

Waist-to-Hip Ratio Predicts Sexual Perception and Responses to Sexual Assault Disclosures

Personality and Social
Psychology Bulletin
1–14

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DOI: 10.1177/01461672221148008
journals.sagepub.com/home/pspb



Gina A. Paganini¹ , A. Alex McConnell², Jason C. Deska³ ,
Steven M. Almaraz⁴, Kurt Hugenberg⁵, and E. Paige Lloyd¹ 

Abstract

The current work investigates the effects of target of perception's waist-to-hip ratio (WHR) on perceivers' judgments of sexual unrestrictedness and sexual victimization prototypicality. Studies 1a and 1b found that women with lower WHRs were perceived as relatively more sexually unrestricted. Studies 2a and 2b found that women with lower WHRs were perceived as relatively more prototypic of sexual victimization. Study 3 built on these findings to consider implications for responses to sexual assault disclosures. Perceivers disbelieved and minimized a disclosure of assault relatively more when made by a woman with a higher WHR. In sum, this body of work implicates WHR as a body cue that can inform consequential sexual perception. Thereby, this work identifies factors that could influence judgments of credibility of sexual violence reports, which may have implications for hesitancy to report sexual violence.

Keywords

person perception, impression formation, waist-to-hip ratio, sexual violence

Received August 5, 2022; revision accepted December 8, 2022

Sexual violence against women is a pernicious public health concern in the United States; an estimated 43.9% of women experience sexual assault (defined as instances of sexual coercion, unwanted sexual contact, being made to penetrate, and noncontact unwanted sexual experiences) at least once in their lifetime (Breiding, 2014). Despite their prevalence, sexual crimes often go unreported: recent estimates suggested that only 33.9% instances of sexual violence were reported to police (Morgan & Truman, 2019). Fear of receiving negative responses is theorized to be one reason that these crimes are underreported. Specifically, perceivers (e.g., friends, family, police) often disbelieve reports of sexual assault or blame the individual reporting the victimization (Lonsway & Fitzgerald, 1994; Stubbs-Richardson et al., 2018; van der Bruggen & Grubb, 2014). Previous research has linked characteristics of the individual reporting the victimization (e.g., style of dress) with such problematic responses (e.g., Goodman-Delahunty & Graham, 2011). Although previous work has explored numerous predictors of victim blaming and disbelief, the current work extends this literature by testing how waist-to-hip ratio (WHR)—a subtle body cue—impacts sexual perception with consequences for responses to reports of sexual assault. We first assess how WHR influences two sexual perceptions that previous work has linked to blame and disbelief responses to

sexual violence reports: sexual unrestrictedness (i.e., the extent to which an individual is perceived as willing to engage in casual sex) and sexual victimization prototypicality (i.e., the extent to which an individual is perceived as likely to experience victimization). Then, we directly test how WHR influences judgments of victim blame and minimization/disbelief. To this end, we first discuss research on WHR and sexual perception before presenting five experiments investigating how judgments of women varying in WHR are distorted by sexualizing beliefs.

In this work, we focus on literature on sexual perception of women and people assigned female at birth, the visual stimuli in our studies depict feminine-presenting individuals with WHRs typical of people assigned female at birth, and our measures and vignettes reference a woman or women. In

¹University of Denver, CO, USA

²Miami University, Oxford, OH, USA

³Toronto Metropolitan University, Toronto, Ontario, Canada

⁴East Los Angeles College, Monterey Park, CA, USA

⁵Indiana University, Bloomington, USA

Corresponding Author:

Gina A. Paganini, University of Denver, 2155 South Race Street, Denver, CO 80208, USA.

Email: gina.paganini@du.edu

our literature review, we use “female” when characterizing research on biological cues (i.e., WHR), whereas we use “woman” when characterizing research on social cues (e.g., engagement in sexual behaviors). Given this focus on both women and people assigned female at birth, the current work most clearly generalizes to cisgender women. This is not to imply that people of diverse gender identities or assigned male or intersex at birth cannot be objectified or victimized, nor that it is unimportant to study sexual perception and responses to sexual assault across the spectrum of sex and gender identities. Our reasoning for this focus is twofold: (1) WHR is particularly important for perception of female individuals (e.g., Dixson et al., 2011; Furnham et al., 2004; Singh, 1993), and (2) women are commonly the targets of sexualization and sexual violence (Breiding, 2014).

Waist-to-Hip Ratio

WHR, calculated by dividing the narrowest point of the waist by the widest point of the hips, is a sexually dimorphic trait reflecting the relative distribution of fat between the upper and lower body (Furnham et al., 2004; Pazhoohi & Liddle, 2012). Because lower WHR bodies have a larger difference between the waist and hip circumferences, these bodies are sometimes described as ‘curvier’¹ or “hourglass-shaped.” Early research on WHR primarily focused on associations between WHR and health and well-being outcomes and yielded evidence that WHR is relevant to female health and well-being. For example, female WHR is often associated with health outcomes, such that those with relatively lower WHRs tend to be healthier on a number of metrics (e.g., cardiovascular health, Type 2 diabetes risk; Björntorp, 1988) and experience greater metrics of fertility (e.g., Barber, 1995). Associations between female WHR and metrics of fertility led researchers to assess whether female WHR also associates with engagement in sexual behavior. Some work found correlations between female WHR and sexual behaviors (e.g., lower WHR was associated with greater sexual unrestrictedness; Hughes & Gallup, 2003); however, others have failed to find any associations (e.g., Simpson et al., 2014). Even if correlations exist, causal direction is unclear (e.g., body shape might predict sexual behavior or body shape might influence socialization, interaction dynamics, or others’ behaviors).

The current work departs from examining links between female WHR and health or sexual behaviors to instead consider how WHR might influence *others’ perceptions* of sexuality (e.g., perceived likelihood of engaging in sexual behaviors) and thin slice judgments of women. This is an important distinction because, regardless of accuracy, perceptions inform impressions, judgments, and behaviors. Even stereotypes with a kernel-of-truth at the group level can impede individuation and empathetic treatment of group members (Bodenhausen, 2005; Sherman et al., 2005). Thus, understanding how perceivers evaluate women with bodies

varied in WHR advances the literature by assessing whether a novel bodily cue can bias consequential person judgments and enabling discussion of practical implications for responses to sexual assault. Although the effects of WHR on sexual perception documented herein likely transcend domains, we focus on application to sexual violence because sexual violence is a pressing public health concern (World Health Organization, 2021).

Although there is a dearth of work considering how WHR informs sexual perceptions, there is evidence that WHR can influence person judgments (Furnham et al., 2006; Singh, 1993). For example, Furnham and colleagues (2006) asked participants to rate line drawings that varied in WHR, body weight, and breast size on attractiveness, fecundity, femininity, and healthiness. This work found that WHR and body weight independently influenced ratings (though WHR effects were consistently a larger magnitude) such that targets with relatively lower WHRs and lower body weights were rated as more attractive, fecund, feminine, and healthy. Attractiveness is influential to judgments across domains (e.g., hiring, sentencing; Eagly et al., 1991) but is particularly central to sexual perceptions. For example, attractiveness is associated with perceptions of sexual unrestrictedness (e.g., Almaraz, 2019; Clark, 2004; Stillman & Maner, 2009)—and prototypicality as a target of sexual victimization (shortened to *victimization prototypicality* hereafter; for example, Ferguson et al., 1987; Seligman et al., 1977; Thornton & Ryckman, 1983). Women who are perceived as more attractive tend to be judged as more sexually unrestricted and more prototypic of sexual victimization. However, there is a dearth of work manipulating body shape and assessing such sexual perceptions. Furthermore, work assessing how target characteristics may cue multiple sexual perceptions in tandem is lacking.

Dimensions of Sexual Perception: Unrestrictedness and Victimization Prototypicality

In this work, we focus on how WHR influences two dimensions of sexual perception: sexual unrestrictedness and victimization prototypicality. We center unrestrictedness and victimization prototypicality for two reasons. First, as outlined above, existing theory supports links between WHR and judgments on these dimensions. Second, as we outline below, there is evidence that perceptions of unrestrictedness and prototypicality predict negative treatment of women (e.g., sexism, negative attributions, victim blaming; Almaraz, 2019; Goh et al., 2021; Muehlenhard et al., 1985).

Perceptions of Sexual Unrestrictedness

Previous work has linked multiple cues to judgments of sexual unrestrictedness. Women who engage in behaviors such as initiating a date (Muehlenhard & Scardino, 1985),

dressing in revealing clothing (Abbey et al., 1987), or wearing make-up (Batres et al., 2018; Mileva et al., 2016; Osborn, 1996) tend to be judged as more sexually unrestricted. Perceivers also tend to use other physical appearance cues to evaluate sexual unrestrictedness; women who are relatively more facially attractive (e.g., Almaraz, 2019; Clark, 2004; Stillman & Maner, 2009) and thinner (e.g., Regan, 1996) tend to be judged as more sexually unrestricted. Although there is no consistent evidence for the validity of these cues (i.e., whether they are associated with *actual* sexual unrestrictedness; e.g., Batres et al., 2018; Boothroyd et al., 2008; Stillman & Maner, 2009), there is strong evidence that these characteristics shape *perceptions* of unrestrictedness (Stillman & Maner, 2009). The current work extends this past research by testing WHR as a novel cue to judgments of unrestrictedness with the prediction that women with relatively lower WHRs will be judged as more sexually unrestricted.

Perceived sexual unrestrictedness influences numerous judgments about women, such as likability (Infanger et al., 2014) and hostility (e.g., Fowers & Fowers, 2010; Sibley & Wilson, 2004). For example, Infanger and colleagues (2014) found that a woman who was depicted as enjoying self-sexualization (e.g., dressing in sexy clothing) was judged as less likable than a woman who was depicted as not enjoying self-sexualization. Similarly, Sibley and Wilson (2004) found that perceivers directed more hostile sexism at women portrayed as promiscuous and more benevolent sexism at women portrayed as chaste. Several studies have also found converging evidence that women who were perceived or depicted as relatively sexually unrestricted were attributed more blame for the victimization (e.g., Edmonds & Cahoon, 1986; Mazelan, 1980; Muehlenhard et al., 1985). That is, perceivers tend to assign more blame to women who are believed to be relatively more sexually unrestricted.

Perceptions of Victimization Prototypicality

Idealized images of social groups—prototypes—are often used as standards for judgment (e.g., Chaplin et al., 1988; Hassebrauck & Aron, 2001; Minda & Smith, 2002) or as a basis for information processing (e.g., Brewer et al., 1981; Cohen, 1981; Macrae & Bodenhausen, 2000). In this work, we investigate whether WHR is part of sexual victimization prototypes. Past work suggests that the prototypic individual who has been sexually victimized is a feminine and attractive White woman who fought back against the perpetrator and is emotional about her victimization (e.g., Kaiser et al., 2022; McKimmie et al., 2014; Schuller et al., 2010). Given that WHR is a sexually dimorphic trait that influences judgments of attractiveness, we hypothesize that WHR may affect whether women are perceived as aligned or misaligned with this prototype.

Importantly, there is evidence that cues of prototypicality can have important downstream effects in judgments of

sexual victimization reports (see Kaiser et al., 2022 for review of gender prototypes and responses to sexual harassment). For example, Schuller and colleagues (2010) found that participants believed a woman's sexual victimization report less if she was portrayed as behaving in non-gender stereotypic ways. Other work found that perceivers were less likely to believe accounts of sexual victimization when the woman reporting was relatively less attractive (e.g., Gerdes et al., 1988). Similarly, across 11 studies, Goh and colleagues (2021) found that sexual harassment claims were evaluated as less credible and the harassment itself as less psychologically harmful when the claimants were relatively less prototypic women. In sum, women who are seen as misaligned with prototypes of sexual victimization may be disbelieved when disclosing victimization.

Overview of the Current Work

In Studies 1a and 1b, we examined judgments of sexual unrestrictedness, predicting that participants would judge relatively low WHR women as more sexually unrestricted. In Studies 2a and 2b, we examined victimization prototypicality perceptions (i.e., the degree to which targets were perceived to fit expectations of who experiences sexual victimization), predicting that women relatively higher in WHR would be seen as less prototypic of sexual victimization. In Study 3, we examined the influence of target WHR on judgments of blame and belief in a hypothetical sexual assault scenario. All materials (stimuli indicators, vignettes, and scales), auxiliary analyses, data files, and codebooks for data are openly available (https://osf.io/xs8yk/?view_only=090472b868ee4519b24e5d23d94c9d32). Across studies, data collection was concluded prior to analyses. Studies were not preregistered. We report all manipulations, measures, and exclusions.

Study 1

Previous work indicates that people form impressions of women's sexual unrestrictedness from cues such as facial appearance (Almaraz, 2019) or attire (Maurer & Robinson, 2008). Study 1 extends this literature by considering whether a subtle (and largely uncontrollable) body characteristic—WHR—similarly influences perceptions of unrestrictedness. Studies 1a and 1b mirror one another with two differences: Study 1a employed an online sample and assessed perceived unrestrictedness via expected engagement in non-committed sexual behaviors whereas Study 1b employed an undergraduate sample and assessed perceived unrestrictedness via a modified version of the Revised Sociosexual Orientation Inventory (SOI-R; Penke, 2011).

Study 1a Method

Participants. U.S. participants ($N = 60$) were recruited from Amazon's Mechanical Turk (MTurk). Participants were

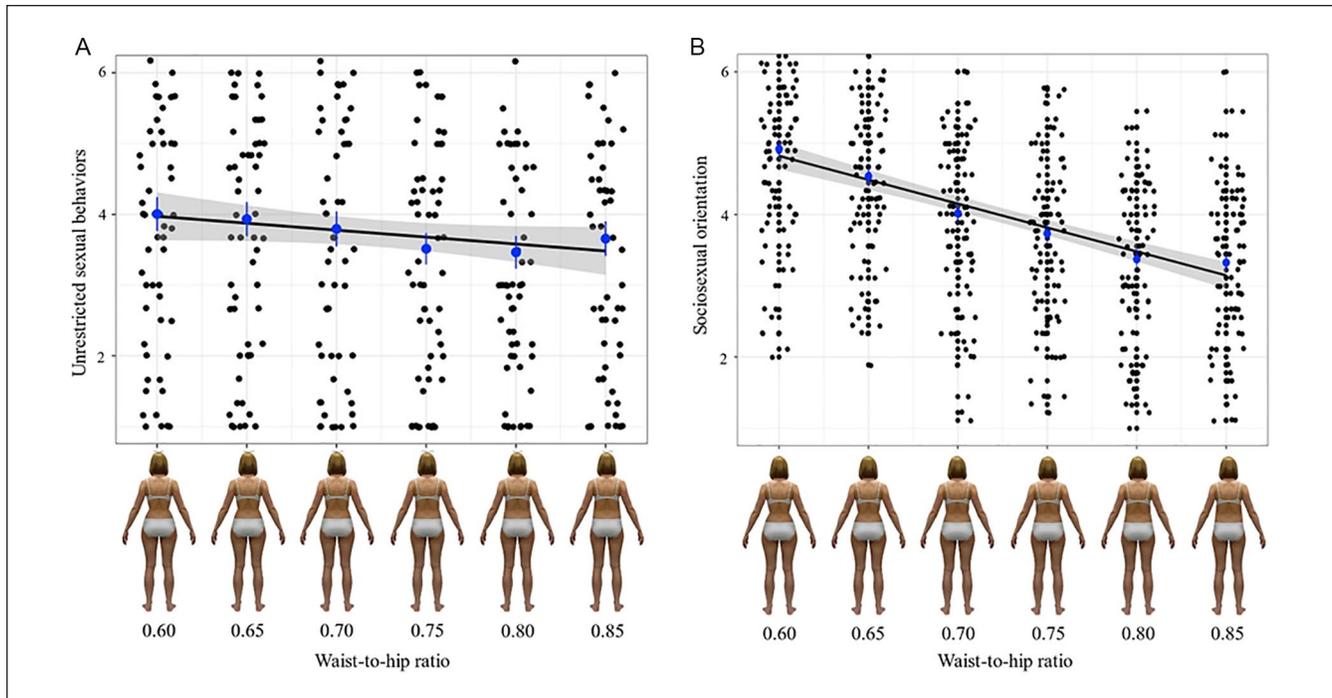


Figure 1. Graph Depicting the Effect of Target WHR on Perceptions of Sexual Unrestrictedness (Higher Values = More Perceived Sexual Unrestrictedness) Assessed Via Judgments of Engagement in Uncommitted Sexual Behaviors in Study 1a (Panel A) and Perceived Sociosexual Orientation in Study 1b (Panel B). Black Dots Represent Jittered Individual-Level Data Points. Blue Dots Represent the Mean, and the Error Bars Indicate Standard Error of the Mean. The Black Line Indicates the Best Fit Regression Line, and the Gray Outline Indicates the 95% Confidence Interval of This Line.
 Note. WHR = waist-to-hip ratio.

primarily female (32 females, 28 males, and one who did not disclose their sex),² primarily non-Hispanic White (48 White, three American Indian/Alaska Native, two Asian, two Black, one Native Hawaiian or Pacific Islander, two biracial or multiracial, and two opted to self-describe race; 51 non-Hispanic/Latinx, five Hispanic/Latinx, three did not record their ethnicity), and ranged in age from 24 to 70 years ($M = 37.40$; $SD = 11.71$).³ No participants were excluded. A sensitivity power analysis conducted in G*Power (Faul et al., 2009; $1 - \beta = 0.80$; $\alpha = .05$; one-way repeated-measures analysis of variance [ANOVA] with six measurements) indicated this sample could detect a small-to-medium effect size of $f = 0.21$ ($\eta_p^2 = .04$) or greater.⁴

Materials and Procedure. Participants viewed six computer-generated images of a feminine-presenting target varying in WHR (Kościński, 2014) in a randomized order. Images varied in WHR from .60 to .85 in .05 increments. All images were otherwise identical (i.e., hair, attire) and body mass index (BMI) was held constant at 21. Participants rated each image on seven items designed to assess sexual unrestrictedness via perceived interest in non-committed sexual behaviors (e.g., “have sex with a stranger”). Responses ranged from 1 = “not at all” to 9 = “extremely.” Responses to one item (“wait until marriage to have sex”) were reverse-coded before all items were averaged for each target to

create a composite perceived unrestrictedness score where higher values indicate higher perceived likelihood to engage in non-committed sexual behaviors ($M = 2.31$; $SD = 0.41$; $\alpha = .88$).⁵ Participants then completed a demographics questionnaire.

Study 1a Results

To test the hypothesis that participants would judge relatively lower WHR women as more sexually unrestricted, we assessed a linear mixed model with sexual unrestrictedness judgments regressed on target WHR (centered at $M_{\text{WHR}} = 0.725$) with random effects of the intercept and slope of WHR by participant to account for the fully crossed design. A likelihood-ratio test indicated that this model provided a better fit for the data than a model with only random effects (i.e., no fixed effect of target WHR), $\chi^2(1) = 6.70$, $p = .010$. Consistent with predictions, as target WHR increased, judgments of sexual unrestrictedness decreased (Figure 1A), $b = -2.00$, $\beta = -0.11$, $F(1, 59) = 6.96$, $p = .011$, $R^2_{\text{Conditional}} = .61$, $R^2_{\text{Marginal}} = .01$.

Study 1b Method

Participants. Undergraduate students ($N = 90$) were recruited from a midsized Midwestern university. Our *a priori*

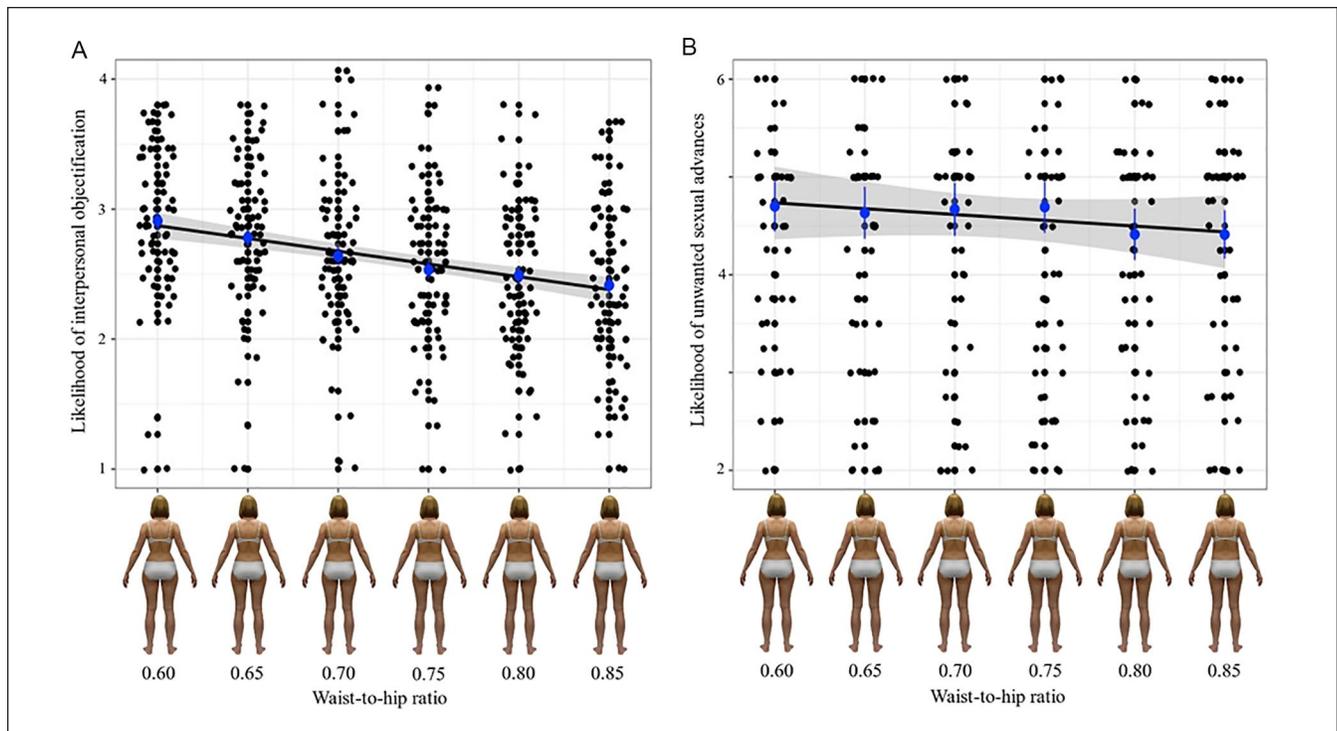


Figure 2. Graph Depicting the Effect of Target WHR on Judgments of Victimization Likelihood (Higher Values = Greater Perceived Likelihood of Victimization) Assessed Via Judgments of Likelihood of Being Interpersonally Objectified in Study 2a (Panel A) and Perceived Likelihood of Being Sexually Assaulted in Study 2b (Panel B). Black Dots Represent Jittered Individual-Level Data Points. Blue Dots Represent the Mean, and the Error Bars Indicate Standard Error of the Mean. The Black Line Indicates the Best Fit Regression Line, and the Gray Outline Indicates the 95% Confidence Interval of This Line.

Note. WHR = waist-to-hip ratio.

stopping rule was to cease data collection at the end of the week in which we achieved 60 participants (to match the sample of Study 1a). Participants were primarily female (61 females, 29 males), primarily non-Hispanic White (74 White, one American Indian/Alaska Native, seven Asian, five Black, three biracial or multiracial; 84 non-Hispanic/Latinx, six Hispanic/Latinx), and ranged in age from 18 to 21 years ($M = 18.72$; $SD = 0.79$). No participants were excluded. A sensitivity power analysis ($1 - \beta = 0.80$; $\alpha = .05$; one-way repeated-measures ANOVA with six measurements) indicated this sample could detect a small-to-medium effect size of $f = 0.17$ ($\eta_p^2 = .03$) or greater.

Materials and Procedure. Participants viewed the same six images varying in WHR from Study 1a in a random order. Participants rated each image on nine items adapted from the SOI-R (Penke, 2011). The original SOI-R assesses individual differences in the tendency to have casual and uncommitted sexual relationships (e.g., “I can imagine myself being comfortable and enjoying ‘casual’ sex with different partners”). Items were revised to instead assess *perceptions of the targets’* tendencies to have casual and uncommitted sexual relationships (e.g., “This woman can imagine herself being comfortable and enjoying ‘casual’

sex with different partners”). Participants responded using 9-point Likert-type scales with endpoints varied by item (see the online supplement for full scale and response items). One item (“This woman does not want to have sex with a person until she is sure they will have a long-term, serious relationship”) was reverse-coded before items were averaged to create perceived unrestrictedness composites for each target (higher values indicate greater perceived sexual unrestrictedness; $M = 3.99$; $SD = 0.89$; $\alpha = .93$). Participants assessed their own sociosexual orientation (SOI-R; $M = 3.38$; $SD = 1.54$; $\alpha = .88$)⁶ before completing a demographics questionnaire.

Study 1b Results

We again assessed a linear mixed model with sexual unrestrictedness judgments regressed on target WHR (centered at $M_{\text{WHR}} = 0.725$) with random effects of the intercept and slope of WHR by participant to account for the fully crossed design. A likelihood-ratio test indicated that this model provided a better fit for the data than a model with only random effects (i.e., no fixed effect of target WHR), $\chi^2(1) = 74.67$, $p < .001$. Consistent with predictions, as target WHR increased, judgments of sexual unrestrictedness decreased

(Figure 1B), $b = -6.66$, $\beta = -0.41$, $F(1, 89) = 115.30$, $p < .001$, $R^2_{\text{Conditional}} = .57$, $R^2_{\text{Marginal}} = .17$.

Study 1 Discussion

Study 1 provides convergent evidence that WHR can influence judgments of sexual unrestrictedness: Participants evaluated women with relatively lower WHRs (i.e., hourglass-shaped or curvier bodies) as more sexually unrestricted.

Study 2

Given that prototypicality has consequences for trust and support for people disclosing a victimization experience (e.g., McKimmie et al., 2014), understanding if WHR informs perceptions of victimization prototypicality is an important step toward understanding the potential implications of target WHR in perceiver responses to reports of sexual assault. Studies 2a and 2b examine the influence of target WHR on judgments of victimization prototypicality. Study 2a assessed perceptions of victimization prototypicality via an adapted version of the Interpersonal Sexual Objectification Scale (ISOS; Kozee et al., 2007) whereas in Study 2b participants estimated the likelihood that targets' had experienced forms of sexual victimization.

Study 2a Method

Participants. U.S. participants ($N = 75$) were recruited from MTurk. Participants were primarily male (38 males, 37 females), primarily non-Hispanic White (63 White, one American Indian/Alaska Native, 2 Asian, 8 Black, 2 bi- or multi-racial; 66 non-Hispanic/Latinx, 8 Hispanic/Latinx, and 1 opted not to record their ethnicity), and ranged in age from 19 to 70 ($M = 37.04$; $SD = 11.30$). A sensitivity power analysis ($1 - \beta = 0.80$; $\alpha = .05$; one-way repeated-measures ANOVA with six measurements) indicated this sample could detect a small-to-medium effect size of $f = 0.19$ ($\eta_p^2 = .03$) or greater.

Materials & Procedure. In a random order, participants viewed the six targets varying in WHR from Study 1a. Participants rated each image on an adapted version of the ISOS (Kozee et al., 2007). The original ISOS assesses women's own experiences of body evaluation (11 items) and unwanted sexual advances (four items). We adapted this scale to assess perceivers' expectations of targets' experiences of body evaluation (e.g., "How often do people make inappropriate sexual comments about her body?") and unwanted sexual advances (e.g., "How often is she touched or fondled against her will?"). Participants responded to all 15 items on a 1 = "never" to 5 = "almost always" Likert-type scale. We were interested in perceptions of overall victimization prototypicality; thus, responses to all items were averaged for each

target to create composite perceived victimization prototypicality scores (higher values indicate greater perceived victimization prototypicality; $M = 2.63$; $SD_1 = 0.52$; $\alpha = .96$). Then, participants completed a demographics questionnaire.

Study 2a Results

To test the hypothesis that participants would judge relatively lower WHR women as more prototypic of sexual objectification and victimization, we assessed a linear mixed model with likelihood of objectification judgments regressed on target WHR (centered at $M_{\text{WHR}} = 0.725$) with random effects of the intercept and slope of WHR by participant to account for the fully crossed design. A likelihood-ratio test indicated that this model provided a better fit for the data than a model with only random effects (i.e., no fixed effect of target WHR), $\chi^2(1) = 32.89$, $p < .001$. Consistent with predictions, as target WHR increased, judgments of objectification likelihood decreased (Figure 2A), $b = -1.97$, $\beta = -0.27$, $F(1, 74) = 40.73$, $p < .001$, $R^2_{\text{Conditional}} = .83$, $R^2_{\text{Marginal}} = .07$.

Study 2b Method

Participants. U.S. participants ($N = 75$) were recruited from CloudResearch recruitment platform (Litman et al., 2017). Participants were primarily male (41 males, 34 females, and one participant did not disclose their sex), primarily non-Hispanic White (55 White, two Asian, 12 Black, two biracial or multiracial, and one participant preferred to self-identify; 62 non-Hispanic/Latinx, 12 Hispanic/Latinx, and one participant did not disclose their ethnicity), and ranged in age from 22 to 69 years ($M = 37.68$; $SD = 11.56$). No participants were excluded from analyses. A sensitivity power analysis conducted in G*Power (Faul et al., 2009; $1 - \beta = 0.80$; $\alpha = .05$; one-way repeated-measures ANOVA with six measurements) indicated this sample could detect a small-to-medium effect size of $f = 0.19$ ($\eta_p^2 = .03$) or greater.

Materials and Procedure. In a randomized order, participants viewed the six images varying in WHR from Study 1a. Participants rated each image on perceived likelihood that the individual has experienced "Fondling or unwanted sexual touching," "Forced to perform unwanted sexual acts," "Attempted rape," and "Rape." These items are commonly assessed on widely used measures of unwanted sexual experiences (e.g., Sexual Experiences Survey; Koss et al., 1987, 2007; Koss & Gidycz, 1985). Participants responded to each item on a 1 = "not at all" to 9 = "extremely" Likert-type scale. Responses to all items were averaged for each target image to create composite perceived victimization prototypicality scores (higher values indicating greater perceived victimization prototypicality; $M = 4.59$; $SD = 2.18$; $\alpha = .98$). Participants then completed a demographics questionnaire.

Study 2b Results

We again assessed a linear mixed model with perceived likelihood of sexual victimization regressed on target WHR (centered at $M_{\text{WHR}} = 0.725$) with random effects of the intercept and slope of WHR by participant to account for the fully crossed design. A likelihood-ratio test indicated that this model provided a better fit for the data than a model with only random effects (i.e., no fixed effect of target WHR), $\chi^2(1) = 5.32, p = .021$. Consistent with predictions, as target WHR increased, ratings of victimization likelihood decreased (Figure 2B), $b = -1.19, \beta = -0.04, F(1, 74) = 5.44, p = .022, R^2_{\text{Conditional}} = .91, R^2_{\text{Marginal}} < .01$.

Study 2 Discussion

Study 2 found that perceivers believed women with relatively higher WHRs were less likely to be sexually objectified and victimized, suggesting that perceivers may deem women with relatively high WHRs as non-prototypic of sexual victimization.

Study 3

The primary goal of Study 3 was to explore potential consequences of WHR in the important domain of sexual violence with a particular focus on victim blame and minimization. We chose to focus on victim blame and minimization because these are impactful outcomes in vivo, and because previous work indicates perceived sexual unrestrictedness and victimization prototypicality can affect victim blame and minimization, respectively.

Turning first to the link between perceived sexual unrestrictedness and victim blaming, a common *rape myth* (i.e., a prejudicial, stereotyped, or false belief about rape, rape survivors, and rapists; Burt, 1980) is that those who are sexually victimized have “asked for” the victimization in some way (e.g., Loughnan et al., 2013; Payne et al., 1999; Rollero & Tartaglia, 2019). In line with this myth, people may judge women perceived to be more sexually unrestricted as provoking victimization and thereby as more blameworthy or responsible for the victimization. Numerous studies support this disturbing hypothesis: women who are perceived as relatively more sexually unrestricted are attributed more blame and responsibility for experiences of victimization (e.g., Edmonds & Cahoon, 1986; Loughnan et al., 2013; Muehlenhard et al., 1985). Insofar as target WHR influences perceptions of sexual unrestrictedness, target WHR may influence attributions of blame following a reported sexual assault. That is, relatively lower WHR women (judged as more sexually unrestricted in Study 1) may be judged as more blameworthy for an experience of sexual victimization.

Turning to the link between prototypicality and minimization/denial, there are two common rape myths that are

conceptually relevant to minimization and seem to be inter-related: that only “certain types” of women are sexually victimized and that women commonly lie about sexual victimization (e.g., Franiuk et al., 2008; Payne et al., 1999; Rollero & Tartaglia, 2019). People may judge women who are relatively misaligned with prototypes of sexual victimization (i.e., those outside the “certain types”) as less believable when reporting their victimization. Several studies have found evidence that targets who align less with victimization prototypes are believed less and the severity of their accounts is minimized (e.g., Gerdes et al., 1988; Goh et al., 2021; Schuller et al., 2010). Thus, insofar as target WHR influences perceptions of prototypicality, WHR may influence judgments of believability of a reported sexual assault. That is, relatively higher WHR women (judged as less prototypic of sexual victimization in Study 2) may be judged as less believable in reporting sexual victimization.

WHR is a theoretically and practically important cue because whereas relatively low WHR women are perceived to be more sexually unrestricted (Study 1), relatively high WHR women are seen as non-prototypic of sexual victimization (Study 2). These patterns of results suggest distinct predictions based on the specific rape myth (“she asked for it” vs. “only certain women are raped”) or problematic response to disclosure (victim blame vs. minimization/denial) of focus. *Hypothesis 1* proposes that relatively low WHR women will be subject to greater victim blame.

This hypothesis is supported by Study 1 findings wherein relatively low WHR women were seen as more sexually unrestricted and previous work indicating women perceived as sexually unrestricted were subjected to greater victim blame (e.g., Edmonds & Cahoon, 1986; Loughnan et al., 2013; Muehlenhard et al., 1985). *Hypothesis 2* suggests that relatively high WHR women may experience greater minimization following a reported sexual assault.

This hypothesis is supported by Study 2 findings wherein higher WHR women were seen as non-prototypic of sexual victimization and previous work indicating less prototypic victims’ accounts are often minimized (e.g., Gerdes et al., 1988; Goh et al., 2021; Schuller et al., 2010).

In Study 3, we also aimed to address a limitation in external validity in Studies 1 and 2. Specifically, Studies 1 and 2 used within-subjects designs comparing participant responses to targets varied in WHR. This approach, although statistically powerful, does not well represent real-world responses to sexual assault disclosures where it seems unlikely that a perceiver would compare multiple disclosures. Thus, Study 3 employed a between-subjects design to reduce demand characteristics and better approximate the real-world experience of responding to a sexual assault report.

Method

Participants. U.S. participants ($N = 203$) were recruited from MTurk. Participants were primarily male (120 males, 82

females, and one participant did not disclose their sex), primarily non-Hispanic White (166 White, 16 Black, nine Asian, six biracial or multiracial, two American Indian/Alaska Native, one Native Hawaiian/Pacific Islander, and seven participants preferred to self-identify; 180 participants identified as non-Hispanic/Latinx, 20 identified as Hispanic/Latinx, and three did not disclose their ethnicity), and ranged in age from 19 to 71 years ($M = 34.60$; $SD = 10.46$). A sensitivity power analysis ($1 - \beta = .80$; $\alpha = .05$; independent-samples t tests) indicated this sample could detect an effect size of $d = 0.40$ or greater.

Materials and Procedure. Participants were randomly assigned to view either a low-WHR (.60) or high-WHR (.85) target image (Kościński, 2014) and were told that the image depicted a woman admitted to the hospital after an alleged rape. Participants were told the image had been slightly altered to protect the woman's identity to justify inclusion of the image and to explain the computer-generated nature of the image. Accompanying the image, participants read a sexual assault report from the perspective of the woman reporting the assault (i.e., the person pictured; "Mary") and the alleged perpetrator ("Bill"; adapted from Risk Perception Survey - Acquaintance Scenario (RPS-ACQ); Messman-Moore & Brown, 2006). The accounts began with similar descriptions of the two individuals meeting at a party but diverge in their interpretation of the sexual interactions thereafter. After reading both accounts, participants completed measures of victim blame (Koss & Gidycz, 1985; Messman-Moore et al., 2010) and minimization/denial (adapted from Messman-Moore et al., 2010). The victim blame measure included five items assessing the degree to which participants held the woman reporting the assault accountable for the sexual interaction (e.g., "To what extent was Mary responsible for having sexual intercourse with Bill?"). Participants responded to all items using a 1 "not at all" to 7 "completely" Likert-type scale. All items were averaged to form a composite victim blame score (higher values indicate greater victim blame; $M = 1.75$; $SD = 0.67$; $\alpha = .93$). The minimization/denial scale included three labeling items from previous research (e.g., "To what degree do you consider what happened to be rape?") and two items that targeted belief of the woman reporting the assault (i.e., "How much do you believe Mary's account of the event?") and belief of the alleged perpetrator (i.e., "How much do you believe Bill's account of the event?"). Participants responded to all five items on a 7-point Likert-type scale; however, endpoints varied by item. Four of the minimization/denial items were reverse-coded (all items except "How much do you believe Bill's account of the event?") before being averaged to create a composite score (higher values indicate judging the incident as less serious, trusting the victim's account less, and trusting the perpetrator's account more; $M = 3.72$; $SD = 1.63$; $\alpha = .93$). Participants then completed a demographics questionnaire.

Results

We conducted two independent samples t -tests examining the effects of target WHR on victim blame and minimization/denial. The first analysis indicated a nonsignificant effect of WHR on victim blame, $t(201) = -1.75$, $p = .081$, 95% confidence interval (CI) = $[-0.89, 0.05]$, $d = .25$. Notably, the direction of this effect was *counter* the direction of Hypothesis 1; participants assigned to view a woman with a high WHR ($M = 4.11$, $SD = 1.69$) indicated descriptively more victim blame than participants assigned to view a woman with a low WHR ($M = 3.69$, $SD = 1.73$). Consistent with Hypothesis 2, the second analysis indicated a significant effect of WHR on minimization/denial, $t(201) = -2.14$, $p = .033$, 95% CI $[-0.94, -0.04]$, $d = .30$, whereby participants assigned to view a woman with a high WHR ($M = 4.97$, $SD = 1.48$) minimized and disbelieved the disclosure more than participants assigned to view a woman with a low WHR ($M = 3.48$, $SD = 1.74$).

Study 3 Discussion

Study 3 suggests that subtle manipulations of body shape can influence responses to reports of sexual assault. Supporting Hypothesis 2, reports of sexual assault from a woman with a higher WHR were minimized and disbelieved relative to an identical report from a woman with a lower WHR. Notably, this study employed a between-subjects design. Thus, even without comparison groups, participants used WHR to inform beliefs about women who have experienced sexual assault. Study 3 was not well-powered to test the magnitude of effects observed with great confidence, so effects should be interpreted with caution. Future investigations with greater access to resources may probe this question more convincingly.

General Discussion

The current work examined how WHR—a naturally varying bodily cue—influences sexual perception and responses to disclosures of sexual assault experiences. We presented five experiments demonstrating converging evidence that WHR influences sexual perception. Specifically, lower WHR women were perceived as more sexually unrestricted (Studies 1a and 1b), whereas higher WHR women were perceived as less prototypic of someone who experiences sexual victimization (Studies 2a and 2b). Finally, perceivers were more likely to minimize or deny the accounts of women with higher, compared with lower, WHRs (Study 3).

Although we did not observe evidence for Hypothesis 1 in Study 3 (relatively low WHR women were not blamed more), past evidence suggests that women who seem more unrestricted are often blamed more for their unwanted sexual experiences. Furthermore, the results of Study 1 suggest the effects of WHR on judgments of sexual restrictedness

(i.e., relatively lower WHR women were seen as more unrestricted). Thus, it remains possible that relatively lower WHR women might sometimes experience heightened blame for instances of assault. Perhaps aspects of the sexual assault scenario employed in Study 3 occluded this hypothesized effect (e.g., date rape scenario, accounts from both victim and perpetrator). Future work would do well to examine blame and belief more systematically and to examine whether the effects of WHR on responses to assault vary based on the assault scenario. These investigations would benefit the literature by identifying boundary conditions and moderating factors or by extending the generalizability of reported effects.

Implications and Future Directions

There is a dearth of examinations of how WHR influences judgments across domains despite accumulating evidence that WHR can shape social and sexual perceptions (i.e., attractiveness, fertility, stigma). The current work tested the influence of WHR on responses to disclosures of sexual assault as sexual perceptions are particularly impactful to responses to disclosures of sexual assault (e.g., Gerdes et al., 1988; Loughnan et al., 2013; Schuller et al., 2010), thereby providing initial evidence that WHR may also inform consequential interpersonal and judicial decisions. Future work should examine whether WHR similarly influences judgments of non-sexual victimizations.

Given that WHR is difficult to change and naturally varies across individuals (Singh, 1993), biases documented in this work could have pernicious effects. Given persistent public focus on women's body shapes (e.g., Hyde, 2000) and the negative consequences of this focus (e.g., body preferences and dissatisfaction; Devine et al., 2022; Fiske et al., 2014), this represents an important avenue for examination. To this point, WHR is often exaggerated in depictions of women's bodies (e.g., Barbie's WHR is .41), which may create an unrealistic standard. Future work would benefit from assessing how portrayals of WHR in popular culture affect expectations of typicality and identifying interventions to attenuate WHR effects on responses to victimization disclosures. Interventions aimed at contesting stereotypes and broadening perceptions of who experiences sexual victimization may be efficacious in reducing the biases found in the current work as well as other documented biases (e.g., viewing men as unlikely to experience victimization; Smith et al., 1988). Indeed, exposure to counter-stereotypic exemplars can reduce the accessibility of negative stereotypes and prejudices (e.g., Bodenhausen et al., 1995; Dasgupta & Greenwald, 2001; Govan & Williams, 2004) and target attributions (e.g., victim blaming) for negative occurrences (e.g., Pan & Kosicki, 1996; Ramasubramanian, 2011).

Limitations

This work also has limitations that may serve as a fodder for future research. First, we only manipulated WHR; other cues were either held constant (i.e., BMI and attire) or were not available (e.g., facial cues). Thus, it is unknown whether WHR interacts with other cues to inform sexual perceptions or judgments of sexual assault disclosures. This challenge to external validity occurs across social perception research where cues are often manipulated in isolation (see Jaeger & Jones, 2022; Satchell, 2019 for discussion of the importance of considering multiple cues in tandem). More broadly, there is little work considering how multiple cues combine to shape responses to disclosure of assault (cf., Adolphsson & Strömwall, 2017; Deitz et al., 1984; Sommer et al., 2016). However, we contend that WHR would likely still inform sexual perceptions and judgments of assault when other cues are present, though it is possible that the effect may be weaker or variable in magnitude. To this point, bodily cues seem to be prioritized over other (e.g., facial) cues in sexual perceptions of women (e.g., Dixson et al., 2010; Gervais et al., 2013; Hall et al., 2011). For example, when perceivers judged women on sexual desirability, they paid more attention to the body than the face (e.g., Dixson et al., 2010). Thus, we believe WHR would remain impactful even when variability in facial cues is present. Conversely, there is little consensus in the literature regarding whether the effects of WHR on person perception persist when there is variability in other bodily cues. It is difficult to disentangle effects of WHR from effects of other bodily cues such as weight or chest-to-hip ratio because these cues tend to be positively correlated with one another (e.g., Tovée et al., 1999). Thus, although we theorize that the effects of WHR documented in this work would likely persist even when variability in other nonverbal cues is present, we believe that future work aimed at understanding what cues inform sexual perceptions and responses to disclosures of assault in externally valid scenarios where perceivers have a multitude of nonverbal cues at their disposal would strongly further our understanding of sexual perceptions and responses to disclosures of assault.

Second, the current work is limited by stimulus selection and focus on White cisgender women. By only depicting White individuals, this work contributes to a long-standing tradition of centering Whiteness in psychological research (see Dupree & Kraus, 2022; Garay & Remedios, 2021; Roberts et al., 2020, for detailed discussion of these issues). Social perception research often fails to assess perceptions of non-White individuals unless the research is explicitly focused on race. Such a narrow focus creates a "White standard" that can warp perceptions of people of color and societal inequities (Shelton, 2000) and makes it unclear whether our findings generalize to non-White individuals who face heightened vulnerability to sexual victimization and negative responses to disclosure. For example, Black women in the United States experience sexual victimization at a higher rate

than women in general, yet fewer than 7% of instances of Black women experiencing sexual victimization are reported to police (compared with 35% of all instances; Black Women and Sexual Violence, 2018; Langton et al., 2012). This may be driven, in part, by race-biases in responses to victimization: Black, relative to White, women's accounts of sexual victimization are more frequently met with distrust and blame (Donovan, 2007). In addition, there is evidence to suggest that bodily cues including WHR may be similarly—or more—impactful for sexual perceptions of non-White women. For example, Anderson and colleagues (2018) found that perceivers paid more attention to Black, compared with White, women's waists and hips. Gaining a stronger understanding of how bodily cues are interpreted across race is an important direction forward for research on bodily cues to sexual perceptions.

This work is also limited by its failure to consider transgender and gender non-conforming individuals even though these individuals tend to be at a greater risk for both victimization and negative responses to disclosure (e.g., Chen et al., 2020; Sigurvinsdottir & Ullman, 2016). Previous research on how WHR informs perceptions has also traditionally treated sex and gender as interchangeable and binary. Thus, how WHR informs perceptions of transgender and gender non-conforming individuals is unknown. However, there is reason to believe that WHR may sometimes inform biases (e.g., negative responses to disclosure of sexual victimization) against transgender or gender non-conforming individuals. For example, transgender women who do not undergo gender-affirming treatments (e.g., hormone replacement therapy) may, on average, have relatively higher WHRs (Klaver et al., 2018). In combination with the current work's finding that women with higher WHRs were minimized and disbelieved when reporting sexual victimization, this suggests that WHR may be one cue that sometimes contributes to negative responses to transgender and gender non-conforming individuals. Future work would do well to directly test how WHR informs sexual perceptions of and responses to disclosures of sexual victimization by transgender and gender non-conforming individuals.

In sum, the current work is limited in that it (a) may obscure disparities in rates of and responses to sexual victimization across identities and (b) does not consider whether WHR influences the frequent negative responses to disclosures of sexual violence received by women of color, transgender, and gender non-conforming individuals. We urge future studies of sexual perceptions and responses to disclosures of sexual victimization to integrate targets varying on many dimensions of identity and appearance. Leveraging a rich literature on intersectionality (e.g., Lei et al., 2020; Petsko & Bodenhausen, 2020; Purdie-Vaughns & Eibach, 2008; Warner & Shields, 2013) may yield impactful theorizing about how and when individuals with multiple minoritized identities are negatively impacted by biased perceptions.

Finally, the present studies recruited only online or undergraduate student samples living in the United States. Although our participants may well-represent friends, family, and jurors, it is also important to examine whether these findings replicate in samples of police officers and specialized care providers given their important roles in survivor support and justice-seeking. Beyond occupation, individual differences in perceiver ideologies are worthy of investigation. For example, assessing perceivers' acceptance of rape myths—particularly those that are conceptually related to victim blaming and disbelief—could represent a valuable next step.

Conclusion

The current research provides important insights into how subtle differences in women's WHR may influence the sexual perceptions and judgments of sexual assault disclosures formed by perceivers. In sum, low-level body cues can influence person judgments with dramatic consequences, including whether a person disclosing a traumatic experience of sexual victimization is met with support or distrust.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iDs

Gina A. Paganini  <https://orcid.org/0000-0001-5568-943X>
 Jason C. Deska  <https://orcid.org/0000-0001-8242-7494>
 E. Paige Lloyd  <https://orcid.org/0000-0002-3975-055X>

Supplemental Material

Supplemental Material is available online with this article.

Notes

1. “Curvier” is often used colloquially to signal body shape (i.e., waist-to-hip ratio [WHR]) or body size (i.e., body mass index [BMI]). We held BMI constant across stimuli, so “curvier” is only used to reference body shape.
2. Some previous work assessing sexual perceptions and responses to sexual assault disclosures found moderation by participant sex (e.g., MacRae & Shepherd, 1989; Townsend & Wasserman, 1997). Across studies, we assessed whether participant sex moderated the effects of WHR and found that participant sex never significantly moderated the effect of WHR on assessed outcomes. These moderation analyses can be found in the online supplement.
3. One participant reported their age as 4. We assume this response was a typo and did not include it in the calculation of descriptive statistics for age.

4. In Studies 1 and 2, we intended a priori to run one-way repeated measures ANOVAs with six measurements. However, after recruitment, it was suggested that linear mixed regressions would be a better analytic approach.
5. For Studies 1 and 2, we also conducted exploratory analyses assessing whether the effects of WHR on sexual unrestrictedness judgments were consistent across items. These analyses can be found in the online supplement.
6. Participant SOI was included as a potential covariate. The effect reported below persists when including participants' sociosexual orientation as a covariate, $b = -6.66$, $\beta = -0.41$, $F(1, 89) = 115.26$, $p < .001$.

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