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# <The Effect of Sexual Frustration on Sexual Aggression and the Gender Differences in the Relationship>

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**Abstract**

In light of the prevalence of sexual aggression, coupled with the cohort of implications for the victim, precipitating factors have been studied extensively. While frustration has been well-established in existing research as a motivating factor for aggression, research has not yet studied the relationship between sexual frustration and sexual aggression. Therefore, this study set out to determine if, in line with the frustration-aggression relationship, sexual frustration would also lead to sexual aggression. In a contemporary approach, both genders were studied simultaneously, and gender differences were explored. Our sample of 116 participants (ages 18-42) was divided into two conditions, namely satiation (masturbation until climax), and frustration (masturbation but not climax was not permitted). Both conditions were asked to watch a sexually explicit video while participating in their assigned condition. Sexual aggression was measured using the Tactics to Obtain Sex Scale, which required participants to rate their likelihood of using sexually coercive methods to obtain sex in a hypothetical situation. A two-way ANOVA of each condition split across gender was conducted. The result indicated that there was no main effect found across the two conditions; thus, sexually frustrated individuals were not more likely to implement sexually aggressive tactics than their satiated counterparts. Moreover, we found no evidence to suggest that men and women differ in their likelihood of implementing sexually aggressive behaviours when sexually frustrated. Despite finding no significant results, this study was successful in creating a preliminary design for studying the effect of sexual frustration on sexual aggression across gender in an experimental context.

*Keywords:* sexual frustration, sexual aggression, frustration-aggression hypothesis, gender differences

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### **The Effect of Sexual Frustration on Sexual Aggression Across Gender**

Sexual aggression can be defined as the use of force or coercion by an individual to obtain non-consensual sexual activity from another (Davis et al., 2021). Recent statistics suggest high frequencies of incidents of sexual aggression disproportionately affecting females. One study found that 43.6% of women in the United States have reported some form of sexual violence perpetrated against them (Walters et al., 2012). Moreover, acts of sexual aggression are associated with a wide array of health and mental health issues in the victims, including depression, substance abuse, post-traumatic stress disorder (PTSD), and sexually transmitted diseases (STDs) (Trickett et al., 2011). In light of the prevalence of sexual aggression, coupled with the cohort of implications for the victim, it is important for research to understand which factors may lead to sexual aggression to fuel prevention and intervention methods.

As frustration has been inextricably linked to aggression in past research (Dollard et al., 1939; Breuer & Elson, 2017; Lankford, 2021), the goal of this study was to expand on the established frustration-aggression relationship to determine if it is present when exploring the effect of sexual frustration on sexual aggression. Moreover, this study endeavoured to explore whether gender differences were present in this relationship.

### **The Frustration Aggression Relationship**

Aggression has been studied extensively in past research (Liu et al., 2012), as has the postulation that frustration leads to aggression (Dollard et al., 1939). Indeed, more recent studies support the notion that frustration increases the tendency to act or react aggressively (Breuer & Elson, 2017). For example, frustration resulting from an individual's sports team losing a game was found to increase violent behaviour (Munyo & Rossi, 2013). Moreover, frustration resulting from economic hardship and competition was found to lead to an increase in hate crime (Green

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et al., 1998). Economic frustration has also been associated with increased rates of sexual assault (DeFronzo, 1992). It can therefore be concluded that the frustration-aggression relationship has been well established across the literature.

### **The Relationship Between Sexual Frustration and Sexual Aggression**

Past research has also found that frustration from deprivation, such as hunger and lack of sleep, can lead to aggression. Notably, once hunger and sleep needs had been satiated, frustration was no longer present, and the risk of aggression was reduced (Gailliot, 2013; Kamphuis et al., 2012). In line with these findings, a literature review found that sexual frustration resulting from sexual deprivation may also lead to aggression. On the contrary, the review also found that sexual frustration is not necessarily satiated through sex as, for example, hunger is by eating (Lankford, 2021). Consequently, it was concluded that the sexual frustration derived from sexual deprivation might have a more complex relationship to aggression than that of other needs. This complexity is evident in the definition of sexual frustration; ‘the state where one experiences stress or tension caused by prolonged sexual inactivity or unsatisfied sexual pleasure’ (Stuger, 2011). Ergo, individuals may experience sexual frustration from not only sexual deprivation but also sexual dissatisfaction.

### ***Orgasmic Difficulties: Sexual Dissatisfaction and Sexual Aggression***

In addition to the proposed relationship between sexual frustration and sexual dissatisfaction, sexual dissatisfaction has been found to also be related to aggression. Accordingly, research has suggested that aggression can arise when individuals do not experience the sexual pleasure they anticipated from goal fulfilment (Maslow, 1941). Goal fulfilment may be achieved through the feeling of sexual satisfaction (satiating) after sex. For

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instance, it was found that sexual release through orgasm decreased sexual frustration and increased feelings of sexual satisfaction (Kanin, 1967). However, this process can be interrupted; for example, sexual dysfunction can result in an inability to reach orgasm during sex (Wincze, 2009) and thus, feelings of satiation, and therefore goal fulfilment, may not be achieved. Notably, sexual dysfunctions can be categorised according to the stages of sexual activity they occur, such as desire, excitement, and orgasm (de Jong et al., 2013). The sexual dysfunctions described in this paper refer to dysfunctions of orgasm, for example, female orgasmic disorder, male orgasmic disorder, and premature ejaculation. Generally, orgasmic difficulties are defined by the DSM-5 (American Psychiatric Association, 2013) as a marked delay, infrequency, or absence of orgasm occurring 75%-100% of occasions of sexual activity.

Qualitative research has found that both men and women experience frustration as a result of their orgasmic difficulties (Pontin et al., 2002). A relationship between orgasmic difficulties and sexual aggression has also been established in research. For example, a significant number of sex offenders report experiencing sexual dysfunction (Jespersen et al., 2009). Similarly, male college students who reported sexual aggression against women experienced more erectile and orgasmic difficulties than their peers (Carvalho et al., 2013). This study will expand on previous findings to further explore the presence of a relationship between sexual frustration, resulting from sexual dysfunction, and sexual aggression. The Tactics to Obtain Sex Scale (TOSS) was used to determine sexual aggression, specifically, how likely individuals are to use sexually aggressive tactics to obtain sex in a hypothetical situation (Camilleri et al., 2008).

### **The Effect of Gender**

#### *Sexually Aggressive Women*

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The majority of research into sexual aggression has focused on men as the perpetrators and women as the victims. This can be exemplified through instruments, such as the Sexual Experience Survey (SES), in which men were asked about their perpetration of sexual aggression, and women were asked about being victims of sexual aggression (Koss & Oros, 1987). In a self-fulfilling cycle, this perspective has led to a lack of studies on sexually aggressive women. In turn, this bias has polarised the view that women are victims and men are perpetrators of sexual aggression (Anderson & Struckman-Johnson, 1998, p.79). In one of the first studies to consider this perspective, Story (1986) found a higher level of male sexual abuse victims as a result of female sexual aggression than previously assumed: approximately 10% of her female sample reported having forced sexual intimacy on a male partner, and, of that 10%, 3.9% had forced sexual intercourse. In addition, Struckman-Johnson et al. (2003) found that 16% of men reported that they had also been pressured or forced to have sexual contact, the majority by a known female. It can therefore be determined that sexual aggression in women is prevalent.

### *Sexual Frustration and Sexual Aggression in Women*

One recent study exploring sexual aggression in women aimed to investigate what motivates such behaviours. The study found that, similar to men, sexual frustration may motivate women to act in a more aggressive way (Lanford, 2021). Nevertheless, little is still known about what motivates *sexually* aggressive behaviour in women. Moreover, to our knowledge, the relationship between sexual frustration and sexual aggression in females has not been established in the existing literature. Therefore, in this study, we set out to determine if the relationship between sexual frustration and sexual aggression exists in a female sample in addition to a male one.

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However, this study hypothesises that the relationship between sexual frustration and sexual aggression will be more apparent in men than women. A reason for this is that the majority of sexual assaults are still reportedly committed by men (Breiding et al., 2014; Fisher et al., 2010). For example, a recent study using a sample of male university students found that 35% of their participants reported having used sexually aggressive strategies to engage in sexual relations (Moreira et al., 2021). Therefore, the prevalence of sexual aggression is higher when looking at male samples than female samples (Story, 1986; Struckman-Johnson et al., 2003). Notably, more research into sexual aggression will have to be conducted on female samples to determine if this is indeed the case.

### **The Role of Sexual Arousal**

When considering both sexual frustration and sexual aggression, arousal appears to be an important confounding variable. Sexual arousal is a positive emotion that arises as a result of sexual stimulation, such as through masturbation (Goodson et al., 2000). It is associated with suboptimal decision-making (Oaten et al., 2019) and lack of inhibition (Lagerspetz & Hautojärvi, 1967). Therefore, it is not surprising that sexual arousal has been found to be related to sexual aggression. Accordingly, Jaffe et al. (1974) found that sexually aroused individuals chose to deliver higher degrees of electric shock than non-aroused participants. This relationship was found in both male and female samples. Predictable, this finding could be explained by the fact that participants were exposed to sexually arousing stimuli without having the opportunity to engage in behaviours that could provide a sexual release (e.g., masturbation and orgasm). Thus, frustration may have arisen as a result of sexual dissatisfaction (Stuger, 2011), resulting in aggressive behaviours. Indeed, sexual arousal has been predicted to lead to sexual frustration if the opportunity to gratify sexual arousal is not met, for example, by preventing orgasm (Jaffe et

EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER al., 1974). The current study implemented a similar technique to arouse sexual frustration by asking participants to engage in masturbation while watching a sexually explicit video while not permitting them to orgasm. A potential risk was that this study's design might affect the participants' level of sexual arousal. If sexual arousal decreases, so may the participants' feelings of sexual frustration during the interruptions (Jaffe et al., 1974); therefore, sexual aggression may not be induced (Lankford, 2021). Thus, making sexual arousal a potential confounding factor. As a result participants level of sexual arousal was recorded during this study.

Notably, a discrepancy in the research can be found as arousal does not decrease post-orgasm in females as much as it does in males (Paterson et al., 2014). With this in mind, one would assume that because of the connection between sexual arousal and sexual aggression, women would be more likely to act in a sexually aggressive manner as a result of their maintained sexual arousal. However, this is generally found not to be the case (Breiding et al., 2014; Fisher et al., 2010). Partly, this discrepancy can be explained through biological mechanisms; namely, when female mice were injected with the male sex hormone testosterone, which plays a role in sexual arousal and aggression, they acted more aggressively (Edwards, 1971). Resultantly, this adds to our hypothesis that men would demonstrate more sexually aggressive behaviours when aroused and frustrated than women.

## **Conclusion**

To determine whether a relationship between sexual frustration and sexual aggression is present and to explore this potential relationship across gender, an experimental manipulation was used. This study design is novel as, to our knowledge, this has only been investigated using self-report methods. Furthermore, this study casts a modern light on pre-existing research in this field; it addressed a gender imbalance that prevails in this field of research by including female



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participants to explore the role that sexual frustration, satiation and arousal play in sexual aggression. We aimed to achieve this by creating two different conditions, one in which participants were instructed to orgasm and one in which a state of sexual frustration was induced, thus simulating orgasmic difficulties.

More specifically, the following hypotheses were explored: (H1) males are more likely to endorse sexually aggressive behaviours when sexually frustrated; (H2) females are also more likely to endorse sexually aggressive behaviours when sexually frustrated; (H2b) the frustration-aggression relationship is lower in females than in males.

### **Method**

Ethics approval was obtained from the Ethics Committee of the Faculty of Behavioural and Social Sciences of the University of Groningen (PSY-2122-S-0125 ‘Emotions and Sexual Behaviour’) in February 2022.

### **Participants**

Using G\*Power (Faul et al., 2009), an a-priori power analysis was conducted at a significance level of  $\alpha = 0.05$ . This was conducted to determine the number of participants required to obtain an acceptable statistical power of .80 ( $N = 128$ :  $n_{\text{Frustration}} = 64$ ;  $n_{\text{Satiation}} = 64$ ) within a Two-Way Analysis of Variance (ANOVA) with four conditions. A medium effect size of Cohen’s  $f^2 = 0.25$  was used. To account for non-adherence to the frustration condition (masturbation but not to orgasm) due to increased sexual arousal leading to behavioural inhibition, for example, the lack of inhibition to avoid orgasm (Nowosielski et al., 2020) twice as many participants were recruited for this condition ( $N_{\text{Adj}} = 192$ :  $n_{\text{Satiation}} = 64$   $n_{\text{FrustrationAdj}} = 128$ ). See Table A1 in Appendix A for the mean and standard deviation of the sample characteristics, namely age, sexuality, and orgasmic difficulties.

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An original sample of 299 participants was recruited using Sona, the first-year psychology student participation pool of the University of Groningen. Additionally, a poster was shared via social media (e.g. Instagram and WhatsApp). For those participating through Sona, 1.0 credit was offered as compensation. After 181 participants were excluded, we were left with a sample of 116 participants.<sup>1</sup> Consequently, the subsequent analyses were conducted with a power of .76.

The sample consisted of heterosexual (homosexual = 0, heterosexual = 100) ( $M = 87.28$ ,  $SD = 15.09$ ) men ( $n = 49$ , 40.5%) and women ( $n = 69$ , 59.5%) aged between 18 and 43 ( $M = 21.14$ ,  $SD = 3.63$ ) who were then randomly divided into two conditions. Table 2 depicts the frequency of each gender in each condition.

**Table 2***Frequency Table for Gender and Condition*

| Gender | Condition |             | Total |
|--------|-----------|-------------|-------|
|        | Satiation | frustration |       |
| Male   | 15        | 32          | 47    |
| Female | 20        | 49          | 69    |
| Total  | 35        | 81          | 116   |

<sup>1</sup> Participants were excluded if they did not complete the experiment, did not identify as primarily heterosexual, did not adhere to the experimental manipulation, if they completed the study in an unrealistically short time (< 900 s), identified as non-binary (or preferred not to express their gender), or if they left comments expressing concern over the design, the instructions, or the explicit material.

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*Note.* The frequency table indicates the number of female or male participants in each condition.

### **Materials**

#### *Pre-manipulation Questionnaire*

The pre-manipulation questionnaire aimed to obtain demographic data from the participants, such as age (“How old are you?”), Gender (“What is your gender?”), sexual orientation (“What is your sexual orientation?”, where 0 denoted ‘homosexual’ and 100 denoted ‘heterosexual’). The latter part of the pre-manipulation questionnaire aimed to obtain information regarding the participants’ sex-life by asking an intimate question regarding whether they experience any orgasmic difficulties (“Do you experience orgasmic difficulties when engaging in sex?”) (0 = ‘Don’t know/prefer not to say’, 1 = ‘Never’, 2 = ‘Sometimes’, 3 = ‘About half the time’, 4 = ‘Most of the time’, 5 = ‘Always’ ,). The question assesses whether regular orgasmic difficulties, occurring 75% - 100% of occasions of sexual activity (American Psychiatric Association, 2013) are related to increased sexual frustration. Responses were coded into 1= orgasmic difficulties not present (answers coded 1,2, and 3) ( $n = 78$ ), 2 = orgasmic difficulties present (answers coded 4 and 5) ( $n = 29$ ), and 0 = do not know prefer not to say ( $n = 9$ ). A Pearsons correlation between orgasmic difficulties and sexual frustration was obtained, and a one-way ANOVA was conducted to determine if regular orgasmic difficulties lead to sexual frustration.

#### *Post-manipulation Questionnaire*

The first component of the post-manipulation questionnaire was comprised of manipulation check questions to determine if the study design was successful. After watching the video, participants were asked to indicate their level of sexual arousal, disgust, and sexual frustration and to confirm whether or not they orgasmed. Disgust was measured as a control as it

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has been found to have an inhibitory effect on sexual arousal (Andrews et al., 2015; Pawłowska et al., 2020). Therefore, heightened disgust may affect sexual arousal.

To determine their experience of sexual arousal, disgust, and sexual frustration during the video, a slider scale format of the visual analogue scale (Crichton, 2015) was used. Participants could move the slider to the number that they subjectively felt indicated their level of sexual arousal (0 = 'not aroused at all', 100 = 'extremely aroused'), disgust (1 = 'not disgusted at all', 100 = 'very strongly disgusted') and sexual frustration (0 = 'not frustrated at all', 100 = 'extremely frustrated'). The slider scale is considered a statistically sound way of measuring participants' affect and has high validity and reliability (Imbault et al., 2018). Lastly, participants were asked about their adherence to the experimental condition regarding whether they orgasmed or not ('yes', 'no', 'not sure/ prefer not to say'). The questions regarding their sexual frustration levels determine whether the manipulation, namely masturbating to orgasm or masturbating but not to orgasm, had the intended effect. The questions regarding sexual arousal and disgust determined the effectiveness of the video as a facilitator for sexual arousal. Finally, sexual aggression was measured using the Tactics to Obtain Sex Scale (TOSS) (Camilleri et al., 2009) in the last component of the post-manipulation questionnaire.

### ***Video Material***

The video entailed a young couple being intimate with one another. The video showed foreplay, fellatio, the rubbing of genitals and penetration (total length 9 m 42s). A section of the video involving up-close fellatio was edited out by the researchers to make the porn more female-friendly.

By using a standardised video for both genders and for both conditions, we aimed to add an experimental control for sexual arousal to our study (Scarcelli, 2015). Pornographic videos

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have been found to be a facilitator of sexual arousal (Allen et al., 2007). Additionally, sexually explicit material can also be considered disgusting if the individual is not aroused (de Jong et al., 2013), particularly for women (Fleischman et al., 2015). Hence, the use of female-friendly pornography, which has been found to be less disgust-inducing (Scarcelli, 2015). A pilot conducted on the video revealed that it was successful in inducing sexual arousal and only low levels of disgust. However, the video was exclusively piloted on women. This study will, therefore, also act as a second pilot to investigate the effect the video has on sexual arousal and disgust in a male sample. Little research has been conducted on men's responses to female-friendly pornography, although we hypothesised lower levels of sexual arousal than if we used mainstream pornography.

**Interruptions in the Sexually Explicit Video.** The sexually explicit video in the frustration condition was interrupted twice with a reminder that they must not orgasm but must keep on touching themselves. The interruptions happened at 3m20s and 5m49s. Participants were initially asked to masturbate and wait for further instruction to orgasm. They were then provided with a link to access the first part of the video, which opened a new tab in their browser. After the first part of the video ended, participants were directed to go back to the Qualtrics questionnaire tab, where they had to click to the next page to access the second part of the video. At this point, the requirements of the conditions were reiterated. Participants were reminded to masturbate but wait for further instruction to orgasm. The process was repeated with a further interruption which led frustration participants to the third and final video clip.

### **Measures**

#### ***Sexual Aggression Measure***

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The TOSS consisted of 31 Likert scale questions measuring the propensity for sexual coaxing (COAX) and sexual coercion (COERCE) in relationships. COAX tactics tend to be benign, seductive tactics to obtain sex from a reluctant partner ('Softly kiss ears, neck, or face'), while COERCE tactics aim to obtain sex from a reluctant sexual partner using manipulation or force ('Take advantage if partner is already drunk/stoned') (Camilleri et al., 2008). Before engaging in the questionnaire, participants were told to consider a hypothetical sexual situation using a past or potential partner of the opposite sex (see Appendix B). Participants were asked to indicate their likelihood to engage in a specific behaviour on a 5-point scale ranging from 'strongly disagree' to 'strongly agree'. The COAX and COERCE scores explored the participant's sexually aggressive behavioural tendencies. Those who scored high on COERCE items demonstrated a greater affinity toward acting in a sexually aggressive manner; the COERCE subscale consisted of 19 items ( $\alpha = .86$ ), indicating sufficient internal consistency.

### *Mid-experiment Sexual Arousal Rating*

During the interruptions in the sexually explicit video, participants were required to indicate their level of sexual arousal. This determined if the pauses in the video significantly affected their feelings of sexual arousal ('How sexually aroused are you?' denoted on a VAS where 0 = Not aroused at all, 100 = Very strongly aroused).

### *Measure of Satiation*

In this study, satiation was measured indirectly. If participants were allocated to the satiation condition and orgasmed, they were considered to be satiated and were kept in the study. Those who were allocated to the satiation condition but did not orgasm were removed. In total, 20 participants were removed for not adhering to their conditions' requirements: one person did

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not say whether they orgasmed or not; 15 participants did not orgasm in the satiation condition; four were removed from the frustration condition because they orgasmed.

### **Procedure**

The study took place online using Qualtrics (<https://www.qualtrics.com>). Initially, participants were invited to read the study's information form. They were informed that the study would examine how different emotions regularly experienced in the sexual context affect sexual behavioural tendencies. The terms sexual frustration and sexual aggression were intentionally negated from the study's description to circumvent behavioural priming and social desirability bias. Moreover, participants were informed that they would be required to masturbate to a pornographic video and subsequently answer a questionnaire regarding their likelihood of implementing certain sexual behaviours. Participants were asked to carry out the study at a location where they were comfortable and could be alone, preferably in a bedroom. Solitary masturbation in their home would allow for the maintenance of ecological validity while also limiting extraneous variables that would arise if partnered sex were used (e.g., emotional intimacy may differ or the availability of a sexual partner) (Paterson et al., 2014). Participants were then invited to give their informed consent to participate in the study.

The study then consisted of the following elements: Demographic and intimate sex-life questions; assignment to one of two conditions: the frustration condition (masturbate but stop before climax) or the satiation condition (masturbate to climax); manipulation checks; the TOSS questionnaire; and lastly, a debriefing. See Figure 1 in Appendix C for a flow chart of the entire study design.

### ***Allocation to the Frustration or Satiation Condition***

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Prior to viewing the sexually explicit video material, participants were allocated to one of two conditions: the frustration or satiation condition. In the frustration condition, participants were told that they would be watching a pornographic video and that they should masturbate while watching it. They were explicitly told that they should not orgasm unless they received the instruction 'You may orgasm at any point now'. The video for the frustration condition was interrupted twice. This, in turn, was predicted to enhance sexual frustration by delaying gratification and sexual satisfaction (Maslow, 1941; Stuger, 2011). After the video, they were informed that they had not been permitted to orgasm and they were not allowed to touch themselves for the rest of the experiment. The satiation condition also required the participants to masturbate whilst watching the video but were required to orgasm before proceeding with the questionnaire. The video in this condition was not interrupted, thus limiting the sexual frustration they would experience.

After the experimental manipulations had taken place, participants in both conditions were presented with manipulation checks to determine if the video and design were effective and whether they adhered to the experimental conditions. Also, they were asked about their sexual frustration levels to inform us whether the experimental manipulation (masturbate to orgasm or masturbate but not permitted to orgasm) was effective in sexually frustrating those who were not asked to orgasm. Finally, condition adherence was measured by asking whether or not they had orgasmed.

### **Data Analysis**

#### ***Manipulation Checks.***

In order to determine if our video material or study design had the desired effect on participants, three two-way ANOVAs were conducted using the manipulation checks: sexual arousal, sexual



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frustration, and disgust, respectively, as the dependent variable. Gender and condition were used as the fixed factors to explore whether they have an effect on the manipulation checks.

Descriptive statistics (M, SD) were also obtained for the manipulation check items. A further correlational analysis was conducted to determine whether the frustration group had lower ratings of sexual arousal due to the interruptions in the video. To determine if the video material induced disgust in the participants, descriptive statistics were obtained (M, SD). A correlational analysis was also conducted between disgust and arousal to determine if our findings support their proposed antagonistic relationship (Pawłowska et al., 2020).

**Assumptions.** Two-way ANOVA assumption checks were conducted prior to the analysis of the manipulation checks and the hypothesis testing. To explore whether the assumption of homogeneity of variances was met a Levene's test was conducted. The normality of residuals assumption was assessed using Q-Q plots and histograms. If the assumptions are violated the two-way ANOVA will still be used as it has been deemed fairly robust against violations of the assumptions of normality even with a small sample size (Schmider et al., 2010). However, a non-parametric alternative, namely the Kruskal Wallis test, will be used for statistical power (Kruskal & Wallis, 1952). Notably, the Kruskal Wallis is unable to test interaction effects; thus, will only be used for the main effects (McKight & Najab, 2010). A Welch test was performed when violations to homogeneity were detected as opposed to a two-way ANOVA. This is because a two-way ANOVA is not robust to violations of homogeneity, especially when data is not orthogonal i.e., different sample sizes for subsamples are obtained (Luh & Guo, 2001).

**Hypothesis Testing.** This study was designed to test whether sexual frustration increased sexual aggression and whether gender affected this relationship. To test this, we used a two-way

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ANOVA to analyse the effect of gender (IV 1) and condition (IV 2) on sexual coercion (DV). An average score for COERCE was computed for each participant. Males and females were coded accordingly (1 = female, 0 = male). To evaluate whether allocation to the frustration condition affected sexual aggression (COERCE), the main effect of the condition (frustration, satiation) was explored. In addition to this, to evaluate whether gender influenced sexual aggression, the main effect of gender (male, female) was determined. An interaction effect was regarded to explore whether being male or female interacted with the relationship between sexual frustration and sexual aggression.

## Results

### *Manipulation Checks*

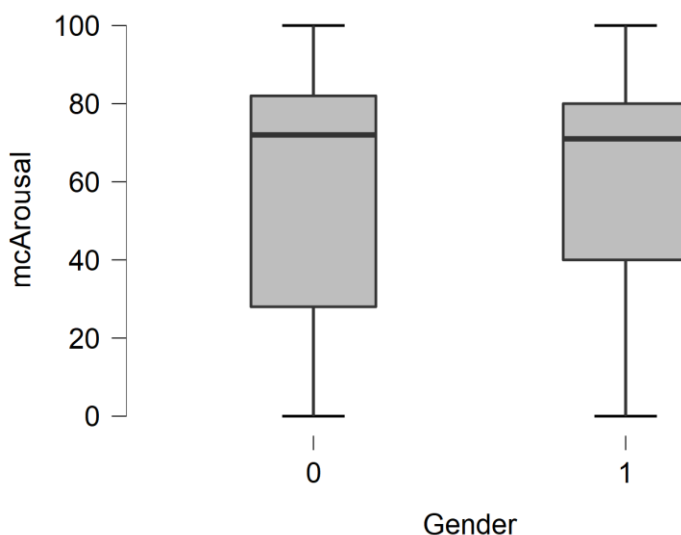
See Appendix D for the QQ-plots testing the normality assumption of the manipulation checks.

**Sexual Arousal.** By examining the mean total sexual arousal level in our sample after the sexually explicit video, it could be determined that arousal was successfully induced in the participants ( $M = 60.05$ ,  $SD = 29.17$ ). Moreover, the frustration group ( $M = 62.49$ ,  $SD = 29.15$ ) exhibited higher levels of sexual arousal than the participants in the satiation group ( $M = 54.40$ ,  $SD = 28.83$ ) after the experimental manipulation. The level of sexual arousal was found to be slightly higher in women ( $MFemales = 60.41$ ,  $SDFemales = 28.29$ ) than men ( $MMales = 59.53$ ,  $SDMales = 30.71$ ). Moreover, male participants were also found to have a greater range of sexual arousal responses than their female counterparts see figure 1 ( $MdnMales = 72.00$  ( $IQR = 54.00$ ),  $MdnFemales = 71.00$  ( $IQR = 40.00$ )). To determine if these effects were significant, a two-way ANOVA was conducted.

### **Figure 1**

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*Boxplot Showing the Levels of Sexual Arousal Across Gender*



*Note.* This figure demonstrates the level of self-reported sexual arousal post manipulation from both conditions across gender. The boxplot shows the outliers, the minimum ( $Q1 - 1.5 \cdot IQR$ ), the maximum ( $Q3 + 1.5 \cdot IQR$ ), the interquartile range ( $Q3 - Q1$ ), and the median. As shown, both genders exhibit similar medians and ranges. Yet, a difference in the interquartile range between men and women is evident. Arousal (mcArousal) was rated from 0-100 using VAS scale (Crichton, 2015).

<sup>a</sup>Gender is coded, whereby 0 = Male and 1 = female. The level of sexual arousal was asked using a VAS where participants could measure their arousal along a continuum from 0 - 100.

**Assumptions.** A Levene's test indicated that equality of variances ( $F(3, 112) = .540, p = .36$ ), was met. On the other hand, a Q-Q plot examining the standardised residuals exploring the assumption of normality showed sexual arousal to have a distribution that deviation from normality, and additional histogram was conducted (see figures D1 and D2 in Appendix D). As a result, a non-parametric Kruskal Wallis was used. The Kruskal Wallis test will accommodate for

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the non-normality across the four groups in the research, namely sexual arousal in women in the satiation condition, sexual arousal in women in the frustration condition, sexual arousal in men in the satiation condition, and finally, sexual arousal in men in the frustration condition (Kruskal & Wallis, 1952). A two-way ANOVA was also conducted so interaction effects could be examined.

**Analysis.** The two-way ANOVA, as seen in Table 3, revealed that none of our predictors were significant. A main effect analysis showed that, despite the frustration group having a higher mean sexual arousal, condition did not have a statistically significant effect on sexual arousal ( $F(1,112) = 2.42, p = .12, \eta^2 = .021$ ); this also was the case in the Kruskal Wallis test ( $H(1) = 1.72, p = .19$ ). Thus, sexual arousal did not significantly decrease post-orgasm in the satiation group in comparison to the frustration group, contrary to what was expected. Gender also did not have a statistically significant effect on sexual arousal ( $F(1,112) = .35, p = .56, \eta^2 = .003$ ). Similarly, the Kruskal Wallis also detected no significant difference between genders for sexual arousal ( $H(1) = .00, p = .99$ ), indicating that male and female participants had similar levels of sexual arousal. Lastly, there also was not a significant interaction between the effects of either of our predictors ( $F(1,112) = 1.56, p = .22, \eta^2 = .014$ ). Therefore, men and women were found to have similar levels of sexual arousal across both the satiation and frustration condition.

**Table 3**

*Two-Way ANOVA Using Sexual Arousal as the Dependent Variable*

|                    | Sum of Squares | df | Mean Square | F     | p     | $\eta^2_p$ |
|--------------------|----------------|----|-------------|-------|-------|------------|
| Gender             | 293.641        | 1  | 293.641     | 0.347 | 0.557 | 0.003      |
| Condition          | 2050.992       | 1  | 2050.992    | 2.421 | 0.123 | 0.021      |
| Gender * Condition | 1319.450       | 1  | 1319.450    | 1.557 | 0.215 | 0.014      |

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Residuals                      94889.850    112            847.231

*Note.* Type III Sum of Squares. MS = Mean squares, effect size = partial  $\eta^2$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

.05. \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 4 shows the correlation between the three sexual arousal measures in the frustration group during the sexually explicit video to determine if sexual arousal was maintained during the two interruptions. The first correlation coefficient was computed to assess the linear relationship between the first arousal check (Arousal 1) and the second arousal check (Arousal 2), which were exclusively shown to the frustration condition in the interruptions. Resultantly, a significant positive correlation between the two variables of .83 and a corresponding p-value of  $< 0.001$  was found. A further Pearson's correlation coefficient was computed to assess the relationship between Arousal 2 and the third arousal check (Arousal 3), which, unlike the other two, was shown to both conditions. An additional significant positive correlation between the two variables,  $r(114) = .78$ ,  $p = < .001$  was identified. A final Pearson's correlation was conducted between variables Arousal 1 and Arousal 3. These variables also were found to significantly correlate positively with one another  $r(114) = .75$ ,  $p = < .001$ . As the three sexual arousal checks are all significantly and positively correlated, we can ascertain that sexual arousal was maintained and even increased over the course of the interruptions.

**Table 4**

*The Correlations Between the Arousal Checks*

| Variable  |             | Arousal 1 | Arousal 2 | Arousal 3 |
|-----------|-------------|-----------|-----------|-----------|
| Arousal 1 | Pearson's r | —         |           |           |
|           | p-value     | —         |           |           |
| Arousal2  | Pearson's r | 0.825     | —         |           |

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|           |             |           |           |   |
|-----------|-------------|-----------|-----------|---|
|           | p-value     | < .001*** | —         |   |
| Arousal 3 | Pearson's r | 0.754     | 0.783     | — |
|           | p-value     | < .001*** | < .001*** | — |

*Note.* Table 4 shows a correlation matrix demonstrating the relationships between all of the sexual arousal checks. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ \*\*\*. All arousal checks are correlated significantly ( $p = ***$ ) with one another.

<sup>a</sup>Arousal 1 and Arousal 2 were presented only to the frustration condition. Arousal 3 was presented to both conditions.

**Sexual Frustration.** Through exploring whether sexual frustration was induced, the mean rating of sexual frustration after the experimental manipulation in both the satiation and the frustration condition was collected. Sexual frustration was found to be significantly correlated to sexual arousal ( $r(114) = .47$ ,  $p = <.001$ ), supporting existing research. Moreover, we can derive, from the mean scores, that sexual frustration in the frustration condition ( $M = 39.04$ ,  $SD = 32.52$ ) is greater than that in the satiation condition ( $M = 18.09$ ,  $SD = 20.26$ ). Additionally, women ( $M = 34.33$ ,  $SD = 33.37$ ) displayed slightly higher levels of sexual frustration than men ( $M = 30.34$ ,  $SD = 26.83$ ), yet we can also detect high degrees of variability within the samples. Therefore, a two-way ANOVA was conducted to determine if the difference were statistically different.

**Assumptions.** A Levene's test indicated equality of variances ( $F = 1.198$ ,  $p = .31$ ); thus, homogeneity of variances were met. Using a QQ-plot, normality of sexual frustration was determined (see figures D3 and D4 in Appendix D). The distribution showed a slight deviation from normality. Thus, a Kruskal Wallis test and a two-way ANOVA were conducted to maintain statistical power.

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**Analysis.** The two-way ANOVA, as seen in Table 5, revealed a main effect for condition on sexual frustration ( $F(1,110) = 15.34, p = <.001, \eta^2 = .122$ ). This was also found in the Kruskal Wallis analysis ( $H(1) = 11.88, p = <.001$ ). Thus, our design was successful in creating significantly higher levels of sexual frustration in the frustration condition than in the satiation condition. The main effect of GENDER on sexual frustration was not significant ( $F(1,110) = .009, p = .93, \eta^2 = 8.07e-5$ ), likewise in the Kruskal Wallis analysis ( $H(1) = .007, p = .94$ ). Therefore, the design was similarly effective across gender and no significant gender differences prevailed. Lastly, an interaction between condition and gender on sexual frustration was not significant ( $F(1,110) = 1.11, p = .29, \eta^2 = .01$ ).

**Table 5**

*Two-Way ANOVA Using Sexual Frustration as the Dependent Variable*

| Cases              | Sum of Squares | df  | Mean Square | F      | p      | $\eta^2_p$ |
|--------------------|----------------|-----|-------------|--------|--------|------------|
| Gender             | 7.352          | 1   | 7.352       | 0.009  | 0.925  | 0.000      |
| Condition          | 12708.580      | 1   | 12708.580   | 15.337 | < .001 | 0.122      |
| Gender * Condition | 665.626        | 1   | 665.626     | 0.803  | 0.372  | 0.007      |
| Residuals          | 91147.261      | 110 | 828.611     |        |        |            |

*Note.* Type III Sum of Squares (SS). MS = Mean squares, effect size = partial  $\eta^2$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Disgust.** It was found that participants reported low levels of disgust ( $M = 14.08, SD = 21.05$ ). Thus, our sexually explicit video was effective in not inciting disgust. Additionally, sexual arousal and disgust were found to have a significant negative correlation,  $r(114) = -.32, p = <.001$ . This relationship is expected according to the literature regarding the converse relationship between arousal and disgust (Hinzmann et al., 2019). Thus, the design and the sexually explicit video were effective in inducing sexual arousal and not disgust.

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**Assumptions.** A Levene's test indicated inequality of variances ( $F = 2.70, p = .049$ ); therefore, a Welch test will be used (Zimmerman & Zumbo, 1993). By using a QQ-plot it could be determined that the residuals for disgust are heavily right-skewed and not normally distributed, thus a Kruskal Wallis test was conducted (see figures D5 and D6 in Appendix D). As the two-way ANOVA is not robust against violations of Homogeneity (Luh & Guo, 2001) it would not be appropriate to use the analysis.

**Analysis.** The level of disgust did not differ significantly between conditions ( $H(1) = 3.02, p = .082$ ). On the other hand, a significant difference between the two conditions can be seen in the Welch t-test ( $F(1, 109.13) = 6.84, p = 0.01, \eta^2_p = .037$ ). After analysing the mean levels of disgust in each condition, it can be determined that, on average, individuals in the frustration condition ( $M = 16.71, SD = 23.41$ ) rated their subjective level of disgust significantly higher than those in the satiation condition ( $M = 7.97, SD = 12.43$ ). On the other hand, the Kruskal Wallis Test shows no significant differences in disgust across gender ( $H(1) = 2.34, p = .13$ ). Welch's Test also failed to find a significant difference between genders ( $F(1, 103.79) = 1.17, p = 0.28, \eta^2_p = .01$ ) (See Table D1 and D2 in Appendix D).

### **Effects of Sexual Frustration on Sexual Aggression**

#### ***Hypothesis 1***

The first hypothesis stated that we would expect an increase in sexual frustration to lead to an increase in an individual's likelihood of implementing sexually aggressive behaviours in a hypothetical scenario. In line with Camilleri et al. (2009), we transformed the 31 items into two variables: twelve items were summed up to create the variable sexual coaxing (COAX), and nineteen items were summed to create the variable sexual coercion (COERCE). COAX and COERCE were found to be significantly correlated ( $r(114) = .41, p = <.001$ ) in our sample,



EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER meaning that participants who used sexually coaxing methods were more prone to also using more sexually aggressive methods to obtain sex in a hypothetical situation. A Pearson's correlation was also conducted to determine if sexual frustration and COERCE were significantly correlated. Contrary to what was predicted, sexual frustration was found not to be significantly associated with coercion  $r(114) = 0.04, p = .68$ . Subsequently, we explored the effect of GENDER and CONDITION (sexual satiation vs. sexual frustration) on sexual aggression (COERCE) in hypothetical scenarios. A two-way ANOVA was performed.

**Assumptions.** Therefore, a Levene's test was conducted. It indicated that the assumption of homogeneity of variances was met ( $F = 1.198, p = .31$ ). However, when analysing the assumption of normality using a QQ plot, it became evident that the assumption was violated (see Figures E1 and E2 in Appendix E). Therefore, similarly to the above analyses, a Kruskal Wallis test was conducted alongside a two-way ANOVA.

**Analysis.** The two-way ANOVA, as seen in Table 6, revealed that none of our predictors were significant. A main effect analysis showed that CONDITION did not have a statistically significant effect on COERCE ( $F(1,112) = .049, p = .49, \eta^2 = .004$ ). The Kruskal Wallis test also revealed a non-significant finding ( $H(1) = .029, p = .86$ ).

## **Gender Effects**

### ***Hypothesis 2***

We wanted to determine whether gender affects the relationship between sexual frustration and sexual aggression. Table 6 demonstrates that GENDER also did not have a statistically significant effect on COERCE ( $F(1,112) = .0018, p = .89, \eta^2 = .0001$ ), ( $H(1) = .28, p = .60$ ). Lastly, there also was not a significant interaction between the effects of either of our predictors ( $F(1,112) = 1.11, p = .29, \eta^2 = .01$ ). Therefore, no significant evidence was found to

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support the hypothesis that gender affects sexually aggressive behaviours; therefore, we also found no evidence in favour of men employing sexually aggressive behaviours more than women. For an additional analysis, see Appendix E for a MANOVA exploring the effect of gender and condition on COAX and COERCE.

**Table 6**

Two-way ANOVA Showing the Effect of Gender and Condition on COERCE

| Cases              | Sum of Squares | df  | Mean Square | F     | p     | $\eta^2$ | $\eta^2_p$ |
|--------------------|----------------|-----|-------------|-------|-------|----------|------------|
| Gender             | 0.602          | 1   | 0.602       | 0.018 | 0.893 | 1.608e-4 | 1.631e-4   |
| Condition          | 16.046         | 1   | 16.046      | 0.486 | 0.487 | 0.004    | 0.004      |
| Gender * Condition | 36.690         | 1   | 36.690      | 1.112 | 0.294 | 0.010    | 0.010      |
| Residuals          | 3694.358       | 112 | 32.985      |       |       |          |            |

*Note.* Type III Sum of Squares (SS). MS = Mean squares, effect size = partial  $\eta^2$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Orgasmic Difficulties**

Lastly, additional data was collected from the participants, namely whether they had difficulty orgasming. In line with the literature, we predicted that participants who had orgasmic difficulties would demonstrate higher levels of sexually aggressive behaviours (Pontin et al., 2002; Jespersen et al., 2009; Carvalho et al., 2013). A Pearson's correlation revealed that orgasmic difficulties were not correlated to sexual frustration ( $r(114) = -.037$ ,  $p = .70$ ) nor with sexual aggression ( $r(114) = .038$ ,  $p = .68$ ). Moreover, when an ANOVA was conducted to determine whether group differences in sexual frustration occurred between those with and those without sexual dysfunction.

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*Assumptions.* Levene's test revealed equality of variances ( $F = 3.70, p = .057$ ). A QQ-plot revealed that the assumption of normality was also met.

*Analysis.* The one-way ANOVA revealed that there were no significant group differences in levels of sexual frustration between those who have orgasmic difficulties and those who do not ( $F(1,114) = .62, p = .43, \eta^2 = .006$ ).

### Discussion

The purpose of this study was to gain a novel understanding of the effect of sexual frustration on sexual aggression across gender using an experimental approach. To explore this, half of the sample was assigned to a frustration condition whereby participants were required to masturbate but not permitted to orgasm. In contrast, the other half were assigned to the satiation condition in which they were permitted to orgasm. In the first hypothesis, it was reasoned that those in the frustration condition would have heightened sexual frustration compared to the satiation group; therefore, they would have a greater affinity towards implementing sexually aggressive tactics to obtain sex in a hypothetical situation. In the second hypothesis, gender differences were explored to determine whether women use sexually aggressive tactics to obtain sex when sexually frustrated and to investigate whether men are more prone to employing sexually aggressive behaviours than women.

Our findings highlight that this study was partially successful in creating a design that induced both sexual arousal and sexual frustration in both men and women. However, we were unsuccessful in establishing a significant relationship between sexual frustration and sexual aggression. Namely, sexually frustrated participants were not more likely to use sexually aggressive tactics to obtain sex than their sexually satiated counterparts. Moreover, this finding was found in both men and women; thus, men and women, similarly, did not demonstrate

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heightened sexual aggression as a result of sexual frustration. Additionally, orgasmic difficulties were not found to have an effect on sexual frustration or sexual aggression.

More research will have to be conducted to determine whether our non-significant findings could be attributed to a design error, sample composition or the non-existence of the relationship, as will be discussed.

### **Was the Study Design Successful?**

#### *The Sexually Explicit Video*

Our study used a sexually explicit video to elicit feelings of sexual arousal (Hald & Malamuth, 2014). Indeed, it was determined that significant levels of sexual arousal in both men and women were induced according to a pre-accepted level in past research (Borg et al., 2019). Moreover, the average rating of disgust after watching the video was low across both genders; indeed, disgust and sexual arousal were found to be negatively correlated in this study. Thus, our findings support the established theory that disgust and sexual arousal have an antagonistic relationship (Stevenson, Case, & Oaten, 2011; Pawłowska et al., 2020). These findings also coincide with Scarcelli's (2015) findings that female-friendly pornography is less disgust-inducing than mainstream pornography. In conclusion, the use of female-friendly pornography in this study to induce sexual arousal and not disgust in both genders was successful.

However, greater variability in sexual arousal was found in our male sample; 50% of the sample rated their sexual arousal between 30 and 80, whereas 50% of the female participants rated their sexual arousal between 40 and 80. This difference could be attributed to gender differences in pornography preference. Accordingly, men have been found to prefer hardcore pornography, whereas women's subjective sexual arousal is stronger when watching more softcore women-made films (Andrews, 2006; Hald, 2006). Moreover, past research had also

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found that both men and women reported higher levels of sexual arousal when the sexually explicit video had been selected by a researcher of the same gender (Janssen et al., 2003). Our research team was exclusively female, so the male preference may not have been adequately portrayed.

As men and women differ significantly in their responses to sexual stimuli (Murnen & Stockton, 1997), future research could provide participants with a 'pornography library' where they are presented with several videos from which they can choose their preferred video. The videos should be selected by male and female researchers, in line with the findings of Janssen et al. (2003) and produce similar levels of sexual arousal. In turn, this technique could also be used to accommodate other sexualities and genders, which have been excluded from most contemporary research in this field (Trottier et al., 2021).

### *Sexual Arousal*

Interruptions were inserted into the sexually explicit video in the frustration condition to delay participants' sexual satiation (orgasm) (Maslow, 1941; Stuger, 2011). As this method of inducing sexual frustration was novel, concerns regarding the effect the interruptions may have on sexual arousal arose. However, sexual arousal in the frustration condition was indeed found to increase throughout the interruptions in the video. Additionally, similar levels of sexual arousal were found in the frustration and the satiation condition, where participants watched the same video but without interruptions. One conclusion that can be drawn from these findings is that the interruptions in the video did not affect sexual arousal.

On the other hand, these findings contradict existing research on the post-orgasmic decrease in sexual arousal, which states that sexual arousal decreases post-orgasm due to a

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sexual 'refractory period' (Yilmaz & Aksu, 2000; Turley & Rowland, 2013; Seizert, 2018).

Subsequently, it was hypothesised that the insignificant findings in this study could result from our sample being composed mainly of women. Past research has found that women may not experience a post-orgasmic decrease in sexual arousal to the same extent as men (Paterson et al., 2014). From this, a difference in sexual arousal would be expected, with men showing lower levels of sexual arousal in the satiation condition. On the contrary, the results from this study showed that men and women had similar post-orgasmic levels of sexual arousal. Moreover, a similar level of sexual arousal was also found across both conditions, namely in those who did not orgasm (frustration) and in those who did (satiation). Therefore, the findings contradict the theory of the male 'refractory period' and post-orgasmic decrease in arousal that has been well-established in research (Yilmaz & Aksu, 2000; Turley & Rowland, 2013; Seizert, 2018). One interpretation of the findings in this study could be that participants' pre-orgasmic levels of sexual arousal were not collected in this study. Resultantly, this study cannot be used to reliably substantiate the claim that no post-orgasmic decrease in arousal occurred.

### *Sexual Frustration*

The study was successful in generating significantly greater levels of sexual frustration in the frustration sample than in the satiation sample. Thus, our findings support the hypotheses that by preventing orgasm, goal fulfilment (Maslow, 1941) and sexual satisfaction (Stuger's, 2011) were also prevented, and sexual frustration arose as a result. Therefore, it can be determined that the method of prolonging and interrupting sexual gratification in this study was successful in inducing sexual frustration.

Nevertheless, it should be noted that the level of induced frustration in participants was still relatively low, with an average rating of 30 (out of 100) in the frustration condition. One

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potential interpretation of why our design induced low levels of sexual frustration is that the method we used to induce frustration, namely, denying orgasm and interruptions in the video, was convoluted, confusing and unrealistic, according to some feedback that was received. This could have potentially impacted the participants in the frustration conditions' engagement and attention during the video. Evidently, the frustration condition in this study demonstrated significantly higher levels of disgust than their satiated counterparts. Research has found that visual attention to sexually explicit material reduces disgust (Morandini et al., 2019). It can therefore be suggested that those in the frustration condition, indeed, may not have attended to the video to the same extent as those in the satiation condition.

Interestingly, sexual arousal was not found to be significantly lower in the frustration condition despite the higher levels of disgust, contradicting existing research findings that sexual arousal and disgust have an antagonistic relationship (Andrews et al., 2015; Pawłowska et al., 2020). Exploring this relationship deeper, as sexual arousal is positively related to sexual frustration (Jaffe et al., 1974), higher levels of sexual arousal in the frustration condition would be expected. Yet, this was not the case. Potentially, the more complicated design may have led to a decrease in participants' level of sexual arousal and sexual frustration.

It can therefore be concluded that our design did induce greater feelings of sexual frustration in the frustration group. However, this was not to the degree that we expected, which could be attributable to the convoluted design affecting participants' attention to the video. On the other hand, an optimal level of sexual frustration is yet to be established in research. As a result, a conclusion cannot be drawn regarding whether the level of sexual frustration induced in this study was significant or not and therefore, we cannot say with confidence whether the level of frustration affected sexual aggression. To rectify this issue, the collection of a pre-

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manipulation sexual frustration level could be used as a reliable indicator of whether a significant level of sexual frustration was induced.

### *Orgasmic Difficulties*

Additionally, this study found that having orgasmic difficulties did not equate to being more sexually frustrated, contrasting existing literature, which found that individuals who experience regular orgasmic difficulties show increased feelings of sexual frustration (Pontin et al., 2002). It was also found that orgasmic difficulties were not related to sexual aggression. Therefore, according to the findings in this paper, orgasmic difficulties do not appear to play a role in the frustration-aggression relationship, as otherwise found in previous research (Jespersen et al., 2009; Carvalho et al., 2013).

Arguably, the reliability of the findings in this study may be limited due to the operationalisation of the term 'orgasmic difficulties'. Participants were required to state how often they experienced orgasmic difficulties during intercourse but not their level of frustration as a result of these difficulties. Therefore, although past research has found a relationship between orgasmic difficulties and sexual frustration (see, e.g., Pontin et al., 2002; Jespersen et al., 2009; Carvalho et al., 2013), such difficulties may not always equate to feelings of sexual frustration. To control for this potential discrepancy, a previous study asked its female participants to describe using one word how they felt about their orgasmic difficulties (Rowland & Kolba, 2016). This presents a non-leading method to gauge how orgasmic difficulties affect individuals that can be used in future research. Ultimately, to determine whether frustration resulting from orgasmic difficulties leads to sexual aggression.

### **The Relationship Between Sexual Frustration and Sexual Aggression**



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It was predicted that an increase in sexual frustration would lead to an increase in sexually aggressive behaviours. per the existing research (see, e.g., DeFronzo, 1992; Green et al., 1998; Munyo & Rossi, 2013; Lankford, 2021). On the contrary, it was found that participants in the frustration condition, although significantly more sexually frustrated, were not more likely to implement sexually aggressive tactics to obtain sex than their satiated counterparts.

Indeed, the frustration-aggression relationship has been criticised in the past for being too simplistic (Berkowitz, 1989). More recently, Lankford (2021) also suggested that sexual frustration may not be a sufficient predictor of sexual aggression. Previous research has argued that frustration merely creates general emotional arousal, and other factors, such as social learning, will determine whether someone responds aggressively (Bandura, 1973, p53). More recent research also supports the perspective that social factors may interplay in the relationship between frustration and aggression. For example, the positive correlation between fraternity membership and sexual aggression demonstrates that the social environment, particularly one that reports having increased perceived peer sexual aggression, determines how individuals may react in a more sexually aggressive manner (Boeringer & Scot, 1996).

### *Gender Differences Across the Relationship*

In addition to the first hypothesis, gender differences across the predicted sexual frustration, sexual aggression relationship was explored. It was predicted that women, when sexually frustrated, would be more likely to act in a sexually aggressive way, similar to their male counterparts (Story, 1986; Struckman-Johnson et al., 2003; Lanford, 2021). Nonetheless, we also predicted that the relationship between sexual frustration and sexual aggression would be stronger in men, according to existing literature. For example, Edwards (1971) found an increase in the male sex hormone, testosterone, increased sexual arousal and sexual aggression in both

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male and female rats. However, no gender effects were found in this study. This means that we did not find evidence to support the notion that women, when sexually frustrated, are more sexually aggressive. Moreover, we were unable to find evidence supporting our prediction that sexually frustrated men would act in a more sexually aggressive way than sexually frustrated women.

One explanation for the findings in this study could be due to the sample composition or other underlying factors (see limitations). Alternatively, research has also found that men use more physically and sexually aggressive behaviours, whereas women use more verbal pressure to obtain sexual gratification (Struckman-Johnson, 1986). Therefore, an interesting area for future research could be to factor in the differences in sexually aggressive tactics to determine if they do affect the relationship between sexual frustration and sexual aggression across gender.

An interesting finding from this study is that gender similarities prevailed across levels of sexual arousal, disgust, sexual frustration and even sexual aggression. Notably, the lack of significant gender differences throughout the study could highlight the contemporary hypotheses that gender differences are less pronounced than past research has made them out to be (Hines & Saudino, 2003).

### **Limitations**

#### *Sample composition*

The non-significant findings from both hypotheses could be a result of the sample consisting mainly of university students aged 18-26, sampled using a combination of convenience and random sampling. Such samples present issues regarding generalisability, as they tend to be more liberal and educated (Bailey & Williams, 2016). Whereas political conservatism and lower education have been found to increase rates of sexual aggression (Hall,

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1996; Carr & VanDeusen, 2004), it can be predicted that liberalism and higher education may act as protective factors in lowering rates of sexual aggression. As a result, future research should aim to increase the diversity of the sample by recruiting participants of different ages, education and SES levels.

### *Drop-outs*

Large drop-out rates were also experienced in this study, with over half of the original sample having to be removed as a result of not finishing the study. Further participants were removed for not meeting the study's requirements or finishing the study in an unrealistically short time. An explanation for the large drop-out rate could have resulted from confusion regarding their assigned conditions requirements (masturbate to orgasm or masturbate but wait for instruction to orgasm). Moreover, confusion regarding the interruptions to the video was present, as brought to our attention through feedback by participants. In this study, participants had to click on a link to access the video, which would take them to a different tab. After watching the video, they would have to return to the original Qualtrics tab to continue with the experiment. As a result of the confusion, some participants missed watching the subsequent video parts or orgasmed despite being placed in the frustration condition. These participants were removed from the data set, which could result in MNAR (missing not at random) results. MNAR results can be problematic, as confounding variables may be present (Kang, 2013), such as omitting individuals who have difficulty understanding and following instructions and individuals with poor impulse control. Future studies are therefore encouraged to potentially simplify the study design, for example, by embedding the interruptions into the video and making the process less manual for participants.

### *Violations of the Normality Assumption*

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A knock-on effect of the significant drop-out rate was a lower-than-expected sample size. This potentially adversely affects the normality assumption, which was notably violated across most factors in this study. This, coupled with our unequal sample sizes across gender and condition, resulted in low power, thus potentially affecting our chances of detecting a true effect (McArthur, 2013).

### *Social desirability*

Lastly, past research suggests that people under-report culturally and socially taboo sexual behaviours (King, 2022). This was not initially considered in this study but should be taken into consideration in future research. The implementation of a social desirability check will allow the effects of social desirability bias to be taken into consideration when considering the frustration-aggression relationship in a sexual context.

### **Conclusion**

This study was pioneering in terms of determining a route for exploring the relationship between sexual frustration and sexual aggression in an experimental situation. While the study did not find evidence supporting the hypotheses, the study design and sexually explicit video yielded promising results. Overall, this study represented a preliminary attempt to study the relationship between sexual frustration and sexual aggression and proved successful studying men and women together. Future research can use the suggestions in this paper to hone the study design and increase the diversity in the sample.

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## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

**Appendix A**

## Sample characteristics

**Table A1***Descriptive Statistics of the Sample characteristics*

|                | <b>Age</b> | <b>Sexuality</b> | <b>Diforgasm</b> |
|----------------|------------|------------------|------------------|
| Valid          | 116        | 116              | 107              |
| Missing        | 0          | 0                | 9                |
| Mean           | 21.138     | 87.284           | 2.327            |
| Std. Deviation | 3.628      | 15.086           | 1.301            |
| Minimum        | 18.000     | 50.000           | 1.000            |
| Maximum        | 43.000     | 100.000          | 5.000            |

*Note.* Sexuality is measured on a scale denoting 0 as homosexual and 100 as heterosexual.

Orgasmic difficulties recorded on a scale where 1 = never, 2 = sometimes, 3 = about half the time, 4 = most of the time, 5 = always. Answers coded as 4 or 5 were considered to be orgasmic difficulties.

## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

**Appendix B***Tactics to Obtain Sex Scale*

Suppose you were with your partner this evening, and he/she did not want to have sex with you:

Please rate **how likely** you would engage in the following acts to persuade your partner into having sex. Remember, you may skip questions you are uncomfortable in answering (Camilleri, 2009).

|   | <b>Likelihood You Would Use Acts</b> |                 |              |                 |                   |
|---|--------------------------------------|-----------------|--------------|-----------------|-------------------|
|   | <b>Definitely Not</b>                | <b>Unlikely</b> | <b>Maybe</b> | <b>Probably</b> | <b>Definitely</b> |
| 1. Massage his/her neck or back                         | 0                                    | 1               | 2            | 3               | 4                 |
| 2. Threaten to leave                                    | 0                                    | 1               | 2            | 3               | 4                 |
| 3. Try to make him/her feel bad<br>about not having sex | 0                                    | 1               | 2            | 3               | 4                 |
| 4. Play with his/her hair                               | 0                                    | 1               | 2            | 3               | 4                 |
| 5. Suggest you may harm him/her                         | 0                                    | 1               | 2            | 3               | 4                 |
| 6. Offer to buy him/her<br>something                    | 0                                    | 1               | 2            | 3               | 4                 |
| 7. Lie down near him/her                                | 0                                    | 1               | 2            | 3               | 4                 |
| 8. Tie partner up                                       | 0                                    | 1               | 2            | 3               | 4                 |
| 9. Block partner's retreat                              | 0                                    | 1               | 2            | 3               | 4                 |
| 10. Tickle  | 0                                    | 1               | 2            | 3               | 4                 |

## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| 11. Provide him/her with drugs                 | 0 | 1 | 2 | 3 | 4 |
| 12. Call him/her names                         | 0 | 1 | 2 | 3 | 4 |
| 13. Threaten self-harm                         | 0 | 1 | 2 | 3 | 4 |
| 14. Massage feet/thighs                        | 0 | 1 | 2 | 3 | 4 |
| 15. Use humor                                  | 0 | 1 | 2 | 3 | 4 |
| 16. Say you might break<br>partner's property  | 0 | 1 | 2 | 3 | 4 |
| 17. Wait until he/she is sleeping              | 0 | 1 | 2 | 3 | 4 |
| 18. Attempt to blackmail                       | 0 | 1 | 2 | 3 | 4 |
| 19. Caress near/on partner's<br>genitals       | 0 | 1 | 2 | 3 | 4 |
| 20. Rub leg with his/her legs                  | 0 | 1 | 2 | 3 | 4 |
| 21. Whisper in his/her ear                     | 0 | 1 | 2 | 3 | 4 |
| 22. Softly kiss his/her ears,<br>neck, or face | 0 | 1 | 2 | 3 | 4 |
| 23. Question partner's sexual<br>orientation   | 0 | 1 | 2 | 3 | 4 |
| 24. Break partner's property                   | 0 | 1 | 2 | 3 | 4 |
| 25. Say sweet things                           | 0 | 1 | 2 | 3 | 4 |
| 26. Provide him/her with alcohol               | 0 | 1 | 2 | 3 | 4 |



## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 27. Explain that your needs<br>should be met                      | 0 | 1 | 2 | 3 | 4 |
| 28. Take advantage of him/her if<br>she's already drunk or stoned | 0 | 1 | 2 | 3 | 4 |
| 29. Slap or hit   | 0 | 1 | 2 | 3 | 4 |
| 30. Caress his/her chest/breasts                                  | 0 | 1 | 2 | 3 | 4 |
| 31. Physically restrain   | 0 | 1 | 2 | 3 | 4 |

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Assessing the Propensity for Sexual Coaxing and Coercion in

Relationships: Factor Structure, Reliability, and Validity of the

Tactics to Obtain Sex Scale, 2009, DOI 10.1007/s10508-008-9377-2, Camilleri, J. A., Quinsey,

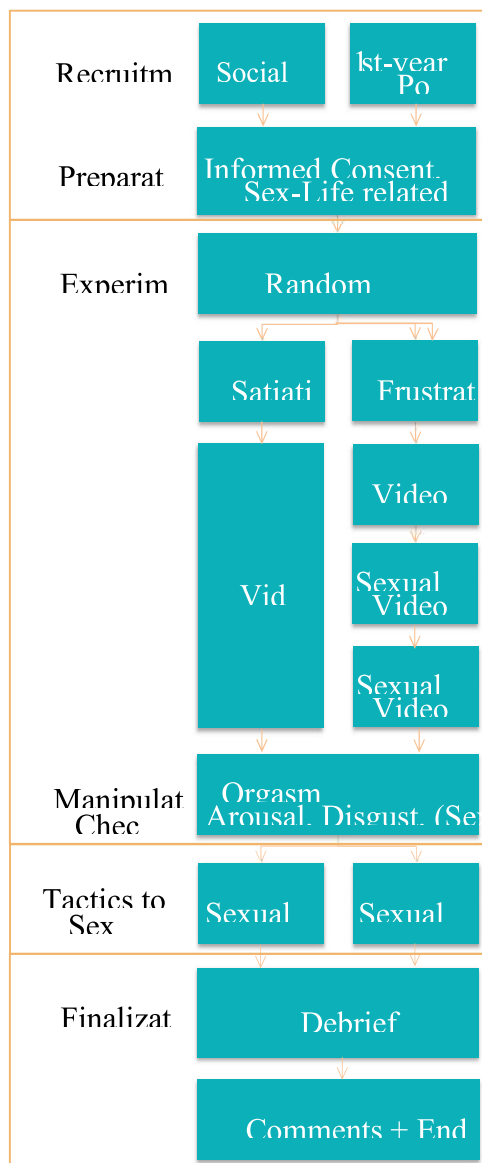
V. L., & Tapscott, J. L.]

## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

## Appendix C

## Experimental Design

Figure C1

*Flow of the Experiment*

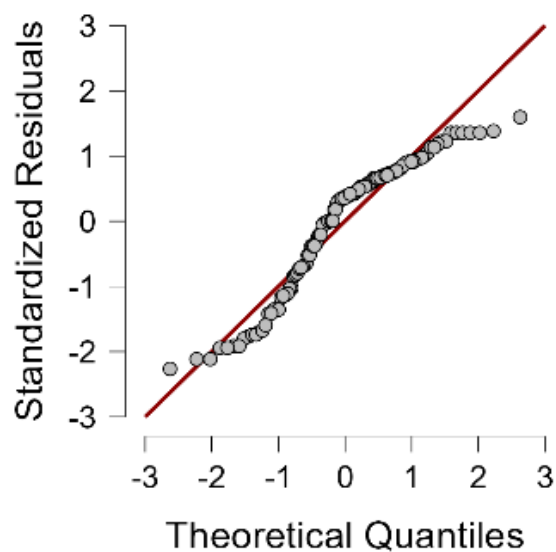
*Note.* The steps of the experiment are displayed.

**Appendix D**

## Manipulation Checks

**Assumption Checks for the Sexual Arousal Manipulation Check*****Figure D1***

*QQ-plot for Normality Assumption Check: Sexual Arousal*

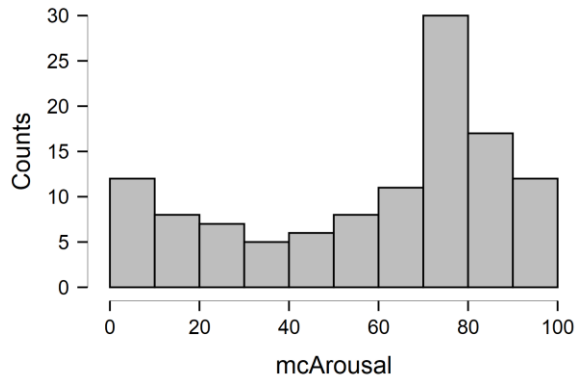


*Note.* The normality assumption has been violated in the across the sexual arousal manipulation check.

***Figure D2***

*Histogram for the Normality Assumption Check: Sexual Arousal*

EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

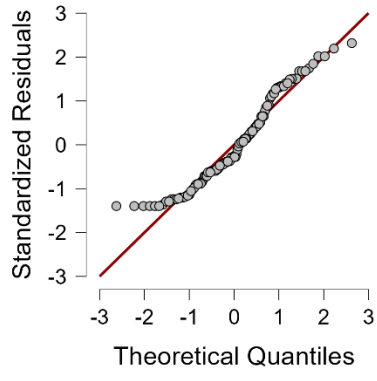


Note. The distribution of sexual arousal appears left-skewed and slightly bimodal distribution.

Assumption Checks for the Sexual Frustration Manipulation Check

Figure D3

QQ-plot for Normality Assumption Check: Sexual Frustration

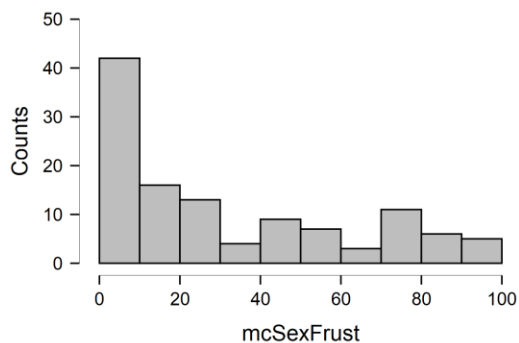


Note. The normality distribution is violated. A right-skewed distribution is present.

Figure D4

Histogram for the Normality Assumption Check: Sexual Frustration

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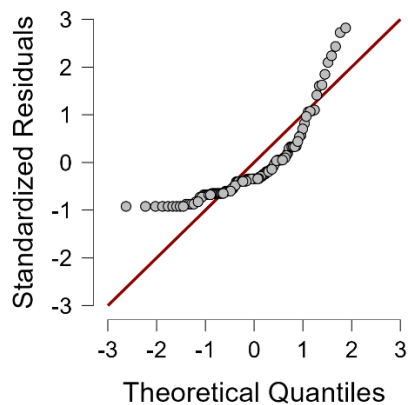
*Note.* A strong right-skewed distribution for sexual frustration is detected in the histogram.

Normality is violated.

### Assumption Checks for the Disgust Manipulation Check

#### *Figure D5*

*QQ-plot for Normality Assumption Check: Disgust*

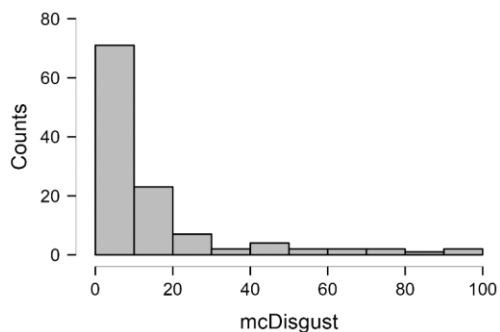


*Note.* Normality is violated.

#### *Figure D6*

*Histogram for the Normality Assumption Check: Disgust*

## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER



*Note.* A strong right-skewed distribution can be seen in this histogram. Normality is violated.

### Data Analysis for Disgust

#### Table D1

*ANOVA using Welch Test to Compensate for Homogeneity Violation- mcDisgust Across Condition*

| Homogeneity Correction | Cases     | Sum of Squares | df      | Mean Square | F     | p     | $\eta^2_p$ |
|------------------------|-----------|----------------|---------|-------------|-------|-------|------------|
| None                   | Condition | 1868.861       | 1.000   | 1868.861    | 4.340 | 0.039 | 0.037      |
|                        | Residuals | 49089.441      | 114.000 | 430.609     |       |       |            |
| Welch                  | Condition | 1868.861       | 1.000   | 1868.861    | 6.840 | 0.010 | 0.037      |
|                        | Residuals | 49089.441      | 109.132 | 449.816     |       |       |            |

*Note.* Type III Sum of Squares.. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . The Welch test found a significant main effect between disgust and condition; therefore disgust significantly differed across the two conditions.

## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

ANOVA using Welch Test - mcDisgust Across Gender

| <b>Homogeneity<br/>Correction</b> | <b>Cases</b> | <b>Sum of<br/>Squares</b> | <b>df</b> | <b>Mean<br/>Square</b> | <b>F</b> | <b>p</b> | <b><math>\eta^2_p</math></b> |
|-----------------------------------|--------------|---------------------------|-----------|------------------------|----------|----------|------------------------------|
| None                              | Gender       | 503.525                   | 1.000     | 503.525                | 1.138    | 0.288    | 0.010                        |
|                                   | Residuals    | 50454.776                 | 114.000   | 442.586                |          |          |                              |
| Welch                             | Gender       | 503.525                   | 1.000     | 503.525                | 1.171    | 0.282    | 0.010                        |
|                                   | Residuals    | 50454.776                 | 103.787   | 486.136                |          |          |                              |

*Note.* Type III Sum of Squares. . \*p < .05. \*\*p < .01. \*\*\*p < .001. No main effect of disgust across gender was detected.

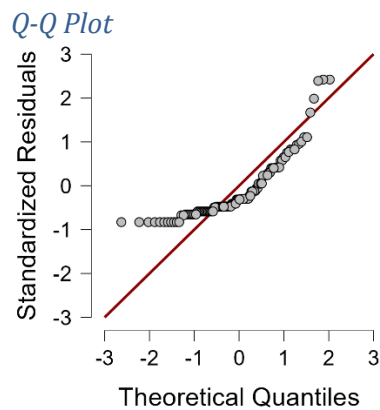
**Appendix E**

## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

## Data Analysis

**Figure E1**

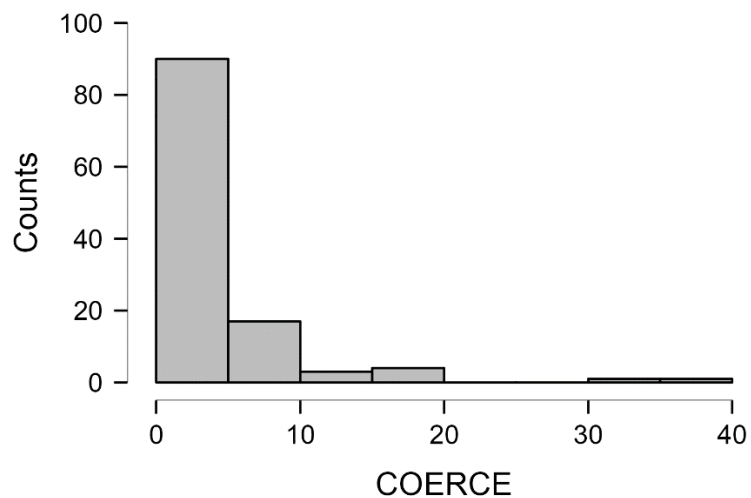
*QQ-plot for the Normality Assumption for the Two-Way ANOVA Between gender, Condition and COERCE*



*Note.* Normality is violated.

**Figure E2**

*Histogram for the Normality Assumption Check: Sexual Aggression (COERCE)*



*Note.* A strong right-skewed distribution can be seen in this histogram. Normality is violated.

**Table E1**



## EFFECT OF SEXUAL FRUSTRATION ON SEXUAL AGGRESSION ACROSS GENDER

*MANOVA Exploring the Effects of GENDER and CONDITION on Desire to Have Sex (COAX)*

*and Sexual Aggression (COERCE)*

| <b>Cases</b>       | <b>df</b> | <b>Approx. F</b> | <b>Trace Pillai</b> | <b>Num df</b> | <b>Den df</b> | <b>p</b> |
|--------------------|-----------|------------------|---------------------|---------------|---------------|----------|
| (Intercept)        | 1         | 411.960          | 0.881               | 2             | 111.000       | < .001   |
| Gender             | 1         | 3.049            | 0.052               | 2             | 111.000       | 0.051    |
| Condition          | 1         | 0.683            | 0.012               | 2             | 111.000       | 0.507    |
| Gender * Condition | 1         | 0.690            | 0.012               | 2             | 111.000       | 0.504    |
| Residuals          | 112       |                  |                     |               |               |          |

*Note.* Gender includes men and women. Condition includes the frustration and satiation

condition. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . Thus, no significant results were detected.