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Green eyed monsters? Psychopaths’ Responses to Sexual and Emotional Infidelity-Revealing Snapchat Messages

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Dissertation submitted in partial fulfilment of the requirements of Cardiff Metropolitan University for the degree of Bachelor of Science
DECLARATION

I hereby declare that this dissertation is the result of my own independent investigation under the supervision of my tutor. The various sources to which I am indebted are clearly indicated. This dissertation has not been accepted in substance for any other degree, and is not being submitted concurrently for any other degree.

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❖

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Green eyed monsters? Psychopaths’ Responses to Sexual and Emotional Infidelity-Revealing Snapchat Messages
Abstract

Jealousy manifestation and the differences between sexes has been an interest to evolutionary psychologists for decades. Evolutionary theory of sexual jealousy suggests that men have shown to fear that their partner will engage in sexual activity with another male whereas females have shown to exhibit more jealousy towards emotional infidelity. Although much is known about jealousy manifestation between sexes, there is paucity of literature examining personality constructs that may exacerbate this jealousy, such as psychopathy. One facet of psychopathy that is underexplored is how such traits may relate to one’s propensity to jealousy, furthermore psychopathy in women is considerably under researched. As online infidelity has increased and is facilitated through the secrecy of social media applications (apps), is gives cause to test such evolutionary theories within a technology setting. The current study asked 97 participants (male = 41) to complete the Levenson Self-Report Psychopathy Scale (LSRP, Levenson, Kiehl, & Fitzpatrick, 1995). After which they were presented with imagined emotional and sexual infidelity-revealing Snapchat messages and were asked to rate their level of distress (0-10) upon discovering them on their partners phone. Partial support for evolutionary theory was found with males exhibiting more jealousy towards sexual infidelity and females more so towards emotional infidelity. As predicted high psychopathy females reported more distress towards sexual infidelity than emotional infidelity. The findings will be discussed in accordance with existing literature, highlighting the implications of the research and the need for a deeper understanding of psychopathy in women with suggestions for future research.
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CHAPTER 1: INTRODUCTION

Jealousy research has for many years been dominated by theorists well versed in Evolutionary theory (Buss, Larsen, Westen, & Semmelroth, 1992; Buss et al., 1999; Buunk, Angleitner, Oubaid, & Buss, 1996; Wiederman & Kendall, 1999). Jealousy is a complex construct which due to its sheer complexity and subjective nature makes one universal definition difficult. However, it has often been described as a combination of emotions and reactions (Clanton & Kosins, 1991; Demirtas-Madran, 2011; Mathes & Severa, 1981). Jealousy is a widely researched topic area and is of great interest within psychology, particularly evolutionary psychology given that jealousy serves as an adaptive function (Harris, 2003) that assists with mate retention (Buss, 2000) which can in turn encourage reproductive success (Fussell, Rowe, & Park, 2011). Personality traits, some more than others, have shown to influence mate-selection. For instance, psychopathy has been associated with effective, short-term mating strategies (Jonason, Li, Webster, & Schmitt, 2009; Jones & Paulhus, 2010). Furthermore, some high psychopathy individuals often engage in mate-poaching as well as reacting defensively when their own mate is poached which can evoke jealousy (Jonason, Li, & Buss, 2010). However, there is little known about psychopaths’ predisposition towards experiencing jealousy (Massar, Winters, Lenz, & Jonason, 2017) thus highlighting a gap in the literature to explore this further.

Jealousy is said to have evolved as a mechanism to protect intimate partners from potential rivals (Buss et al. 1992; Buunk, Massar, & Dijkstra, 2007; Groothof, Dijkstra, & Barelds, 2009) and that evolutionary pressures have dictated the manifestation of jealousy differently between the sexes. The theory of sex differences in relation to jealousy manifestation suggests that sexual jealousy was shaped by natural selection as a means to prevent cuckoldry (unwittingly rearing another male’s offspring), and emotional jealousy to thwart loss of recourses (Harris, 2003). Research has found that men and women view certain aspects of a relationship differently. For example, women have shown a tendency to combine the sexual and emotional aspects of a relationship whereas men often view these as entirely separate components (Glass & Wright, 1992; Rudman & Fetterolf, 2014). A seminal study by Buss and colleagues (1992) examining this topic found statistically significant evidence for sex differences in jealousy manifestation. The paper presented participants with forced-
choice scenarios depicting either emotional or sexual infidelity and found that when asked to
choose which they found most distressing, significantly more men selected the sexual
scenario than the emotional scenario (60 vs. 40%). Whereas the majority of women chose the
emotional scenario as being more distressing than the scenario depicting sexual infidelity (83
vs. 17%). Similarly, Harris (2003) examined this sex difference in jealousy manifestation
looking specifically at jealousy over partner’s imagined infidelity. Harris (2003), also
employed the use of a forced-choice scenario and found significant sex differences in
hypothetical infidelity-revealing scenarios. Men reported higher levels of jealousy toward
their partner being sexually unfaithful whereas women reported more jealousy over their
partner being emotionally unfaithful. It is of interest however that Harris (2003) suggested
that the reported differences were only evident in ‘forced-choice’ scenarios but not in
continuous measures. Nevertheless, the sex differences evident in both studies (Buss et al.,
1992; Harris, 2003) are suggestive that the types of jealousy exhibited by men and women are
adaptive models of protective behaviour (Zandbergen & Brown, 2015).

The findings presented in the above papers suggest that when given the choice
between which scenario would be more upsetting, experiencing sexual infidelity or emotional
infidelity, men more often than women say sexual infidelity and women tend to choose
emotional infidelity (Buss et al., 1992, 1999; Sagarin et al., 2012). Men have been shown to
exhibit fear that their partner will engage in sexual activity with someone else as it increases
the risk of them investing their time and effort in rearing offspring that are not biologically
theirs (Buss et al., 1999). However, women have been shown to feel more betrayed when
their partner invests emotion, time and resources in another woman and therefore exhibit a
greater response to emotional infidelity (Groothof et al., 2009). There is a growing body of
literature regarding jealously and infidelity (Buss et al. 1992, 1999; Buss, 2000; Wiederman
& Kendall, 1999) and an increasing body of work examining cyber jealousy and the use of
social networking sites (SNS) exacerbating this jealousy (Dunn & Billett, 2017; Utz,
Muscanell, & Khalid, 2015).

The modern age and rapid growth of technology and its universal popularity lends
itself to test such evolutionary theories (Buss et al., 1992; Buss, 2000; Wiederman & Kendall,
1999) in an online environment within a social media context. Individuals are using the
internet more frequently than ever before to form friendships, relationships and instigate affairs (Hertlein & Piercy, 2006). Resulting in online infidelity having a well-established presence in our society and presenting modern couples with new challenges (Groothof et al., 2009). Online infidelity has further shown to not only reveal sexual components but also emotional ones (Henline & Lamke, 2003). Online environments such as social media apps, chat rooms and dating networks offer the user a level of anonymity, convenience and privacy to explore and exhibit behaviours that they may not engage in offline (Bargh & McKenna, 2004; McKenna & Bargh, 2000; Young, Griffin-Shelley, Cooper, O’mara, & Buchanan, 2000). This combination of factors may increase the likelihood of an individual to search for new sexual, emotional or romantic connections online. In line with this, online infidelity has become an increasing reason for marriage dissolution (Atwood, 2005; Ben-Ze’ev, 2004).

Groothof et al. (2009) examined whether sex differences in jealousy manifestation due to type of infidelity (sexual or emotional) would be found for online acts. Groothof et al. (2009) found that sex differences in response to internet infidelity parallel those for offline infidelity with men being more upset with their partner’s sexual infidelity over the internet whereas women were more upset with their partner’s emotional infidelity over the internet.

The seminal works of Buss et al. (1992) have further been explored by incorporating the evolving technological world by using social media platforms such as Facebook (Dunn & Billett, 2017), Snapchat (Utz et al., 2015) or by using infidelity-revealing mobile phone text messages (Dunn & McLean, 2015). To illustrate the prominence of the social world in modern society, in December 2017 it was estimated that the internet had a staggering 4,050,247,583 million users making up 51.8% of the worldwide population, (“World Internet Users Statistics and 2018 World Population Stats”, 2018). Whilst in 2016 it was estimated that 62.9 percent of the population worldwide owned a mobile telephone (“Number of mobile phone users worldwide 2013-2019 | Statista”, 2018). With numbers only set to rise it is plausible to conceive that online infidelity will also rise. Further to the virtual world in which couples interact, social media apps like Facebook have been suggested to be a fertile environment to employ mate-retention tactics. These tactics have shown to mediate the relationship between jealousy and intimate partner physical aggression (Brem, Spiller, & Vandeheey, 2015). Previous studies exploring jealousy manifestation have employed jealousy evoking scenarios on paper format (Buss et al., 1992; Weiderman & Kendall, 1999).
However, as internet infidelity has become an increasing issue for modern couples (Groothof et al., 2009) the current study sought to evoke jealousy using the social media app, Snapchat.

Snapchat was launched in 2011 and is the third fastest growing social media app and has been shown to elicit more jealousy than Facebook (Utz et al., 2015) yet there is a paucity of literature regarding SNS (Cravens, & Whiting, 2014) with even less research on Snapchat. Snapchat has a vast audience with a staggering 300,000,000 active users a month worldwide and 173,000,000 million of those users’ active daily, producing 1,000,000 Snaps everyday (Snapchat by the Numbers: Stats, Demographics & Fun Facts, 2017). Snapchat allows its users to share instant messages (IM’s), pictures and videos with selected friends. The sender creates a message and chooses how long the recipient is able to view it (up to 10 seconds). The ‘snap’ then self-destructs with only a timestamp remaining of when the snap was sent. This level of privacy and security has branded Snapchat as being a more sexual and flirtatious app than Facebook or Twitter (Roesner, Gill, & Kohno, 2014). Kemp, (2013) found that up to 67% of participants had received inappropriate images on Snapchat which is unsurprising as Utz et al. (2015) found that whilst Facebook’s predominate use was to communicate and keep in touch with friends, Snapchat was used more for seeking out love interests and to flirt.

Even though much is known about the sex differences in how jealousy manifests and the increasing popularity of SNS, researchers have not focused intentionally on personality characteristics that influence jealousy propensity. One such personality dimension that may affect levels of jealousy is psychopathy. Psychopathy is a personality construct often associated with undesirable personality traits such as being manipulative and lacking remorse (Hare, 2003), being sexually promiscuous (Fulton, Marcus, & Payne, 2010), being sexually aggressive (Mousilso & Calhoun, 2012) and exhibiting an inclination to engage in mate poaching (Jonason et al., 2010). In addition, psychopaths present as being superficially charming, egocentric and impulsive (Glenn, Kurzban, & Raine, 2011). Being adept at poaching those in a relationship and being poached themselves could lead to higher rates of infidelity, provoking sexual and emotional jealousy. Men have primarily been the focus on research regarding psychopathy resulting in limited literature on psychopathy in women (Cerny, Friedman, & Smith, 2014; Dolan & Völlm, 2009; Wynn, Høiseth, & Pettersen, 2012). Although the potential differences of psychopathy between men and women has
received little attention, it is a topic which holds clinical and theoretical implications (Jackson & Richards, 2007) given that violent offences committed by women is on the rise (Chesney-Lind, Pasko, & Laidler, 2004; Heilbrun et al., 2008; Miller, Malone, & Dodge, 2010; Moretti, Catchpole, & Odgers, 2005; Odgers, Moretti, & Repucci, 2005). Forouzan & Cooke (2005) suggest there are differences in psychopathy between the sexes and further suggest that women with psychopathy are more manipulative and tend to exhibit more flirtatious behaviour, encouraging the formulation of a tentative prediction that psychopathic women would be more inclined to sexual infidelity than women without psychopathy.

The concept of “psychopathy” brings with it many useful applications such as issues of treatment, prediction of violence, evaluation and risk (Hare, 2003). It has been suggested that psychopathy affects approximately 0.5%-1% of the population with as much as 20%-25% of the prison population meeting the diagnosis criteria (Hare, 2006, Neuman, Hare, & Newman, 2007). Evolutionary theorists have suggested that psychopathy is an adaptive function as it can influence mating-strategies in relation to fitness, sexual coaxing and violence (Cosmides & Tooby, 2000; Jonason, Valentine, Li, & Harbeson, 2011; Jones & Olderbak, 2014; Lyons, Marcinkowska, Helle, & McGrath, 2015). The ‘Dark Triad’ traits (psychopathy, narcissism and Machiavellianism; Paulhus & Williams, 2002) have been associated with short-term relationships and sexual promiscuity (Jonason et al., 2009, 2010; Jonason et al., 2011). Indeed, those with psychopathy have demonstrated to be more inclined to engage in late night sexual activities (booty calls; Jonason, Luevano, & Adams, 2012). In addition to this, psychopathy, significantly more than narcissism and Machiavellianism is suggested to be the most damaging personality trait with regards to long-term romantic relationships (Smith et al., 2014). Psychopathy is an incredibly complex construct with certain psychopathic traits having arguably both costly and beneficial attributes associated to them (Glenn, Kurzban, & Raine, 2011; Hogan & Kaiser, 2005).

There is a well-established link between psychopathic traits and personality dimensions such as aggression (Miller & Lynam, 2003; Parrott & Zeichner, 2006; Porter & Woodworth, 2006; Reidy, Zeichner, Miller, & Martinez, 2007). This may suggest that psychopathy could influence other traits such as jealousy. Violence within intimate relationships and against former or current partners remains to be of huge societal concern
(Herman, 2015; Stith, McCollum, Rosen, Locke, & Goldberg, 2006) with the effects of such abuse recognised world over (Luminița, Tasente, Dorina, & Gheorghe, 2014). Swogger, Walsh and Kosson (2007) identified that certain psychopathic personality traits may be relevant in differentiating batterers from other offenders and a large overlap has been found between generally violent/antisocial (GVA) batterers and multiple facets of psychopathy (Huss & Langhinrichsen-Rohling, 2006).

In line with this, psychopathy can be a vital contribution and critical risk factor when assessing and managing the risk of violence in men (Dean et al., 2007; Maden, 2007; Webster, Douglas, Eaves, & Hart, 1997). Furthermore, psychopathy has consistently shown to hold considerable predictability validity of violent reoffending in men (Dolan & Doyle, 2000; Hemphill, 2007; Walters, 2003). However, it is not just men who are violent in intimate relationships. Both men and women have the capacity to be both the perpetrator and victim of domestic violence (Krug, Mercy, Dahlberg, & Zwi, 2002). In a meta-analysis conducted by Archer (2000) of 82 studies evaluating men and women’s use of intimate partner violence (IPV), he found that women were more often the aggressor and were more likely to resort to physical violence then men. Furthermore, women becoming violent towards their male partners is steadily rising (Flinck, Astedt-Kurki, & Paavilainen, 2008; Miller, 2005) with women being more likely to hurt their partner or child whereas men are more prone to harm strangers and acquaintances (Maden, 1997; Monahan et al., 2001). In addition, maternal violence has also been shown to influence daughters’ use of violence in intimate relationships (de Vouge and Nicholls, 2016).

Understanding the mechanism surrounding jealousy manifestation is crucial as partner infidelity, even suspected infidelity has been associated in repeated instances of domestic violence (Domestic Violence Homicide Help, 2018). Further to this, there is a large body of evidence suggesting that one of the major precipitating factors that trigger IPV are infidelity and jealousy (Jewkes, 2002; Schuler, Hashemi, Riley, & Akhter, 1996; Worden & Carlson, 2005), with jealousy being a main motive for violent offences committed by women (Kruttschnitt & Carbone-Lopez, 2006). IPV is often described as a major issue faced by women but can negate the severity and prevalence of male victims (Dutton & White, 2013; McDonald, Jouriles, Tart, & Minze, 2009). Further to this, the growth of women being
arrested for IPV has continued to rise (Nicholls, Brink, Greaves, Lussier, & Verdun-Jones, 2009; Nicholls, Cruise, Greig, & Hinz, 2015; Schwartz, Steffensmeier, & Feldmeyer, 2009). Indeed, Coker et al. (2002) established that physical and psychological abuse at the hands of their partner had similar effects on both male and female victims. In line with this, if psychopathy does influence jealously manifestation it would be predicted that those who score highly on the psychopathy measure would become even more distressed upon discovering infidelity than their lower scoring counterparts. It is therefore necessary to deepen our understanding of violence in this respect.

This research aims to investigate sexual and emotional jealousy in individuals with high and low psychopathic traits. Much research has focused on the characteristics of psychopathy and there is little research on those with high psychopathy and their propensity to sexual and romantic jealousy. Furthermore, there is a paucity of literature on psychopathy and jealousy and even less research on psychopathy in women (Cerny et al., 2014; Friedman, 2015; Wynn et al., 2012). It seems that little research interest has been generated within this particular framework, therefore leaving a chasm in literature inviting research investigating the differences between sexes with regards to psychopathy and sexual and emotional infidelity.

In view of the above findings it is predicted that there will be a main effect of sex with females scoring higher overall as females have demonstrated to be the more jealous sex. For both sexes in the high psychopathy groups it is predicted they will score higher, irrespective of message type (emotional and sexual) than those in both low psychopathy groups due to the characteristics of psychopathy being more aggressive and reactive to jealousy-evoking situations. A main effect of message type is also predicted with sexual infidelity being the most distressing overall. In view of the above findings it is predicted that there will be a significant interaction between message type and participant’s sex in that males will report significantly higher imagined distress scores in response to discovering their partner’s sexual infidelity in both high and low psychopathy groups compared to women. With women predicted to evidence higher distress levels overall than men to emotional infidelity than sexual. Women scoring low in psychopathy are predicted to report higher imagined distress scores upon discovering their partner’s emotional infidelity rather than sexual infidelity as
women have shown to fear the loss of emotional investment from their partner. For women who score high on psychopathy the reverse pattern is predicted. More specifically, these women will behave more male like in their propensity to jealousy manifestation and will be more distressed imagining sexual infidelity than women who score low on psychopathy as research has shown that psychopathy is a predictor of harmful behaviours and women with this disorder exhibit heightened aggression which is characterised by jealousy and manipulation (Wynn et al., 2012).
CHAPTER 2: METHOD

2.1 Pilot Study

Prior to the commencement of the research a brief pilot study was conducted to ensure the PowerPoint presentation ran successfully from beginning to end, that the instructions were clear and that the scale beneath the Snapchat messages enabled the participant to select the desired number. The pilot study was conducted on a fellow researcher and no issues occurred during the study. The results were not recorded as the researcher did not fit the inclusion criteria.

2.2 Participants

For the current study 97 participants were recruited of which 41 were male with a mean age of 23.8 (SD=8.6). The majority of the sample were undergraduate psychology students based at a University in South Wales whilst the remaining participants were members of the lay public who fit the demographic. The participants who were psychology students were recruited on a voluntary basis in exchange for participant credits (which are essential for degree completion). Participants who were not students were not offered any incentive other than to be a part of psychological research. To be eligible to participate in this study participants had to meet the following inclusion criteria: be over the age of 18, fluent in written English and heterosexual.

2.3 Design

A mixed, between-participants quantitative design was chosen for the present study consisting of three independent variables (IV’s) and one dependant variable (DV). The first between-subject IV was the sex of participant, the second between-subject IV being participants’ psychopathy score (high or low using a median split) and the only within-subject IV being the message content revealing either sexual or emotional infidelity. The dependant variable (DV) measured the reported level of distress upon discovery of the imagined, fictitious scenarios of partner infidelity using a linear scale (with 0 being not distressed at all and 10 being extremely distressed). Stimuli were presented randomly with
the researcher alternating at various intervals the sequence in which the emotional and sexual messages appeared in an attempt to counteract any practice effect or fatigue effect.

2.4 Materials

The materials used in the present study were a questionnaire to measure psychopathy and a PowerPoint presentation which measured perceived distress. The questionnaire was presented as paper-based hard copies with the PowerPoint presentation on a computer screen in front of the participant. Each piece of apparatus will be discussed below in further detail.

2.4(a) Self-Report Psychopathy Scale

The questionnaire used to measure psychopathy was the 26-item Levenson Self-Report Psychopathy Scale (LSRP) (Levenson, Kiehl & Fitzpatrick, 1995). Like many other psychopathy scales, this measure uses a two-factor factor structure, Factor 1 (F1) relates to interpersonal and affective aspects of psychopathy which assess selfishness, low agreeableness and manipulation. Whist Factor 2 (F2) is related to the social deviance associated with psychopathy and to assess impulsivity and a self-defeating lifestyle. This measure has proven to have consistent reliability and validity (Brinkley, Schmitt, Smith, & Newman, 2001; Gordts, Uzieblo, Neumann, Van den Bussche & Rossi, 2015; Sellborn, 2011). Examples of the types of questions on the LSRP are ‘Q.13. I enjoy manipulating other people's feelings’ (taken from F1) and ‘Q.17. I find myself in the same kinds of trouble, time after time’ (taken from F2). This measure was chosen for the present study as it is inexpensive to administer and is shorter than alternative measures which would counteract any possible fatigue effect. Furthermore, the LSRP is one of the few self-report measures that was not devised using participants in penal institutions but was developed using a college sample. Instead of emphasising criminality it was designed to assess aspects of behaviours in the community and assesses non-criminal antisocial behaviour as well as psychopathic personality (Brinkley et al., 2001).

2.4(b) PowerPoint Presentation
A Microsoft PowerPoint presentation was devised for the purpose of this study and was presented to participants on a computer in the laboratory at a university in South Wales. The presentation consisted of five slides. The first slide was an introductory slide, welcoming participants to the study, instructing participants to use the mouse when moving on to the next slide and to indicate their response on the scale below each message. The second slide comprised of a written scenario inviting participants to imagine that they are currently in or have previously been in a romantic relationship, and have discovered emotional and sexual infidelity-revealing Snapchat messages and to rate their level of distress upon discovering these messages on the scale beneath each message. The third and fourth slides displayed the emotional and sexual infidelity-revealing Snapchat messages (see Fig .1. a & b below) with the scale beneath. The fifth slide advised participant that the study had concluded and thanked them for their participation.

Fig. 1.a & b. Emotional and sexual infidelity-revealing Snapchat messages created using Snapchat to be displayed to participants.

2.5 Procedure

After obtaining verbal and written consent participants were given brief information about the study. Participants were sat individually in a sound-attenuated cubicle in the computer lab (if more than one participant completed the study at once). This was to ensure there was no conferring as well as no participant feeling under any pressure or scrutiny when completing the LSRP. Participants completed the LSRP on paper and then attended to the
PowerPoint presentation which was presented on the computer screen in front of them. The instructions advised participants to click on the screen using the mouse when they are ready to begin. Participants were faced with the jealousy-evoking imagined scenario and two Snapchat messages, one revealing sexual infidelity and one revealing emotional infidelity. Participants rated their level of distress using the linear scale below each message which then concluded the study. On completion of the experiment participants were thanked and debriefed about the aims of the study. Participants were advised of their rights to withdraw their data from the study and told of the procedure if they desired to do so. No participant opted to withdraw their data. All data collected remained confidential and was only discussed between the researcher and the researcher’s supervisor. All data pertaining to the PowerPoint presentation was stored on a password protected computer and all paper data (consent forms and LSRP) were kept in a secure folder in a locked cabinet draw, only accessible to the researcher and the researcher’s supervisor.

2.6 Method of Analysis

The method of analysis used for the present study was a three-way mixed ANOVA. This is the appropriate form of analysis as there are three independent variables (sex of participant, psychopathy score and Snapchat message type), with appropriate post-hoc analyses.
CHAPTER 3: RESULTS

Data was prepared for analysis by firstly scoring the SRPS. To do this the scores for primary psychopathy (questions 1 – 16) were totalled and divided by the number of items (16) to get the score for primary psychopathy. The process was repeated for items 17-26. This gave the score for secondary psychopathy. Both scores were combined to give a total score of psychopathy. A median split of the scores divided the participants into high and low psychopathy groups. A three-way mixed ANOVA was conducted, the mean distress scores for males and females in both psychopathy groups in relation to the emotional and sexual messages are presented in Fig.2 below.

Fig 2. 1 showing mean distress score (0-10) for male and female participants either low or high in psychopathy presented with both emotional (E) and sexual (S)-infidelity-revealing Snapchat messages. Values = mean + SEM.

Data was analysed using a 3-way mixed ANOVA with between factors of sex and psychopathy (low and high) and within subject factors of message type (emotional and sexual). Results showed a significant main effect of sex with females being higher overall \([F_{1, 93} = 5.20, p < .05, \eta^2 = 0.53]\), a significant main effect of psychopathy with the high
psychopathy group scoring higher than low psychopathy groups \(F_{1, 93} = 4.27, p < .05, \eta^2 = .04\) and a main effect of message with sexual infidelity being most distressing overall \(F_{1, 93} = 9.28, p < .01, \eta^2 = .09\).

There was no interaction between sex and psychopathy \(F_{1, 93} = .385, p > .05, \eta^2 = .04\) however there was a significant interaction between message and sex. Simple main effect analyses showed that for emotional messages females scored significantly higher than males overall \(F_{1, 93} = 10.36, p < .01, \eta^2 = .10\) however, for the sexual message there was no difference across sex \(F_{1, 93} = .264, p > .05, \eta^2 = .03\). Analysis also showed that males were significantly higher for the sexual message than for the emotional message \(F_{1, 93} = 13.05, p < .01, \eta^2 = .123\) but for females, there was no difference between the sexual and emotional message \(F_{1, 93} = .079, p > .05, \eta^2 = .01\).

A significant interaction between message and psychopathy was also reported. There was no difference between high and low psychopathy for the emotional message \(F_{1, 93} = .236, p > .05, \eta^2 = .00\) however, for the sexual message significantly higher distress in high psychopathy group compared to the low psychopathy group, irrespective of sex was found \(F_{1, 93} = 9.93, p < .01, \eta^2 = .09\). For low psychopathy participants (irrespective of sex), there was no difference between emotional and sexual messages \(F_{1, 93} = .200, p > .05, \eta^2 = .00\). However, for high psychopathy participants there was significantly higher distress to sexual compared to emotional messages \(F_{1, 93} = 20.13, p < .01, \eta^2 = .17\).

Analysis of the 3-way interaction showed significantly higher scores for the sexual message for high psychopathy females compared to low psychopathy females \(F_{1, 93} = 10.9, p < .01, \eta^2 = .10\), however, no other comparisons were significant \(F_{1, 93} = 2.08, p > .05, \eta^2 = .02\). Post-hoc analyses from the 3-way interaction showed that for sex across psychopathy groups males in the low psychopathy group reported higher distress towards the sexual message than the emotional message \(F_{1, 93} = 4.72, p < .05, \eta^2 = .48\). Males in the high psychopathy group also reported higher distress towards the sexual message \(F_{1, 93} = 11.4, p < .01, \eta^2 = .11\). Whereas, females low in psychopathy evidenced higher levels of distress towards the emotional message than the sexual message \(F_{1, 93} = 7.17, p < .01, \eta^2 = .07\).
However, the opposite was found with females in the high psychopathy group reported higher distress towards the sexual message than the emotional message $[F_{1,93} = 8.84, p < .01, \eta^2 = .08]$. 
CHAPTER 4: DISCUSSION

The aim of the current study sought to examine jealousy manifestation in those with high and low psychopathy traits in response to imagined emotional and sexual infidelity-revealing Snapchat messages. The current study not only hoped to corroborate and extend previous evolutionary research (Buss et al., 1992, 1999; Buunk et al., 1996; Schutzwohl, 2005; Wiederman & Kendall, 1999) but also to investigate psychopathy in women and if they would follow evolutionary theory regarding their propensity to sexual and emotional jealousy. The present study corroborated the above previous findings in that men reported significantly higher levels of distress in response to their partners imagined sexual infidelity compared to emotional infidelity. Women in the low psychopathy group reported to be more jealous over their partners imagined emotional infidelity compared to sexual infidelity, with women overall scoring higher in emotional infidelity, confirming these predictions. Interestingly, women in the high psychopathy group exhibited higher levels of distress upon imagining their partners sexual infidelity than emotional infidelity further confirming this prediction. In addition to this, the current findings corroborated previous studies examining online infidelity (Dunn & Billett, 2017; Groothof et al., 2009) suggesting that the adaptive mechanism that has evolved from our evolutionary past in a bid to safeguard mates (jealousy), is still applicable in today’s modern technological society. This area of research is important to explore given the negative implications that are attached to a society that is increasingly engaged with technology and social media. Such implications on romantic relationships can include increased sexual and emotional jealousy (Muise, Christofides, & Desmarais, 2009) relationship conflict (Lyndon, Bonds-Raacke, & Cratty, 2011) and relationship dissolution (Fox, Osborn, & Warber, 2014).

These findings extend existing research on SNS (Dunn & Billett, 2017; Fox et al., 2014; Utz & Beukeboom, 2011; Utz et al., 2015) and add to the understanding of the impact of social media on intimate relationships. Monitoring a partner’s activities and behaviours on social media has shown to be a predictor of possessive jealousy (Utz, & Beukeboom, 2011). If one’s relationship is experiencing difficulties, social media may exacerbate these issues and lead to low relationship satisfaction. SNSs have also been positively correlated with the amount of time spent online and jealousy related feelings (Muise et al., 2009). Online
environments offer a more socially acceptable means to monitor a partner’s actions and behaviours than offline scenarios (Utz et al., 2015), which may make an individual who has never gone through their mate’s belongings, track their activities and movements online. It appears that the privacy of the communications afforded by Snapchat are a major cause of evoking jealousy in partners and has been correlated to higher levels of threat towards the relationship (Utz & Beukeboom, 2011). Attachment theory has also demonstrated to carry over into electronic surveillance of romantic partners (Fox et al., 2014). One’s attachment style could influence their monitoring behaviours of their partners SNSs and can exacerbate insecurities which can lead to relationship dissatisfaction.

Further to the current findings adding to the well documented evolutionary body of work on the differences between men and women with regards to jealousy manifestation, the results of the high psychopathy women exhibiting more jealousy towards sexual infidelity are of interest to many areas of psychological research. Such as individual differences, evolution, forensic and clinical psychology. Although these findings do not support the evolutionary theory of sexual jealousy, they do show support for evolutionary theory of attachment (Bowlby, 1944, 1969, 1988). It has been suggested throughout decades of research that when there is no male role model present in early childhood and adolescence, young girls grow up believing that males do not provide reliable parental investment. Thus, adopting a short-term as opposed to long-term mating strategy (Ainsworth, Bell, & Stayton, 1972; Bowlby, 1968, 1988; Draper & Harpending, 1982; Ellis et al., 2003; Ellis & Essex, 2007). Moreover, Bowlby (1944, 1988) suggested that a breakdown or failure to initiate an attachment to a caregiver could result in negative child outcomes including affectionless psychopathy and increased aggression characterised by engaging in meaningless, short-term relationships.

The findings of the present study have important implications for the development of research on jealousy manifestation and psychopathy, with particular focus on women. For instance, intimate partner violence is the most studied form of violence committed by women (de Vogel, de Vries-Robbé, van Kalmthout, & Place, 2012) with one of the strongest motives for violence committed by females being jealousy directed at their partner (Kruttschnitt & Carbone-Lopez, 2006). These findings draw special attention to how some women exhibit jealousy differently than previously reported and highlight the need for a deeper
understanding of the jealousy-arousing mechanism in women with psychopathy. There has been a steady increase in the number of women being managed by mental health services over the last two decades however much of the literature remains focused on male samples (de Vogel & Nicholls, 2016) and there is a debate as to whether the vast theoretical knowledge held on male populations is valid for female offenders as well as the paucity of knowledge on efficacy of treatment programmes specially tailored to women’s needs (Adams & Freeman, 2002; Stanford & Felthous, 2011).

Further to this, the gender discrepancy within the prison population is vast with regard to violent offences. For example, the prison population in the United Kingdom is comprised of 5% women however, there has been an increase of females being prosecuted of 6% over the last decade (Ministry of Justice, 2016). Furthermore, the rates of which Canadian women have been charged with criminal offences has steadily risen over the past thirty years (Mahony, Jacob, & Hobson, 2011). Although it is universally recognised that men across all categories and ages are the more aggressive sex, (Archer, 2004; Bjorklund & Pellegrini, 2000; Trivers, 1972) this should not negate the need and relevance of evidence based, gender-informed diagnostic tools and treatment programmes. As previously noted, literature on the manifestation of psychopathy has thus far been dominated by research being conducted on male samples, despite a rise in women being arrested, charged and incarcerated for violent offences (Chesney-Lind & Pasko, 2004; Dodge, 2010; Nicholls, Greaves, Greig, & Moretti, 2015). Moreover, research has demonstrated that the gender divide in relation to the perpetrator of aggressive behaviour and actions is largely reduced depending on the context, such as romantic relationships (Nicholls, Greaves, & Greig, 2015) Thus, it is vitally important to understand violence in women (Stanford & Felthous, 2011)

It should be noted that the preponderance of females in the high psychopathy group compared to the low psychopathy could be responsible for the higher overall mean for the sexual infidelity-revealing message. There are various explanations that could account for these results. For instance, the sample of women recruited for the current study may be more sexually unrestricted and thus more male-like in their behaviour. This could be the result of various factors such as, culture, demographics and a high proportion of single parent upbringing. All of which have shown to influence mating strategy as girls reared by only their
mother have been shown to be more inclined to short-term relationships and heightened sexual activity (Alvergne, Faurie, & Raymond, 2008; Belsky, Steinberg, & Draper, 1991). In addition to this, girls with low paternal investment and absent fathers have shown to experience an early menarche (Ellis, 2004), have multiple sexual partners and a lack of emotional attachments (Figueredo et al., 2006; Kaplan & Gangestas, 2005). As well as affecting attitudes toward pair bonding, girls have shown to be more inclined to promiscuity and form unstable relationships in adulthood (Belsky et al., 1991). However, as no details of the parental upbringing status of the participants was obtained these explanations are speculative and so future research may want to explore such factors as parental status. In line with this, future research may also wish to control for the disproportionate groups and have a more even distribution of participants in both high and low psychopathy groups.

In devising the methodology for the current study efforts were made to make the infidelity-revealing Snapchat messages as realistic as possible which elicited strong reactions. However, future research could employ the use of sent messages confirming the emotional and sexual infidelity. For example, participants could be presented with imaginary infidelity-revealing messages received by their partner and subsequently presented with the response their partner sent. Previous research has provided support for the use of sent messages (Dunn & Billett, 2017) and have suggested that sent messages can provide confirmation of the infidelity. Whereas a received message may be made up by the third party or may not be reciprocated, therefore diminishing its potency. In addition, there is also potentially a ceiling effect which may have masked potential differences. Future research may benefit from including a larger scale ranging from 0 – 100. Furthermore, it may be of interest for future research to examine primary and secondary psychopathy separately as research has shown that the two factors may demonstrate opposing traits, with regards to dimensions of anger and aggression (Reidy, Shelley-Tremblay, & Lilienfeld, 2011; Reidy, Kearns, & DeGue, 2013; Seara-Cardoso, Neumann, Roiser, McCorry, & Viding, 2012). Additionally, it has been suggested that individuals high in primary or secondary psychopathy may react differently to jealousy-evoking situations (Massar et al., 2017). Whilst the current study acknowledged the use of a two-factor structure in the LSRP, scores were calculated for primary and secondary psychopathy separately and subsequently combined and used as a total. Future researchers may want to examine each structure independently given the reported differences and the absence of negative affect in primary psychopathy (Del Gaizo & Falkenbach, 2008).
In conclusion, the aim of the present study was to further examine the sex differences in jealousy manifestation in groups of high and low psychopathy using imagined infidelity-revealing Snapchat messages. The findings of this study demonstrate partial support for evolutionary theory and corroborate previous findings (Buss et al., 1992; Buunk et al., 1996; Groothof et al., 2009; Wiederman & Kendall, 1999). However, of significance, results showed that females high in psychopathy behaved more male-like in their jealousy manifestation and exhibited higher distress to sexual infidelity. There are numerous practical applications that have arisen as a result of the current research findings. In addition to adding to the vast body of evolutionary work on jealousy, it presents a way forward for future research examining an area of psychological research that is currently understudied. These findings could be used to highlight the need to further our understanding of psychopathy in women and jealousy manifestation as well as female aggression. In addition to this, the present findings emphasise the need to further explore jealousy manifestation through an evolutionary perspective on those with psychopathic traits which may encourage the advancement of gender-sensitive risk assessment tools.
REFERENCES


Herman, J. L. (2015). *Trauma and recovery: The aftermath of violence--from domestic abuse to political terror*. Hachette UK.


APPENDICES

Appendix 1. Leveson Self-Report Psychopathy Scale

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<tr>
<th>Item</th>
<th>disagree strongly</th>
<th>disagree somewhat</th>
<th>agree somewhat</th>
<th>agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success is based on survival of the fittest; I am not concerned about the losers</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>For me, what's right is whatever I can get away with</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>In today's world, I feel justified in doing anything I can get away with to succeed</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>My main purpose in life is getting as many goodies as I can</td>
<td>☐</td>
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<tr>
<td>Making a lot of money is my most important goal</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>I let others worry about higher values; my main concern is with the bottom line</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>People who are stupid enough to get ripped off usually deserve it</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Looking out for myself is my top priority</td>
<td>☐</td>
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<tr>
<td>I tell other people what they want to hear so that they will do what I want them to do</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>I would be upset if my success came at someone else's expense</td>
<td>☐</td>
<td>☐</td>
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<td>I often admire a really clever scam</td>
<td>☐</td>
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<td>Statement</td>
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<tr>
<td>I make a point of trying not to hurt others in pursuit of my goals</td>
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<td>I enjoy manipulating other people's feelings</td>
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<td>I feel bad if my words or actions cause someone else to feel emotional pain</td>
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<tr>
<td>Even if I were trying very hard to sell something, I wouldn't lie about it</td>
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<tr>
<td>Cheating is not justified because it is unfair to others</td>
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<tr>
<td>I find myself in the same kinds of trouble, time after time</td>
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<tr>
<td>I am often bored</td>
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<tr>
<td>I find that I am able to pursue one goal for a long time</td>
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<td>I don't plan anything very far in advance</td>
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<tr>
<td>I quickly lose interest in tasks I start</td>
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<tr>
<td>Most of my problems are due to the fact that other people just don't understand me</td>
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<tr>
<td>Before I do anything, I carefully consider the possible consequences</td>
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<tr>
<td>I have been in a lot of shouting matches with other people</td>
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<tr>
<td>When I get frustrated, I often “let off steam” by blowing my top</td>
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<tr>
<td>Love is overrated</td>
<td></td>
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Appendix 2. Emotional and sexual infidelity-revealing Snapchat messages
Appendix 3. PowerPoint presentation
## WORD COUNT STATEMENT

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Signed: ________________________________

Date: ______________ 18th April 2018