**Intrasexual competition as a predictor of women's judgements of revenge pornography
offending**

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Declaration of Competing Interests

The author(s) declare no potential competing **or financial** interests with respect to the research, authorship, and/or publication of this article.

Funding

This work was supported by an Undergraduate Research Scholarship Scheme (URSS) fund (£200) from University of Derby and a Scholarship Project for Undergraduate Research (SPUR) fund (£300) from Nottingham Trent University.

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Acknowledgement

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The authors take responsibility for the integrity of the data, the accuracy of the data analyses,

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and have made every effort to avoid inflating statistically significant results.

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Abstract

Recent legislative developments have led to a marked increase in the empirical investigation of motivations and judgements of so-called acts of ‘revenge pornography’ offending. In two independently-sampled studies, we used moderation analyses to investigate whether higher levels of intrasexual competition predicted more lenient judgements of revenge pornography offences as a function of sex (Study 1, $N = 241$), and whether such relationships would be further moderated by physical attractiveness (Study 2, $N = 402$). Potential covariates of callous-unemotional traits, empathy, and victimization history were controlled for. Opposing our hypotheses, we consistently observed a trend for higher levels of intrasexual competition being associated with more lenient judgements of revenge pornography offences involving male victims by female participants. The results are discussed in terms of intrasexual competition potentially sharing variance with unobserved constructs in the wider sexological literature, and of the key relevance of these findings for future empirical investigation into judgements of non-consensual image-based offending. Open data and a preprint of this paper are available at https://osf.io/y29fq/?view_only=568a2c403fcf428280914c149063db95.

Key words: non-consensual image-based offending; revenge porn; intrasexual competition; empathy; callous-unemotional traits

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Introduction

Recent legislative developments in the Western world, as well as high-profile celebrity scandals, have led to revenge pornography emerging as a topic of social and empirical inquiry. Revenge pornography falls under the umbrella term of 'non-consensual pornography' (Patella-Rey, 2018) and involves an individual 'leaking' private sexual images of another. This act is usually a result of a relationship breakdown (Dawkins, 2015) and is often used to damage an ex partner's social reputation (Henry & Powell, 2014). Victims of revenge pornography not only face professional consequences, such as having their contracts terminated on the grounds of damaging an organization's reputation (Citron & Franks, 2014), but suffer pervasive symptoms of depression, anxiety, and ongoing difficulties with regard to trusting others and their general self-image (Bates, 2017). Such consequences, in some cases, have resulted in elevated rates of suicide attempts and completions (Stroud, 2014). As such, informing policy through constructing a greater understanding of this form of sexual offending behavior is a priority.

Although the severity of punishment varies (i.e., from a fine to imprisonment), the non-consensual sharing of sexually explicit images is a punishable criminal offence across most of the United States of America (38 states, plus Washington D. C.), Australia, Canada, and Europe. Since the criminalization of revenge pornography offending in the Courts and Criminal Justice Act 2015 (UK), over 1,000 cases were reported by police forces in England and Wales in the latter half of 2015, with 61% of these cases resulting in no action being taken against the perpetrator (Sherlock, 2016). A noticeable gap in the emerging revenge pornography literature is how public and judicial judgements of revenge pornography

offences may be influenced by psychosocial factors. Our aim in this paper is to understand how one such factor, intrasexual competition, influences judgements of revenge pornography, and whether or not this association is further moderated by variation in perceived attractiveness of the victim.

Understanding Potential Drivers of Revenge Pornography Judgements

The prevalence of revenge pornography perpetration and victimization is largely unclear. The main reason for this is summarised in Walker & Sleath's (2017) systematic review in which they highlight a lack of consistency in terms of "populations examined, questions/measurements used, definitions employed, time periods over which the behaviors were measured, and how prevalence was calculated" (p. 21). However, best estimates suggest that as a function of sex, and contrary to popular and academic commentaries on the issue (see McGlynn, Rackley, & Houghton, 2017), males are more likely than females to be both victims and perpetrators of revenge pornography offences.

Consistent with other work in areas of sexual crime, judgements of revenge pornography may be rooted in attributions made about victims, their alleged role in their own victimization, and the culpability of individual offenders (Bothamley & Tully, 2018; Henry & Powell, 2016; Niemi & Young, 2016). Applied to the revenge pornography context more specifically, recent survey-based research conducted in the USA has found high levels of support for the criminalization of the non-consensual sharing of sexual images – particularly among female respondents. However, levels of support dropped when it was revealed that a victim in a specific case produced the images themselves (Lageson, McElrath, & Palmer, 2018). Given that most cases of revenge pornography are a result of a betrayal of trust with what was at first a consensual sending of a private photo taken by the victim (Citron & Frank,

2014), it seems that *victim blaming* may play a key role in judgements of the harm caused by revenge pornography offending, and further of the criminal nature of the behavior itself.

Aside from the actual act of having a private sexual image shared, Bloom (2014) details a second level of abuse for the victims of revenge pornography offences through “commentators who hold them solely responsible for their misfortune” (p. 250). Victim blaming in this scenario stems from the agency that the victims are perceived to have had in the taking of sexual images, with many choosing to send these to current or previous sexual partners. Fay (2018) argues that there is a general apathy towards victims, and that blaming them for sending the pictures in the first place is just “a modern twist on the antiquated notion that a rape victim ‘asked for it’ by wearing promiscuous clothing” (p. 1844). Relatedly, Hadwin (2017) found that US participants with less knowledge and exposure to information about revenge pornography were more likely to show instances of victim blaming. This emphasizes the need for media coverage that includes information about the realities of revenge pornography victimization and its impact, rather than popular articles (e.g., “23 Reasons Why You Should Never, Ever Take A Nude Pic Again”; Fern, 2014) that perpetuate the idea that victims are to blame for taking and sending images in the first instance.

Recent research into public perceptions of revenge pornography in the UK found sex differences in victim blaming, with men being significantly more likely to do this than women (Bothamley & Tully, 2018). This is consistent with victim blaming in relation to a range of sexual offences (McCaul, Veltum, Boyechko, & Crawford, 1990). However, contradictory data is reported in the unpublished work of Davies (2017), which finds that in the context of a revenge pornography offence, females had a greater tendency to blame the victim than did males. This suggests that other factors may influence the effect of sex on judgements of such offences. We outline one potential moderator of this association below, before highlighting two potential covariates which might also play a part.

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130 **Intrasexual competition.** Intrasexual competition is an evolutionary concept related to
131 competition with sexual rivals (Darwin, 1871). This process is primarily motivated by a
132 desire to both obtain and retain mates, and involves competing for resources such as status,
133 popularity, and money to help achieve that end (Arnocky & Vaillancourt, 2017). With acts of
134 revenge pornography influencing the mate value of a victim, albeit more negatively for
135 women than for men (Buss, Goetz, Duntley, Asao, & Conroy-Beam, 2017), the effects of sex
136 on judgements of this form of offending behavior may be predicted by increased levels of
137 intrasexual competition when the victim is of the same sex as the person providing their
138 judgements of an offence. Our consideration of an evolutionary construct in this area is not
139 at-odds with other theorizing in the area of sexual violence. For example, others have
140 formulated evolutionary explanations of sexual crime *perpetration* (Lalumière, Harris,
141 Quinsey, & Rice, 2005; Thornhill & Palmer, 2000). However, we are not aware of prior work
142 that embeds an evolutionary explanation for *judgements of* sexual crimes.

143 Fisher and Cox (2011) reported four mating strategies related to intrasexual
144 competition: (1) self-promotion, (2) competitor derogation, (3) competitor manipulation, and
145 (4) mate manipulation. Committing, or endorsing acts of revenge pornography, may liken to
146 competitor derogation or manipulation (through the notion of so-called ‘slut shaming’;
147 Ringrose & Renold, 2012), with this form of intrasexual competition manifesting in attempts
148 to compete for mates using physical cues related to fertility and attractiveness (Fisher & Cox,
149 2011). Further, there is evidence to suggest that derogating a potential rival on the basis of
150 her alleged sexual promiscuity is heightened among women. For example, Muggleton,
151 Tarran, & Fincher (2018) found that women (but not men) are more willing to punish
152 sexually-accessible, relative to sexually-restricted women, even at a slight financial cost to
153 themselves. McAndrew (2017) states that gossiping is a woman’s ‘weapon of choice’ when it

comes to intrasexual competition due to their preference for indirect tactics (see also Campbell, 2004; Davis, Dufort, Desrochers, Vaillancourt, & Arnocky, 2018). Further, work by Reynolds, Baumeister, and Maner (2018) has demonstrated how women actively harmed, rather than advanced, the reputation of another woman who they felt either directly (through flirtation) or indirectly (just by being attractive or provocatively dressed) threatened their relationship (see also Vaillancourt, 2013; Vaillancourt & Sharma, 2011).

In contrast, men typically use luxury items to impress women as they signify high social status and economical resource acquisition - factors prioritized and considered attractive by women (Buss, 2015; Griskevicius et al., 2007; Lycett & Dunbar, 2000). Men also appear to be threatened by increased social status of other men and are more likely to label a man engaging in conspicuous consumption as a rival and mate poacher than as a potential friend (Hennighausen, Hudders, Lange, & Fink, 2016). As such, men may endeavor to use indirect means to reduce the potential mate value of other men who displaying such status. For example, Knapen, Blaker, and van Vugt (2018) found that when paired with a taller male counterpart (height being a trait valued by females in a male mate), shorter men would manipulate the distribution of resources to favour themselves.

Considering past research into intrasexual competition triggers and rival derogation strategies, highly competitive individuals may blame victims of a revenge pornography offence to a greater extent (or ascribe lower levels of criminality to such offences) if they are sexually attractive (versus unattractive). This may also lead to a lower expression of sympathy or perceptions of victim harm or distress. It is here where we might also expect to see sex differences between men and women. That is, owing to observed sex differences in the sexual selection, mate choice, and mate competition literature (see Buss & Dedden, 1990; Puts, 2016), and the review above, we might expect such judgements as a form of intrasexual rival derogation by women, but not men, when victims are physically attractive. For example,

because of the perceived value males place on the physical attractiveness of their female mates, intrasexual competition may facilitate aggression against another over aspects related to physical appearance (Arnocky & Vaillancourt, 2017). This relationship is likely underpinned by physical attractiveness being associated with fertility, health, and genetic fitness; aspects which can benefit prospective offspring. Two potential covariates of such judgements are outlined below.

Callous-unemotional traits. Callous-unemotional (CU) traits comprise callous, uncaring, and unemotional facets of personality. These traits are thought to map onto primary, as opposed to secondary (i.e., anti-social behavior) psychopathy-related characteristics, which manifest during adolescence, but persist into adulthood (Frick, 2004). Although not previously investigated in regards to revenge pornography specifically, CU traits (and related measures of psychopathy) have been associated with an increased propensity to commit cyber- and revenge-related crimes. For example, such traits have been associated with positive views of cyberbullying (Goodboy & Martin, 2015; March, Grieve, Marrington, & Jonason, 2017; Wright, Harper, & Wachs, 2018) and an increased likelihood to disseminate private sexual text messages or seek revenge, following the infidelity of a partner (Brewer, Hunt, James, & Abell, 2015; Clancy, Klettke, & Halford, 2019; Rasmussen & Boon, 2014). As such, in the absence of existing revenge pornography literature, more lenient judgements on revenge pornography offending may be predicted by increased levels of CU traits.

Empathy. Empathy, or more precisely the lack thereof, can be defined as the understanding and sharing of another's emotional experience (Decety & Lamm, 2009). Similar to CU traits, there has been no direct investigation into the role of empathy and

judgements of revenge pornography to date. Research over the past decade has, however, established a strong association between heightened empathy and less favourable judgements of, and likelihood to engage in cyberbullying (Doane, Pearson, & Kelly, 2014; Steffgen, König, Pfetsch, & Melzer, 2011). Moreover, empathic concern for others, in addition to the ability to take the perspective of another, has been found to mediate the negative relationship between psychopathy and forgiveness (Giammarco & Vernon, 2014) – the inability of which, is closely associated with the desire for revenge (Ho, ForsterLee, ForsterLee, & Crofts, 2002). As such, it could be hypothesized that judgements of revenge pornography offences would be less lenient in individuals who possess greater empathy, potentially as a function of them being able to take the perspective of the victim and share their affective response to victimization.

Overview of Studies

To our knowledge, no researchers have examined whether evolutionarily-rooted psychological processes predict judgements of revenge pornography offending. In this paper, we present two studies to begin to fill this gap in the literature. The first used a cross-sectional design with a moderation analysis to test the hypothesis that higher levels of intrasexual competition would predict lenient judgements of a revenge pornography case when the judge and victim were of the same sex. Possible covariates of CU traits and empathy, were controlled for. Building on this initial study, we then experimentally manipulated the physical attractiveness of victims in mock police reports of revenge pornography offending. Here, we predicted that the relationship between intrasexual competition and leniency judgements would be moderated by attractiveness (i.e., this relationship would be strongest when the victim was attractive and of the same sex as the judge).

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Study 1

Methods

Participants

For both studies, we report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. To determine our target sample size, we conducted an a priori power analysis using G*Power (version 3.1.9.2). Assuming an anticipated medium effect size (ensuring any observed effects were of practical importance) and a standard alpha level of .05, a minimum of 129 participants would be required to have 95% power in our planned analyses. We aimed to recruit up to 250 participants in order to account for incidents of missing data and participant withdrawals, whilst allowing for generalisable results. Over-sampling also retains power in regression-based designs wherein interactions are present (Baguley, 2012).

After removing cases where more than 5% of the data were missing, a total of 241 UK participants ($M_{age} = 36.32$ years, $SD = 12.78$; 49.8% male) completed an online questionnaire, which was advertised through the crowdsourcing website *Prolific*. Although it does not overcome the more general limitations of online research (e.g., a lack of environmental control and/or participant verification), *Prolific* is considered a viable means of participant recruitment; with data quality comparable to that obtained through face-to-face means (Peer, Brandimarte, Samat, & Acquisti, 2017). Inclusion criteria dictated that participants had to be fluent in English, aged 18 years or over, and heterosexual. Participants provided written informed consent in accordance with approved central university research protocols and national ethical guidelines by ticking a box on both the first and last pages of our online survey. All completers were reimbursed with £0.60 for their participation.

Materials

Demographics. Participants were asked to report their age, sex, and whether they were aware of any instances in the past where they themselves had been a victim of revenge pornography.

Scale for Intrasexual Competition (SIC; Buunk & Fisher, 2009). The SIC comprises 12 items that measure the occurrence of intrasexual competition (e.g., “I always want to beat other [wo]men”) using a 7-point scale. Subject nouns differed as a function of the sex of the responder. Each item is rated using a scale anchored from “*Not at all applicable*” to “*Completely applicable*” (Cronbach’s $\alpha = .90$). High scores indicated greater levels of intrasexual competition.

Judgements of Revenge Pornography (JRP; Bothamley & Tully, 2018). Judgements of revenge pornography were measured using the procedure outlined in Bothamley and Tully (2018). Specifically, participants were asked to read a vignette outlining the breakdown of a heterosexual relationship, which resulted in the sharing of intimate images, before answering 8 items (e.g., “How much do you think [victim’s name] is to blame for the incident?”) using a 7-point scale. Each item is rated using a scale anchored from “*Not at all/Very unlikely*” to “*Definitely/Very likely*”. Whereas Bothamley and Tully’s (2018) original vignettes framed the mode of image dissemination as posting images online, we instead framed the act of revenge pornography as distributing images amongst a friendship group. The rationale for this was to avoid potential ceiling effects of participant responses. Specifically, both whilst posting images online or to a friendship group is intrusive and has damaging consequences, we anticipated that group-based dissemination would be viewed with less immediate condemnation and so elicit greater variability in data. In a second deviation from the original

study, we opted to average the item responses to create a composite score (Cronbach's $\alpha = .81$), rather than use the two originally-reported subscales of victim blaming and offence severity. This approach was taken due to all items seemingly mapping onto a single factor. Reverse scoring was used to account for this disparity and higher scores were indicative of more lenient judgements (i.e., less harm to the victim and less of a crime). Participants were randomly split into two groups; half received a vignette where the perpetrator was male, and half received a vignette where the perpetrator was female. The names 'Taylor' and 'Ashley' were deliberately chosen so that they could act as either sex, as these are both unisex names in the UK. Directly following the vignette, participants were asked to write a sentence of text summarising the vignette as an attention check. An example of the vignette used is shown below:

Taylor and his girlfriend Ashley had been dating for a while. Throughout the relationship Taylor and Ashley agreed that it would be fine for Taylor to have some private naked images of Ashley on his mobile phone for him to view personally. After dating for a while, the relationship came to an end due to Ashley being unfaithful to Taylor. Following this, Ashley discovered that Taylor had been sending the intimate photos of her to his friends. Taylor had sent the photos after his and Ashley's relationship had finished.

Questionnaire of Cognitive and Affective Empathy (QCAE; Reniers et al., 2011).

The QCAE comprises 31 items that measure cognitive and affective (e.g., "I am inclined to get nervous when others around me seem to be nervous") dimensions of empathy using a 4-point scale. Each item is rated using a scale anchored from "*Strongly Disagree*" to "*Strongly*

Agree”. We summed item responses to create a composite score (Cronbach’s $\alpha = .89$). High scores indicated increased levels of empathy.

Inventory of Callous–Unemotional Traits (ICU; Frick, 2004). The ICU comprises 24 items that assess the occurrence and intensity of callous, uncaring, and unemotional (e.g., “I do not care who I hurt to get what I want”) traits. Each item is rated on a 4-point scale anchored from “*not at all true*” to “*definitely true*” with higher scores indicative of greater levels of CU traits. Although developed for use with adolescents, the ICU has been validated for use in adult samples (Kimonis, Branch, Hagman, Graham, & Miller, 2013). We summed item responses to create a composite score (Cronbach’s $\alpha = .83$).

Procedure

Both studies were approval by institutional ethical review panels prior to data collection (Study 1: [REMOVED FOR PEER REVIEW / REF]; Study 2: [REMOVED FOR PEER REVIEW / REF]). Participants initially entered their demographic information, such as to allow the Qualtrics survey software to pre-populate the SIC measure with the appropriate male/female labels using a ‘loop and merge’ procedure. Following this, the SIC, JRP vignette and questions, QCAE, and ICU measures were presented in a randomized order. Randomization was conducted for each participant by the survey software to reduce the likelihood of order effects influencing the data. On average, the study took less than 10 minutes to complete.

Analysis plan

In instances of missing data ($N = 4$), the sample mean was calculated. Assumptions were assessed (see supplementary material for more information). Pearson correlations were

computed between the focal predictor (intersexual competition), the dependent variable (judgements of revenge pornography), the moderator variable (sex of the victim), and covariates (callous-unemotional traits, empathy, self-reported victimization) in relation to the whole sample, as well as within each sex. We then used Model 1 of the PROCESS plugin for SPSS (version 3; Hayes, 2018) to run two moderation models (one each for male and female responders). All regression coefficients for moderation models reported in this paper are unstandardized, as recommended in Hayes (2018), and were bootstrapped using 5000 samples. Confidence intervals were not bias corrected.

Results

Sex differences. Means and standard deviations for questionnaire data are reported in Table 1. Independent *t*-tests were used to delineate sex differences within our sample. Males reported greater levels of intrasexual competition ($t(239) = 5.09, p < .001, d = 0.65$) and CU traits ($t(239) = 4.70, p < .001, d = 0.61$) than females, and also reported lower levels of empathy ($t(239) = -5.40, p < .001, d = -0.70$) and more lenient judgements to the perpetrators of revenge pornography offences ($t(239) = 2.62, p = .009, d = 0.34$). There were no significant differences in age ($t(239) = .32, p = .747, d = 0.04$) or self-reported victimization ($t(239) = .59, p = .558, d = 0.04$) between men and women.

[Insert Table 1 Around Here]

Correlation analysis. We computed bivariate Pearson correlations between predictor, dependent, and moderator variables, as well as covariates (see Table 2). Intrasexual competition was positively associated with more lenient judgements of revenge pornography and negatively associated with empathy in the whole sample. Moreover, Intrasexual

competition was positively associated with CU traits in the whole sample, as well as in males and females individually. Correlations observed in the whole sample, as well as for male participants specifically, suggested that more lenient judgements of revenge pornography were reported when the victim was female, relative to male. Further, more lenient judgements of revenge pornography were associated with lower empathy in the whole sample and female subsample. More lenient judgements of revenge pornography were also positively associated with CU traits in the whole sample and male subsample. Empathy was negatively associated with CU in the whole sample and male and female subsamples.

[Insert Table 2 Around Here]

Moderation analyses. We conducted two moderation analyses using Model 1 of the PROCESS plugin for SPSS (Hayes, 2018). In each analysis, intrasexual competition was the focal predictor (X) and judgements of revenge pornography was the dependent variable (Y). The moderator variable was the sex of the victim (W). The variables of empathy, CU traits, and self-reported victimization were controlled for as covariates. Model coefficients are presented in Tables 3 and 4. Moderated regression trends are presented in Figure 1.

Model one: Male responders. The moderation model for male responders accounted for 13.8% of the variance in judgements of revenge pornography, and was statistically significant, $F(6, 113) = 3.01, p = .010$. As indicated in Table 3, more lenient judgements of revenge pornography were reported when the victim was male. There was no main effect of intrasexual competition, nor a significant interaction between intrasexual competition and victim sex, indicating a lack of moderation. No covariates were statistically significant.

[Insert Table 3 Around Here]

Model two: Female responders. The moderation model for female responders accounted for 21.8% of the variance in judgements of revenge pornography, and was statistically significant, $F(6, 114) = 5.29, p < .001$. As indicated in Table 4, and similar to male responders, when the victim was male, females reported more lenient judgements of revenge pornography use. Further, although intrasexual competition was not a significant predictor of revenge pornography judgement (see Table 4), there was a trend towards there being a significant interaction between intrasexual competition and victim sex, with females scoring high in intrasexual competition reporting more leniency when the victim was male. In terms of covariates, higher levels of CU traits and lower levels of empathy were associated with more lenient judgements of revenge pornography.

[Insert Table 4 Around Here]

[Insert Figure 1 Around Here]

Study 2

Building on Study 1, this study sought to both replicate our initial findings in a second, independent sample, as well as explore these associations further by manipulating the physical attractiveness of victims of revenge pornography offending. We chose to manipulate physical attractiveness as this is a variable that is clearly displayed in the sexually-explicit images that is also linked to both intrasexual competition and rival derogation, and potentially to offence-related cognition (e.g., rape myths related to female appearance; Burt, 1980). While we might expect these effects to be more pronounced among women (Buss & Dedden,

1990), recent research has suggested that men's use of steroids (a potential route to muscular enhancement) is also associated with intrasexual competition (Harris, Dunn, & Alwyn, 2017).

Methods

Participants. To determine our target sample size, we conducted an a priori power analysis using G*Power (version 3.1.9.2). Assuming an anticipated effect size consistent with Study 1 and a standard alpha level of .05, a minimum of 172 participants would be required to have 95% power in our planned analyses. We aimed to recruit upwards of 400 participants to ensure higher levels of statistical power. A total of 402 UK participants ($M_{\text{age}} = 34.91$ years, $SD = 11.65$; 49.5% male) completed the online questionnaire advertised through the crowdsourcing website *Prolific*. Inclusion criteria suggested that participants should be fluent in English, aged 18 years or over, and heterosexual. Using *Prolific* user-specific identification codes, we were able to automatically exclude respondents of Study 1 from taking part in Study 2; thus avoiding potential biases created by priming or repeating the experiment. Participants provided written informed consent in accordance with approved central university research protocols and national ethical guidelines by ticking a box on both the first and last pages of our online survey. All completers were reimbursed with £0.60 for their participation.

Materials

Materials were the same as those outlined in Study 1, save for the inclusion of an extra manipulation of attractiveness was included. Reliability coefficients for this sample were as follows: SIC (Cronbach's $\alpha = .90$), RPJ (Cronbach's $\alpha = .79$), QCAE (Cronbach's $\alpha = .88$), and ICU (Cronbach's $\alpha = .82$).

Attractiveness manipulation. This study made use of four images that were presented alongside police reports about an alleged revenge pornography offence. These four images represented two males (one attractive, one unattractive) and two females (one attractive, one unattractive). These images were taken from the picture set used by Thomas and Stewart-Williams (2018) and were in turn taken from the online site HotOrNot.com. We matched the attractive and unattractive images within each sex as closely as possible with reference to age and general appearance, and used Thomas and Stewart-Williams' (2018) participant ratings to classify them into attractiveness level categories. However, we also asked our own participants to rate the attractiveness of each image using a 1 ("very unattractive") to 10 ("very attractive") scale. Our own participants judged each attractive image as more attractive than the unattractive image of the same sex, male: $M_{\text{diff}} = 2.88$, $t(401) = 26.35$, $p < .001$, 95% CI [2.66, 3.09]; female: $M_{\text{diff}} = 3.11$, $t(401) = 30.01$, $p < .001$, 95% CI [2.90, 3.31].

Procedure

The procedure for this study mirrored that of Study 1. On average, the study took less than 10 minutes to complete, and this procedure was approved by an institutional ethical review panel prior to data collection.

Analysis plan

In instances of missing data ($N = 7$), the sample mean was calculated. Assumptions were assessed (see supplementary material for more information). Pearson correlations were computed between the focal predictor (intersexual competition), the dependent variable (judgements of revenge pornography), the moderator variables (sex of the victim, victim attractiveness), and covariates (callous-unemotional traits, empathy, self-reported victimization) in relation to the whole sample, as well as within each sex. We then used

Model 3 of the PROCESS plugin for SPSS (version 3; Hayes, 2018) to run two moderated moderation models (one each for male and female responders). Moderated regression trends are presented in Figures 2-4.

Results

Sex differences. Means and standard deviations for questionnaire data are reported in Table 5. Independent *t*-tests were used to delineate sex differences within our sample. Males reported greater levels of intrasexual competition ($t(400) = 2.73, p = .006, d = 0.27$) and CU traits ($t(400) = 5.16, p < .001, d = 0.52$) than females, and also reported lower levels of empathy ($t(400) = -4.23, p < .001, d = -0.42$), more lenient judgements to the perpetrators of revenge pornography offences ($t(400) = 3.44, p = .001, d = 0.34$), and less incidence of being a victim of revenge pornography ($t(400) = -2.87, p = .006, d = -0.24$). There were no significant differences in age ($t(400) = -.91, p = .365, d = -0.09$) between males and females.

[Insert Table 5 Around Here]

Correlation analysis. We computed bivariate Pearson correlations between predictor, dependent, and moderator variables, as well as covariates (see Table 6). Intrasexual competition was positively associated with more lenient judgements of revenge pornography and CU traits in the whole sample, as well as males and females independently. Further, intrasexual competition was negatively associated with empathy in the whole sample and the female subsample. More lenient judgements of revenge pornography were associated with lower empathy in the whole sample and female subsample, and were also associated with higher levels of CU traits in the whole sample as well as males and females independently.

Empathy was negatively associated with CU in the whole sample and male and female subsamples.

[Insert Table 6 Around Here]

Moderation analyses. Two moderated moderation analyses were conducted. Each analysis mirrored those described in Study 1, save for the implementation of perceived attractiveness of the victim (Z) as a second moderator variable. Again, the variables of empathy, CU traits, and self-reported victimization were controlled for. Model coefficients are presented in Tables 7 and 8.

[Insert Figure 2 Around Here]

Model one: Male responders. The moderated moderation model for male responders accounted for 8.6% of the variance in judgements of revenge pornography. As indicated in Table 7, although intrasexual competition was positively associated with lenient judgements,, the overall model was not statistically significant, $F(10, 188) = 1.77, p = .068$. There were no statistically significant interactions between intrasexual competition, victim sex, perceived victim attractiveness, or judgements of revenge pornography. No covariates were statistically significant.

[Insert Table 7 Around Here]

[Insert Figure 3 Around Here]

Model two: Female responders. The moderated moderation model for female responders accounted for 11.2% of the variance in judgements of revenge pornography, and was statistically significant, $F(10, 192) = 2.43, p = .010$. As indicated in Table 8, an increase in intrasexual competition was positively associated with lenient judgements. Similarly, when the victim was male, this was associated with more lenient judgements. Further, there was a significant interaction between intrasexual competition and victim sex, such that females who scored high in intrasexual competition showed more lenient judgements when the victim was male. There were neither significant interactions between victim attractiveness and intrasexual competition or victim sex, nor a significant three-way interaction, indicating a lack of moderation of the association between intrasexual competition and revenge pornography judgements by perceived attractiveness of the victim. No covariates were statistically significant.

[Insert Table 8 Around Here]

[Insert Figure 4 Around Here]

General Discussion

Overview of Key Findings

Throughout two independently-sampled studies, we report a positive association between intrasexual competition and more lenient judgements of revenge pornography. However, when sex was considered as a moderator of this association, we observed the unexpected trend of higher levels of intrasexual competition being associated with more lenient judgements made by female participants about revenge pornography offences involving male, but not female, victims. This directly opposes our hypothesis that higher

levels of intrasexual competition would predict more lenient judgements of revenge pornography offences involving *same-sex* victims, either generally (Study 1) or when levels of attractiveness were manipulated (Study 2).

The concept of intrasexual competition has roots in evolutionary biology, and in the context of revenge pornography may manifest in an increased likelihood to share (or endorse the sharing of) sexually-explicit images of another. On average, positive associations between intrasexual competition and more lenient judgements of revenge pornography observed for men and women in these studies add weight to this claim, with this mechanism likened to the mating strategies of competitor derogation and manipulation highlighted in Fisher and Cox (2011). Moreover, we anticipated higher reports of intrasexual competition to associate with harsher views of same-sex victims (and so more lenient views of the offence itself) as a function of the distribution of the victim's most intimate images reducing their value as a rival mate (Buss et al., 2017). Of particular interest is that this finding was evident in female, but not male participants. Fisher and Cox (2011) suggest that mating strategies such as competitor derogation and mate manipulation (e.g., so called 'slut shaming') are more common among women than men, with women being readily willing to harm the reputation of other women whom they perceive as a threat to their relationship (Reynolds et al., 2018). As such, it is surprising to find that women reported more lenient judgements of revenge pornography offences involving male, not female victims in the current study, and that no interaction with attractiveness (indicative of a social threat) was found.

Secondary findings (correlations) of these investigations suggest associations between more lenient judgements of revenge pornography offences and both higher levels of CU traits and lower levels of empathy. CU traits were also negatively associated with empathy (see also Hodsoll, Lavie, & Viding, 2014). Such results go some way to support previous findings of associations between CU-related traits and/or empathy and variation in the frequency of,

and willingness to engage in cyber-related deviancy, and the non-consensual dissemination of intimate text messages (Clancy et al., 2019; Doane et al., 2014; Goodboy & Martin, 2015; March et al., 2017; Steffgen et al., 2011; Wright et al., 2018). Moreover, psychopathic traits more specifically, have been associated with an increased likelihood to engage in acts of revenge following the breakdown of a relationship (Rasmussen & Boom, 2014). As such, the findings of the current study support the view that a reduced ability to resonate with (or a callous-disregard for) the feelings and emotions of the victims are associated with more lenient judgements of revenge pornography offences.

Interpretation of Findings

In this section, we offer potential explanations as to why (a) the significant bivariate correlations between intrasexual competition and more lenient judgements of revenge pornography were not observed within the moderation models, and (b) the unexpected trends of higher intrasexually-competitive women reporting more lenient judgements for male, but not female, victims. The most parsimonious explanation for this first point is that the addition of the covariates (CU traits, empathy, and victimization) may account for a substantial proportion of the variance explained within the relationship between intrasexual competition and revenge pornography judgements. This explanation is partially supported by empathy and CU traits being significant in the second moderation model (female respondents) reported in Study 1, however these covariates do not reach statistical significance in any other model reported.

A second explanation could be that the measure of intrasexual competition (the SIC; Buunk & Fisher, 2009) may share variance with other unobserved constructs. That is, we did not see the expected effects of higher levels of intrasexual competition predicting more lenient judgements of revenge pornography offences involving same-sex victims, either

577 generally (Study 1) or when we manipulated attractiveness levels (Study 2). Instead, we
578 observed the unexpected trend of higher intrasexual competition levels being associated with
579 more lenient judgements made by female participants about offences with male victims. This
580 is at-odds with established thinking about sexual victimization, and particularly about the
581 alleged societal acceptance of revenge pornography. That is, feminist writers commonly refer
582 to sexual offending (and lenient judgements thereof) as being motivated by the patriarchal
583 desire of men to be socially-dominant over women (Brownmiller, 1975; for a review of this
584 argument specifically in relation to revenge pornography, see McGlynn et al., 2017). Some
585 readers may interpret our findings as being reflective of intrasexual competition among
586 women leading to victim blaming of males. We do not think that this would be appropriate,
587 and this would not necessarily be in line with established theories of wider sexual offending,
588 such as contact offences or viewing child pornography (e.g., Finkelhor, 1984; Seto, 2019;
589 Ward & Siebert, 2002). Although not specific to revenge pornography, these models cite
590 sexual arousal (or a desire for sexual gratification) as a key motivating factor for sexual
591 offending. We see intrasexual competition among females as reflective of this, possibly due
592 to its co-occurrence with sexual promiscuity or a sociosexual orientation that is inclined
593 toward short-term mating (Buunk & Fisher, 2009). Applying these relationships directly to
594 our data, we may see female participants scoring high on the SIC being more lenient about
595 cases involving male victims due to an increased desire to have potential access to their
596 sexualized images. However, this explanation has two key limitations. First, if this were the
597 case, we would expect to see comparable results for males. Second, promiscuity and
598 sociosexual orientation were only weakly correlated with intrasexual competition in Buunk
599 and Fisher (2009). Of interest and subsequent to our data collection, a recent alternative to the
600 SIC – the Intrasexual Rivalry Scale – has been proposed (Karimi-Malekabadi, Ghanbarian,
601 Afhami, & Chegeni, 2019). This scale reports a two-factor structure of intrasexual

competition (self-promotion and rival-derogation), and aids to overcome perceived limitations of the SIC through systematically developing items that are valid across both Western and non-Western countries.

In contrast, recent research has linked intrasexual competition among women with an increased propensity to take sexually-explicit images of themselves (Blake, Bastian, Denson, Grosjean, & Brooks, 2018). That is, using population data it was reported how posting rates of self-produced sexual images were not associated with city- or county-level indices of gender inequality, but rather were related to income inequality. Specifically, Blake et al. (2018) suggest a disproportionate share of the wealth in favour of males incentivizes women to sexualize themselves as a means of competing with their rivals to attract high-income men. Applying this to the present work, we might hypothesize that those females scoring higher on intrasexual competition in our sample may also have a higher propensity to take, post, or share sexual ‘selfies’. If this is the case, then it becomes feasible that lower leniency (or more punitive) judgements made by these participants for cases involving female victims in Study 1 might stem from an affinity with those victims.

A final possible explanation is based around the assumption that women who are higher in intrasexual competition (and as such are higher in sociosexuality and short-term mating tendencies) will more frequently interact with men pursuing similar strategies. Such men are more likely to be directly aggressive (Cross, 2010) and sexually coercive (Westerlund et al., 2010), and express greater rape myth acceptance (Yost & Zurbriggen, 2006). As such, these women may be being harsher toward male victims so that they are less likely to encounter these men in a dating context, whereby they are at greater risk of sexual violence than men (Bullock & Beckson, 2011). This explanation helps to account for the sex differences observed in this investigation¹.

¹ The authors would like to thank an anonymous reviewer for suggesting this likely explanation.

Of interest, is a discrepancy between the absence of direct effects between intrasexual competition and judgements of revenge pornography (as a function of sex) in study 1, and prominent effects being observed in study 2. This disparity is neither fully explained by a larger sample size in the second study, nor by said effects being masked by the interaction with victim sex (as this does not explain the finding in males, where the interaction was not significant). The only other methodological alteration between the two studies, and so a likely target for future investigation, is the use of images to accompany the vignette and/or the framing of these vignettes in the style of a police report. It is possible that this method, used to operationalise our research design, helped to elicit this novel finding; possibly as a mechanism of increasing the perceived validity of the task.

Limitations and Future Direction

First, while findings of this investigation were replicated across two, independent samples, both samples were derived from the UK. Although this research is contextualized within wider recent legislation developments pertaining to revenge pornography across the Western world and so likely has international impact, the authors acknowledge cross-cultural variation in values and social norms and so there is likely value in international replication of these findings. Second, interpretation of our findings suggests a currently unmeasured overlap between intrasexual competition and other personality traits (e.g., sexual promiscuity). As such, future investigation should seek to evaluate this theory, using a similar methodological approach to that reported here. Third, the vignettes used throughout this investigation implied that the act of revenge pornography was facilitated by infidelity in the relationship. It is possible that this might have played some role in the responses of participants who have cheated, or have been cheated on in the past. Future investigations using this method should seek to control for this variation. Fourth, in the context of existing

research suggesting that both intrasexual competition (Massar, Buunk, & Rempt, 2012) and receiving sexual images (Garcia et al., 2016) is most prevalent in younger adults, it is possible that the samples reported here may respond differently from other age groups. As such this area of research is an ideal candidate for future replications. Finally, and in fitting with the movement to recognize the use of revenge pornography as just one point in the continuum of image-based sexual abuse (McGlynn et al., 2017), it is essential to extend these findings to judgements of other related offences such as upskirting, the production of deep-fake pornography, and cyber flashing. Upskirting involves taking images of the pubic area of another underneath their outer clothing, deep-fake pornography involves digitally manipulating an individual's image in a sexualized manner, and cyber flashing uses Bluetooth technology to send sexually inappropriate images to non-consenting strangers. By undertaking replication and extension studies such as these, it may be possible to examine whether the effects observed in the present study are limited to 'revenge pornography' offending, or if they apply across McGlynn et al.'s (2017) hypothesized continuum of image-based sexual abuse.

Conclusion

To our knowledge, the present study is the first to test the idea that intrasexual competition may be implicated in social judgements of revenge pornography offences. We found differential effects of this construct in judgements as a function of both participant and victim sex. That is, intrasexual competition played little role in the judgements made by male participants. However, female participants high on intrasexual competition were more lenient about cases involving male victims, and harsher about cases wherein the victim was female. These data highlight a nuanced role of intrasexual competition in the judgement of a sexual offence linked to a proclivity to self-produce and distribute intimate images, with the precise

676 mechanisms underpinning these associations being potentially fruitful areas of further
677 research. We encourage psychological scientists to study the topic of image-based sexual
678 violence (and judgements thereof) in a more empirical manner that is consistent with the
679 broader literature on the sexual motivations of this type offending behavior.

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Table 1. Descriptive statistics for male and female questionnaire scores (Study 1).

	Males	Females	<i>p</i>
	M (SD)	M (SD)	
Age	36.59 (13.80)	36.06 (11.74)	.747
SIC	2.87 (1.13)	2.19 (.94)	< .001
Revenge Pornography Judgements	2.96 (1.14)	2.57 (1.13)	.009
QCAE	86.48 (10.66)	93.88 (10.58)	< .001
ICU	22.94 (7.97)	18.07 (8.11)	< .001
Victimization	1.7%	.8%	.558

Note. SIC = Scale of Intrasexual Competition, QCAE = Questionnaire of Cognitive and Affective Empathy, ICU = Inventory of Callous-unemotional Traits.

Victimization scored by 1 = Yes, 2 = No.

Table 2. Pearson correlations between variables for the whole sample, as well as within males and females (Study 1).

	Whole Sample						Males (<i>n</i> = 121) and Females (<i>n</i> = 120)					
	1	2	3	4	5	6	1	2	3	4	5	6
[1] SIC	-	.143*	.008	-.063	-.167**	.302***	-	.074	-.003	-.116	-.055	.247**
[2] JRP		-	.181**	-.019	-.281***	.331***	.124	-	.247**	-.098	-.176	.251**
[3] Victim Sex			-	.038	.117	.006	.026	.121	-	.130	.039	.045
[4] Victimization				-	.069	-.105	.051	.108	-.091	-	.079	-.231*
[5] QCAE					-	-.499***	-.090	-.311**	.205*	.034	-	-.443***
[6] ICU						-	.219*	.346***	-.030	.080	-.450***	-

Note. SIC = Scale of Intrasexual Competition, JRP = Judgements of Revenge Pornography, QCAE = Questionnaire of Cognitive and Affective Empathy, ICU = Inventory of Callous-unemotional Traits. * $p < .05$, ** $p < .01$, *** $p < .001$. Male correlations above the diagonal, female correlations below the diagonal.

Table 3. Moderation coefficients for male responders (Study 1).

	<i>B</i> (SE)	<i>t</i>	<i>p</i>	95% CI (<i>B</i>)
SIC	.01 (.09)	.01	.92	[-.17, .19]
Victim Sex	.58 (.20)	2.87	.005	[.18, .97]
SIC × Victim Sex	-.14 (.18)	-.79	.43	[-.50, .22]
†QCAE	-.01 (.01)	-1.09	.28	[-.03, .01]
†ICU	.02 (.01)	1.52	.13	[-.01, .05]
†Victimization	-.68 (.81)	-.84	.40	[-2.28, .92]

Note. SIC = Scale of Intrasexual Competition, QCAE = Questionnaire of Cognitive and Affective Empathy, ICU = Inventory of Callous-unemotional Traits. Victim Sex (Males = 1, Females = 2). † indicates covariates.

Table 4. Moderation coefficients for female responders (Study 1).

	<i>B</i> (SE)	<i>t</i>	<i>p</i>	95% CI (<i>B</i>)
SIC	.03 (.10)	.24	.81	[-2.65, 6.20]
Victim Sex	.41 (.19)	2.15	.03	[.03, .79]
SIC × Victim Sex	.38 (.21)	1.85	.07	[-.03, .79]
†QCAE	-.03 (.01)	-2.44	.02	[-.05, -.00]
†ICU	.03 (.01)	2.13	.03	[.002, .05]
†Victimization	1.32 (1.04)	1.26	.21	[-.75, 3.38]

Note. SIC = Scale of Intrasexual Competition, QCAE = Questionnaire of Cognitive and Affective Empathy, ICU = Inventory of Callous-unemotional Traits. Victim Sex (Males = 1, Females = 2). † indicates covariates.

Table 5. Descriptive statistics for male and female questionnaire scores (Study 2).

	Males M (SD)	Females M (SD)	<i>p</i>
Age	34.38 (12.14)	35.44 (11.25)	.365
SIC	2.72 (1.06)	2.42 (1.09)	< .001
Revenge Pornography Judgements	3.08 (1.02)	2.73 (1.04)	.001
QCAE	86.38 (11.26)	90.87 (9.99)	< .001
ICU	35.37 (7.80)	31.28 (8.08)	< .001
Victimization	1.5%	7.4%	.006

Note. SIC = Scale of Intrasexual Competition, QCAE = Questionnaire of Cognitive and Affective Empathy, ICU = Inventory of Callous-unemotional Traits.

Victimization scored by 1 = Yes, 2 = No.

Table 6. Pearson correlations between variables for the whole sample, as well as within males and females (Study 2).

	Whole Sample						Males ($n = 199$) and Females ($n = 203$)					
	1	2	3	4	5	6	1	2	3	4	5	6
[1] SIC	-	.206***	-.016	-.083	-.120*	.225***	-	.208**	-.089	-.111	-.038	.184**
[2] JRP		-	-.090	.085	-.162***	.214***	.168*	-	-.075	.005	-.110	.201**
[3] Victim Sex			-	.048	.022	-.005	.055	-.105	-	.041	.110	-.082
[4] Victimization				-	-.064	.012	-.111	.093	.058	-	-.010	.048
[5] QCAE					-	-.522***	-.156*	-.155*	-.076	-.053	-	-.489***
[6] ICU						-	.212**	.161*	.071	-.058	-.507***	-

Note. SIC = Scale of Intrasexual Competition, JRP = Judgements of Revenge Pornography, QCAE = Questionnaire of Cognitive and Affective Empathy, ICU = Inventory of Callous-unemotional Traits. * $p < .05$, ** $p < .01$, *** $p < .001$. Male correlations above the diagonal, female correlations below the diagonal.

Table 7. Moderated moderation coefficients for male responders model

	<i>B</i> (SE)	<i>t</i>	<i>p</i>	95% CI (<i>B</i>)
SIC	.17 (.07)	2.32	.02	[.03, .32]
Victim Sex	.09 (.07)	.65	.52	[-.19, .38]
Attractiveness	.11 (.14)	.80	.43	[-.17, .40]
SIC × Victim Sex	.10 (.14)	.65	.52	[-.19, .38]
SIC × Attractiveness	-.01 (.15)	-.09	.93	[-.30, .27]
Victim Sex × Attractiveness	.33 (.29)	1.16	.25	[-.23, .90]
SIC × Victim Sex × Attractiveness	-.08 (.29)	-.28	.78	[-.65, .49]
†QCAE	-.00 (.01)	-.18	.86	[-.02, .01]
†ICU	.02 (.01)	1.93	.06	[-.001, .04]
†Victimization	.09 (.60)	.14	.89	[-1.10, 1.27]

Note. SIC = Scale of Intrasexual Competition, QCAE = Questionnaire of Cognitive and Affective Empathy, ICU = Inventory of Callous-unemotional Traits. Victim Sex (Males = 1, Females = 2). † indicates covariates.

Table 8. Moderated moderation coefficients for female responders model

	<i>B</i> (SE)	<i>t</i>	<i>p</i>	95% CI (<i>B</i>)
SIC	.15 (.07)	2.19	.03	[.01, .28]
Victim Sex	.28 (.14)	1.98	.05	[.001, .56]
Attractiveness	-.06 (.14)	-.41	.68	[-.34, .22]
SIC × Victim Sex	.26 (.13)	1.97	.05	[.001, .56]
SIC × Attractiveness	.18 (.13)	1.40	.16	[-.08, .44]
Victim Sex × Attractiveness	.10 (.28)	.35	.73	[-.46, .66]
SIC × Victim Sex × Attractiveness	-.21 (.26)	-.80	.42	[-.73, .31]
†QCAE	-.01 (.01)	-.88	.38	[-.02, .01]
†ICU	.01 (.01)	1.40	.16	[-.01, .04]
†Victimization	.45 (.28)	1.65	.10	[-.09, 1.00]

Note. SIC = Scale of Intrasexual Competition, QCAE = Questionnaire of Cognitive and Affective Empathy, ICU = Inventory of Callous-unemotional Traits. Victim Sex (Males = 1, Females = 2). † indicates covariates.

Figure 1. Effects of intrasexual competition on judgements of revenge pornography offences (Study 1).

Figure 2. Effects of intrasexual competition on judgements of revenge pornography offences (Study 2).

Figure 3. Effects of intrasexual competition on judgements of revenge pornography offences made by male participants, by victim attractiveness.

Figure 4. Effects of intrasexual competition on judgements of revenge pornography offences made by female participants, by victim attractiveness.