2011), including men's propensity for aggression directed at women (Rudman & Mescher, 2012) as well as psychological aggression (Haslam, 2006). Notably, we know of no studies that have directly examined the extent to which dehumanization mediates the association between interacting with a sexualized woman and behaving aggressively toward her. Thus, the primary goal of this research was to examine the extent to which psychological dehumanization promotes heightened aggressive behavior toward a sexualized female target.

Unlike men's dehumanization of sexually objectified female targets, which tends to be at least in part triggered by sexual attraction (Vaes et al., 2011), women's dehumanization of other women has the potential to be intimately tied to intrasexual competition. For example, research has shown that normally ovulating women were more likely to dehumanize other women (but not men or elderly people) during the fertile (vs. follicular) phase of the menstrual cycle, when conception is more likely to occur (Piccoli, Foroni, & Carnaghi, 2013). Moreover, intrasexual competitiveness also increased with conception risk and was significantly correlated with dehumanization. Other research has linked reductions in women's intrasexual competitiveness to hormonal contraceptive use when women were pair bonded (i.e., in a relationship with a man) but not when they were single (Cobey, Klipping, & Buunk, 2013). Recent

research found that women exhibit higher scores on an intrasexually competitive attitude measure in the presence of a sexualized versus conventionally dressed confederate (Keys & Bhogal, 2018). Considering previous research linking women's intrasexual competitiveness to mating-relevant aggression (e.g., Arnocky, Ribout, et al., 2014), we predicted that intrasexually competitive orientation might play an important role in organizing psychological and behavioral responses to sexualized intrasexual individuals. Accordingly, we predicted that dehumanizing a sexualized woman, for instance, rating her relatively lower on personality traits generally deemed uniquely human, would promote aggressive behavior toward her more so among women who are relatively high on intrasexual competitiveness.

The Present Study

The present study extends initial findings of women's increased derogation and derision of a sexualized versus conventionally dressed woman. *Sexualized appearance* refers to an outward physical appearance that would signal greater sexual receptivity and promote greater attractiveness to men (e.g., Moor, 2010). Hypotheses were tested by (a) directly measuring aggression toward a confederate whose physical appearance was sexualized or conventional (see Fig. 1), (b) exploring the potential mediating role of perceived humanness in motivating aggression toward a sexualized target, (c) determining whether links between interacting with a sexualized (vs. conventionally dressed) target and lower perception of humanness are more pronounced among women who are higher on intrasexual competitiveness, and (d) determining whether links between perception of humanness and aggression toward a sexualized (vs. conventionally dressed) target are more pronounced among women who are higher on

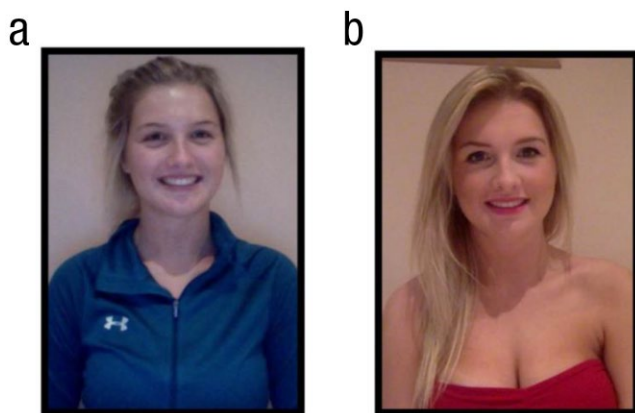


Fig. 1. Photos of the female confederate both (a) conventionally dressed and (b) sexualized.

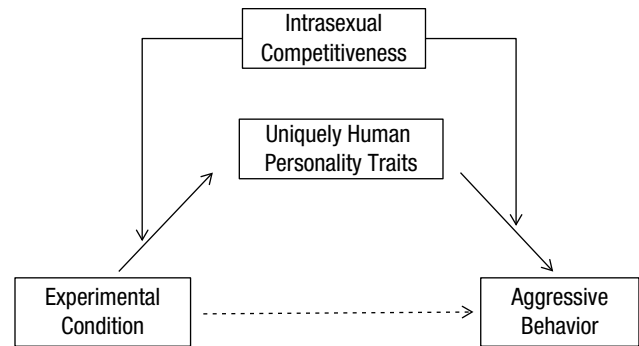


Fig. 2. Schematic of the moderated mediation model tested (PROCESS Model 58; Hayes, 2013). We entered experimental condition (sexualized vs. conventional) as the predictor variable (conventional = 0, sexualized = 1), uniquely human personality traits as the mediating variable, aggressive behavior as the dependent variable, and intrasexual competitiveness (mean centered) as the moderating variable. Arrows highlight the direct path (dashed) and indirect path (solid) between the experimental condition and aggressive behavior.

intrasexual competitiveness (see Fig. 2). We predicted a conditional indirect effect whereby a female's sexualized (vs. conventional) physical appearance would predict women's aggression toward her indirectly via decreased perception of humanness and that this effect would be stronger among women who are higher (vs. lower) on intrasexual competitiveness.

Method

Participants

We recruited 113 female Nipissing University undergraduate students (age: $M = 19.61$ years, $SD = 2.08$; 81% Caucasian, 3.5% First Nations, 3.5% Asian, 2.7% Middle Eastern, 2.7% Hispanic, 5.4% mixed race/other). In terms of sexual orientation, 92% ($n = 104$) of the participants identified as heterosexual. On the basis of our predictions involving intrasexual competitiveness and in line with previous studies (Davis, Dufort, Desrochers, Vaillancourt, & Arnocky, 2018), we included only heterosexual participants in the final sample.

Participants received course credit and earnings of up to \$10 CAD. The women were recruited using a university-wide research-participation pool in exchange for course credit and the possibility of earning up to \$10 on the basis of performance on the point-subtraction aggression paradigm (Cherek & Lane, 1999a, 1999b). All procedures were approved by the Nipissing University Research Ethics Board. The research was conducted in accordance with the provisions of the World Medical Association Declaration of Helsinki and the Canadian Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans.

Procedure and measures

As part of a larger protocol, participants first completed a survey assessing basic demographic information as well as the Scale for Intrasexual Competition (Buunk & Fisher, 2009). The Scale for Intrasexual Competition consists of 12 items, such as "I can't stand it when I meet another woman who is more attractive than I am" and "When I go out, I can't stand it when men pay more attention to a friend of mine than to me." Responses were recorded on a 7-point Likert-type scale (1 = *not at all applicable*, 7 = *completely applicable*). In the present study, the Scale for Intrasexual Competition showed good internal consistency ($\alpha = .89$).

Video stimuli. Participants were instructed to make a "fast-friends" video message, in which they answered a standard set of questions within a 3-min time frame. After completing the video, participants were told that their video would be sent to their same-sex interaction partner at a nearby university, and their partner's video (answering the same questions) would in return be sent to them. The script asked for basic information about the participant as well as responses to the following: "Would you like to be famous? Why?" "What type of music do you prefer and who is your favorite artist?" "Before making a telephone call, do you ever rehearse what you're going to say?" "If you were able to live to the age of 90 and retain either the mind or body of a 30-year-old for the last 60 years of your life, which would you want?" "What are you most grateful for?" "If you could wake up tomorrow having gained any one quality or ability, what would it be?" and "Do you have any regrets in life?" Participants were to answer to the best of their ability and told they could be as honest as they wished.

A confederate was featured in two videos in the same manner. In the conventional condition, the confederate was conventionally dressed in a blue long-sleeved athletic shirt with her hair up and no makeup on, whereas in the sexualized condition, the same confederate wore a more revealing red strapless top with her hair down and makeup on her skin, eyes, and lips (see Fig. 1). In both conditions, the confederate was filmed at the same location and read from the same script. A pilot study was conducted to ensure continuity in the speech patterns between the two conditions. Twenty-four female participants (age: $M = 24.08$ years, $SD = 5.18$) were each randomly assigned to listen to an audio recording from one of the two experimental conditions. Using a 7-point Likert-type scale (1 = *entirely disagree*, 7 = *entirely agree*), participants rated the voice on how attractive, nice, extraverted, smart, and friendly the speaker in the audio clip was. The audio recordings were rated to be similar on all items (ps ranged from .083 to .764).

Each participant was randomly assigned to receive either the sexualized video or the conventional video. Prior to viewing their partner's video, participants were instructed to pay close attention to the video because they would later complete several questionnaires about the personality characteristics of their partner.

Perception of humanness. After watching the fast-friends video, participants completed the Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003), indicating how the Big Five personality factors (Openness to Experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism) apply to the female confederate (1 = *trait does not apply to her*, 7 = *trait strongly applies to her*); this measure taps humanness perceptions (Hodson & Costello, 2007). Previous research has revealed that Openness to Experience and Conscientiousness were rated as the most uniquely human factors, whereas Neuroticism and Agreeableness were rated as the least uniquely human factors (Gosling & John, 1999; Hodson & Costello, 2007). Thus, the variable termed *uniquely human personality traits* was the average score across the four Openness and Conscientiousness items representing these two dimensions of the Big Five. The variable termed *nonuniquely human personality traits* was the average score across the four Agreeableness and Neuroticism items representing these two dimensions of the Big Five.

Preliminary analyses indicated that the effect of experimental condition on trait ratings of the woman in the video was moderated by type of trait attribution made, $F(1, 102) = 14.06, p < .001$.¹ Women assigned to the sexualized condition rated her lower on uniquely human personality traits than did women assigned to the conventional condition, $t(102) = -3.86, p < .001$, Cohen's $d = -0.76$. In contrast, the effect of experimental condition on nonuniquely human personality traits was much weaker and not statistically significant, $t(102) = 1.79, p = .08$, Cohen's $d = 0.35$. We further explored this effect by examining whether women in the sexualized condition rated the confederate in the video as lower on the two personality traits that compose uniquely human personality traits, namely, Conscientiousness and Openness to Experience.² A mixed-factor analysis of variance with trait (Openness to Experience vs. Conscientiousness) as a within-subjects factor and condition (sexualized vs. conventional) as a between-subjects factor revealed an interaction between trait and condition, $F(1, 102) = 11.93, p = .001$. Women rated the confederate lower on Conscientiousness when she was sexualized than when she was not, $t(102) = -5.19, p < .001$, Cohen's $d = -1.02$; however, in the same direction as Conscientiousness, ratings of Openness to Experience did not differ between the two conditions,

$t(102) = -1.36, p = .17$, Cohen's $d = -0.27$. Because previous research has employed both Conscientiousness and Openness to Experience as an index of humanness (Hodson & Costello, 2007), coupled with the fact that the two items were correlated with one another, and because the latter trended in the same direction as the former, our moderated mediation model used an average of both Conscientiousness and Openness ratings as a measure of uniquely human personality traits.

Point-subtraction aggression paradigm. Participants were then told that they were going to play a game with the woman they just met via the fast-friends task. To measure aggressive behavior toward her, we used a modified version of the point-subtraction aggression paradigm (Norman, Moreau, Welker, & Carré, 2015), a well-validated laboratory aggression measure (Cherek & Lane, 1999a, 1999b; Lieving, Cherek, Lane, Tcheremissine, & Nouvion, 2008). Participants viewed a picture of their fast-friends partner (see Fig. 1) and were informed that they would be paired with this person on a task that required them to select among three response options to earn points that would be exchangeable for money at the end of the study. Pressing the Option No. 1 key 100 consecutive times would earn the participant 1 point. Participants were told that each point earned by the end of the allotted testing time would be redeemed for 50 cents. It was explained that the point counter might flash several times with negative signs around it, resulting in a 1-point decrease in the point counter total. Participants were notified that this meant that their game partner (actually the computer program) had stolen a point from them and that each stolen point would be added to the partner's counter. Participants could respond by continuing to select Option No. 1 (point reward) or could switch to Option No. 2 or Option No. 3. Pressing the Option No. 2 key 10 times would steal a point from their partner; however, participants were informed that they had been randomly assigned to the experimental condition whereby they, unlike their partner, would not keep any stolen points. Pressing the Option No. 3 key 10 times would protect their point counter against theft of points for a brief period of time. Accordingly, point stealing by the participant indicated aggression and, therefore, detracted from her point total. The time spent behaving aggressively could otherwise be spent earning or protecting points, and stealing points served only to punish the other player and not add points to one's own score total.

Data-analysis plan

To test our moderated mediation model (see Fig. 2), we entered experimental condition (sexualized vs. conventional) as the predictor variable (conventional = 0,

sexualized = 1), uniquely human personality traits as the mediating variable, aggressive behavior as the dependent variable, and intrasexual competitiveness (mean centered) as the moderating variable (PROCESS Model 58; Hayes, 2013). The model provided information on the indirect pathway between experimental condition and aggressive behavior at varying levels of intrasexual competitiveness. It also provided information about the role of intrasexual competitiveness in moderating the effect of experiment condition on perceived humanness and in moderating the effect of perceived humanness on aggressive behavior. A priori power analyses were performed to determine the sample size needed for detecting significant effects. For the effect of experimental condition on perceived humanness (i.e., lower ratings of uniquely human personality traits), it was determined that a sample size greater than 102 participants would give us sufficient power (80% power, $\alpha = .05$, one-tailed) for detecting a medium-size effect (i.e., $d = 0.50$). For the effect of perceived humanness on aggressive behavior, it was determined that a sample size greater than 67 participants would give us sufficient statistical power for detecting a medium-size correlation (i.e., $r = .30$). Given previous research indicating medium-size effects for the two main pathways investigated (condition \rightarrow uniquely human personality traits; uniquely human personality traits \rightarrow aggression; Grabe et al., 2012; Greitemeyer & McLatchie, 2011), we determined that a sample size ranging from 71 to 116 participants would provide sufficient statistical power (80% power) for detecting a significant indirect effect (Fritz & MacKinnon, 2007). Therefore, our target sample size was set to 120 participants (60 per experimental condition). We stopped collecting data when we reached 120 participants or when the semester ended, whichever came first. In this case, we stopped at 113 participants at the end of the 2015–2016 academic term. The data used in these analyses are publicly available on the Open Science Framework (<https://osf.io/jqug4/>).

Results

The present study

A moderated mediation model (PROCESS Model 58; Hayes, 2013) was tested to examine the extent to which participants would be more aggressive toward a woman dressed in a sexualized (vs. conventional) way and whether this effect was mediated through lower perception of humanness (i.e., lower ratings of uniquely human personality traits) of the sexualized woman.³ In keeping with a sexual-economics and evolutionary perspective, we also examined whether this effect would be most pronounced among women scoring relatively

high on intrasexual competitiveness (for the model being tested, see Fig. 2).

Consistent with our proposed model, results showed that participants in the sexualized condition (vs. conventional condition) rated the woman lower on uniquely human personality traits ($b = -0.69$, $SE = 0.19$, $p < .001$); this effect was not moderated by trait intrasexual competitiveness ($b = -0.16$, $SE = 0.20$, $p = .43$). In other words, women attributed lower levels of uniquely human personality traits to the sexualized woman regardless of self-reported intrasexual competitiveness. Also supporting our predictions, ratings of uniquely human personality traits predicted aggression ($b = -42.08$, $SE = 14.72$, $p = .005$), that is, lower ratings of the woman on uniquely human personality traits predicted enhanced aggression toward her. Further, this effect was moderated by individual differences in self-reported intrasexual competitiveness ($b = -25.82$, $SE = 12.97$, $p = .05$). Deconstruction of the interaction indicated that ratings of uniquely human personality traits negatively predicted aggressive behavior for women scoring high (+1 *SD*) on intrasexual competitiveness ($b = -67.01$, $SE = 20.63$, $p = .002$) but not for women scoring low (-1 *SD*) on intrasexual competitiveness ($b = -17.16$, $SE = 17.92$, $p = .34$). Finally, results indicated that the indirect effect of experimental condition (i.e., sexualized woman vs. conventional woman) on aggressive behavior through perceived humanness (i.e., the mediation effect) was significant for women scoring relatively high on intrasexual competitiveness ($b = 56.81$, $SE = 26.91$, 95% confidence interval, or CI = [4.69, 112.67]) but not for women scoring relatively low on intrasexual competitiveness ($b = 9.25$, $SE = 12.38$, 95% CI = [-7.73, 43.58]).

Supplemental studies

We conducted two follow-up studies (Studies S1 and S2; for details, see the Supplemental Material available online) to investigate whether lower attributions of humanness to the sexualized confederate may have been explained by the atypicality of her clothing in a university setting rather than to the outfit's sexualized nature (see Fig. 1b). In Study S1, we identified four outfits that varied in their perceived sexiness and typicality (see Fig. S3 in the Supplemental Material). Results demonstrated that the sexy outfit from the main study reported here was rated as both more sexy and atypical relative to the more conservative outfits. To disentangle the potential effects of sexiness and typicality on the perceived humanness of the confederate in the video, we conducted a third study (Study S2) involving a 2 (sexiness: high vs. low) \times 2 (typicality: high vs. low) between-subjects design ($N = 107$) in which we repeated the same procedures as in our main study but with the

confederate wearing one of the four outfits identified in Study S1. In line with the hypothesis that sexualized women are perceived as less human, results showed that the confederate in the video was ascribed lower uniquely human personality traits when she wore more (vs. less) sexualized outfits, $F(1, 87) = 9.39$, $p = .003$, regardless of the outfits' typicality. There was no main effect of typicality, $F(1, 87) = 2.48$, $p = .12$, and no Sexiness \times Typicality interaction, $F(1, 87) \leq 0.65$, $p = .44$. Collectively, these findings suggest that participants gave lower attributions of uniquely human personality traits after viewing the video of the sexualized woman (the main study) not because she was wearing a relatively atypical outfit but because sexuality was made salient.

Discussion

Recent research has shown that women who are exposed to a sexualized confederate (e.g., tight or revealing clothing, makeup, styled hair) are more likely to engage in antagonistic behavior such as eye rolls and derisive body language toward her (Vaillancourt & Sharma, 2011), to disparage her, and to rate her as less intelligent, agreeable, conscientious, and emotionally stable (Grabe et al., 2012) compared with a conventionally dressed confederate. The present research was the first to simultaneously test these components of intrasexual disparagement of sexualized women and the first to examine aggressive behavior toward the target. The present study supported a conditional indirect-effects model of women's intrasexual aggression toward sexualized female targets. Specifically, a female confederate's sexualized (vs. conventional) physical appearance increased the likelihood of other women's aggression toward her indirectly via decreased perceived humanness (i.e., rating her lower on uniquely human personality traits); this effect was stronger among women who were higher (vs. lower) on intrasexual competitiveness.

This suggests that mere exposure to a sexualized woman predicts intrasexual aggression and that it does so in part via reduced perceived humanness of the target. Consistent with a body of literature underscoring the role of men's dehumanization of women in promoting various types of aggression toward them, including rape and sexual harassment (Rudman & Mescher, 2012) as well as psychological aggression (Haslam, 2006), findings from the current study highlight reduced attributions of uniquely human personality traits as an important psychological mechanism that may promote aggression among women. However, it is important to note that the influence of dehumanization on aggression toward the target appears to be contingent on women's trait levels of intrasexual competitiveness. Although this is interesting, it is important to replicate

this effect in future work. This provides support for the sexual-economics hypothesis, in that women aggressively punish other women who present themselves as too sexually available as a function of intrasexual competition. An important aspect of women's intrasexual competition may therefore entail the social regulation of women's sexuality by other women.

This study was limited by its reliance on an undergraduate student sample that was largely ethnically homogeneous. Future research should consider replication attempts with more ethnically diverse samples. Women's intrasexual competition has been observed to occur across diverse cultures (Burbank, 1987), and cultural suppression of female sexuality is also common to varying degrees across many cultures (Baumeister & Twenge, 2002). It would also be interesting to determine whether varying the ethnicity of the confederate would influence the reduced perceived humanness and increased aggression toward her, given evidence that humans are sometimes prone to dehumanizing out-group members (e.g., Buckels & Trapnell, 2013; Hodson & Costello, 2007), as well as to study menstrual-cycle variation, given that some research has found that women are also more likely to derogate other women when they themselves are in the ovulatory phase of the menstrual cycle (Fisher, 2004). Researchers might consider further exploring the role of intrasexual competition by incorporating a variable age condition within the paradigm. If dehumanization of and aggression toward sexualized women is a function of intrasexual competition, then we might expect that a woman of nonreproductive age dressed in either a sexualized or a conventional manner would not have as strong of an effect on women's aggression.

In the present study, we did not consider participants' perceptions of the target woman's intrasexual competitiveness. Recent research conducted on the Caribbean island of Curaçao found that women who grew up fatherless reported more intrasexual competitiveness, which itself was correlated with more sexualized appearance tactics, including the use of hairstyles, facial makeup, and conspicuous nail care (van Brummen – Girigori & Buunk, 2016). This suggests that women might behave in a more intrasexually competitive manner toward sexualized women not to punish their perceived ease of sexual access but, rather, as an anticipatory tactic employed because they perceive those women as being more intrasexually competitive. Future research should examine whether sexualized women are indeed perceived as more intrasexually competitive and whether this perception might account for dehumanization and aggression against a sexualized target. Paired with perceptions of target ease of sexual access (intersexual selection), such work might begin to identify

why women would dehumanize a sexualized woman. Finally, future research might consider whether a similar paradigm might apply to men's intrasexual competition. Given the relative importance of status to men's mate value (Bleske & Shackelford, 2001), perhaps altering the confederate's clothing to reflect high status (e.g., a suit and tie or medical scrubs and lab coat) versus low status might induce differences in dehumanization or aggressive behavior.

Conclusion

Recent research has demonstrated that women engage in a host of negative behaviors toward sexualized confederates that they do not display toward conventionally dressed confederates. The present study extended these findings by identifying low perceived humanness (i.e., ratings of uniquely human personality traits) as a psychological mechanism that mediates subsequent behavioral acts of aggression toward a sexualized confederate. Researchers have conceptualized women's aggression toward sexualized women within the context of intrasexual competition surrounding the regulation of sexual resources, yet no research to date had examined whether individual differences in intrasexual competitiveness actually influence such actions. We found that the humanness-mediated effect of the confederate's appearance on aggression toward her was moderated by individual differences in participants' intrasexual competitiveness. This study provides some of the first empirical evidence in support of the hypothesis that women's punishment of sexualized women is likely a function of intrasexual competition.

Action Editor

Steven W. Gangestad served as action editor for this article.

Author Contributions

S. Arnocky, J. M. Carré, and G. Hodson developed the study concept. E. L. Ruddick, T.-R. Côté, and T. L. Ortiz collected the data. J. M. Carré and V. Proietti analyzed the data. S. Arnocky, J. M. Carré, and G. Hodson wrote the manuscript with editorial assistance from V. Proietti, E. L. Ruddick, and T.-R. Côté. All the authors approved the final manuscript for submission.

ORCID iD

Gordon Hodson  <https://orcid.org/0000-0001-9699-9098>

Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

Funding

Data-collection costs (stipend for confederate and participant remuneration), publication costs, and open-access funds were supported by the Social Sciences and Humanities Research Council of Canada (Insight Development Grant No. 430-2015-00327 to J. M. Carré, S. Arnocky, and G. Hodson).

Supplemental Material

Additional supporting information can be found at <http://journals.sagepub.com/doi/suppl/10.1177/0956797619836106>

Open Practices



Data have been made publicly available on the Open Science Framework at <https://osf.io/jqug4/>. Materials have not been made publicly, and the design and analysis plans were not preregistered. The complete Open Practices Disclosure for this article can be found at <http://journals.sagepub.com/doi/suppl/http://journals.sagepub.com/doi/suppl/10.1177/0956797619836106>. This article has received the badge for Open Data. More information about the Open Practices badges can be found at <http://www.psychologicalscience.org/publications/badges>.

Notes

1. We controlled for the potential effect of ethnicity in an analysis of covariance with trait type (uniquely human personality trait vs. nonuniquely human personality trait) as a within-subjects factor, condition (sexualized vs. conventional) as a between-subjects factor, and ethnicity (White vs. non-White) as a covariate. Results remained unchanged: The interaction between condition and trait type was significant, $F(1, 102) = 13.93, p < .001$, with no significant main effect or interaction involving ethnicity ($ps > .47$).
2. Note that although the magnitude of the effect of experimental condition was greater for Conscientiousness than for Openness to Experience, ratings for the two personality traits were moderately correlated ($r = .43, p < .001$).
3. A more simplistic mediation model (PROCESS Model 4) without intrasexual competitiveness as a moderator was also tested. There was a significant indirect effect of the sexualized (vs. conventional) woman condition on greater aggressive behavior through lower humanity perceptions ($b = 29.05, SE = 14.72, 95\%$ confidence interval = [5.46, 62.82]).

References

- Archer, J. A. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology, 8*, 291–322. doi:10.1037/1089-2680.8.4.291
- Arnocky, S., Ribout, A., Mirza, R., & Knack, J. M. (2014). Perceived mate availability influences intrasexual competition, jealousy and mate-guarding behavior. *Journal of Evolutionary Psychology, 12*, 45–64. doi:10.1556/JEP.12.2014.1.3
- Arnocky, S., Sunderani, S., Albert, G., & Norris, K. (2014). Sex differences and individual differences in human facilitative and preventive courtship. *Interpersona, 8*, 210–221. doi:10.5964/ijpr.v8i2.159
- Arnocky, S., Sunderani, S., Miller, J., & Vaillancourt, T. (2012). Jealousy mediates the relationship between attractiveness comparison and females' indirect aggression. *Personal Relationships, 19*, 290–303. doi:10.1111/j.1475-6811.2011.01362.x
- Arnocky, S., & Vaillancourt, T. (2017). Sexual competition among women: A review of the theory and supporting evidence. In M. L. Fisher (Ed.), *The Oxford handbook of women and competition* (pp. 25–39). New York, NY: Oxford University Press. doi:10.1093/oxfordhob/9780199376377.013.3
- Baumeister, R. F., & Twenge, J. M. (2002). Cultural suppression of female sexuality. *Review of General Psychology, 6*, 166–203. doi:10.1037/1089-2680.6.2.166
- Baumeister, R. F., & Vohs, K. D. (2004). Sexual economics: Sex as female resource for social exchange in heterosexual interactions. *Personality and Social Psychology Review, 8*, 339–363. doi:10.1207/s15327957pspr0804_2
- Bleske, A. L., & Shackelford, T. K. (2001). Poaching, promiscuity, and deceit: Combatting mating rivalry in same-sex friendships. *Personal Relationships, 8*, 407–424. doi:10.1111/j.1475-6811.2001.tb00048.x
- Buckels, E. E., & Trapnell, P. D. (2013). Disgust facilitates outgroup dehumanization. *Group Processes & Intergroup Relations, 16*, 771–780. doi:10.1177/1368430212471738
- Burbank, V. K. (1987). Female aggression in cross-cultural perspective. *Behavior Science Research, 21*, 70–100. doi:10.1177/106939718702100103
- Buunk, A., & Fisher, M. (2009). Individual differences in intrasexual competition. *Journal of Evolutionary Psychology, 7*, 37–48. doi:10.1556/JEP.7.2009.1.5
- Campbell, A. (1999). Staying alive: Evolution, culture, and women's intrasexual aggression. *Behavioral & Brain Sciences, 22*, 203–252. doi:10.1017/s0140525x99001818
- Cherek, D. R., & Lane, S. D. (1999a). Effects of d,l-fenfluramine on aggressive and impulsive responding in adult males with a history of conduct disorder. *Psychopharmacology, 146*, 473–481. doi:10.1007/PL00005493
- Cherek, D. R., & Lane, S. D. (1999b). Laboratory and psychometric measurements of impulsivity among violent and nonviolent female parolees. *Biological Psychiatry, 46*, 273–280. doi:10.1016/S0006-3223(98)00309-6
- Cobey, K. D., Klipping, C., & Buunk, A. P. (2013). Hormonal contraceptive use lowers female intrasexual competition in pair-bonded women. *Evolution & Human Behavior, 34*, 294–298. doi:10.1016/j.evolhumbehav.2013.04.003
- Costello, K., & Hodson, G. (2014). Explaining dehumanization among children: The interspecies model of prejudice. *British Journal of Social Psychology, 53*, 175–197. doi:10.1111/bjso.12016
- Davis, A. C., Dufort, C., Desrochers, J., Vaillancourt, T., & Arnocky, S. (2018). Gossip as an intrasexual competition strategy: Sex differences in gossip frequency, content, and attitudes. *Evolutionary Psychological Science, 4*, 141–153. doi:10.1007/s40806-017-0124-6
- Fisher, M. L. (2004). Female intrasexual competition decreases female facial attractiveness. *Proceedings of the Royal*

- Society B: Biological Sciences*, 271(Suppl. 5), S283–S285. doi:10.1098/rsbl.2004.0160
- Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, 18, 233–239. doi:10.1111/j.1467-9280.2007.01882.x
- Gallup, A. C., O'Brien, D. T., & Wilson, D. S. (2011). Intrasexual peer aggression and dating behavior during adolescence: An evolutionary perspective. *Aggressive Behavior*, 37, 258–267. doi:10.1002/ab.20384
- Gosling, S. D., & John, O. P. (1999). Personality dimensions in nonhuman animals: A cross-species review. *Current Directions in Psychological Science*, 8, 69–75. doi:10.1111/1467-8721.00017
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big Five personality domains. *Journal of Research in Personality*, 37, 504–528. doi:10.1016/S0092-6566(03)00046-1
- Grabe, M. E., Bas, O., Pagano, L. A., & Samson, L. (2012). The architecture of female competition: Derogation of a sexualized female news anchor. *Evolution, Mind and Behaviour*, 10, 107–133. doi:10.1556/JEP.10.2012.3.2
- Greitemeyer, T., & McLatchie, N. (2011). Denying humanness to others: A newly discovered mechanism by which violent video games increase aggressive behavior. *Psychological Science*, 22, 659–665. doi:10.1177/0956797611403320
- Griskevicius, V., Tybur, J. M., Gangestad, S. W., Perea, E. F., Shapiro, J. R., & Kenrick, D. T. (2009). Aggress to impress: Hostility as an evolved context-dependent strategy. *Journal of Personality and Social Psychology*, 96, 980–994. doi:10.1037/a0013907
- Hackman, R. (2015, November 3). Amber Rose interview: Even when I was a virgin, I was called a slut. *The Guardian*. Retrieved from <https://www.theguardian.com/us-news/2015/nov/03/amber-rose-interview-former-slut-shamer-feminist>
- Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review*, 10, 252–264. doi:10.1207/s15327957pspr1003_4
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: Guilford Press.
- Hodson, G., & Costello, K. (2007). Interpersonal disgust, ideological orientations, and dehumanization as predictors of intergroup attitudes. *Psychological Science*, 18, 691–698. doi:10.1111/j.1467-9280.2007.01962.x
- Keys, E., & Bhogal, M. S. (2018). Mean girls: Provocative clothing leads to intra-sexual competition between females. *Current Psychology*, 37, 543–551. doi:10.1007/s12144-016-9536-x
- Kreager, D., & Staff, J. (2009). The sexual double standard and adolescent peer acceptance. *Social Psychology Quarterly*, 72, 143–164. doi:10.1177/019027250907200205
- Liesen, L. T. (2017). Feminist and evolutionary perspectives of female-female competition, status seeking, and social network formation. In M. L. Fisher (Ed.), *The Oxford handbook of women and competition* (pp. 71–88). New York, NY: Oxford University Press. doi:10.1093/oxfordhb/9780199376377.013.8
- Lieving, L. M., Cherek, D. R., Lane, S. D., Tcheremissine, O. V., & Nouvion, S. O. (2008). Effects of acute tiagabine administration on aggressive responses of adult male parolees. *Journal of Psychopharmacology*, 22, 144–152. doi:10.1177/0269881107078489
- Moor, A. (2010). She dresses to attract, he perceives seduction: A gender gap in attribution of intent to women's revealing style of dress and its relation to blaming the victims of sexual violence. *Journal of International Women's Studies*, 11, 115–127.
- Norman, R. E., Moreau, B. J. P., Welker, K. M., & Carré, J. M. (2015). Trait anxiety moderates the relationship between testosterone responses to competition and aggressive behavior. *Adaptive Human Behavior and Physiology*, 1, 312–324. doi:10.1007/s40750-014-0016-y
- Piccoli, V., Foroni, F., & Carnaghi, A. (2013). Comparing group dehumanization and intra-sexual competition among normally ovulating women and hormonal contraceptive users. *Personality and Social Psychology Bulletin*, 39, 1600–1609. doi:10.1177/0146167213499025
- Rudman, L. A., & Mescher, K. (2012). Of animals and objects: Men's implicit dehumanization of women and likelihood of sexual aggression. *Personality and Social Psychology Bulletin*, 38, 734–746. doi:10.1177/0146167212436401
- Vaes, J., Paladino, P., & Puvia, E. (2011). Are sexualized women complete human beings? Why men and women dehumanize sexually objectified women. *European Journal of Social Psychology*, 41, 774–785. doi:10.1002/ejsp.824
- Vaillancourt, T. (2005). Indirect aggression among humans: Social construct or evolutionary adaptation? In R. E. Tremblay, W. W. Hartup, & J. Archer (Eds.), *Developmental origins of aggression* (pp. 158–177). New York, NY: Guilford Press.
- Vaillancourt, T. (2013). Do human females use indirect aggression as an intrasexual competition strategy? *Philosophical Transactions of the Royal Society B: Biological Sciences*, 368(1631), Article 20130080. doi:10.1098/rstb.2013.0080
- Vaillancourt, T., & Hymel, S. (2006). Aggression and social status: The moderating roles of sex and peer-valued characteristics. *Aggressive Behavior*, 32, 396–408. doi:10.1002/ab.20138
- Vaillancourt, T., & Sharma, A. (2011). Intolerance of sexy peers: Intrasexual competition among women. *Aggressive Behavior*, 37, 569–577. doi:10.1002/ab.2041
- van Brummen – Girigori, O., & Buunk, A. (2016). Intrasexual competitiveness and non-verbal seduction strategies to attract males: A study among teenage girls from Curaçao. *Evolution & Human Behavior*, 37, 134–141. doi:10.1016/j.evolhumbehav.2015.09.007
- Vrangalova, Z., Bukberg, R. E., & Rieger, G. (2013). Birds of a feather? Not when it comes to sexual permissiveness. *Journal of Social and Personal Relationships*, 31, 93–113. doi:10.1177/0265407513487638