Sex Differences in Jealousy: Investigating Infidelity Types and Rival Characteristics Using Animated Videos

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Abstract

In this study, romantic jealousy, infidelity types, and rival characteristics (height, weight, facial attractiveness, strength, and social status) are explored from an evolutionary perspective. Several studies have previously investigated this issue with results suggesting that jealousy is an evolved psychological mechanism (as opposed to a purely social construct). Participants were presented with animated videos of jealousy-provoking situations and asked to report, using visual analogue scales, on the intensity with which they would expect to experience a wide range of jealousy-related emotions. Despite a replication of the original findings when using only the written forced-choice question, the video paradigm found no evidence for the hypothesis that women and men are differentially sensitive to sexual and emotional infidelities. However, women reported more of an emotional response to the infidelity videos than men, and participants reported more of an emotional response to the sexual versus the emotional infidelity video. Further, while participants did perceive differences in the attractiveness of the various rival characters created, these rival characteristics were not found to have a significant influence on participants' emotional intensity ratings in response to the jealousy-provoking videos. Analyses indicated that being short or overweight (in men) and being overweight (in women) were the characteristics that were associated with the greatest decreases in both opposite-sex and same-sex evaluations of attractiveness.

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Jealousy has likely always represented a serious personal, relational, and societal issue with the potential for deadly consequences (Mullen, 1995; Wang, Parish, Laumann, & Luo, 2009; Wilson, Johnson, & Daly, 1995). Texts as ancient as the Book of Numbers, the fourth book of the Old Testament, recognized jealousy, even when no infidelity had taken place, as an issue where outside intervention may be required (Stein, 2011). (Num 5:14, New King James Version) "And the spirit of jealousy come upon him and he becomes jealous of his wife, who has defiled herself; or if the spirit of jealousy comes upon him and he becomes jealous of his wife, although she has not defiled herself - (15) 'then the man shall bring his wife to the priest. He shall bring the offering required for her, one-tenth of an ephah of barley meal".

Be it elicited by an actual infidelity or not, the consequences of jealousy persist to this day. Of the 1060 homicides between 1974 and 1983 in Canada, 20% (195 by males, 19 by women) were said to be motivated by jealousy and occurred within the context of current or past romantic relationships (Daly & Wilson, 1988a; 1988b; Wilson & Daly, 1992). Several studies have identified jealousy and, most especially, male sexual jealousy, as a critical component of domestic violence (Babcock, Costa, Green, & Eckhardt, 2004), wife-battering (Daly, Wilson, & Weghorst, 1982), harassment (Wigman, Graham-Kevan, & Archer, 2008), and stalking (Dutton, van Ginkel, & Landolt, 1996). White (2008) also identified jealousy as the main presenting issue or a major therapist-identified problem in about one-third of romantic couples who seek the services of family and marital therapists. It is perhaps thus not surprising that jealousy, across cultures and societies, has generally been understood and conceptualized as a negative emotional state, an undesirable personality trait, and a sign of moral weakness (Stearns, 1989).

Jealousy is universal and experienced similarly in women and men

The prevailing belief may be that the darkest aspects of jealousy tend to be primarily associated with the male sex. Indeed, the acts driven by jealousy that are of a serious enough nature to reach the justice system are disproportionally committed by men against their female partners or ex-partners (Wilson & Daly, 1992). This imbalance in the extreme expressions of jealousy may however be a consequence of other factors, such as the increased aggressiveness (Archer, 2004), impulsiveness (Cross, Copping, & Campbell, 2011), strength (Peasant, 1983), and risk-taking propensities (Pawlowski, Atwal, & Dunbar, 2008) of human males, relative to human females, rather than due to a true qualitative or quantitative difference in the sexes' experience of jealousy per se. For example, a community study conducted by Mullen and Martin (1994) revealed that 15% of both women and men report being subjected to "milder" forms of physical violence (such as being struck or having objects thrown at them) at the hands of a jealous mate at some point in their lives. No sex differences were found in another study when participants were asked to describe their most intimate relationships and report on the frequency, duration, and intensity of their jealous episodes (Pines & Friedman, 1998).
Surveys conducted by Buss (2000) also revealed that nearly all men and women reported having experienced at least one episode of intense jealousy at some point in their lives, 31% had found the episode particularly difficult to control, and 11% reported having desired to harm someone as a result.

Thus, research seems to indicate that there is no compelling evidence suggesting that women and men actually experience jealousy at different frequencies or intensities. However, the possibility that sex differences in what triggers jealousy or how intensely it is experienced remains.

Commonality of Infidelities

As with episodes of jealousy, instances of infidelity also appear to be a widespread phenomenon. The works of Kinsey, Pomeroy, and Martin (1948), and Kinsey, Pomeroy, Martin, and Gebhard (1953), commonly referred to as the Kinsey Reports, were among the first in providing empirical evidence that infidelities are common. Their reports marked a new era in the study of human sexual behaviours, sparking both controversy as well as widespread popular and scientific interest in infidelity during the decades that followed. An extensive and comprehensive review of the available literature on extramarital sex that emerged during the following decades suggests that 50% of married American men had engaged in sexual intercourse with someone other than their spouse (and without the latter's consent or *a priori* knowledge) and that the figures for married women, at the time, were rapidly approaching the same level (Thompson, 1983). These values agree with more modern estimates (Buss, 1994; 2000; Fisher, 1992). Further, for three principal reasons, this estimate of 50% may underestimate the true frequency at which infidelities occur. Firstly, the intimate nature of questions pertaining to one's current or past sexual indiscretions are likely to evoke socially desirable responses. Secondly, this value does not reflect lifetime cumulative incidence and we can easily imagine that as many of the younger non-extramaritally involved subjects grow older, so too does the probability of their straying. Finally, these rates were obtained using the most conservative definition of infidelity conceivable, "consensual sexual intercourse with someone other than one's long-term partner", rather than more liberal alternative definitions which would allow other objective activities, such as kissing, heavy petting, and oral sex, to inflate them further.

Less direct evidence pertaining to the rife nature of infidelities (but largely free of the above-mentioned limitations) also exists. One study (Betzig, 1989) collected data on divorce from 183 different cultures and found that infidelity and adultery were the most frequently cited reasons for conjugal dissolutions. Blood group studies conducted in England, which were not undertaken with the goal of investigating infidelities, also uncovered that close to 6% of children in their sample could not possibly be genetically related to their purported fathers (Edwards, 1957). Finally, studies of sperm volume and sperm morphs suggest a long evolutionary history of sperm competition in our species whereby as time spent apart from a long-term partner increases (and hence increased risk of insemination by a rival male), sperm morphs designed to compete with rival sperm increase in frequency relative to sperm morphs designed for egg fertilization (Baker & Bellis, 1995).

If all humans can, and likely do, experience episodes of jealousy and if infidelities do occur at such frequencies, then the violent and cruel acts inflicted in the name of jealousy should be understood as, relatively speaking, quite rare. As vivid and poignant as they might be, they represent an extreme along a wide continuum of potential responses to the experience of jealousy. To analogize the issue: When a fire alarm goes off in a crowded theatre, people may panic and stampede or exit in an orderly fashion. If people have sufficient insight and knowledge regarding appropriate behaviour when placed in certain situations and possess genuine concern for the safety and best-interest of all parties involved, they will behave in the desirable and adaptive manner. The vast majority of times, when alarms sound, people do remain calm and exit in an orderly fashion despite experiencing an unpleasant arousal. It is however those few times when people do panic and tragedy ensues that make it to the evening news and most readily fasten to our minds. While worst-case scenarios can be incredibly

informative, allowing our understanding of jealousy to be primarily informed by extremes (such as those emanating from battered women shelters studies and murder statistics) inevitably distorts the investigated phenomenon. This may in turn blind us to the possibility that jealousy, similar to pain or the surge of concern provoked by fire alarms, may in fact be adaptive and desirable despite being unpleasant. The last few decades have seen several prominent scientists and theorists approach the issue of jealousy from an evolutionary perspective and, in so doing, have slowly reshaped our understanding of this construct.

Jealousy as an Evolved Psychological Mechanism

Driven by the understanding that everything psychological is simultaneously biological, evolutionary psychologists have proposed that much of the flexibility of human behaviour may be attributable to a large and innate collection of psychological mechanisms (or adaptations) (Buss, 1998; Pinker, 1997). These mechanisms, which are activated selectively and sequentially by specific types of stimuli, and dependent on the situational context in which these stimuli are received, serve the function of motivating action. Thus, in evolutionary parlance, jealousy has been operationally defined as a mechanism that is aroused when a person perceives a threat to, or suffers the loss of, a valued romantic relationship at the hands of an actual or imagined rival (Buss, 1994; Buunk et al., 2011; Dijkstra, Barelds, & Groothof, 2010). Of course, it is still understood that our actions, in response to the activation of a mechanism, will be strongly influenced by the sum of our knowledge and experiences so that one should not see such mechanisms as being entirely deterministic of behaviors. These mechanisms are believed to exist in the form they do today because they helped resolve recurrent problems of survival and reproduction over our evolutionary history - that is, they have evolved to be as they are today due to the processes of natural and sexual selection originally proposed by Darwin and Wallace

(1858; Darwin, 1869; Darwin, 1871). The recurrent problem, in the case of jealousy, is that for both sexes and across the lifespan, the loss of resources provided by a significant other invariably incurred some fitness cost, be it in terms of survival or reproduction although, properly framed, the consequences are ultimately understood to be borne by our genes (Dawkins, 1976). While some losses are inevitable, such as is the case when a loved one dies (in which case we experience grief), other losses are less so, such as being abandoned, betrayed, or neglected by a significant other due to the presence or actions of a rival third party. In the case of the latter, and especially where one has invested significant resources in or is highly dependent on the threatened or lost relationship, a system which would be triggered upon perceiving potential and actual relational losses and motivate behaviours aimed at preventing or minimizing consequences could very well be a candidate for natural and sexual selection. Reproductively speaking, those individuals who possessed such a mechanism would be in a position to both produce more offspring and augment the chances that these survive to their own reproductive age. Thus, just as the mechanism of pain would incite us to avoid further injury by causing us to put less weight on a bad leg or to take more active steps in repairing the damage, depending on the specifics of the situation and the resources available, so might jealousy incite us to take actions aimed at minimizing the insult to our genes that neglect, abandonment, and infidelity represent. The following sections will focus on a review and discussion of those findings which provide empirical support for the theory that jealousy is an evolved psychological mechanism.

Evolutionary Pressures on Jealousy

The bulk of the empirical evidence supporting the theory of jealousy as an evolved psychological mechanism has focused on romantic jealousy and, more specifically, on sex differences in jealousy as it pertains to sexual versus emotional infidelity. The jealousy

mechanism is considered by many evolutionary theorists to be broad and generalized enough to be responsible for all forms of jealousy (such as sibling and friendship jealousy but also likely extending to instances where one loses the attention of a significant another due to some object or hobby such as pornography or the art of motorcycle maintenance). However, the emphasis on romantic jealousy and sexual versus emotional infidelity was an important step in establishing an empirical foundation on which could rest the theory that jealousy has been created and shaped by nature (Buss & Haselton, 2005). In essence, the goal of evolutionary based research on jealousy is not to establish that females and males have evolved distinct jealousy mechanisms or that a number of different jealousy mechanisms exist for different types of jealousy-arousing situations. Rather, the intent is to produce data that may or may not support the hypothesis that jealousy is an evolved psychological mechanism, by testing whether subtle sex differences anticipated by various evolutionary principles can be detected.

Sexual versus emotional infidelities. Sexual infidelity is most commonly defined as sexual activity with someone other than one's romantic partner whereas emotional infidelity is said to occur when one channels resources such as romantic feelings, time, and attention towards someone or something else at the expense of her or his current romantic partner (Shackleford, LeBlanc, & Drass, 2000). Early evolutionary psychologists writing on the issue surmised that while both forms of infidelity represent important clues that access to a valuable resource is at risk, here existed a situation in which evolutionary principles predicted a difference in the sexes' sensitivity to these two forms of infidelity (Buss, Larsen, Westen, & Semmelroth, 1992).

It was hypothesized that while females, due to internal fertilization, are guaranteed to be genetically related to their offspring, males have had no such guarantee and thus have had more to lose, reproductively speaking, from sexual infidelities. This is because the cuckolded male not

only fails to pass down his own genes but also risks channelling significant resources into the reproductive success of his intrasexual competitors by rearing their children. Thus, males of our species who failed to be bothered by the sexual escapades of their partners (relative to other males) suffered from a significant reproductive disadvantage. For females, the sexual infidelities of a mate should also be disturbing, of course, but more so because they are representative of a mate's unwillingness or inability to commit and invest his resources in herself and their offspring (Pines & Friedman, 1998). While sexual infidelities, for a woman, still contribute to the reproductive success of her intrasexual competitors and so remain costly, they do not compromise her confidence that her children are her own nor is she at risk of investing significant resources into the rearing of genetically unrelated children. As a result of this asymmetric natural pressure it was anticipated that males should show greater sensitivity to cues of sexual infidelity than females.

The experimental paradigm that emerged to test this hypothesis was one in which participants were asked to think of a serious committed relationship they either had, currently have, or would like to have and then imagine that this person: (a) formed a deep emotional attachment to someone else, or (b) enjoyed passionate sexual intercourse with someone else. Participants were then asked which option, sexual or emotional infidelity, would be most upsetting or disturbing to them. The results of this study, which encompassed more than 10,000 participants from 37 different cultures, fell in favour of the hypothesis with 60% of males but only 17% of females reporting sexual infidelity as the most distressing option (Buss, Larsen, Westen, & Semmelroth, 1992).

The simple effect versus interaction controversy. While follow-up studies using the forced-choice method described above rather robustly yielded similar results, the expected sex

differences became elusive when researchers tried to replicate them using continuous measures of jealousy (Sagarin, 2005). This led several critics of the theory to conclude that the supporting evidence was an artifact of the forced-choice method (Buller, 2005; DeSteno, Bartlett, Braverman, & Salovey, 2002; Harris, 2003; but also see Buss & Haselton, 2005 for reply). However, as discussed below, the case has since been made that tests of main (or simple) effects in studies using continuous measures are inappropriate in testing the hypothesis of evolved sex differences in jealousy (Sagarin, 2005).

Several factors, aside from sexually dimorphic selection pressures, may influence the sexes' overall levels of self-reported jealousy on continuous measures. One factor relates to findings suggesting that the direction and degree of sex differences can be influenced by slight changes in anchor or question wording. For example, it was shown in one study that women report higher levels of jealousy when the upper anchor of the jealousy scale is labelled "extremely jealous" but that this simple effect of sex disappears if contextual information is provided (e.g., "as jealous as you could feel in a romantic relationship"; Sagarin & Guadagno, 2004). Similarly, males can be made to report greater jealousy than females if the contextual information on the upper anchor is changed to "jealous enough to hurt someone". The operational definitions assigned to sexual and emotional infidelity may also influence the infidelity type effect in subtle ways; A sexual infidelity where the partner is described as having "passionate sexual intercourse with a rival" is more jealousy provoking than "different sexual positions with a rival". Likewise, an emotional infidelity where the partner is described as "falling in love with a rival" is more jealousy provoking than "develops a strong emotional bond with a rival" (Buss et al., 1992). Such influences, despite being interesting in and of themselves, have little to do with the evolution of jealousy.

Sagarin (2005) and Edlund and Sagarin (2009) argue that, as evolutionary principles posit that selection pressures have given males (but not females) greater sensitivity to cues of sexual infidelity, the statistical effect which would be influenced by evolved sex differences in jealousy but relatively free of the above mentioned confounds should be the Participant Sex × Infidelity Type interaction (for a more thorough discussion see Edlund & Sagarin, 2009). Sagarin and colleagues (2012) thus conducted a series of meta-analyses on 40 such published and unpublished studies considering only the available Participant Sex × Infidelity Type interaction effects; Included were those studies which employed the prototypical written hypothetical infidelity paradigm (which used continuous measures) as well as those that asked participants to think back to actual sexual and emotional infidelities from their pasts. Finally, the various and multiple emotional terms (such as "upset", "distressed", "hurt", and "angry"') attached to the measurement scales frequently employed in jealousy-related studies were also examined. In total, the 40 considered studies contained 47 independent samples and provided 209 effect sizes. A significant theory-supportive sex difference emerged across samples using hypothetical infidelities, $g^* = 0.258$, 95% confidence interval (CI) [0.188, 0.328], $p < .001$, as well as across samples assessing actual infidelities, $g^* = 0.234$, 95% CI [0.020, 0.448], $p = .03$. The expected sex difference in jealousy (i.e., men reporting greater sexual than emotional jealousy when compared to women) was also found to be more pronounced when the measured emotion was "*distress/upset"* ($g^* = 0.337$) and "*jealous*" ($g^*=0.309$) but that it was also discernible through other emotions such as "*hurt*" ($g^* = 0.161$), "*anger*" ($g^* = 0.074$), and "*disgust*" ($g^* = 0.012$) (Sagarin et al., 2012). These findings suggest that the sex difference in jealousy, as it pertains to which form of infidelity (sexual vs. emotional) is most upsetting, does not appear to be an

artifact of response format. However, additional research using more ecologically valid paradigms (i.e., moving beyond verbal descriptions of scenarios) would be valuable.

Rival characteristics. Researchers have also investigated several other potential sex differences in jealousy anticipated by evolutionary principles. Of particular interest here are those studies which examined the characteristics of the rival third party (also frequently referred to as interlopers, intrasexual competitors, or poachers) necessarily involved either directly or indirectly in most jealousy-provoking situations. As Buss, Shackelford, Choe, Buunk, and Dijkstra (2000) have suggested, romantic jealousy seems to exist at the intersection of mate selection (Buss, 1994) and cheater detection theories (Cosmides, 1989). This hints that, as it pertains to rival characteristics, we should be most vigilant for potential signs of infidelity when a rival in question possesses those attributes which the opposite sex tends to favour in mate selection. For example, if the average woman prefers tall men then the average man's jealousy is likely to be activated with greater intensity if he sees his mate flirting with a tall man, relative to if he was to see her flirting with a short man. Generally, such studies have asked participants to rank order lists of characteristics which they would find most threatening if present in a rival (Buss et al., 2000) or, more in-line with the sexual versus emotional infidelity paradigm described earlier, have asked participants to imagine hypothetical infidelities in which the rival possessed more or less of some important characteristic relative to themselves and report on their emotions using continuous measures (Buunk, Solano, Zurriaga, & González, 2011). In the next section, the general trends revealed through these studies are reviewed.

Fertility, Youth, and Attractiveness. Before discussing sex differences in mate preferences, it is important to mention that for both sexes, and with little cross-cultural variation, the ideal mate is said to be loving and caring (Buss, 1994). From an evolutionary perspective,

this could be said to highlight the positive roles commitment and cooperation have played in promoting offspring survival over our evolutionary history. Aptly, there is supporting evidence that both females and males believe they would be most upset by a romantic rival who was kinder and more understanding than themselves (Buss et al., 2000). This important similarity aside, evolutionary principles predict that, due to human females' limited periods of fertility, both in terms of age range and monthly cycle, reproductively successful ancestral males would have been those who found youthful and fertile females attractive. Of course, fertility tests and birth certificates being relatively recent developments and signals of ovulation being largely concealed in our species, ancestral males would have had to rely (albeit not at an explicit level) on observable correlates of fertility and youth. In line with this prediction, mate preferences studies have shown that, more so than females, males emphasize physical attractiveness in potential mates (Buss et al., 2000). Further, what males find most attractive in females is surprisingly universal with clear skin, good teeth, lustrous hair, full lips, and a low waist-to-hip ratio identified as candidates (Buss, 1989). These characteristics are all hypothesized correlates of youthfulness (lifetime reproductive value) and higher levels of the circulating sex hormones estrogen and progesterone, which are necessary for fertility (immediate cues of fertility) (Law Smith et al., 2006; Roberts et al., 2004). Thus, as it pertains to jealousy and rival characteristics, females should feel most threatened, relative to males, when they feel an intrasexual competitor is physically more attractive than they are. Again, this result has been observed in studies investigating jealousy and rival characteristics (Buss et al., 2000; Buunk et al., 2011; Dijkstra & Buunk, 2002).

Parental investment. For women, who invest more than men in the act of creating life, there would have been a benefit of choosing a mate or mates able and willing to protect and

provide both for the duration of the pregnancy and beyond. Men too, of course, benefit by investing in the prosperity of their progeny by choosing mates willing and able to do the same. However, the token role and relatively low initial investment required of men in the act of procreation meant that potentially greater gains, in terms of gene frequency and variance, were possible by adopting a pluralistic approach to mating. For females, mating with different males does hold benefits in terms of gene variance but not in terms of numbers - no matter how many sexual partners our ancestral mothers had, nature has always imposed on human females, relative to human males, a low ceiling effect on the maximum number of children that could be borne in a lifetime. Additionally, as men are fertile through most of their life, the importance of identifying fertile men in mate selection is also less immediate for women. The result of this asymmetric selective pressure is believed to explain why females, more so than males, factor in social status, industriousness, financial prospects, and physical strength in gauging the value and desirability of their mates rather than cues of fertility (Sagarin, 2005). Thus, pertaining to jealousy and rival characteristics, males more so than females should feel threatened when their rivals appear more prosperous or stronger than they are. The existence of such a sex difference has been suggested (Buss et al., 2000; Buunk et al., 2011; Dijkstra, Barelds, & Groothof, 2010; Dijkstra & Buunk, 1998; Dijkstra & Buunk 2002).

The above section of this review suggests that jealousy has received much attention from evolutionary-oriented researchers. Overall, this approach has contributed to our understanding of jealousy by demonstrating that the activation and intensity of the phenomenon seems to have been sculpted by nature. In line with the theory of paternity uncertainty and parental investment, males appear particularly sensitive to cues of sexual infidelity whereas females appear to show greater sensitivity to cues of emotional infidelity. In line with the theories of intrasexual

competition and mate preferences, males appear particularly bothered by rivals who are stronger and have more resources whereas females appear particularly bothered by romantic rivals who are younger and physically attractive.

In the third and final part of this review, we discuss how jealousy has also received considerable attention from emotional theorists where the phenomenon is understood and conceptualized as a dynamic complex of more basic emotions.

Jealousy: Emotional Complex

Jealousy is said to be aroused when a person perceives a threat to, or suffers the loss of, a valued relationship due to the existence of an actual or imagined romantic rival (Buss, 1994; Buunk et al., 2011; Dijkstra et al., 2010). Although such a definition implies that jealousy contains both cognitive and behavioural aspects, the component which most readily springs to mind when one speaks of jealousy is the emotional aspect. It is this dimension, the emotional experience of jealousy, that is discussed in this section.

Jealousy-related emotions and action tendencies. Rather than a specific emotion in and of itself, the scientific literature has generally described the emotional experience of jealousy as a dynamic complex of more basic emotions. In their attempt to investigate and organize the emotional facets of jealousy, investigators have proposed several clusters of jealousy-related emotions which, in varying combinations and degrees of intensity, are likely to be experienced during an episode of jealousy (Guerrero, Trost, & Yoshimura, 2005).

While the specific number of emotions proposed to be related to jealousy varies from study to study, some appear inevitable and many tend to cluster together (Guerrero et al., 2005; Sagarin et al., 2012; Shackelford et al., 2000). Most strongly associated to jealousy is the *anger cluster* (which includes sentiments of hatred, contempt, and annoyance) as well as the *fear*

cluster (composed of anxiety, worry, and distress). To a lesser degree, a *sadness cluster*, which includes depressive and helpless feelings, has also been associated with jealous episodes. Also suspected of being potentially present but less robustly investigated are the *envy* (envy, resentment, and covetousness), *sexual arousal* (lust and passion), and *guilt* (regret, embarrassment) *clusters*. Despite being somatic rather than emotional, people also frequently describe their jealous experiences with symptoms such as stomach sickness, nausea, hotness, and dizziness (Shackelford et al., 2000). Finally, because jealousy may also serve a function in promoting increased commitment and helping one realize that a partner should not be taken for granted, some investigators have also proposed a *positive cluster* which includes the evocation of emotions such as love, attraction, and appreciation (Guerrero et al., 2005; Sheets, Fredendall, & Claypool, 1997).

According to many theorists, emotional reactions invariably involve dispositions towards or preparations for action. These dispositions, also called action tendencies, are believed to be biologically based responses that help us cope with and adapt to changes in our environment (Bradley, 2000; Bryson, 1991; Frijda, Kuipers, & ter Schure, 1989; Lazarus, 1991). While action tendencies represent innate impulses to react in particular ways in response to particular emotions, it goes without saying that knowledge and experience are also key factors in mediating a person's reaction to emotion-provoking situations in such a way that behavioral output may not necessarily be consistent with (or could even contradict) the action tendency. Nevertheless, informed by both animal and human studies, there is evidence for the existence of distinct action tendencies for various emotions and their intensities (e.g., Guerrero et al., 2005). We present here, in relative order of importance, those emotions and related action tendencies which have been associated with jealousy.

Anger. Anger, which occurs when goals or plans are frustrated, has been associated with reactive retribution and aggression such as getting revenge by physically confronting or verbally attacking (such as through denigration) the partner or rival, purposely trying to induce jealousy in one's partner, or ignoring the partner in a form of passive aggression (Shaver, Schwartz, Kirson, & O'Connor, 1987; Guerrero et al., 2005). Descriptive affective terms commonly employed and found to load on this cluster include "angry", "upset", "hostile", "hate", "disgust", and "homicidal" (Shackelford et al., 2000).

Fear. Fear has been associated with the tendency to put distance between the self and the perceived or actual threat (Öhman, 2000). Jealousy-related fear may stem from uncertainty and concerns regarding the state of one's valued romantic relationship and has also been associated with increased surveillance behaviors, presumably as a way of gathering further information as to the seriousness of the threat (Guerrero & Afifi, 1999). Fear may also result in avoidance or withdrawal behaviors if it is believed that showing signs of jealousy or insecurity could further harm the relationship (Guerrero et al., 2005). Descriptive affective terms commonly employed and found to load on this cluster include "afraid", "fearful", "distressed", "anxious", "worried", and "shocked".

Sadness. Losing people and relationships are among the most common events leadings to the experience of sadness (Shaver et al., 1987) and, in the case of jealousy, sadness may also emerge due to a sense of being rejected either in actuality or in potentiality (Guerrero et al., 2005). Behaviourally, sadness has been associated with disengagement from the object which created the sense of loss (Lazarus, 1991) as well as negative affect expression such as crying and expressing hurt (Guerrero et al., 2005). Descriptive affective terms commonly employed and found to load on this cluster include "sad", "depressed", "hurt", "heartbroken", and "suicidal".

Envy. Envy and jealousy are terms often employed synonymously, although perhaps erroneously, in common parlance. Most notably, the term envy is acquisitive in nature and refers to the desire to gain possession of some object or characteristic whereas jealousy is retentive in nature and refers to the desire to hold on to something combined with doubt about our ability to do so and, used appropriately, mostly applies to interpersonal relationships (Parrott, 1991). Nevertheless, envy may be experienced as part of the jealousy complex when the jealous individual perceives that a rival possesses more of some desirable characteristics than they do. For example, as we discussed earlier, such characteristics may include: being nicer and more understanding (for both sexes), possessing greater social status, strength, or resources (mostly for males), or being younger and physically attractive (mostly for females) (Buss et al., 2000; Dijkstra & Buunk, 2002). It has been suggested that envious individuals are more likely to behave antagonistically and antisocially through derogation, manipulation of perception, or distancing from the target of their envy (Guerrero et al., 2005). The reader may have noticed a certain degree of overlap between the adversarial and confrontational nature of the action tendencies associated with both envy and anger. For our purposes, it is sufficient to say that the tone of motivated behaviours encouraged by the experience of envy are somewhat more covert and calculated than those produced by anger. Affective terms that have been found to load on this cluster include "envious", "resentful", "vengeful", "inferior", and "inept".

Guilt. While not immediately obvious, individuals may also experience pangs of guilt as part of their jealous sentiments because jealousy is often interpreted as a sign of moral weakness and as an undesirable personality trait (Stearns, 1989). Additionally, in the course of a jealous experience, a person may have committed acts, such as invasions of privacy, which could in themselves introduce feelings of guilt. If a person is aware of having misbehaved in some

fashion towards their romantic partner, it is also very possible that guilt relates to feelings of responsibility for the current jealousy evoking behavior of their partner. When activated, guilt has been behaviourally associated with corrective actions such as apologizing, being particularly nice, and showing increased attention and affection (Guerrero, Andersen, Jorgensen, Spitzberg, & Eloy, 1995; Guerrero, Trost, & Yoshimura, 2005). Guilt may also be important to consider in determining the likelihood that a jealous individual will verbally threaten their partner or rival; One study (Guerrero et al., 1995) showed that individuals who reported high levels of anger combined with low levels of guilt (but not those who reported high anger and moderate to high guilt) were more likely to have uttered such threats. Affective terms that have been found to load on this cluster include "guilty", "regretful", "embarrassed", and "responsible".

Sexual Arousal. Also not immediately obvious is the possible association between jealousy and sexual arousal. It is, in part, possible that the sexual arousal reported by some participants as an element of their jealous experience is due to sexual cues being associated with other high-intensity emotions which also frequently accompany jealousy such as fear and anger. For example, in a classic study by Dutton and Aron (1974), male passersby were stopped by an attractive female interviewer on either a fear-arousing suspension bridge or a non-fear-arousing bridge and asked to complete questionnaires which included Thematic Apperception Test pictures (Murray, 1943). At the end of the interview, the attractive interviewer also provided participants with her contact information. The sexual content was found to be greater in the stories written by males on the fear-arousing bridge and this group of men was also more likely to attempt post-experimental contact with the attractive female interviewer (differences which disappeared when an attractive male interviewer was employed). Thus, the association between sexual arousal and jealousy may be a by-product of the activation of high arousal or other high-

intensity emotions which also accompany jealousy such as fear and anger rather than because of jealousy itself or the situation which provoked it. From an evolutionary perspective, sexual arousal in response to jealousy has also been proposed to be adaptive in that continued or increased sexual activity with one's mate (at least for males) may have minimized the odds that one's partner would be impregnated by a rival (Baker & Bellis, 1995; Buss & Shackelford, 1997). Finally, for both sexes, perhaps continued or increased sexual activity may have also served the purpose of pleasing one's mate thereby discouraging infidelities. Unfortunately, the sexual arousal component of jealousy may also fuel sexual aggressions (Bryson, 1991) and revenge infidelities (Bringle & Buunk, 1991). Terms that have been used to capture this dimension of jealousy have included "aroused", "excited", and "sexually aroused".

Somatic Symptoms. As with sexual arousal, people may also report other somatic symptoms as part of their jealous experience which, despite not being emotions in and of themselves, have nonetheless been considered by investigators (Shackelford et al., 2000). These include symptoms such as "sick", "nauseated", "hot", and "dizzy". It is unclear, however, if these symptoms should be allotted a cluster of their own or if they may, on a case-by-case basis, be found to fall within other clusters (e.g., "hot" may fit within the anger cluster whereas "dizzy" may correlate with other fear and anxiety related emotions).

Positive Affect. Lastly, experiencing jealousy may make one realize how desirable a romantic partner is and gain greater appreciation for the extent to which the relationship is important to them. Thus, in the midst of all other jealousy-related emotions, most of which are unpleasant in nature, a person may also experience the positive sensations of love, appreciation, and commitment towards their partner which may in turn translate into actions such as engaging in compensatory restoration (Guerrero et al., 1995), through greater displays and investment of

resources (Buss, 1994), and efforts towards self-improvement and betterment. Terms that have been used in attempts to capture this aspect of the jealous experience have included "love", "attraction", "appreciation", "forgiving", and "understanding".

In summary, the above review discussed how evolutionary-minded researchers approach jealousy as a psychological mechanism rather than an emotion. The purpose of this mechanism is to alert us that continued access to a particular resource (e.g., a valued romantic relationship) is being threatened. When activated, jealousy triggers a complex of emotions which may include anger, fear, sadness, envy, guilt, sexual arousal, positive affect, and somatic symptoms. These emotions and sensations, in turn, motivate actions.

Present Study

The goal of this research was to study the construct of jealousy from an evolutionary perspective while reducing or eliminating limitations of previous work in the area. Traditionally, research in this area has focused on romantic jealousy and we do so here as well. Two variables have been of particular interest: 1) The Type of Infidelity; whether it is more of a sexual nature (Sexual Infidelity; SI) or of an emotional nature (Emotional Infidelity; EI). 2) Rival Characteristics; whether the romantic rival possesses more or less of those characteristics (Strength, Height, Weight, Attractiveness, Status) which make her or him desirable to members of the opposite sex (assuming heterosexuality). Overall, research efforts seem to show support for the theory that jealousy is an evolved psychological mechanism (Sagarin et al., 2012) although effect sizes have been relatively small. However, the experimental paradigm commonly employed could be said to lack some degree of ecological validity by freely allowing participants to imagine a hypothetical infidelity. Such a stimulus invariably introduces an important source of variance by relying on participants' past experiences and beliefs to fuel the

jealousy-provoking imagery. Taking advantage of recent developments in computer graphics and web publishing technologies, it is possible to eliminate this potential source of error by creating animated sequences of two infidelities (one predominantly sexual, the other predominantly emotional) thereby ensuring that all participants were responding to the same imagery.

Another limitation frequently encountered in the literature is that the rival characteristics being investigated are often presented too explicitly to participants (e.g., Buunk et al., 2011). Instructing participants to consciously imagine their partner with a romantic rival that is taller or stronger than they are, thereby making obvious the importance of this variable, is again likely to allow personal beliefs and social desirability to colour responses. However, through the use of animated videos in which romantic rivals have been experimentally manipulated, it is possible to make the rival characteristics being investigated less explicit to participants thereby hopefully encouraging more spontaneous and less socially driven responses. The rival characteristics being investigated in this study are the Strength (a weaker / skinnier rival), Height (a shorter rival), Weight (a rival with more body fat), Attractiveness (e.g., a rival with poorer facial symmetry, unhealthier skin, or receding hairline), and Social Status (a rival with a cheaper car or a less prestigious occupation).

A third and final limitation in many earlier studies has been the use of single-point ratings in the measurement of jealousy (e.g., Buss et al., 1992). In the current study, while viewing each infidelity videos, participants were presented with a list of 38 jealousy-related emotions and symptoms (Appendix A) and asked to report, using visual analogue scales (VAS), the degree to which they would expect to experience each.

The goal of this study was to assess whether results of earlier studies on sex differences in jealousy can be systematically replicated through the use of manipulated animated video stimuli which have a greater degree of ecological validity than the paradigms commonly employed in similar past studies. In accordance with earlier results and the evolutionary principles we have discussed, we advance the following predictions:

Hypothesis 1. A significant Participant Sex × Infidelity Type interaction whereby women will report higher jealousy ratings in response to the emotional infidelity video and men will report higher jealousy ratings in response to the sexual infidelity video.

Hypothesis 2. Participants exposed to infidelity videos where the rival lacks sex-specific desirable characteristics will report lower jealousy ratings than participants exposed to infidelity videos where the rival does possess these characteristics.

Hypothesis 2a: Women exposed to rivals manipulated to look less physically attractive and heavier will report lower jealousy ratings.

Hypothesis 2b: Men exposed to rivals depicted as being weaker, shorter, and of lower social status will report lower jealousy ratings.

Method

Participants

This study was completed by 629 volunteers (454 females, 175 males). The mean age of participants was 24.9 (*SD* = 9.42) years old. The majority of participants were American (59%), Canadian (15%) or British (6%). Most participants were of Western European decent (65%), Hispanic decent (10%), African decent (6%), or Eastern Asian decent (6%). Students comprised 70% of the sample, 24% of participants were employed full-time, 4% were unemployed, and 2% were retired. Where sexual infidelity was concerned, 38% reported being unfaithful at least once

and 43% reported having had an unfaithful partner. Most male participants (58%) and many female participants (36%) had previously seen at least one episode of the Fox television show "Archer" from which the characters in the infidelity videos used in this study were modeled.

Measures and Tasks

Demographics, Relationship, and Infidelity Questionnaire. This questionnaire contained 34 questions relating to participants' age, ethnicity, weight, height, location, current relationship status, sexual orientation, and primary language (Appendix B). Also included were questions regarding participants' relationship and infidelity history. One sexual orientation question was developed by Kinsey, Pomeroy, and Martin (1948). The rest of the questions were adapted from previous studies in our laboratory (e.g., Morris & Oinonen, 2007) or developed for the purposes of this study.

Mood, Jealousy, and Infidelity-Related Scales and Measures. Participants were asked to provide answers to three relevant scales and measures. These measures were included as they had the potential to serve as covariates in the statistical analyses or to be used for exploratory analyses.

Mood Reactivity Subscale of the Mood Survey (MRS). The MRS (Appendix C), a subscale of the Mood Survey developed by Underwood and Froming (1980), was employed to assess participants' mood reactivity. This subscale is comprised of eight items, six answered on 6-point Likert scales and two on a 99-point scale. It has shown good test-retest reliability after three (.85) and seven (.83) week periods (Underwood & Froming, 1980). This subscale was included because participants' scores on the MRS may be useful in explaining individual differences in jealousy-ratings in response to our stimuli.

Multidimensional Sociosexual Orientation Inventory (MSOI). The MSOI (Appendix D) was created by Jackson and Kirkpatrick (2007) as a measure of mating preferences in regards to short- and long-term mating strategies. A multidimensional version of the original bipolar Sociosexual Orientation Inventory developed by Simpson and Gangestad (1991), the MSOI (Jackson & Kirkpatrick, 2007) consists of 21 questions answered on 7-point Likert scales and 4 additional questions pertaining to number of sexual partners. The two subscales it contains assess a person's openness and willingness to get involved in a) long-term relationships and b) short-term relationships. The MSOI subscales were shown to have good internal validity and reliability (Cronbach's α of .88 and .95 for the short- and long-term subscales, respectively) and also evidence external validity through correlations with other theoretically relevant measures and variables (Jackson & Kirkpatrick, 2007).

Multidimensional Jealousy Scale (MJS). The MJS (Appendix E) was developed and tested by Pfeiffer and Wong (1989) as a measure of romantic jealousy which considers jealousy's behavioral, cognitive, and emotional components. It consists of 24 items, each answered on a 7-point Likert-type response format (8 items per component). The scales were shown to have adequate internal consistencies (Cronbach's α all above .82) and evidence of convergent, discriminant, and concurrent validity (Pfeiffer & Wong, 1989; Elphinston, Feeney, & Noller, 2011).

Measures of hormonal status. While not directly related to the current hypotheses, information pertaining to women's contraceptive use and menstrual cycle was also gathered (Appendix F). Women were asked to report their current hormonal contraceptive use ("yes" or "no") and, if currently applicable, were asked to provide the type and brand of hormonal contraceptive (HC). They were also asked to report information on their menstrual cycle and

their current menstrual cycle phase (e.g., date of first day of last menstrual period, date of first day of next expected period, typical cycle length, and age at menarche). The questions were developed and used in past studies in the lab (e.g., Oinonen & Mazmanian, 2007). This information was solicited at the very end of the study in order to ensure that women and men received identical treatment up to the point where they were exposed to the jealousy-evoking animated videos.

Animated Jealousy Scenarios. Two animated sequences depicting scenarios likely to evoke jealousy were created using a combination of Adobe Photoshop CS6, ToonBoom Animate Pro, and screenshots taken from the animated Fox television series "Archer". The scenarios were inspired by actual events recounted to us by friends and colleagues. Described in further detail below, one scenario depicts what is primarily a sexual infidelity while the other depicts what is primarily an emotional infidelity. The videos created for the purposes of this study have been made available for viewing online at http://www.larocque.guru/jealousy.

Five rival characteristics (height, attractiveness, strength, social status, and weight) were manipulated by creating six different versions of each animated sequence. In the Control condition, the rival is presented in her or his most attractive form whereas, in all other versions, a single characteristic was made to look less ideal. Thus, although participants will only be exposed to two animated sequences (one sexual and one emotional), a total of 24 videos were created: Twelve versions of the animated sequences for the sexual infidelity situation (6 for women and 6 for men) and 12 versions of the animated sequences for the emotional infidelity situation (6 for women and 6 for men). It is important to note that both female and male participants viewed the same animated sequences with the only difference being that female participants were told that the male character depicts their partner whereas male participants

were told that the female character depicts their partner. There was no audio in these animated sequences (the narratives were delivered in written form). Text appearing within the videos provides additional basic relevant information and uses first person ("I") in order to encourage the viewer to emotionally identify with the protagonist. Presentation of both sexual and emotional animated sequences were counterbalanced so that approximately half the participants viewed the sexual infidelity video first and half viewed the emotional infidelity video first. All videos, a copy of the website (as it appeared to participants), as well as additional resources have been made available online at http://www.larocque.guru/jealousy.

Sexual Infidelity Scenario. In the sexual infidelity scenario, the protagonist (i.e., the viewer) is seen walking toward the building where her (or his) partner works, intent on surprising the partner for lunch. Upon nearing the building, the partner is spotted walking with another woman (man). The two walk towards what appears to be the rival's vehicle, get in, and proceed to kissing. The scene ends with the rocking of the vehicle clearly suggesting that sexual activity is taking place within (no nudity).

Rival characteristic manipulations of the female character (named Tatiana; Figure 1) and the male character (named Archer; Figure 2) involved the following: For Attractiveness the rival was made less attractive by making her (his) facial features less symmetrical, by thinning the lips, by making the skin tone yellower and adding slight skin imperfections, and (for the male rival only) by pushing back the hairline. The result were characters who looked older and sickly. For Height, the rival was made shorter by about a head (but proportions remained unchanged). For Strength, the rival was made thinner (height remained unchanged but width was reduced by about 20%). For Weight, the rivals were changed from a desirable "hourglass" (female rival) or triangular figure (male rival) to a more rounded shape reflecting greater body fat. For the final

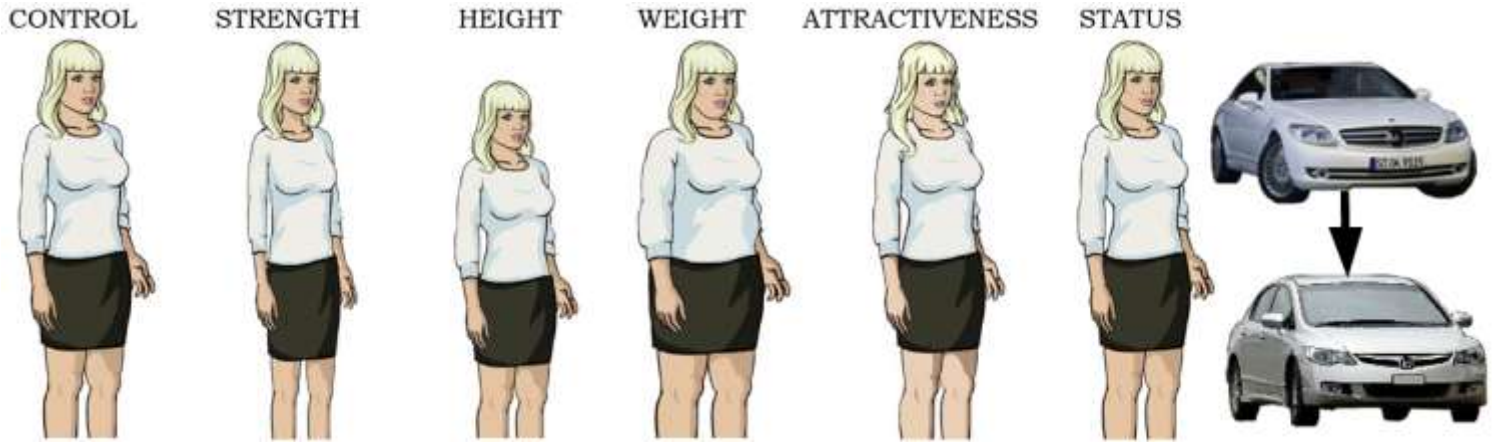

Figure 1. Character manipulations of Tatiana (female rival) to which women participants were exposed to in the Sexual Infidelity Video (SIV).

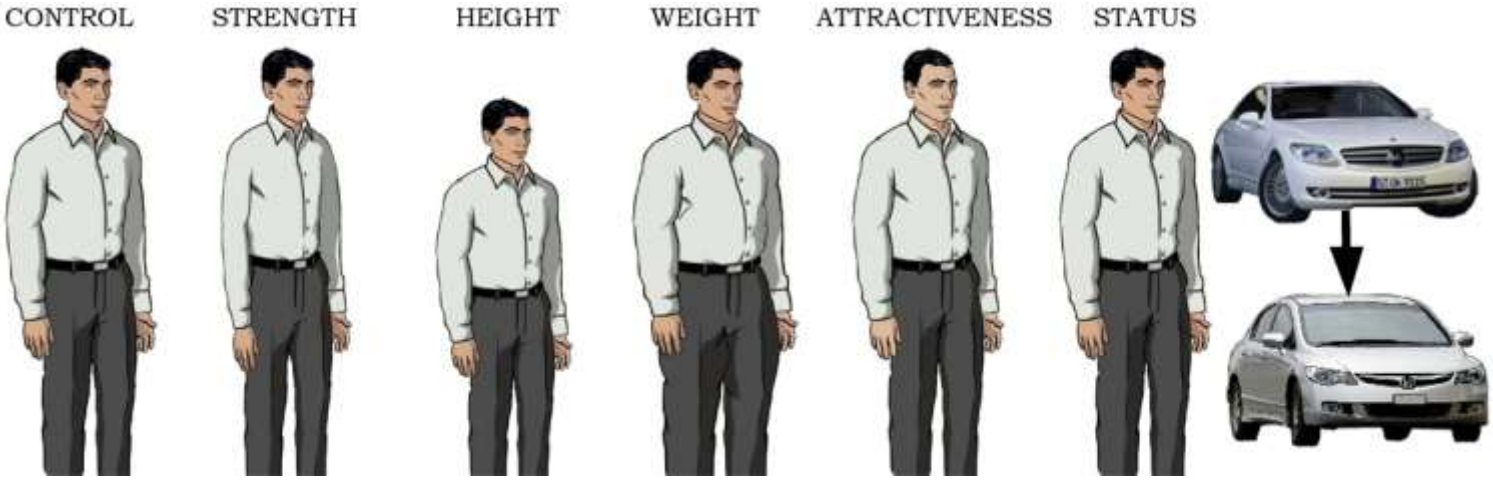

Figure 2. Character manipulations of Archer (male rival) to which male participants were exposed to in the Sexual Infidelity Video (SIV).

manipulation of social status (Status), the rival's vehicle was changed from a Mercedes to a Honda. The duration of the video is 1minute 15 seconds.

Emotional Infidelity Scenario. In the Emotional Infidelity Video (EIV), the protagonist is shown reading in the living room with her or his partner when the partner then exits to take a shower. During this time, the partner's cell phone vibrates indicating an incoming text message. Unable to resist, the protagonist picks up the phone and reads through an exchange of text messages between her/his partner and a rival which hint at a strong emotional bond between the two. An embedded video of the rival waving at the camera (surrounded by two other irrelevant characters and taken in what appears to be an African village) is found and played.

Rival characteristic manipulations during the EIV (Figure 3 for Tatiana and Figure 4 for Archer) were the same as those in the sexual infidelity video (the same character models are employed). The only difference is found in the Status condition. Rather than a change in vehicle, it is the occupation of the rival that is manipulated. In the Status condition, a sign placed in front of the group reads "Student Exchange" whereas in the other conditions that sign reads "Doctors Without Borders" and the rival sports a stethoscope. The video is 1 minute 30 seconds in length.

Jealousy-Related Emotions and Symptoms Ratings. After watching each of the animated jealousy scenarios, which continued to loop in the left pane of the browser window (and was always visible), participants were asked "How would you have felt?". Participants then indicated the degree to which they would anticipate experiencing a series of 38 jealousy-related emotions and symptoms (Appendix A) using Visual Analogue Scales (VAS). It was possible for participants to hover their mouse cursors over the emotional and symptomatic terms for

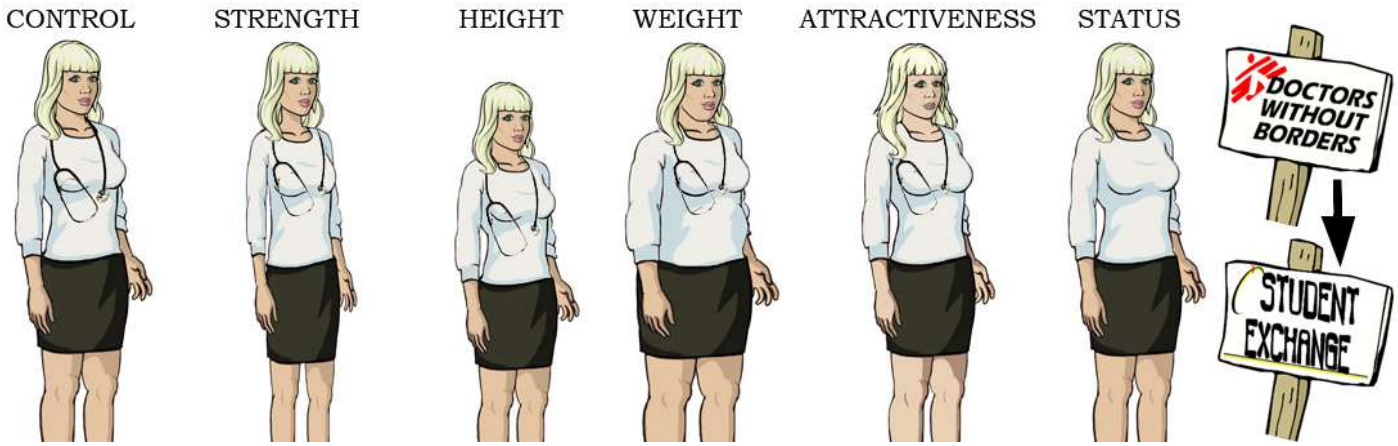

Figure 3. Character manipulations of Tatiana (female rival) to which female participants were exposed to in the Emotional Infidelity Video (EIV).

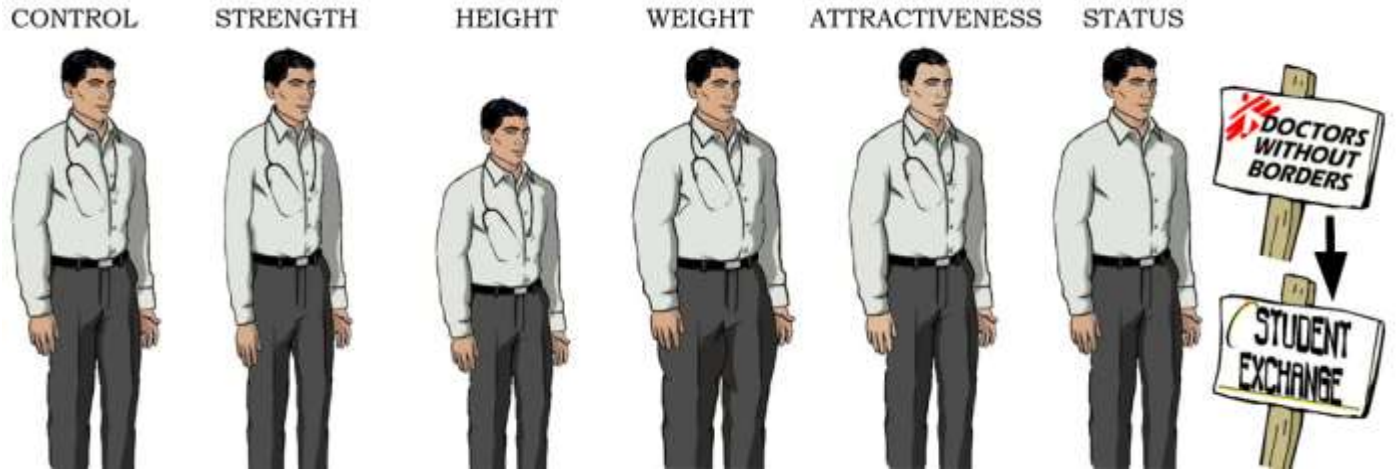

Figure 4. Character manipulations of Archer (male rival) to which male participants were exposed to in the Emotional Infidelity Video (EIV).

definitions which were obtained from the Merriam-Webster website. A final VAS asked participants "How attractive do you think most [members of the opposite sex] would find the other [sex of rival] in this video?". All these scales were anchored at each end with the labels "*Not at all*" and "*Extremely*" (Appendix H). While Likert scales are more commonly utilized than VAS in the psychological research literature, studies have shown both methods to yield moderate to strong correlations and no significant differences (Hanson & Arnetz, 2005). While debates regarding which scaling method is most responsive continue, the principal advantage of the Likert scaling method is that it makes coding simpler for researchers but criticisms include the fact that wording of the descriptive categories influences different groups' responses in different directions (thus creating artificial differences) and that the categories may not be sufficient to describe a continuous and complex subjective phenomenon (Hanson & Arnetz, 2005; Sagarin & Guadagno, 2004).

Validity of rival characters' attractiveness. In order to verify that participants could perceive differences between the attractiveness of the various rivals and to check that rivals thought most attractive by the experimenters (the Control characters) were also perceived as most attractive by participants, two different methods were implemented. The first manipulation check, referred to as the Blind Rating (or between-groups rating), had participants answer "How attractive do you think most men/women (opposite sex of participant) would find the 'other woman/man' (same sex as participant) in this video?" on a VAS anchored at *'Not at all*' and '*Extremely*'. Each participant made this attractiveness rating after exposure to only one rival as this attractiveness rating was obtained after each video but the rival to which an individual participant was exposed was always the same. This rating was obtained before participants were made aware of the various rival characteristic manipulations used in this study.

The second manipulation check on attractiveness, referred to as the Lineup Rating, occurred near the end of the study; Participants were shown all rival manipulations for the emotional infidelity video simultaneously (6 versions of Tatiana and 6 versions of Archer) and asked to rate their attractiveness (Appendix H and I). However, unlike in the emotional infidelity video where the rivals in all conditions except the Status condition were shown wearing a stethoscope, in these pictures only one character (the Status Character) was pictured with a stethoscope and thus it was expected that in the Lineup Rating, the Status character would be rated as more attractive than the Control character.

Subjective Distress Over a Partner's External Involvement. The original paradigm (Buss et al., 1992) designed to test the hypothesis that men and women differ in the form of infidelity (sexual versus emotional) that triggers more subjective distress was also administered. This component was included in order to compare the responses of participants in this study to the responses of participants of previous studies. In this paradigm, participants are asked to "*Please think of a serious committed romantic relationship that you have had in the past, that you currently have, or that you would like to have. Imagine that you discover that the person with whom you've been seriously involved became interested in someone else. What would distress or upset you more (please circle only one)*". Answer options were a) Imagining your partner forming a deep emotional attachment to that person and b) Imagining your partner enjoying passionate sexual intercourse with that other person.

About this Study Questionnaire. The purpose of this (optional) three-item questionnaire was to gauge participants familiarity with some of the variables investigated in this study and provide participants with further information about the study. Specifically, participants were asked whether or not they were previously familiar with sexual infidelity versus emotional

infidelity studies (yes / no), the concept of jealousy as a blend of other emotions (yes / no), and the Fox Television animated series "Archer". A few references and contact information are also included.

Procedure

This study was conducted entirely online at www.jealousystudy.com. A plan of observations can be seen in Table 1 and a block diagram summarizing the procedures which follow can be seen in Figure 5. Participants were invited to participate in a study on “Jealousy and Infidelities”.

The participation (free of compensation) of women and men over the age of 18 was solicited through online postings on the social networking website reddit.com/r/samplesize, and a classifieds website (kijiji.ca). Lakehead University students aged 16 and older were also invited to participate through bulletin board postings (Appendix J) and class-wide e-mails (Appendix K). Lakehead University students enrolled in qualifying psychology courses were eligible to receive one bonus point for their participation. This research project was approved by Lakehead University's Research Ethics Board prior to the commencement of recruitment efforts. All participants provided consent to participate (Appendix L) and were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 1992).

Participants were required to open a web browser such as Firefox or Internet Explorer from any desktop or laptop computer with an internet connection and navigate to the website www.jealousystudy.com. They were first greeted with a Letter to Participants and Consent Form (Appendix L) to which they had to agree in order to proceed to subsequent sections. To ensure

Table 1

Plan of observations

	Infidelity Type											
	Emotional						Sexual					
Rival Condition	C	S	H	W	A	X	C	S	H	W	A	X
Females (n=454)	72	83	76	84	68	72	72	83	76	84	68	72
Males (n=175)	32	29	29	29	23	32	32	29	29	29	23	32

Legend:

C = "Control" condition - rival is most attractive
S = "Strength" condition - rival is thinner
H = "Height" condition - rival is shorter
W = "Weight" condition - rival is heavier and rounder
A = "Attractiveness" condition - rival is less physically attractive
X = "Social Status" condition - rival is of lower socioeconomic status

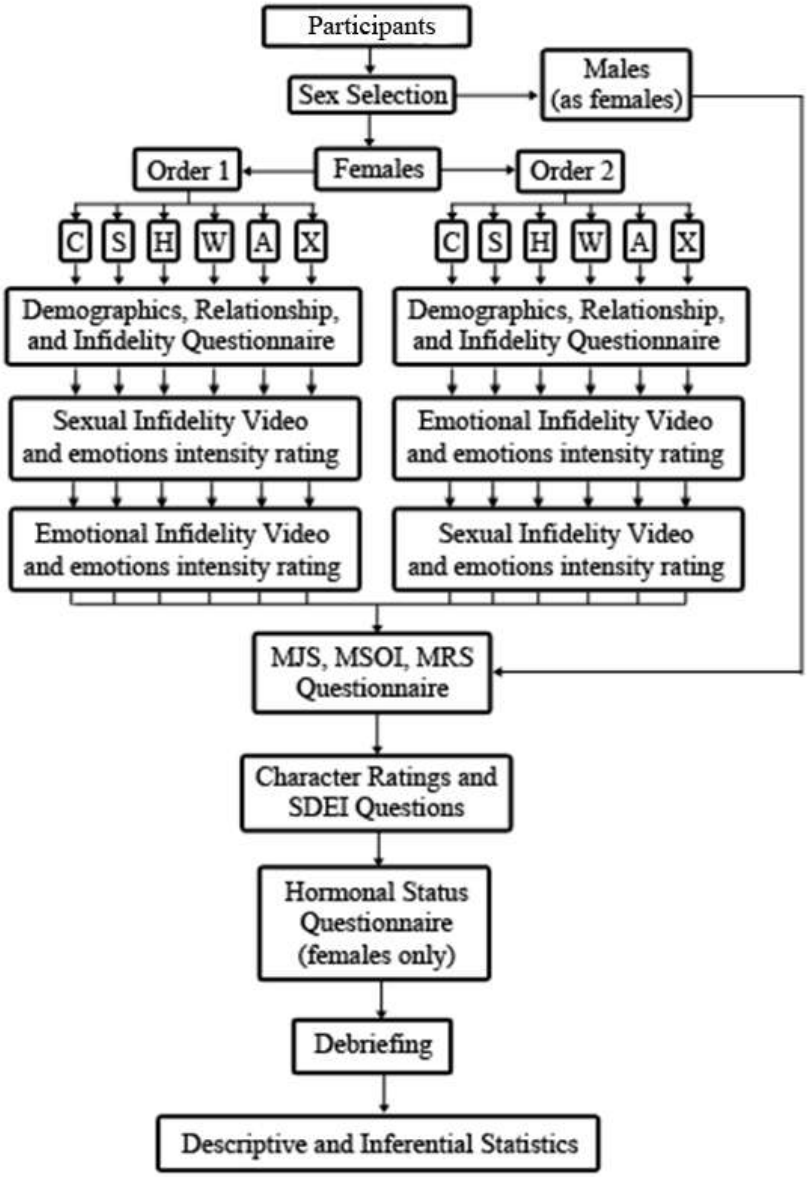

Figure 5. Summary of procedures. Note that participants were randomly assigned to view either the sexual (Order 1) or emotional (Order 2) jealousy video first (for counterbalancing) and, within that condition, were randomly assigned to be exposed to the same one of six possible rivals in both videos. C = " Control" condition (rival is most attractive); S = "Strength" condition (rival is thinner); H = "Height" condition (rival is shorter); W = "Weight" condition (rival is overweight); A = "Attractiveness" condition (rival is less physically attractive); X = "Status" condition (rival has lower socioeconomic status); MJS = Multidimensional Jealousy Scale; MSOI = Multidimensional Sociosexuality Orientation Inventory; MRS = Mood Reactivity Subscale of the Mood Survey; SDEI = Subjective Distress Over Partner's External Involvement paradigm.

confidentiality and privacy, no personally identifiable information was gathered and participants were free to skip specific questions if they wished not to answer them.

On the following page, participants were asked to indicate their sex (Appendix M). Following this, participants were told what they would be asked to do in this study and the approximate time it would take to complete each section (Appendix N). Upon clicking on "Start", a JavaScript embedded in the button randomly assigned participants to one of twelve possible conditions for their respective sex (6 Rival Characteristics × 2 Order of Presentation).

Participants first completed the Demographics, Relationship, and Infidelity Questionnaire (Appendix B). Following brief instructions (Appendix O), participants were shown a first infidelity video and asked to report how intensely they would expect to experience a series of emotions and symptoms (Appendix A) using visual analogue scales (Appendix G). At this point, participants were given the opportunity to take a short break before moving on to viewing the second infidelity video and again providing emotional and symptomatic ratings. Participants were then asked to complete the Multidimensional Jealousy Scale (MJS; Appendix E), the Multidimensional Sociosexuality Orientation Inventory (MSOI; Appendix D), the Mood Reactivity Subscale of the Mood Survey (MRS; Appendix C), rate the attractiveness of 12 different characters (Appendix H and I), and answer the Subjective Distress Over a Partner's External Involvement paradigm. Finally, participants were presented with the (optional) About This Study questionnaire (Appendix P) before being debriefed (Appendix Q) and thanked for their participation. Lakehead University students who qualified for a bonus point toward a class mark for their participation were at this point asked to provide their name, student number, e-mail address, course name, and instructor's name at the end of the study (Appendix R). This

identifying information was stored in a separate database and was not time stamped, making it impossible to reconcile this information with the data participants had previously provided.

Data Reduction and Analyses. The analytical techniques used to test the two main hypotheses are noted below.

Hypothesis 1: A significant Participant Sex × Infidelity Type interaction effect whereby males will report higher emotional ratings in response to sexual infidelity scenario. MANOVAs with Sex as the between-group variable, Infidelity Type as the within-group variable, and the emotional intensity ratings as dependent variables were used to test this hypothesis.

Hypothesis 2: Participants exposed to infidelity scenarios where the rival does not possess sex-specific desirable characteristics will report lower emotional ratings than participants exposed to infidelity scenarios where the rival does possess these characteristics. More precisely, in Hypothesis 2a we predicted that females' average emotional ratings will be lower in the "Attractiveness" and the "Weight" conditions (relative to the control condition) and in Hypothesis 2b we predicted that males' average emotional ratings will be lower in the "Strength", "Height", and "Status" conditions (relative to the control condition). The attractiveness of the various characters was validated using mixed-design ANOVAs; For the Blind Attractiveness ratings (between-groups ratings), two mixed-design ANOVAs were used (one for women, one for men) with Rival Characters as the between-group variable, Infidelity Videos as the within-group variable, and attractiveness ratings (provided while viewing the videos) serving as dependent variables. For the Lineup Attractiveness ratings, two mixed-design ANOVAs were used (one for the female rivals, one for the male rivals) with Sex as the between-group variable, the 6 rival characters (presented in lineups at the end of the study) as the within-group variable, and the attractiveness ratings for these characters served as dependent variables. Follow-up

planned comparisons on the results of these ANOVAs were used to examine which characters were judged most and least attractive by participants. A series of MANOVAs (separately for women and men) where Rival Characters served as the between-group variable and the various individual emotions of interest and emotional clusters served as dependent variables allowed a test the hypothesis that rival characteristics can influence emotional intensity ratings.

Results

Data Screening

Prior to all analyses, all relevant variables were examined for accuracy of data entry and missing values. None of the variables presented here had missing value percentages greater than 5% (Field, 2009). Univariate outliers were defined as z-score values greater than |3.29| (Field, 2009) and were always removed (the results of separate analyses which included outliers did not vary from the results presented here).

Emotional Cluster Composite Scores. For the eight jealousy-related emotional clusters (Anger, Fear, Sadness, Envy, Guilt, Sexual Arousal, Somatic Symptoms, and Positive Affect), composite scores were created by taking the mean intensity ratings for the emotions and symptoms relevant to each specific emotional clusters. As each emotion was measured on a VAS which could range from 0 ("*Not at all*") to 100 ("*Extremely*"), the possible score range for the clusters was also 0 to 100, with higher scores indicating higher reported intensity ratings. Where participants failed to provide intensity ratings for every emotion relevant to a specific cluster (e.g., "sad", "depressed", "hurt", "heartbroken", and "suicidal" were relevant to the Sadness cluster but the participant did not provide an intensity rating for "heartbroken"), a composite score for that cluster was not created (there were 13 such cases).

Sample. All participants were included in the results presented here. Alternative analyses were conducted which excluded specific subgroups (e.g., not exclusively heterosexual, not in a monogamous relationship, over 40 years old, virgin, etc.) and combinations of specific subgroups. The findings with the subsamples did not differ notably from the findings with the overall sample.

Hypothesis 1: Descriptives and Sex × Infidelity Interactions

Descriptive statistics were conducted on the three individual emotions of interest (Jealous, Upset, Distress) and the eight emotional clusters (Anger, Fear, Sadness, Envy, Guilt, Sexual Arousal, Positive Affect, and Somatic Symptoms). Due to the grouped nature of the data (Tabachnick & Fidell, 2001), variables were examined separately for Women and Men and separately for the Sexual Infidelity Video (SIV) and the Emotional Infidelity Video (EIV). Untransformed means are presented in Table 2. Deviations from normality are reported and transformations (logarithmic, square root, and inverse) were attempted, the best of which are mentioned and employed in subsequent analyses. Final mean scores (after transformations where necessary) are displayed in Table 3 and Figure 6.

Normality.

Jealous. Scores in response to "How *Jealous* would you be?" while viewing the SIV and the EIV were negatively skewed for both sexes. Ceiling effects were evident with many participants responding with the maximal possible value (100). A square root transformation was judged best at correcting this violation of normality but distributions remained somewhat negatively skewed for women for both videos.

Upset. Scores in response to "How *Upset* would you be?" during the SIV and the EIV were negatively skewed for both sexes with evident ceiling effects. A square root transformation

Table 2

Untransformed Mean Emotional Intensity Scores in Response to Infidelity Videos

Emotion	Sex	Video	n	*M*	(SE)	Skew	(SE)	Kurtosis	(SE)
Jealous	Females	Sexual	454	77.30	(1.43)	-1.32	(0.11)	0.61	(0.23)
		Emotional	454	77.54	(1.23)	-1.31	(0.11)	1.05	(0.23)
	Males	Sexual	175	70.96	(2.46)	-1.05	(0.18)	-0.12	(0.37)
		Emotional	175	70.83	(2.20)	-1.08	(0.18)	0.32	(0.37)
Upset	Females	Sexual	443	91.95	(0.66)	-1.89	(0.12)	2.98	(0.23)
		Emotional	444	84.83	(0.93)	-1.50	(0.12)	2.07	(0.23)
	Males	Sexual	171	86.47	(1.53)	-1.72	(0.19)	2.81	(0.37)
		Emotional	170	79.06	(1.47)	-1.04	(0.19)	1.56	(0.37)
Distress	Females	Sexual	441	85.93	(0.96)	-1.50	(0.12)	1.64	(0.23)
		Emotional	454	76.93	(1.23)	-1.33	(0.11)	1.38	(0.23)
	Males	Sexual	175	74.86	(2.04)	-1.20	(0.18)	0.93	(0.37)
		Emotional	175	73.77	(1.93)	-1.24	(0.18)	1.33	(0.37)
Anger	Females	Sexual	445	75.90	(0.69)	-0.74	(0.12)	0.77	(0.23)
		Emotional	454	62.74	(1.00)	-0.84	(0.11)	0.62	(0.23)
	Males	Sexual	175	68.85	(1.61)	-0.96	(0.18)	0.72	(0.37)
		Emotional	175	55.28	(1.68)	-0.45	(0.18)	-0.28	(0.37)
Fear	Females	Sexual	454	66.51	(0.98)	-0.43	(0.11)	-0.23	(0.23)
		Emotional	454	67.14	(0.99)	-0.67	(0.11)	0.26	(0.23)
	Males	Sexual	175	60.26	(1.59)	-0.31	(0.18)	-0.58	(0.36)
		Emotional	175	62.70	(1.70)	-0.76	(0.18)	0.05	(0.36)
Sad	Females	Sexual	449	70.53	(0.82)	-0.73	(0.12)	0.17	(0.23)
		Emotional	454	63.84	(1.03)	-0.98	(0.11)	0.69	(0.23)
	Males	Sexual	175	63.24	(1.65)	-0.94	(0.18)	0.74	(0.37)
		Emotional	175	58.29	(1.71)	-0.76	(0.18)	0.31	(0.37)

(continued)

Somatic	Females	Sexual	454	55.24	(0.94)	-0.67	(0.11)	0.29	(0.23)
		Emotional	454	47.19	(1.06)	-0.40	(0.11)	-0.58	(0.23)
	Males	Sexual	175	46.59	(1.66)	-0.33	(0.18)	-0.52	(0.37)
		Emotional	175	39.44	(1.67)	-0.04	(0.18)	-0.89	(0.37)
Envy	Females	Sexual	454	59.31	(1.03)	-0.38	(0.11)	-0.33	(0.23)
		Emotional	454	54.49	(1.03)	-0.28	(0.11)	-0.49	(0.23)
	Males	Sexual	174	55.97	(1.80)	-0.17	(0.18)	-0.64	(0.37)
		Emotional	175	51.94	(1.70)	-0.40	(0.18)	-0.37	(0.37)
Guilt	Females	Sexual	454	38.40	(1.00)	0.11	(0.11)	-0.46	(0.23)
		Emotional	454	38.81	(1.04)	0.23	(0.11)	-0.18	(0.23)
	Males	Sexual	175	36.13	(1.57)	0.29	(0.18)	-0.04	(0.37)
		Emotional	175	37.13	(1.54)	0.13	(0.18)	-0.27	(0.37)
Sexual Arousal	Females	Sexual	445	6.02	(0.60)	2.27	(0.12)	4.22	(0.23)
		Emotional	442	5.01	(0.47)	2.24	(0.12)	4.35	(0.23)
	Males	Sexual	175	19.86	(2.00)	1.33	(0.18)	0.72	(0.37)
		Emotional	172	11.95	(1.41)	1.80	(0.19)	2.39	(0.37)
Positive Affects	Females	Sexual	447	7.67	(0.54)	1.81	(0.12)	2.78	(0.23)
		Emotional	451	13.32	(0.69)	1.33	(0.12)	1.13	(0.23)
	Males	Sexual	172	12.24	(1.18)	1.61	(0.19)	2.46	(0.37)
		Emotional	174	20.41	(1.21)	0.70	(0.18)	0.01	(0.37)

Table 3

Transformed (where necessary) Mean Emotional Intensity Scores in Response to Infidelity Videos

Emotion	Sex	Video	Transf.	n	Potential Range			M	(SE)
Jealous	Females	Sexual	sqrt	454	.95	-	10	7.24	(0.15)
		Emotional	sqrt	454	.95	-	10	7.03	(0.13)
	Males	Sexual	sqrt	175	.95	-	10	6.47	(0.23)
		Emotional	sqrt	175	.95	-	10	6.28	(0.21)
Upset	Females	Sexual	sqrt	443	.95	-	10	8.71	(0.09)
		Emotional	sqrt	444	.95	-	10	7.77	(0.11)
	Males	Sexual	sqrt	171	.95	-	10	8.06	(0.19)
		Emotional	sqrt	170	.95	-	10	6.91	(0.17)
Distress	Females	Sexual	sqrt	441	.95	-	10	8.00	(0.12)
		Emotional	sqrt	454	.95	-	10	6.95	(0.13)
	Males	Sexual	sqrt	175	.95	-	10	6.72	(0.21)
		Emotional	sqrt	175	.95	-	10	6.48	(0.20)
Anger	Females	Sexual	sqrt	445	.95	-	10	6.25	(0.07)
		Emotional	sqrt	454	.95	-	10	5.08	(0.08)
	Males	Sexual	sqrt	175	.95	-	10	5.67	(0.14)
		Emotional	sqrt	175	.95	-	10	4.46	(0.13)
Fear	Females	Sexual	sqrt	454	.95	-	10	5.48	(0.09)
		Emotional	sqrt	454	.95	-	10	5.53	(0.09)
	Males	Sexual	sqrt	175	.95	-	10	4.88	(0.14)
		Emotional	sqrt	175	.95	-	10	5.10	(0.14)

(continued)

Emotion	Sex	Video	Transf.	n	Potential Range			M	(SE)
Sad	Females	Sexual	sqrt	449	.95	-	10	5.73	(0.08)
		Emotional	sqrt	454	.95	-	10	5.18	(0.08)
	Males	Sexual	sqrt	175	.95	-	10	5.12	(0.14)
		Emotional	sqrt	175	.95	-	10	4.72	(0.14)
Somatic	Females	Sexual	sqrt	454	.95	-	10	4.41	(0.07)
		Emotional	sqrt	454	.95	-	10	3.84	(0.07)
	Males	Sexual	sqrt	175	.95	-	10	3.79	(0.12)
		Emotional	sqrt	175	.95	-	10	3.29	(0.11)
Envy	Females	Sexual	none	454	0.00	-	100	59.31	(1.03)
		Emotional	none	454	0.00	-	100	54.49	(1.03)
	Males	Sexual	none	174	0.00	-	100	55.97	(1.80)
		Emotional	none	175	0.00	-	100	51.94	(1.70)
Guilt	Females	Sexual	none	454	0.00	-	100	38.40	(1.00)
		Emotional	none	454	0.00	-	100	38.81	(1.04)
	Males	Sexual	none	175	0.00	-	100	36.13	(1.58)
		Emotional	none	175	0.00	-	100	37.13	(1.55)

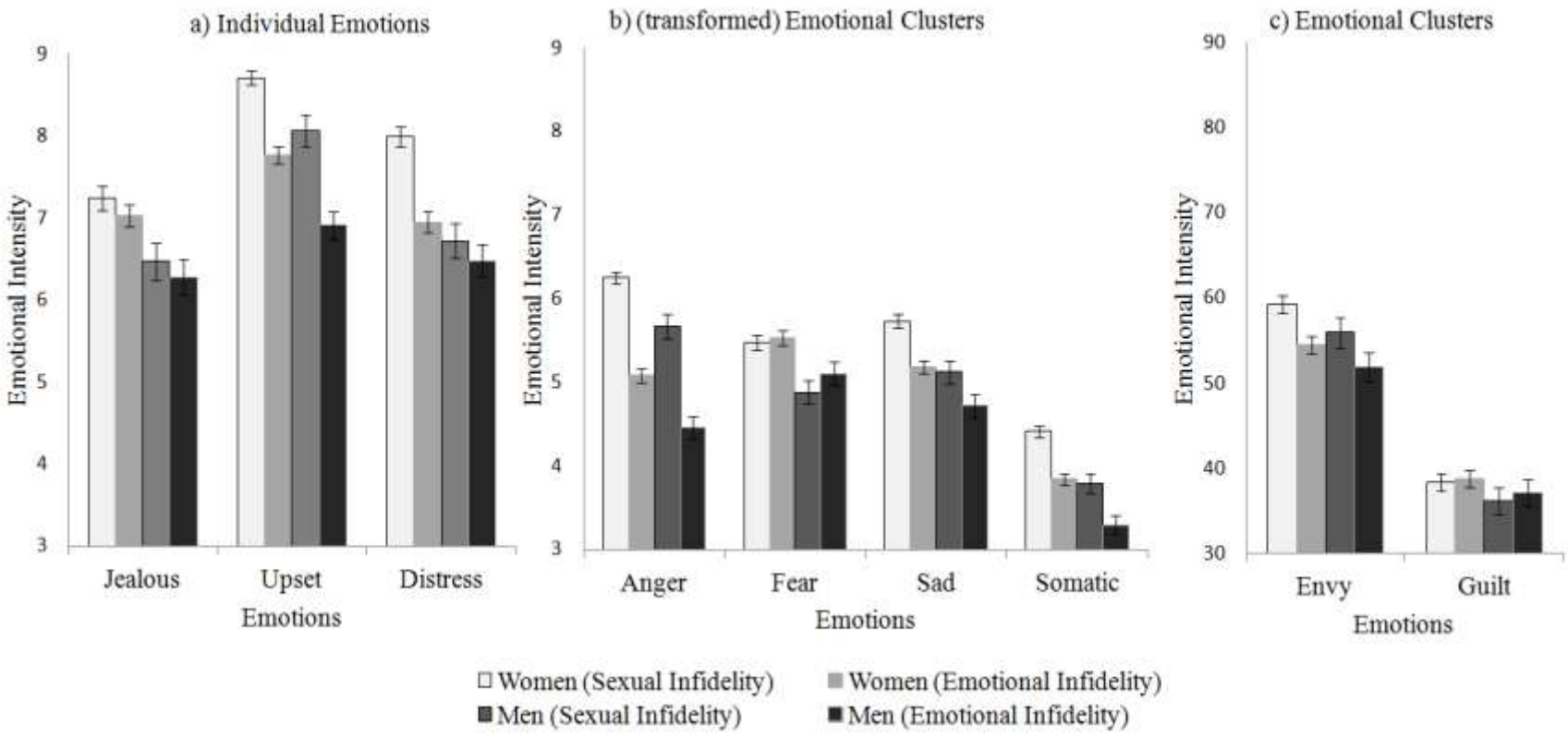

Figure 6. Mean emotional intensity scores for individual emotions and emotional clusters for both sexes and both videos. Error bars represent standard errors. Data includes transformations where necessary.

was judged best at approximating normality but distributions remained negatively skewed for the EIV Upset scores of both women and men.

Distress. Scores in response to "How *Distressed* would you be?" during the SIV and the EIV were strongly negatively skewed for both sexes with ceiling effects still evident. A square root transformation was most efficient in achieving normality but still left women's scores somewhat negatively skewed (more so for the SIV).

Anger Cluster. Scores for the Anger cluster during the SIV and the EIV were negatively skewed for both sexes. Square root transformations were excellent for normalizing distributions for both sexes and videos.

Fear Cluster. Scores for the Fear cluster during the SIV and EIV were negatively skewed for both sexes. Square root transformations were best at correcting normality but women's Fear scores during the SIV remained somewhat skewed.

Sadness Cluster. Scores for the Sad cluster during the SIV and EIV were negatively skewed. Square root transformations were successful in normalizing these distributions.

Envy Cluster. Scores for the Envy cluster during the SIV and EIV were normally distributed for both sexes and did not require transformations.

Guilt Cluster. Scores for the Guilt cluster during the SIV and EIV were normally distributed for both sexes.

Sexual Arousal Cluster. Scores for the Sexual Arousal Cluster during the SIV and EIV were very strongly positively skewed and leptokurtic. Inverse transformations were adequate at normalizing men's scores but women's remained unacceptably non-normal. Due to these violations, the Sexual Arousal cluster was dropped from the study.

Positive Affect. As with the Sexual Arousal cluster, the Positive Affect cluster scores were observed to be strongly positively skewed and leptokurtic. No single transformation was adequate in normalizing both women and men's scores for both videos. The Positive Affect cluster was consequently dropped from the study.

Somatic Symptoms. Scores for the Somatic Symptoms Cluster during the SIV and the EIV were somewhat negatively skewed for women and normal for men. A square root transformation was ideal in normalizing all groups.

Analyses. Two mixed-design MANOVAs were conducted where Participant Sex (Women or Men) acted as the between group variable and Infidelity Type (SIV or EIV) as the within group variable. The first MANOVA employed individual emotions of interest (Jealous, Upset, Distress) as dependent variables, the second employed the retained emotional clusters (Anger, Fear, Sadness, Envy, Guilt, Somatic symptoms) as dependent variables. A series of mixed-design ANOVAs were also conducted for each of the individual emotions of interest and emotional clusters. While the main effects of Participant Sex and Infidelity Type are reported, the principal goal of these analyses was to test for the presence of theory supportive Sex × Infidelity Type interactions. A summary of results is provided at the end of this section.

Individual Emotions of Interest. Analysis of the transformed individual emotions of interests in the MANOVA revealed an effect of Sex, $F(1,593) = 23.09$, $p < .001$, $\eta_p^2 = .04$ with women reporting greater emotional intensity than men. Infidelity Type also had an influence on scores, $F(1, 593) = 43.97$, $p < .001$, $\eta_p^2 = .07$ with the SIV producing greater scores than the EIV. A Sex × Infidelity Type interaction was not detected, $F(1, 593) = 6.98$, $p = .255$.

Jealous. Analysis of transformed Jealous scores revealed an effect of Sex, $F(1,627) = 11.19$, $p = .001$, $\eta_p^2 = .02$ with women reporting more jealousy than men. Infidelity Type had no

effect on jealousy, $F(1,627) = 2.26$, $p = .133$. A theory supportive Sex × Infidelity Type interaction was not detected, $F(1,627) = 0.01$, $p = .934$ (Figure 7).

Upset. Analysis of transformed Upset scores revealed a small effect of Sex, $F(1,603) = 18.99$, $p < .001$, $\eta_p^2 = .03$ with women reporting feeling more 'Upset' than men. The SIV also produced greater scores than the EIV, $F(1,603) = 90.45$, $p < .001$, $\eta_p^2 = .13$. A theory supportive Sex × Infidelity Type interaction was not detected, $F(1,603) = 1.44$, $p = .23$ (see Figure 7).

Distress. Analysis of the transformed Distressed scores revealed a small effect of Sex $F(1,614) = 21.37$, $p < .001$, $\eta_p^2 = .03$ with women reporting more 'Distress' than men. The SIV also produced greater scores than the EIV, $F(1,614) = 23.96$, $p < .001$, $\eta_p^2 = .04$. A small Sex × Infidelity Type Interaction was also detected, $F(1,614) = 8.59$, $p = .003$, $\eta_p^2 = .01$ but in the direction opposite of what was predicted; The overall increase in 'Distress' scores during the SIV (relative to the EIV) was more pronounced for women (Figure 7).

Emotional Clusters. Analysis of the emotional clusters revealed an effect of Sex, $F(1,616) = 6.82$, $p = .009$, $\eta_p^2 = .01$, with women reporting greater emotional intensity than men. Infidelity Type also had an influence on scores, $F(1,616) = 16.31$, $p < .001$, $\eta_p^2 = .03$, with the SIV producing greater scores than the EIV. A Sex × Infidelity Type interaction was not detected, $F(1,616) = 0.35$, $p = .554$.

Anger Cluster. Analysis of transformed Anger scores revealed a small effect of Sex, $F(1,618) = 22.15$, $p < .001$, $\eta_p^2 = .04$, with women reporting greater anger than men overall. Infidelity Type had a strong effect on Anger scores, $F(1,618) = 242.05$, $p < .001$, $\eta_p^2 = .28$, with

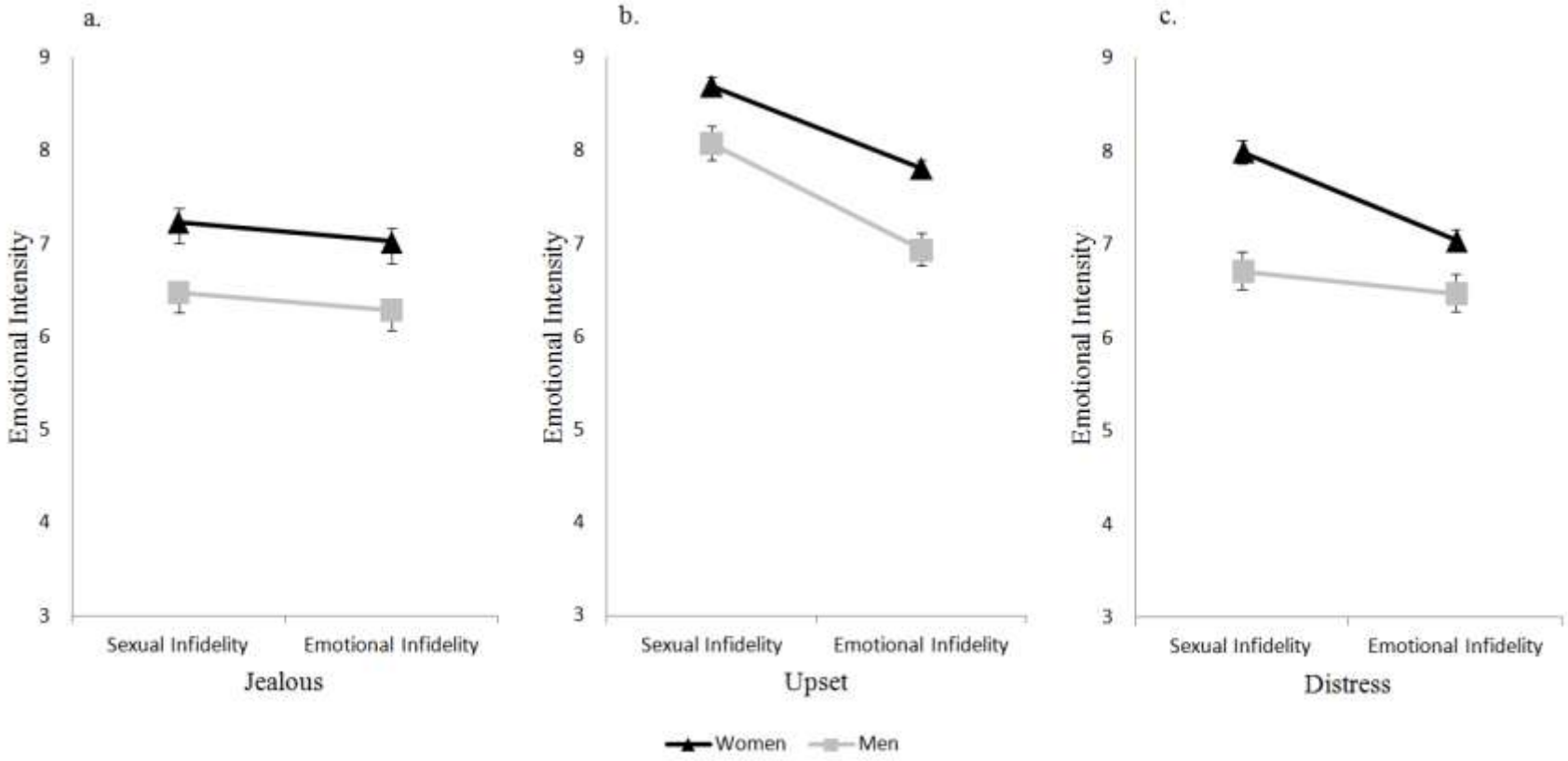

Figure 7. Mean emotional intensity scores for the individual emotions of interest (Jealous, Upset, Distress) as a function of sex and infidelity type. (a) For 'Jealous' , a main effect of sex was detected, with women reporting more jealousy overall than men. (b) For 'Upset', main effects for sex and infidelity-type were found. (c) For 'Distress', main effects for sex, infidelity type, and sex × infidelity type were detected. Women reported experiencing more distress than men overall and more distress in response to the sexual than emotional infidelity video. Error bars represent standard error of the mean.

the SIV yielding greater anger scores than the EIV. A theory supportive Sex x Infidelity Type interaction effect on Anger scores was not detected, $F(1,618) = .67$, $p = .413$ (see Figure 8).

Fear Cluster. Analysis of transformed Fear scores revealed a small effect of Sex, $F(1,627) = 10.64$, $p = .001$, $\eta_p^2 = .02$, with women reporting more fear than men overall. Infidelity Type had no influence on scores, $F(1,627) = 3.40$, $p = .066$. A Sex × Infidelity Type interaction was not detected, $F(1,627) = 1.39$, $p = .239$ (see Figure 8).

Sadness Cluster. Analysis of transformed Sad scores revealed a small effect of Sex, $F(1,622) = 15.91$, $p < .001$, $\eta_p^2 = .03$, with women reporting more sadness than men overall. An Infidelity Type effect was also detected, $F(1,622) = 42.46$, $p < .001$, $\eta_p^2 = .06$, with the SIV producing greater Sadness scores than the EIV. A theory supportive Sex × Infidelity Type interaction on Sadness was not detected, $F(1,622) = .69$, $p = .405$ (see Figure 8).

Somatic Symptoms. Analysis of the Somatic Symptoms Cluster revealed an effect of Sex, $F(1,627) = 86.72$, $p < .001$, $\eta_p^2 = .03$, with women reporting slightly more somatic symptoms than men overall. Infidelity Type also produced notable differences, $F(1,627) = 88.42$, $p < .001$, $\eta_p^2 = .12$, with somatic symptom scores being greater during the SIV than the EIV. A theory supportive Sex × Infidelity Type interaction on Somatic Symptoms Cluster was not detected, $F(1,627) = 0.41$, $p = .479$ (see Figure 8).

Envy Cluster. Analysis of Envy scores revealed no effect of Sex, $F(1,626) = 2.62$, $p = .106$. Infidelity Type had a small but noticeable influence, $F(1,626) = 31.56$, $p < .001$, $\eta_p^2 = .05$, with the SIV producing more envy than the SIV. A theory supportive Sex × Infidelity Type interaction on Envy was not detected, $F(1,626) = 0.23$, $p = .629$ (see Figure 9).

Guilt Cluster. Analysis of the Guilt Cluster revealed no effects of Sex, $F(1,627) = 1.35$, p

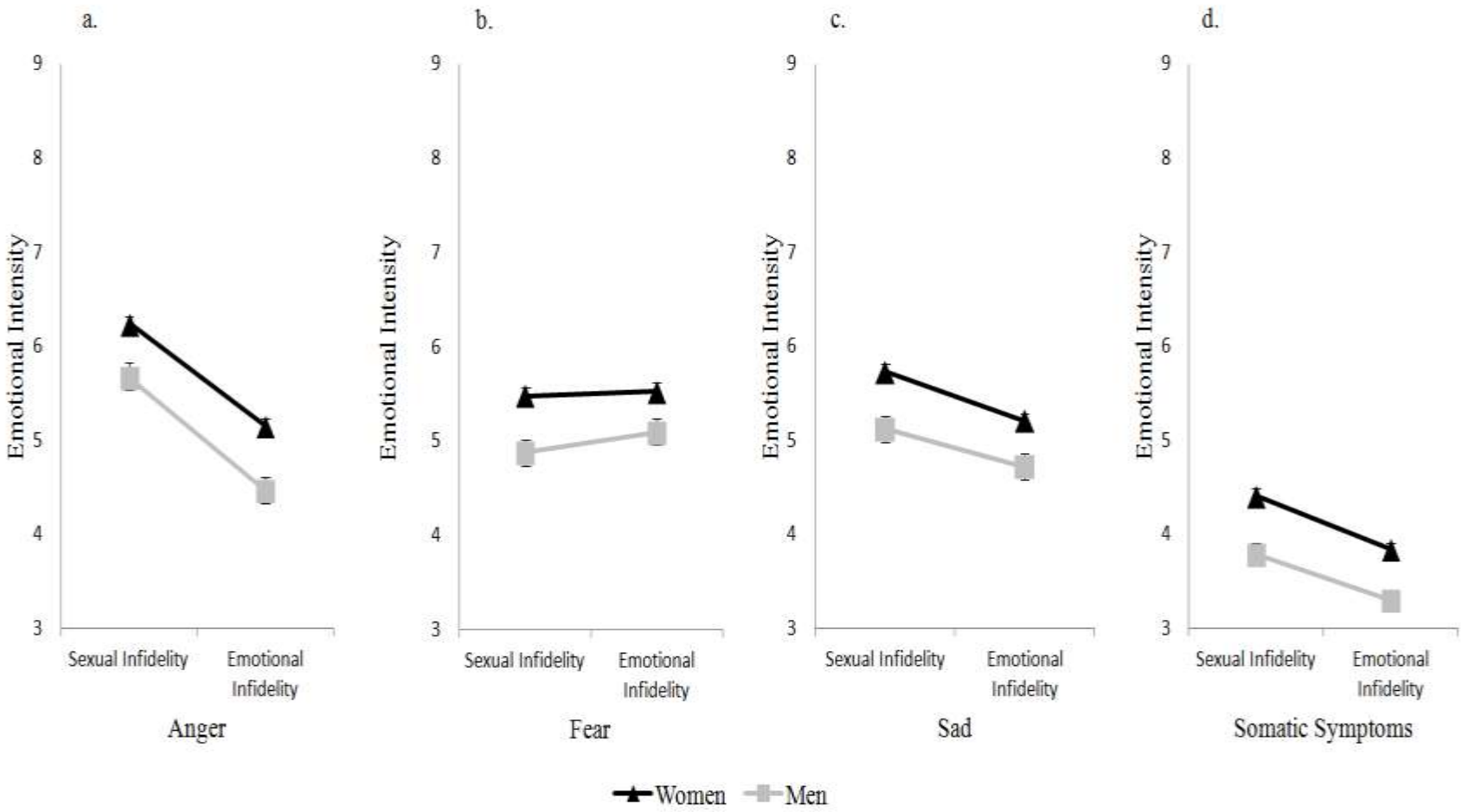

Figure 8. Mean emotional intensity scores for transformed (square root) emotional clusters as a function of sex and infidelity type. (a) For 'Anger', there were main effects for sex and infidelity type detected. (b) For 'Fear', a main effect of sex was found. (c) For 'Sad', main effects of sex and infidelity type were detected. (d) For 'Somatic Symptoms', main effects of sex and infidelity type were detected. Error bars represent standard error of the mean.

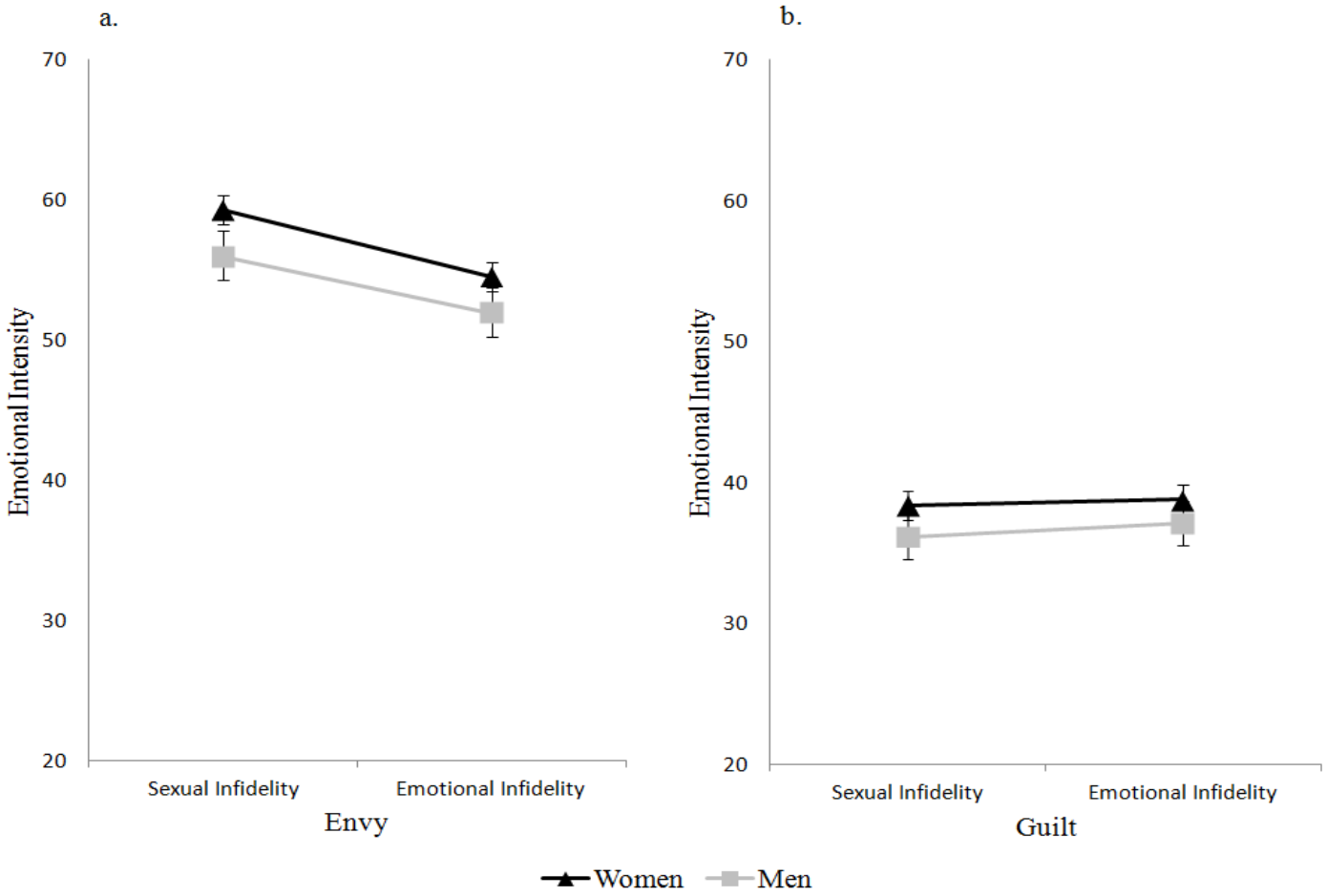

Figure 9. Mean emotional intensity scores for untransformed emotional clusters as a function of sex and infidelity type. (a) For 'Envy', a main effect of infidelity type was detected. (b) For 'Guilt', no main effects were found. Error bars represent standard error of the mean.

= .246. Infidelity Type had no effect, $F(1,627) = 0.65$, $p = .421$. A Sex × Infidelity Type interaction was not detected, $F(1,627) = 0.11$, $p = .736$ (see Figure 9).

Summary. The series of analyses revealed that: (a) women reported more emotional intensity than men, (b) the SIV was rated as more emotionally intense than the EIV (with the exception of the Fear cluster), and (c) the only significant interaction effect (out of nine analyses) detected was in the direction opposite of what was predicted. For the individual emotion Distress, women showed relatively higher distress in response to the sexual infidelity versus the emotional video as compared to men (Figure 8).

Subjective Distress over Partner's External Involvement. Next, analyses were done to examine the Sex × Infidelity type interaction using the conventional paradigm using a written forced choice question. Participants had been asked to think of a serious romantic relationship and imagine that this partner either a) formed a deep emotional attachment to another person or b) enjoyed passionate sexual intercourse with another person. A chi-square test of independence was performed to examine the relationship between participant sex (male, female) and infidelity type (emotional, sexual). The chi-square was significant, X^2 (1, $N = 585$) = 16.73, $p < .001$, indicating that men (46.5%) were more likely than women (28.5%) to indicate that sexual infidelity was the most distressing of the two options.

Hypothesis 2: Rival Characteristics

Validity of Rival Characters' Attractiveness. Participants had two opportunities to rate the attractiveness of the characters employed in this study. The first check on attractiveness, referred to as the Blind Rating (a between-groups rating), had participants answer "How attractive do you think most men/women (opposite sex of participant) would find the 'other woman/man' (same sex as participant) in this video?" on a VAS anchored at "Not at all" and "Extremely". This question was posed after both the SIV and the EIV (the same rival character

was seen in both videos) and before participants were made aware of the various rival characteristic manipulations used in this study.

The second check on attractiveness, referred to as the Lineup Rating, occurred at the end of the study. Participants were presented with a lineup showing all characters employed in the study (the six versions of Tatiana and the six versions of Archer; only one of each would have previously been seen by each participant) and asked to rate their attractiveness using VAS anchored at "Not" and "Hot". Unlike the characters in the videos, however, only the Status Characters were portrayed as being of higher social status (through the addition of a stethoscope) and it was therefore assumed that, in this section, the Status character (as opposed to the Control characters) would be rated as most attractive.

Blind Attractiveness Ratings.

Tatiana. The Blind Ratings of women were negatively skewed for both the SIV and the EIV. Square root transformations were found best at normalizing these scores which are presented in Table 4.

A 6-between (Rival Characteristics: control, strength, height, weight, attractiveness, status) by 2-within (Videos: sexual, emotional) mixed-design ANOVA was conducted on women's transformed Blind Attractiveness Ratings variables. Video (SIV or EIV) had no influence on scores, $F(1,448) = 2.07$, $p = .150$, nor was an interaction effect detected, $F(5,448) = 0.65$, $p = .665$. Rival Characteristics were found to have an effect on scores, $F(5,448) = 18.08$, $p < .001$, $\eta_p^2 = .17$. Follow-up special contrasts revealed that the highest rated Tatiana Strength (i.e., thinner) ($M = 6.31$, $SD = 2.02$) was no more attractive than the second highest rated Tatiana Height (i.e., shorter) ($X = 6.01$, $SD = 2.37$), $t(448) = 0.86$, $p = .389$. Tatiana Strength and Height combined were no more attractive than the third highest rated Tatiana Control ($M = 5.84$, $SD =$

Table 4

Women's transformed (square root) mean Blind Attractiveness Rating scores of Tatiana Characters when asked "How attractive do you think most men would find the rival in this video?"

Tatiana Characters	Video	n	*X*	*SEM*
Control	Sexual	71	6.00	.31
	Emotional	71	5.68	.29
Strength	Sexual	83	6.40	.26
	Emotional	83	6.22	.24
Height	Sexual	76	6.07	.28
	Emotional	76	5.95	.30
Weight	Sexual	84	3.44	.24
	Emotional	84	3.37	.23
Attractiveness	Sexual	68	5.37	.34
	Emotional	68	5.08	.27
Status	Sexual	72	5.49	.31
	Emotional	72	5.68	.32

2.21), $t(448) = 1.01$, $p = .314$. These three characters combined were no more attractive than the fourth highest rated Tatiana Status (i.e., lower status) ($M = 5.58$, $SD = 2.55$), $t(448) = 1.56$, $p = .119$. These four characters combined were rated as more attractive than the fifth highest rated Tatiana Attractive (i.e., less attractive) ($M = 5.22$, $SD = 2.25$), $t(448) = 2.38$, $p = .018$. Finally, Tatiana Attractive was found to be more attractive than the least attractive Tatiana Weight (i.e., higher BMI) ($M = 3.4$, $SD = 1.98$), $t(448) = 5.00$, $p < .001$. Overall, women thought that men would perceive the Tatiana Strength, Height, Control, and Status characters to be most attractive, the Tatiana Attractive character as somewhat less attractive, and the Tatiana Weight character as the least attractive (Figure 10).

Archer. The Blind Attractiveness Ratings of men were negatively skewed for both the SIV and the EIV. Square root transformations were found best at normalizing these scores (Table 5).

A 6-between (Rivals) by 2-within (Videos) mixed-design ANOVA was conducted on men's transformed Blind Attractiveness Rating scores. The Rival variable was not found to have an influence on scores, $F(5,168) = 0.85$, $p = .514$, nor was a Rivals × Video interaction detected, $F(5,168) = 1.83$, $p = .110$. Video did however have a small influence on scores, $F(1, 168) = 9.22$, $p = .003$, $\eta_p^2 = .05$ with Rivals in the EIV being perceived as more attractive to women than Rivals in the SIV. For this reason, the simple effect of Rivals was examined separately for the two videos using one-way ANOVAs. For the SIV, Rivals had no influence on attractiveness ratings, $F(5,168) = 0.50$, $p = .778$, and the same was found true for the EIV, $F(5,169) = 1.80$, $p = .115$. Overall, men did not believe women would perceive differences in the attractiveness of the various Archer characters with the blind ratings (Figure 10).

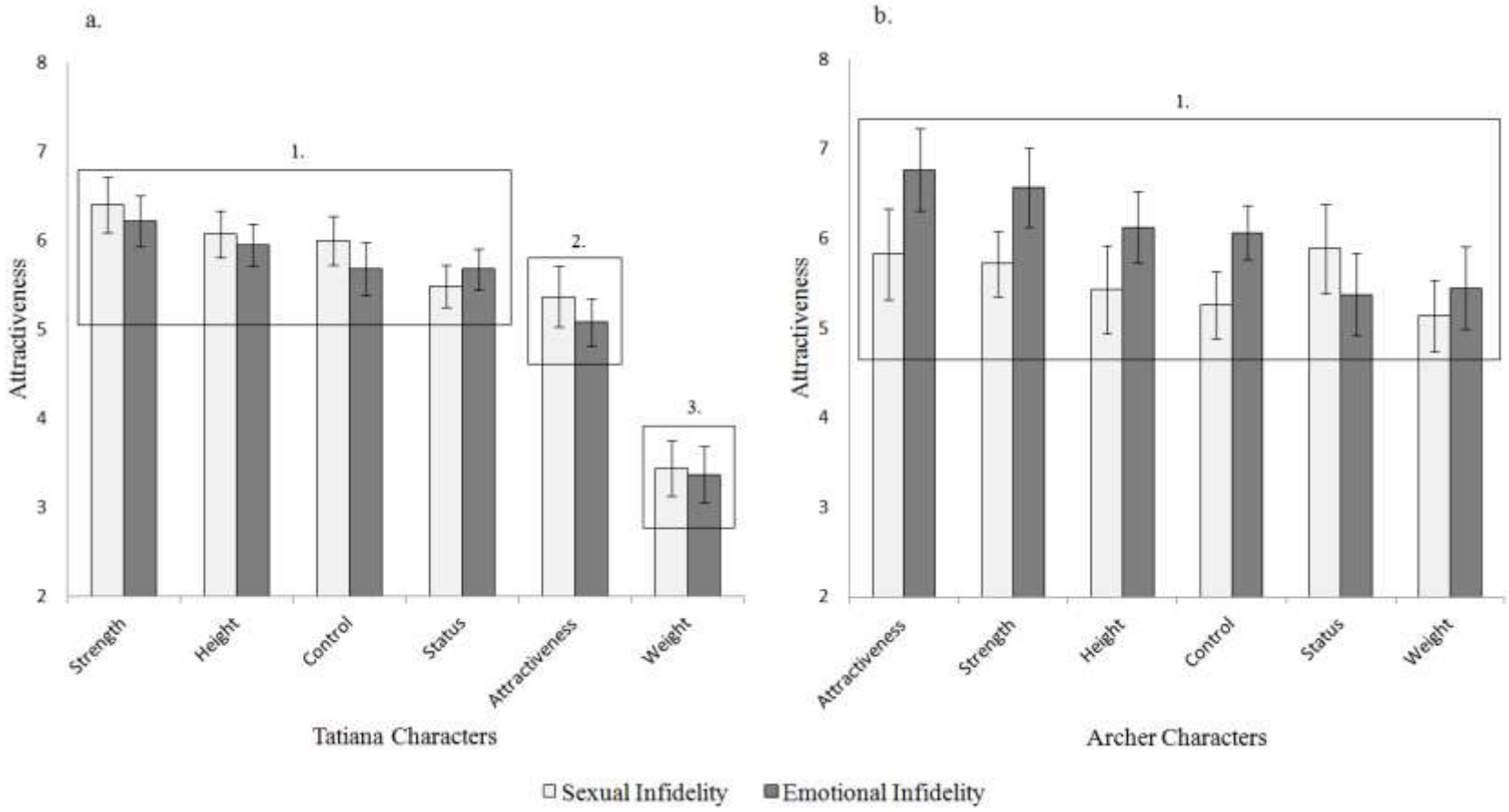

Figure 10. Participants mean blind attractiveness ratings of the rival characters to which they were exposed in the infidelity videos. (a) For women's mean Blind Attractiveness Rating scores of the Tatiana characters; Box 1 represent the most attractive characters, box 2 the second most attractive character, and box 3 the least attractive character. Women perceived that men would find the box 1 characters as more attractive than the box 2 characters, which would be more attractive than the box 3 character. (b) For men's mean Blind Attractiveness Rating scores of the Archer Characters; Box 1 represents the most attractive characters. Men perceived that women would not find any of the characters as any more or less attractive than the other characters. Possible scores ranged from 0.95 to 10. Error bars represent standard errors.

Table 5

Men's Mean Blind Attractiveness Rating scores of Archer Characters when asked "How attractive do you think most men would find the rival in this video?"

Archer Characters	Video	*n*	Mean	*SEM*
Control	Sexual	32	5.26	0.37
	Emotional	32	6.07	0.30
Strength	Sexual	29	5.72	0.36
	Emotional	29	6.57	0.44
Height	Sexual	29	5.44	0.49
	Emotional	29	6.13	0.40
Weight	Sexual	29	5.14	0.40
	Emotional	29	5.45	0.46
Attractiveness	Sexual	23	5.83	0.51
	Emotional	23	6.77	0.46
Status	Sexual	32	5.89	0.50
	Emotional	32	5.38	0.46

Lineup Attractiveness Ratings. At the end of the study, participants were shown lineups containing the six Tatiana Characters and the six Archer Characters and were asked to rate their attractiveness using VAS anchored at "Not" and "Hot". It should be noted that unlike during the videos where all rivals were portrayed as being of higher social status with the exception of the Status characters, in these lineups only the Status Characters were portrayed as being of higher status through the inclusion of a stethoscope on their persons. Additionally, a few participants chose not to provide attractiveness ratings for the characters which shared their sex and a few others did not provide attractiveness ratings for one or more of the 12 characters resulting in slightly reduced sample sizes in the following analyses (see Table 6).

Tatiana. A mixed-design ANOVA was conducted on Tatiana's Lineup Attractiveness scores with Participant Sex as the between-group variable and the six Tatiana Characters as the within-group variables. Sex was found to have an influence on scores, $F(1,557) = 23.87$, $p < .001$, $\eta_p^2 = .04$, with men ($M = 61.4$, $SEM = 1.22$) rating the Tatiana characters as more attractive than women ($M = 54.33$, $SEM = .78$). A small Sex × Tatiana Characters interaction effect was also detected, $F(1,557) = 6.02$, $p < .014$, $\eta_p^2 = .01$. This effect was partially driven by the Tatiana Weight character (i.e., the character with higher BMI) which was rated as less attractive by men than women, yet men rated every other characters as more attractive than did women. Finally, the Tatiana characters themselves also had an influence on scores, $F(1,557) = 42.95$, $p < .001$, $\eta_p^2 = .07$. Follow-up planned contrasts revealed that the highest rated Tatiana Status character ($M = 72.82$, $SD = 22.2$) was not rated as more attractive than the second highest rated Tatiana Control ($M = 70.21$, $SD = 23.29$), $F(1,557) = 2.69$, $p = .102$. These two Tatiana characters combined were rated as more attractive than the third highest rated Tatiana Height ($M = 64.38$, SD = 25.68), $F(1,557) = 36.33$, $p < .001$, $\eta_p^2 = .06$. Tatiana Height was also rated as

Table 6

Mean Lineup Attractiveness Scores for Tatiana and Archer when participants were provided with lineups containing all 12 characters.

Tatiana	**Women**			**Men**		
Characters	*n*	Mean	*SEM*	*n*	Mean	*SEM*
Status	397	70.62	1.11	163	78.09	1.69
Control	397	66.76	1.22	165	78.66	1.41
Height	397	60.91	1.30	165	72.60	1.84
Strength	397	52.36	1.40	165	58.24	2.12
Attractive	397	47.12	1.37	165	52.94	2.21
Weight	397	28.20	1.24	164	25.55	1.81

Archer	**Women**			**Men**		
Characters	*n*	Mean	*SEM*	*n*	Mean	*SEM*
Status	434	75.93	0.93	140	66.42	2.15
Control	441	74.20	1.11	140	67.38	2.09
Strength	441	46.25	1.28	140	42.12	2.09
Attractive	441	43.20	1.35	140	42.26	2.27
Height	441	31.25	1.22	140	39.48	2.34
Weight	441	32.90	1.24	139	27.20	1.74

more attractive than the fourth most attractive Tatiana Strength (M = 54.21, SD = 27.54), $F(1,557) = 59.18$, $p < .001$, $\eta_p^2 = .10$. Tatiana Strength was rated as more attractive than the fifth most attractive Tatiana Attractive (M = 49.08, SD = 27.53), $F(1,557) = 10.02$, $p = .002$, $\eta_p^2 = .02$. Finally, Tatiana Attractive was rated as more attractive than the least attractive Tatiana Weight (M = 27.57, SD = 24.21), $F(1,557) = 304.71$, $p < .001$, $\eta_p^2 = .35$. Overall, Tatiana Status and Tatiana Control were judged equally attractive by participants, Tatiana Height was judged as slightly less attractive, Tatiana Strength even less so, followed by Tatiana Attractive, and Tatiana Weight was judged least attractive of all (Figure 11).

Archer. A mixed-design ANOVA was conducted on Archer's Lineup Attractiveness scores with Participant Sex as the between-group variable and the six Archer Characters as the within-group variables. Sex was found to have an influence on attractiveness scores, $F(1,557) = 5.34$, $p = .021$, $\eta_p^2 = .01$, with women (M = 50.81, SEM = 0.71) rating the Archer Characters as more attractive than men (M = 47.5, SEM = 1.25). There was also a small interaction effect, $F(5,557) = 6.92$, $p < .001$, $\eta_p^2 = .06$. This effect seemed driven by the Archer Height character (i.e., shorter Archer) which was rated as less attractive by women than men whereas women rated every other characters as more attractive than men. Finally, there was a strong influence of Archer Characters on attractiveness scores, $F(5,557) = 195.09$, $p < .001$, $\eta_p^2 = .63$. Follow-up planned contrasts revealed that the highest rated Archer Status (M = 73.65, SD = 21.39) was not rated as more attractive than the second highest rated Archer Control (M = 72.69, SD = 23.33), $F(1,571) = 0.19$, $p = .662$. These two Archer characters combined were rated as more attractive than the third highest rated Archer Strength (M = 45.66, SD = 26.30), $F(1,557) = 343.47$, $p < .001$, $\eta_p^2 = .38$. Archer Strength was not rated as more attractive than the fourth most attractive

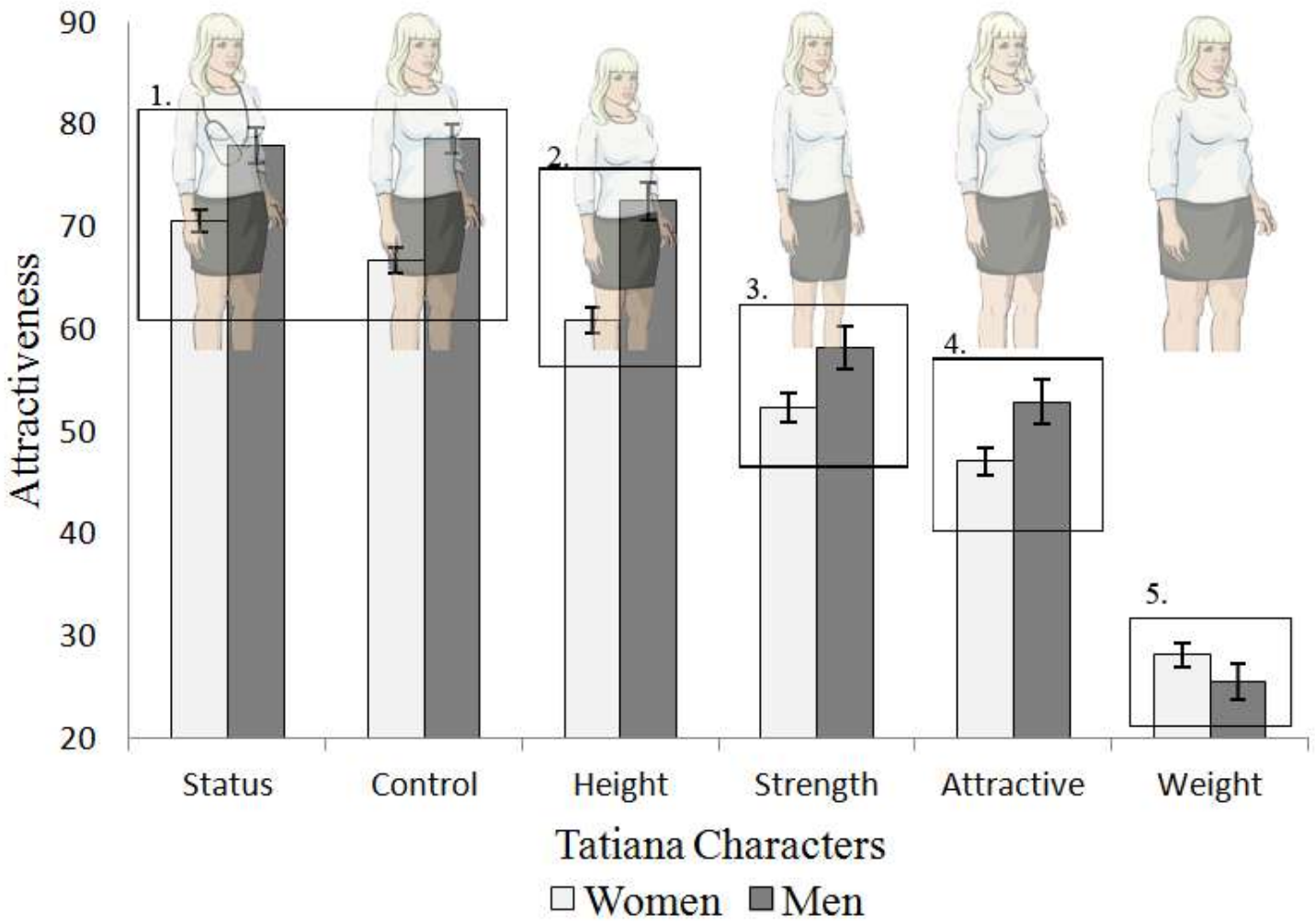

Figure 11. Mean Lineup Attractiveness scores of Tatiana Characters. Box 1 through 5 represent the attractiveness of characters in descending order. Possible ratings ranged from o to 100. Error bars represent standard errors.

Archer Attractive (M = 43.05, SD = 27.80), $F(1,571) = 0.85$, $p = .358$. These two characters combined were found to be more attractive than the fifth highest rated Archer Height (M = 33.61, SD = 26.30), $F(1,557) = 39.66$, $p < .001$, $\eta_p^2 = .07$. Finally, Archer Weight was found to be more attractive than the least attractive Archer Weight (M = 31.39, SD = 24.70), $F(1,557) = 15.16$, $p < .001$, $\eta_p^2 = .03$. Overall, Archer Status and Archer Control were judged equally attractive by participants, Archer Strength and Archer Attractive were judged slightly less attractive, Archer Height was judged to be even less attractive, and Archer Weight was judged least attractive of all (see Figure 12).

Influence of Rival Characteristics on Emotional Intensity Ratings. The influence of Rival Characteristics on participants' emotional intensity ratings were examined. For this, separately for women and men, Mixed-design MANOVAs were conducted in which Rivals acted as the between-group variables and Videos (SIV or EIV) as the within-group variable. A first such MANOVA was conducted with the three individual emotions of interest (Jealous, Distress, Upset) as dependent variables. A second such MANOVA was conducted where the emotional clusters which required square root transformations (Anger, Fear, Sadness, and Somatic Symptoms) were employed as dependent variables. A final such MANOVA was conducted where the emotional clusters Envy and Guilt (which did not require transformations) were employed as dependent variables.

Individual Emotions: Jealous, Distress, Upset. For women, the above-described mixed-design MANOVA failed to detect an influence of Rivals on emotional intensity when the individual emotions Jealous, Distress, and Upset were entered as dependent variables, $F(5,1263) = 0.55$, $p = .912$ (see Figure 13). For men, an influence of Rivals on Jealous, Distress, and Upset scores also failed to be observed, $F(5,486) = 1.19$, $p = .279$ (Figure 14).

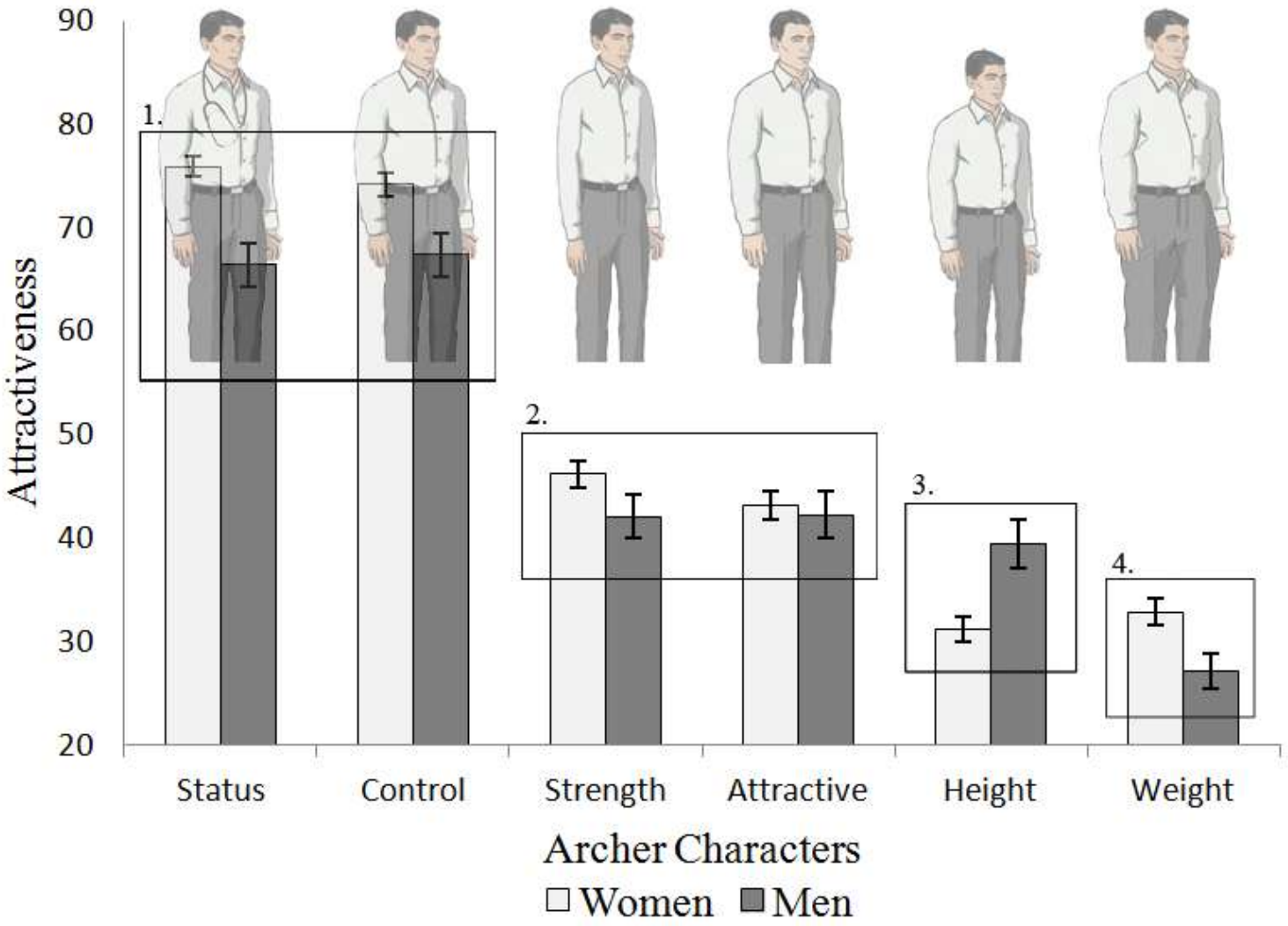

Figure 12. Mean Lineup Attractiveness Scores for Archer characters. Boxes 1 through 4 represent character attractiveness in descending order. Possible ratings ranged from o to 100. Error bars represent standard errors.

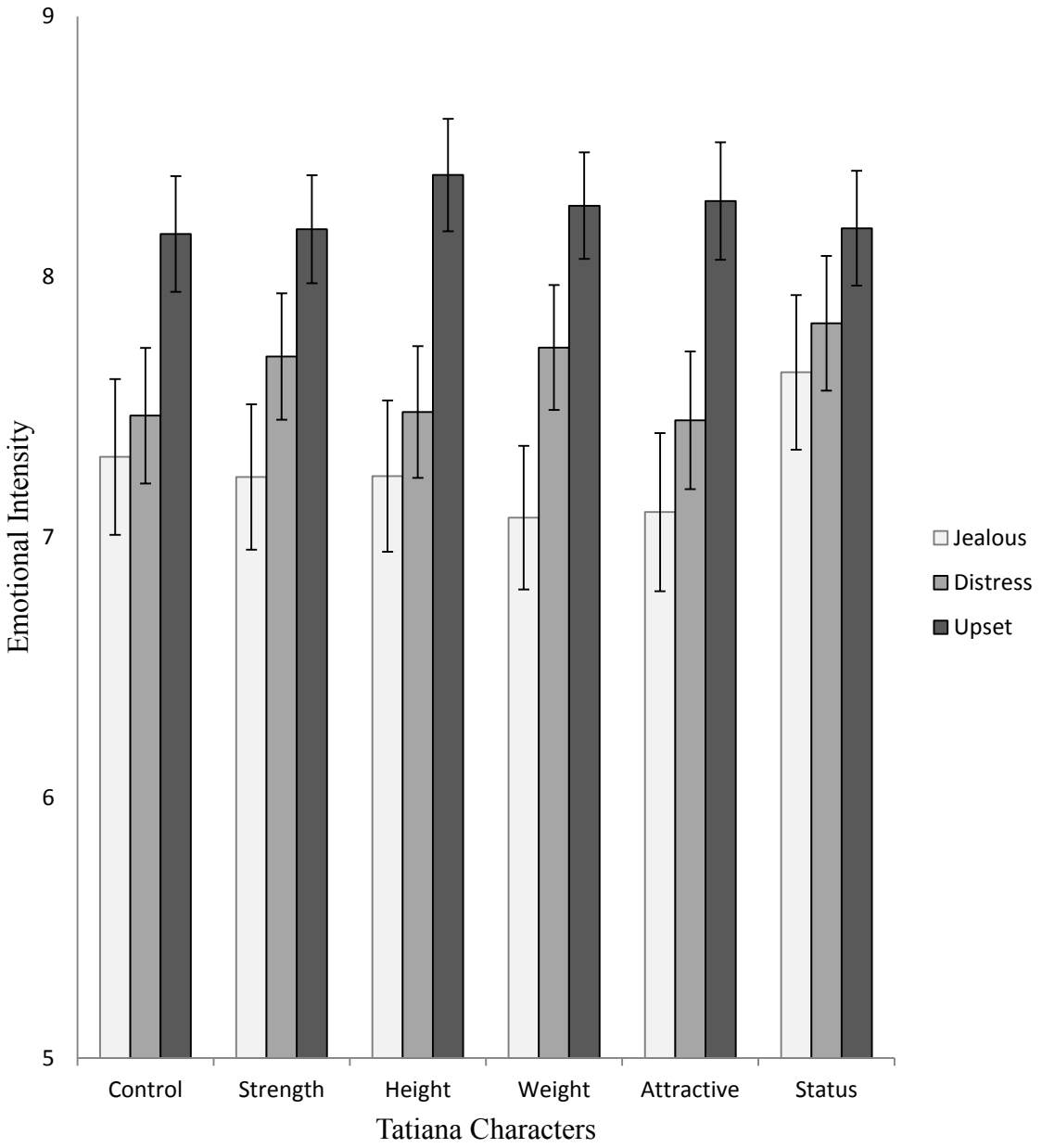

Figure 13. Women's mean emotional intensity scores for the transformed (square root) individual emotions of interest as a function of female rival characteristics. There was no main effect of the rival characteristics on emotional intensity scores. All emotions on this chart were rated on the same scale. Error bars represent standard errors.

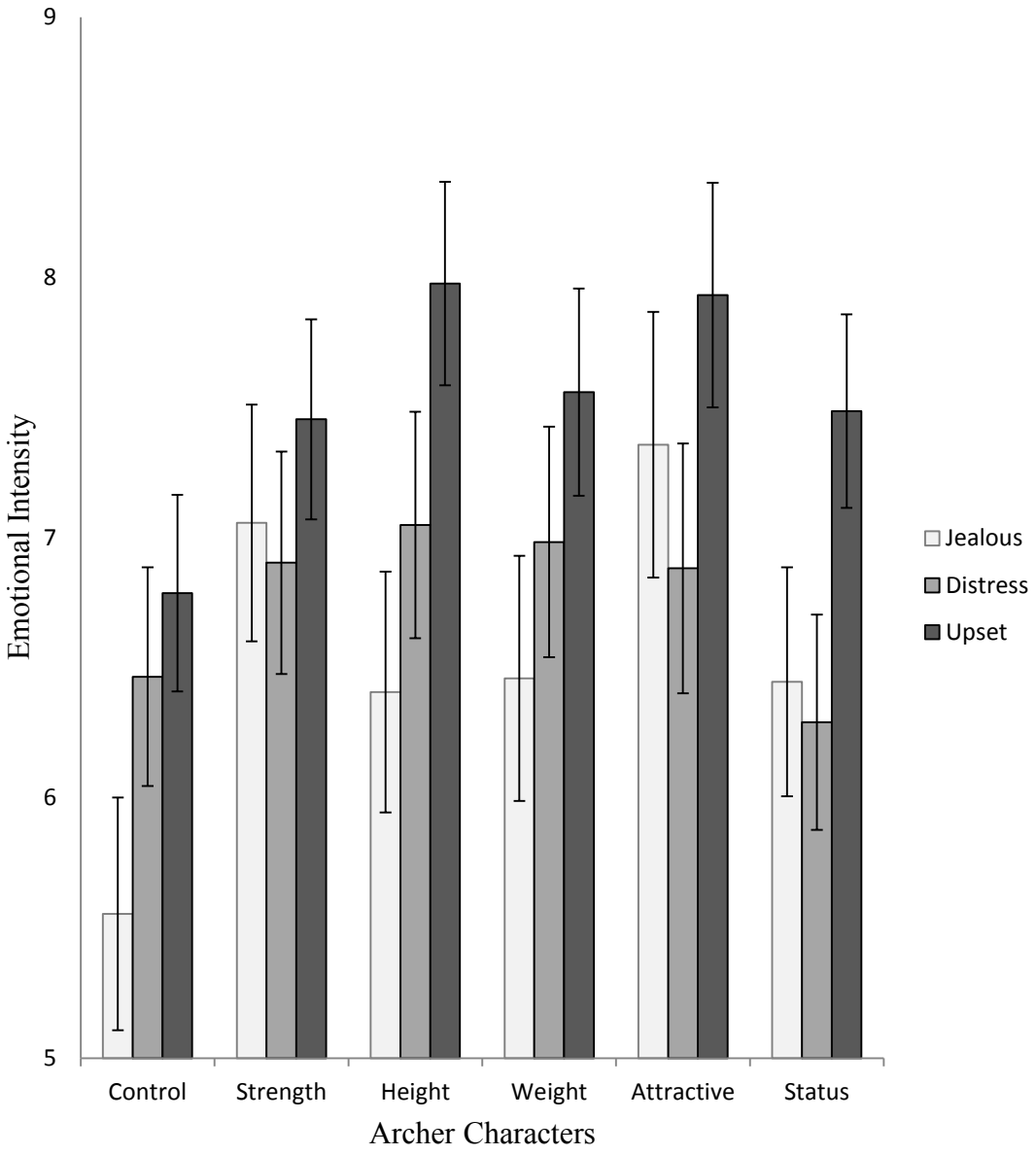

Figure 14. Men's mean emotional intensity scores for the transformed (square root) individual emotions of interest as a function of male rival characteristics. There was no main effect of the rival characteristics on emotional intensity scores. All emotions on this chart were rated on the same scale. Error bars represent standard errors.

Emotional Clusters: (Transformed) Anger, Fear, Sadness, Somatic Symptoms. For women, the above-described mixed-design MANOVA failed to detect an influence of Rivals on emotional intensity when the (transformed) emotional clusters Anger, Fear, Sadness, and Somatic Symptoms were entered as dependent variables, $F(5,1752) = 0.63$, p .= 89 (Figure 15). For men, an influence of Rivals on these clusters also failed to be observed, $F(5,676) = 0.78$, p = .737 (see Figure 16).

Emotional Clusters: Envy and Guilt. For women, a mixed-design MANOVA failed to detect an influence of Rivals on emotional intensity when the emotional clusters Envy and Guilt were entered as dependent variables, $F(5,896) = 0.52$, p = .88 (Figure 17). For men, an influence of Rivals on these clusters also failed to be observed, $F(5,336) = 0.64$, p = .783 (Figure 18).

Discussion

Hypothesis 1: Sex × Infidelity Type

The goal of the first part of this study was to test whether a Sex × Infidelity Type interaction could be detected using, for the first time, controlled infidelities presented in a visual format.

When presented with the original paradigm (i.e., Buss et al., 1992) designed to test the hypothesis that men and women differ in the form of infidelity that triggers the most subjective distress using the forced-choice method, our results replicated previous findings; men were found more likely to indicate sexual infidelity as the most distressing option. The research literature indicated that similar studies employing continuous measures of jealousy had found this sex difference more elusive but meta-analyses conducted by Sagarin (2005) and Sagarin and Edmund (2009) were nonetheless able to find evidence of it. In the present study, it was

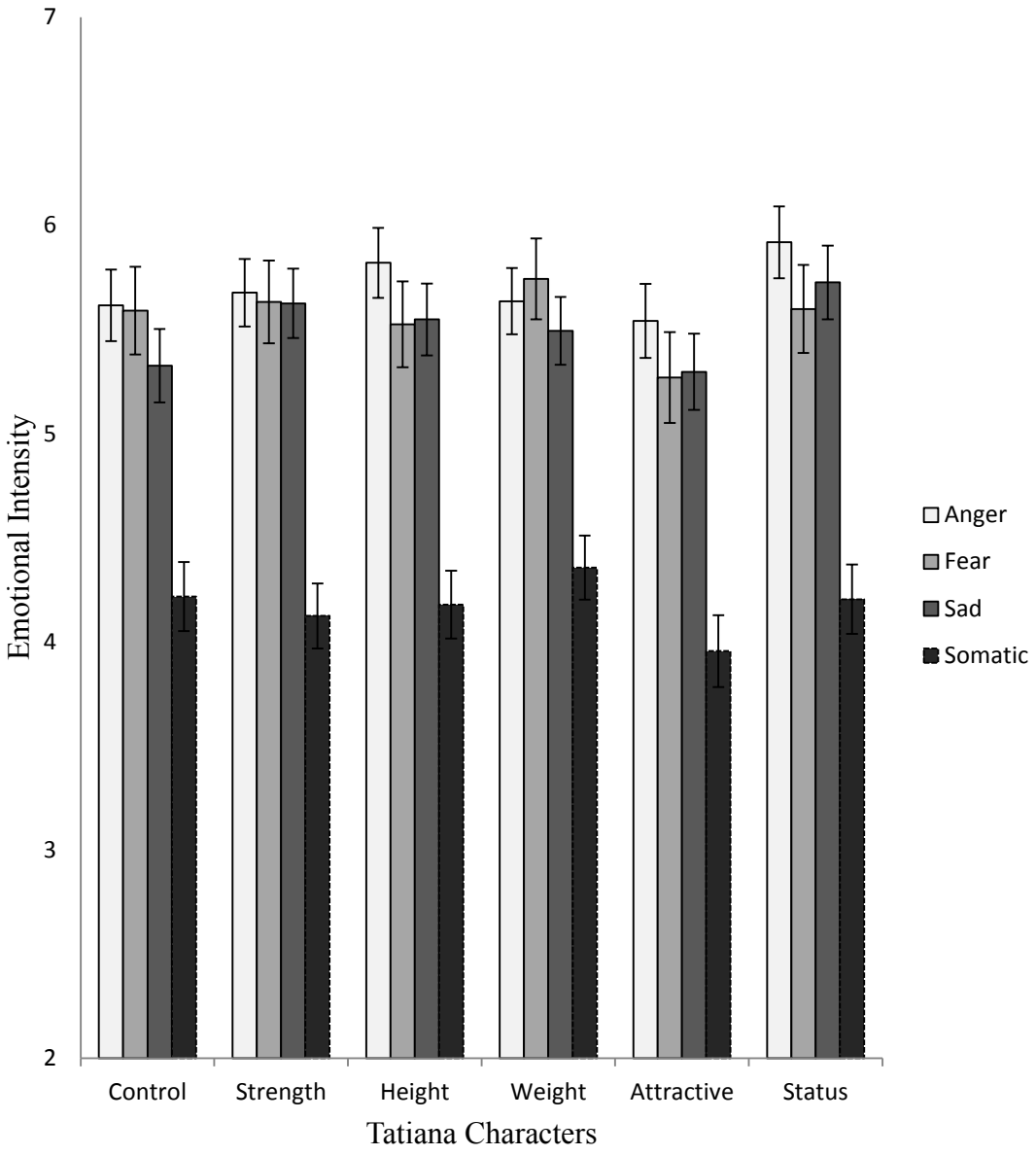

Figure 15. Women's mean emotional intensity scores for the transformed (square root) emotional clusters as a function of female rival characteristics. There was no main effect of the rival characteristics on emotional intensity. All emotions on this chart were rated on the same scale. Error bars represent standard errors.

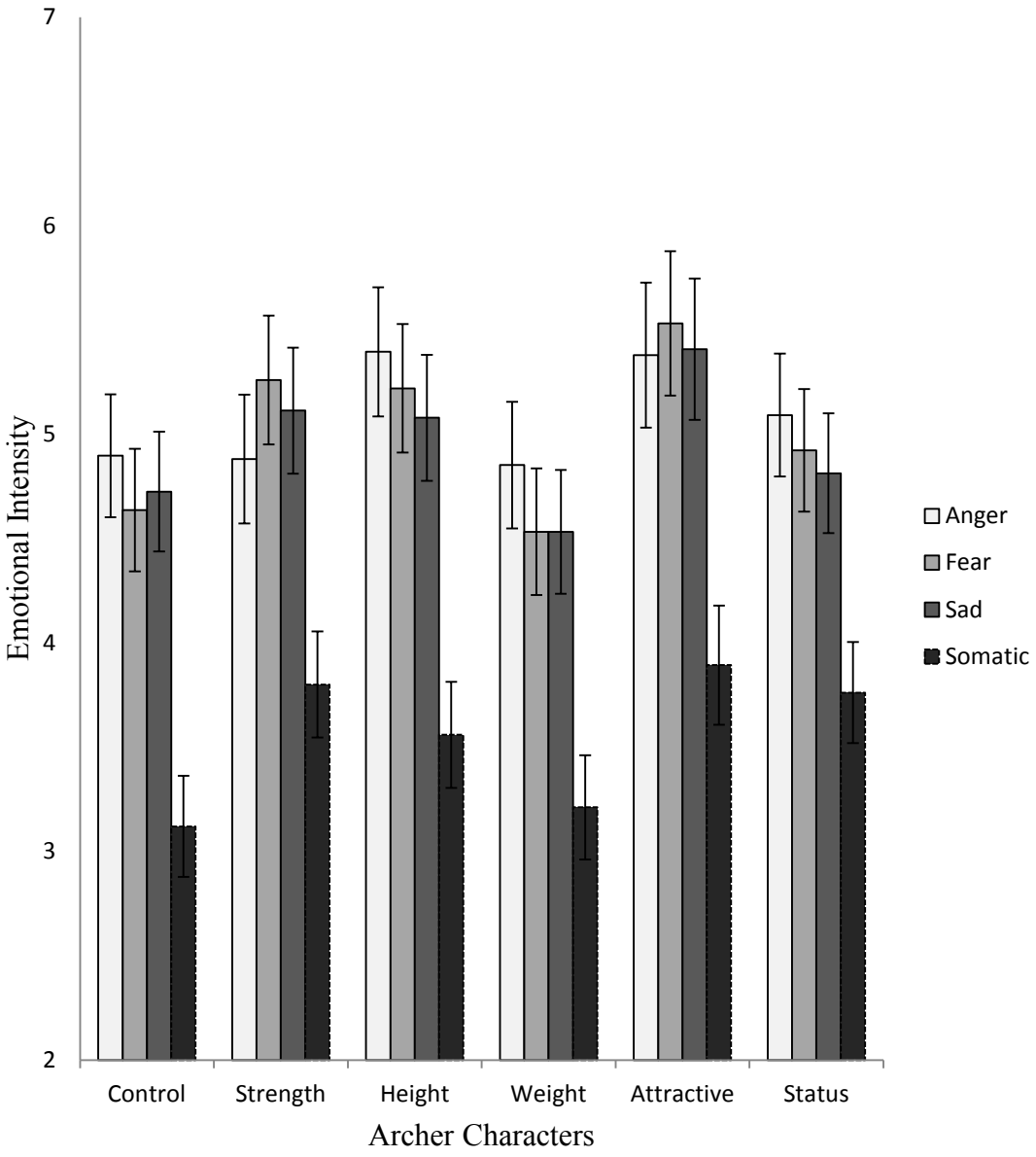

Figure 16. Men's mean emotional intensity scores for the transformed (square root) emotional clusters as a function of male rival characteristics. There was no main effect of the rival characteristics on emotional intensity. All emotions on this chart were rated on the same scale. Error bars represent standard errors.

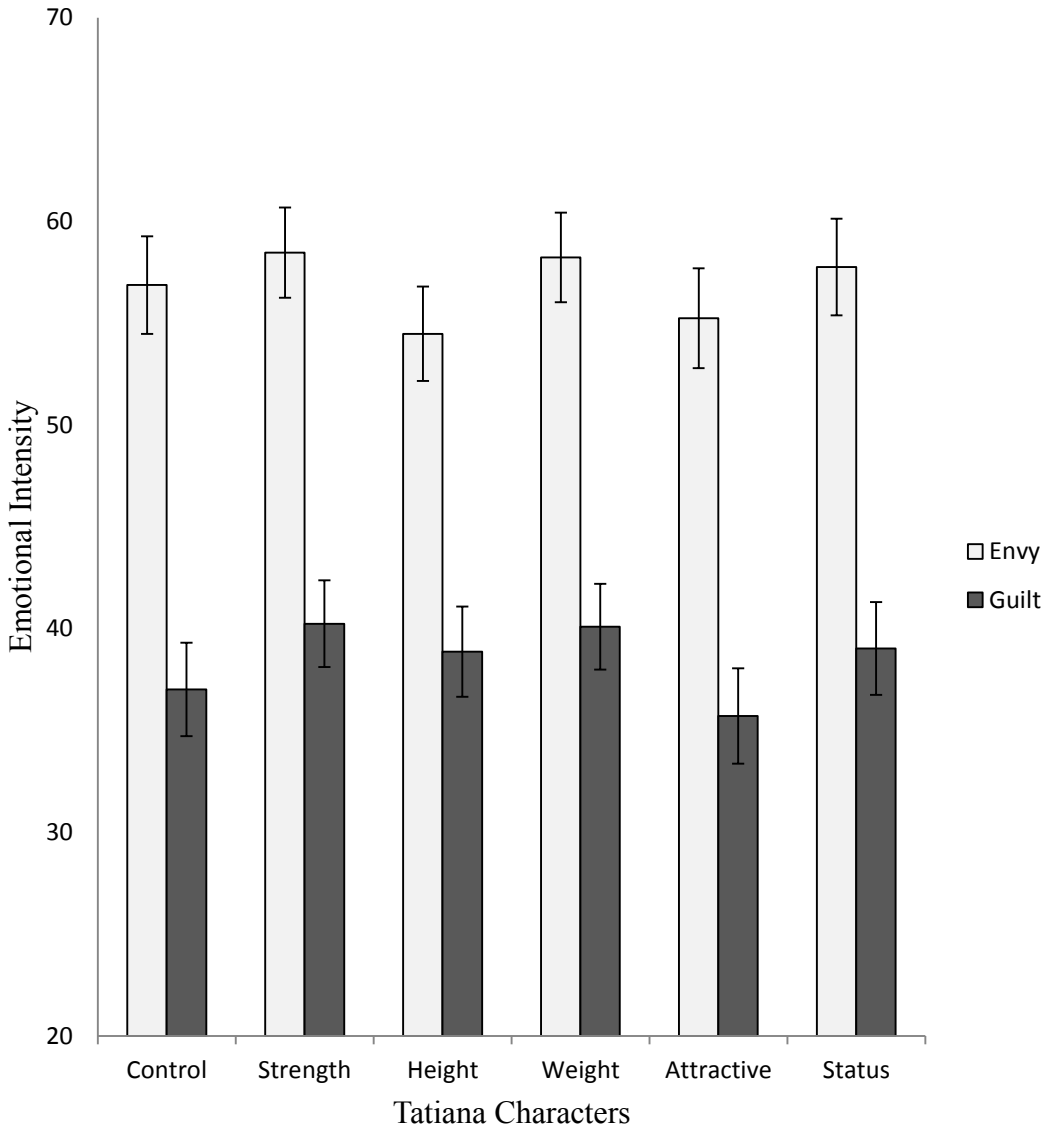

Figure 17. Women's mean emotional intensity scores for the untransformed emotional clusters as a function of female rival characteristics. There was no main effect of the rival characteristics on emotional intensity. All emotions on this chart were rated on the same scale. Error bars represent standard errors.

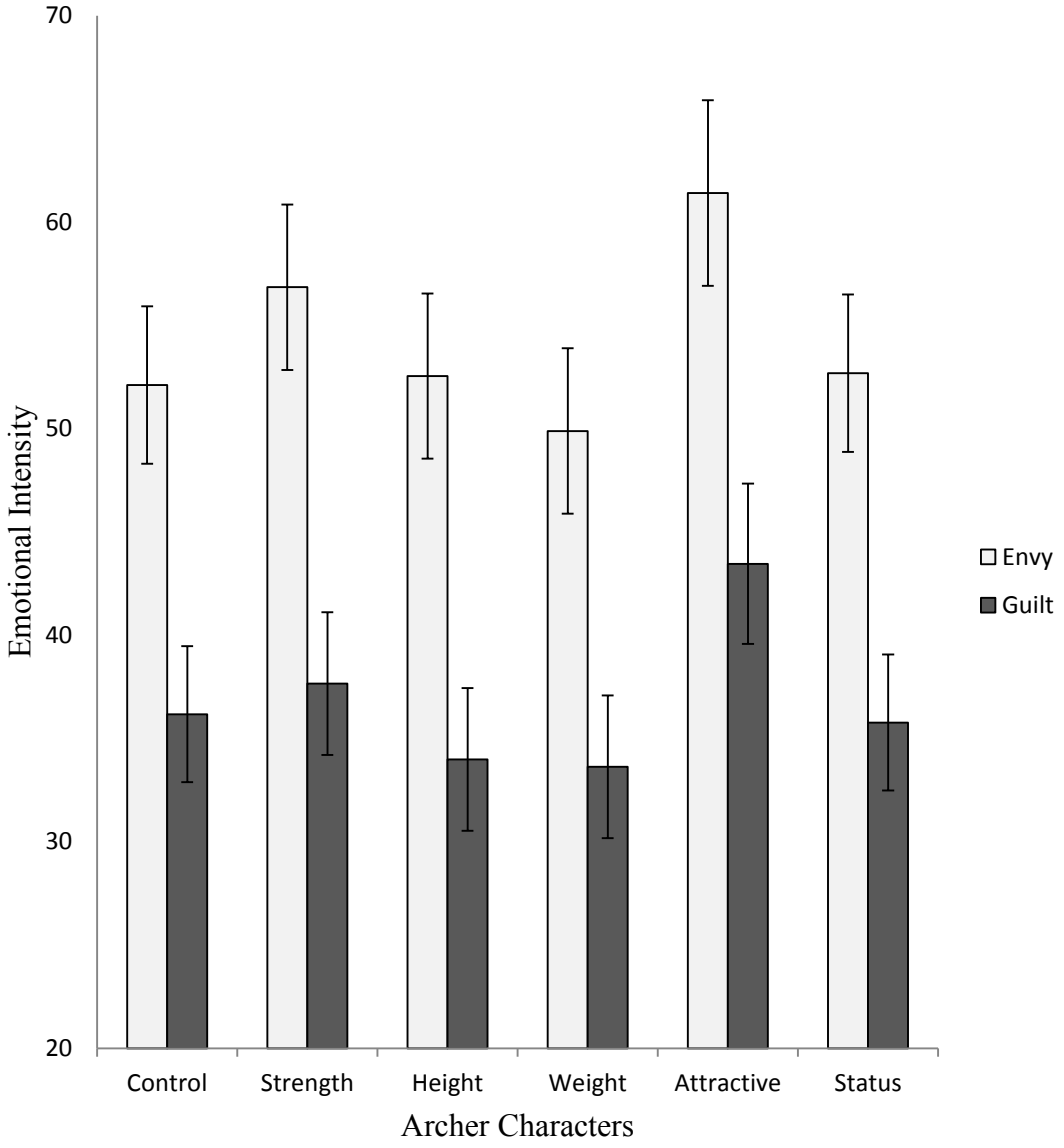

Figure 18. Men's mean emotional intensity scores for the emotional clusters as a function of male rival characteristics. There was no main effect of the rival characteristics on emotional intensity. All emotions on this chart were rated on the same scale. Error bars represent standard errors.

hypothesized that presenting participants with video stimuli (as opposed to relying on participants' imagination) would eliminate some degree of error, thus making the sex difference more prominent. However our results clearly indicated no evidence of Sex × Infidelity Type interactions, which would have supported the theory of evolved sex differences in jealousy (see Figures 7 through 9).

We can only speculate in our attempt to explain these results. It has been suggested by some researchers that early evidence of sex differences in jealousy was an artifact of the forced-choice method that has been used (e.g., Buller, 2005). However, it is unlikely that this possibility can account for all previous findings, especially in light of recent meta-analytic studies which supported the theory of sex differences in jealousy in studies using continuous measures (Sagarin et al., 2012).

Another possibility which could explain the null results of this particular study lies with the infidelity video themselves. The majority of studies of sex differences in jealousy, both those using the forced-choice and the continuous measure methods, reveal that most participants do find emotional infidelities (one's partner falling in love with someone else) as more distressing than sexual infidelities even if men are less likely than women to do so (Harris, 2003 for review). However, the present study saw both sexes reporting higher emotional intensity in response to the sexual infidelity rather than the emotional infidelity. It was suggested that the emotional infidelity could have been made more poignant by more explicitly stating the partner's unhappiness in the current relationship, by suggesting that the partner intended to leave the current partner for the rival, or otherwise making it clearer that the rival was kinder and more understanding than the partner. Thus, our emotional infidelity video may have been too mild and could have contributed to our null results.

However, thought was also given as to what factor might increase emotional reactivity to a hypothetical and imagined sexual infidelity but lose potency when the infidelities were controlled and presented visually. Of course, in order to explain previous evidence of sex differences in jealousy in studies which employed hypothetical infidelities, it would be important that this factor would be one that disproportionally influences one sex over the other. One possibility, which this study was unfortunately not designed to investigate, is that this factor may be consumption of and exposure to pornography. Men's greater consumption of, and exposure to, pornography is well established (e.g., Böhm et al. 2015; Hald, 2005) and this may have endowed men with a greater ability to imagine sexual imagery. Thus, when tasked with imagining a sexual versus an emotional infidelity, men may succeed in provoking themselves into responding with greater emotional intensity. In this study, as both women and men were responding to the same stimuli, this enhanced ability to imagine vivid sexual scenarios may have been neutralized thus eliminating the expected sex differences in jealousy.

Hypothesis 2: Rival Characteristics

The second goal of this study was to see whether manipulation of specific rival characteristics would influence the emotional intensity ratings of participants in response to an infidelity. The attractiveness of the various characters employed was first evaluated (i.e., a manipulation check). This was followed by an examination of the jealousy-related emotions and emotional clusters to see if rival characteristics swayed scores.

Validity of characters' attractiveness. Blind to the existence of alternative conditions and manipulated rival characteristics, women believed men would find the thin (Strength condition), short (Height condition), Control (all desirable characteristics), and low status (Status condition) Tatiana characters most attractive. Women also believed men would find the

unattractive (Attractive condition) and overweight (Weight condition) least attractive (Figure 10). Men, on the other hand, did not indicate thinking that women would find any of the Archer characters as more or less attractive than the others during this blind attractiveness rating phase (Figure 10).

When later presented with lineups of all characters employed in this study, women and men's attractiveness ratings were found to be remarkably parallel. For the Tatiana characters, Control Tatiana was found most attractive while the unattractive and overweight Tatiana characters were judged least attractive (Figure 11). For the Archer characters, Control Archer was found most attractive while the short and overweight Archer characters were found least attractive (Figure 12). Thus, the manipulation checks indicated that participants could perceive differences between the male and female rivals and that these differences influenced their perception of the rivals attractiveness. This provided evidence for the validity of the rival characteristics.

Influence of rival characteristics on emotional intensity ratings. The rival characteristic manipulations were not found to have an influence on participants' emotional intensity ratings in response to infidelity. It would appear that, at least where fait accompli (as opposed to suspected) infidelities are concerned, the attractiveness of the rival matters very little to the intensity with which jealousy is activated. These findings are inconsistent with those of previous studies which have generally found that women are more distressed by physically attractive rivals and men are more distressed by socially of physically dominant rivals (Dijkstra & Buunk, 2002; Buunk, 2011). Of course, this study employed animated characters and required participants to put themselves into the shoes of the characters. Thus, this could explain the lack of effect. Although participants did note differences in the various characters' attractiveness

when specifically asked to do so, participants' emotional intensity ratings may have been in response to the scenes as a whole and they could have forgiven, ignored, or simply not noticed the specific physical attributes of the rival characters to which they were exposed until later being told to judge their attractiveness. Nevertheless, the findings do suggest that rival characteristics do not significantly affect emotional intensity ratings in response to a known infidelity.

Strengths and Limitations

There were several limitations to this study. Our participants, having been almost entirely pooled online, resulted in a group which was much more diverse in terms of age, ethnicity, occupation, and level of education than what would normally be seen in the typical sample of university students generally found in psychological research. While this does increase the generalizability of the results, it also likely introduced greater variability in responses which may have obscured small group differences. Another limitation was the use of animated characters as opposed to actors. The animated characters made the manipulation of rival characteristics significantly more convenient (relative to human actors) but reduced the ecological validity of our stimuli. Closely related to this limitation was the use of characters from a television series which many participants had seen before. For these participants (36% of women and 58% of men), rival manipulations may have been evident. Finally, allowing participants to complete this study online (as opposed to within a laboratory) was practical in allowing this study to reach a wider audience but it also likely meant that some participants may not have strictly adhered to study instructions (such as completing the study alone and undisturbed).

There are a number of noteworthy strengths of this study. First, it was the first study in the area to use videos to explore the sex × infidelity type interaction, thus improving the ecological validity of the stimuli and reducing error related to individual differences in visual or emotional imagery. Second, the final sample size included 629 participants, making this a well-powered study. Finally, recruitment of an international sample that was not restricted to university students increases the generalizability of the findings.

Implications and Future Directions

In conclusion, the results of this study cast doubt on the hypothesis that women and men have evolved slight differences in the form of infidelity (sexual or emotional) most likely to evoke jealousy. Due to its prevalence across times and cultures, jealousy remains a good candidate as an evolved psychological mechanism. However, jealousy is likely a system plastic and pliable enough to shape itself in accordance to a person's personal life experiences and the environment in which this person exists. Where, when, and how intensely jealousy is activated, in this study, could not be predicted by evolutionary theories such as parental investment and mate selection. Future studies into the Sex × Infidelity Type debate should focus on social, behavioural, biological, and psychological factors which may have created this apparent sex difference (such as the consumption and exposure to pornographic materials).

As to rival characteristics, the results of this study appear to suggest that, where fait accompli infidelities are concerned, the attractiveness of one's rivals may matter little or not at all in modulating the jealous experience. However, the use of animated characters in this study somewhat tempers this conclusion. It remains to be seen whether rival characteristics may influence jealousy when infidelities are suspected or anticipated. Future studies in this area

using visual stimuli would also be advised to investigate rival characteristics through the use of live actors in order to increase ecological validity.

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Appendix A

List of Jealousy-Related Emotions and Symptoms

Emotional clusters and emotions	*Emotional clusters and emotions*
Anger Cluster	**Guilt Cluster**
1 - Angry	1 - Guilty
2 - Upset	2 - Regretful
3 - Hostile	3 - Embarrassed
4 - Hateful	4 - Responsible
5 - Disgusted	
6 - Homicidal	**Sexual Arousal Cluster**
	1 - Aroused
Fear Cluster	2 - Excited
1 - Afraid / Fearful	3 - Sexually Aroused
2 - Distressed	
3 - Anxious	**Positive Affect Cluster**
4 - Worried	1 - Love
5 - Shocked	2 - Attraction
	3 - Appreciation
Sadness Cluster	4 - Forgiving
1 - Sad	5 - Understanding
2 - Depressed	
3 - Hurt	**Somatic Symptoms Cluster**
4 - Heartbroken	1 - Sick
5 - Suicidal	2 - Nauseated
	3 - Hot
Envy Cluster	4 - Dizzy
1 - Envious	
2 - Resentful	**Individual Emotions of Interest**
3 - Vengeful	*(not a cluster)*
4 - Inferior	1 - Jealous
5 - Incompetent / Inept	2 - Upset
	3 - Distressed

Note: The list of emotions employed in this study was inspired by the participant-generated list of emotional reactions compiled by Shackelford, LeBlanc, and Drass (2000). The 'Individual Emotions of Interest' are those emotions most commonly investigated in studies of jealousy which employ single ratings of jealousy. Participants were asked to provide intensity ratings for the emotions and symptoms using visual analogue scales.

Appendix B

Demographics, Relationship, and Infidelity Questionnaire

Age (in years): _____

Height: _____ (feet & inches) or _____ (cm)

Weight: _____ (lbs) or _____ (kg)

Location: City: _____ Province/State: _____
Country: _____

Primary Language (most fluent): _____

Secondary Language (if applicable): _____

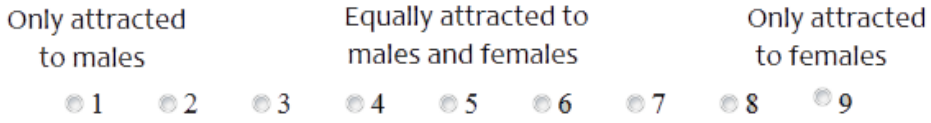
Primary Occupation:

[ ] Full-time Student
[ ] Part-time Student
[ ] Professional
[ ] Wage Labourer
[ ] Homemaker
[ ] Unemployed
[ ] Retired
[ ] Other

Which best describes your sexual orientation?

[ ] Exclusively heterosexual
[ ] Predominantly heterosexual, only incidental homosexual
[ ] Predominantly heterosexual, but more than incidental homosexual
[ ] Bisexual - Equally heterosexual and homosexual
[ ] Predominantly homosexual, but more than incidental heterosexual
[ ] Predominantly homosexual, only incidental heterosexual
[ ] Exclusively homosexual

Please indicate your romantic interests:



Please indicate your sexual interests:

Only attracted to males			Equally attracted to males and females					Only attracted to females
1	2	3	4	5	6	7	8	9

Which best describes your current romantic situation:

[ ] no romantic partner (single)
[ ] One romantic partner, living apart
[ ] One romantic partner, living together
[ ] Married, living apart
[ ] Married, living together
[ ] Multiple romantic partners
[ ] Other

If you are currently in a romantic relationship, how long have you and your partner been together? Years: _____ , and Months: _____

How much do you trust this partner to be emotionally and sexually faithful to you?

[ ] 0% No trust at all
[ ] 5%
[ ] 10%
[ ] 15%
[ ] 20%
[ ] 25%
[ ] 30%
[ ] 35%
[ ] 40%
[ ] 45%
[ ] 50%
[ ] 55%
[ ] 60%
[ ] 65%
[ ] 70%
[ ] 75%
[ ] 80%
[ ] 85%
[ ] 90%
[ ] 95%
[ ] 100% Complete trust

How long was your longest relationship?

Years: _____ , and Months: _____

How old were you when you first had consensual sexual intercourse?

Years: _____

In your **lifetime**, how many different people have you had consensual sexual intercourse with? _____

In the **last year**, how many different people have you had consensual sexual intercourse with? _____

In your **lifetime**, how many different people have you had consensual sexual intercourse with on **one and only one occasion**? _____

How many different partners do you foresee yourself having sex with during the next 5 years? (Please give a realistic estimate) : _____

In your lifetime, how many times have you fallen in love? : _____

Please indicate the degree to which you agree with the following statements:

a) *"I am physically more attractive than most people I know of the same sex and age"*

Strongly disagree				Neutral				Strongly agree
[ ] 1	[ ] 2	[ ] 3	[ ] 4	[ ] 5	[ ] 6	[ ] 7	[ ] 8	[ ] 9

b) *"I am physically stronger than most people I know of the same sex and age"*

Strongly disagree				Neutral				Strongly agree
[ ] 1	[ ] 2	[ ] 3	[ ] 4	[ ] 5	[ ] 6	[ ] 7	[ ] 8	[ ] 9

c) *"I am a more interesting conversationalist than most people I know of the same sex and age"*

Strongly disagree				Neutral				Strongly agree
[ ] 1	[ ] 2	[ ] 3	[ ] 4	[ ] 5	[ ] 6	[ ] 7	[ ] 8	[ ] 9

d) *"I am more intelligent than most people I know of the same sex and age"*

Strongly Neutral Strongly
disagree agree
[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9

e) *"My life is more exciting than the lives of most people I know of the same sex and age"*

Strongly Neutral Strongly
disagree agree
[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9

f) *"I have more money than most people I know of the same sex and age"*

Strongly Neutral Strongly
disagree agree
[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9

g) *"I have a more prestigious career (or career prospects) than most people I know of the same sex and age"*

Strongly Neutral Strongly
disagree agree
[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9

h) *"I am very humble and would likely underestimate or underreport my own attributes and qualities if asked to compare myself to others"*

Strongly Neutral Strongly
disagree agree
[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9

Instructions for the following questions:

In the following questions, you will be asked about how many times you have found out or suspected that a romantic partner was being unfaithful and how often you have yourself been unfaithful. Please take your time, read carefully, and consider the following definitions and guidelines in answering:

Definitions:

Sexual infidelity / unfaithfulness :	Engaging in sexual intercourse, oral sex, heavy petting, or "making out" with someone other than one's current romantic partner. May occur with or without emotional infidelity.

Emotional Infidelity/ unfaithfulness :	Developing, over time, an emotional intimacy with (and strong romantic feelings for) someone other than one's current romantic partner (note: this does not include fantasizing about people never met). May occur with or without sexual infidelity.
Guidelines:	
Partner was unfaithful	Within a given romantic relationship, if your partner was unfaithful several times with different people (i.e., 3) you should write "3". However, if this partner was unfaithful several times but always with the same person, you should write "1"
You were unfaithful	Similarly, within a given relationship, if you were unfaithful with two different persons, you should write "2". However, if you were unfaithful several times but always with the same person, write "1"

How many times have you **found out** (absolutely no doubt as indicated by physical evidence, confessions, or reliable third party information) that one of your partner(s)...

a) had been sexually unfaithful but not emotionally unfaithful: _____
b) had been emotionally unfaithful but not sexually unfaithful: _____
   * Refer to guidelines above if unsure how to answer

c) Overall, how many times have you **found** out that you had been cheated on (however you define cheating)? _____

How many times have you **suspected** (you never found out for sure) that one of your partner(s)...

a) had been sexually unfaithful but not emotionally unfaithful: _____
b) had been emotionally unfaithful but not sexually unfaithful: _____
   * Refer to guidelines above if unsure how to answer

c) Overall, how many times have you **found** out that you had been cheated on (however you define cheating)? _____

In your lifetime, how many times have **you...**

a) been sexually unfaithful but not emotionally unfaithful: _____
b) been emotionally unfaithful but not sexually unfaithful: _____

c) Overall, how many times have you cheated on your partner(s) (however you define cheating)? : _____

Appendix C

Mood Reactivity Subscale of the Mood Survey

Below are a number of statements about your experience of moods. We would like you to consider your usual behaviour when you respond. Using the scale, indicate the appropriate number below each question and try to be as honest as you can.

a) I may change from happy to sad and back again several times in a single week.

Strongly Disagree	Moderately Disagree	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

b) Compared to my friends, I'm less up and down in my mood states.

Strongly Disagree	Moderately Disagree	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

c) Sometimes my mood swings back and forth very rapidly.

Strongly Disagree	Moderately Disagree	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

d) My moods are quite consistent; they almost never vary.

Strongly Disagree	Moderately Disagree	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

e) I'm a very changeable person.

Strongly Disagree	Moderately Disagree	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

f) I'm not as "moody" as most people I know.

Strongly Disagree	Moderately Disagree	Somewhat Disagree	Somewhat Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

g) If 1 = hardly ever and 99 = extremely frequently, how frequently do your moods change? ____

h) If 1 = not at all and 99 = extremely intensely, how intensely do you react to mood experiences? ___

Appendix D

Multidimensional Sociosexual Orientation Inventory

Please respond honestly to the following questions:

	1 Strongly disagree	**2**	**3**	**4 Neutral**	**5**	**6**	**7 Strongly agree**
1. I can easily imagine myself being comfortable and enjoying "casual" sex with different partners	1	2	3	4	5	6	7
2. I can imagine myself enjoying a brief sexual encounter with someone I find very attractive	1	2	3	4	5	6	7
3. I could easily imagine myself enjoying one night of sex with someone I would never see again	1	2	3	4	5	6	7
4. Sex without love is OK	1	2	3	4	5	6	7
5. I could enjoy sex with someone I find highly desirable even if that person does not have long-term potential	1	2	3	4	5	6	7
6. I would consider having sex with a stranger if I could be assured that it was safe and he/she was attractive to me	1	2	3	4	5	6	7
7. I would never consider having a brief sexual relationship with someone	1	2	3	4	5	6	7
8. Sometimes I would rather have sex with someone I did not care about	1	2	3	4	5	6	7
9. I believe in taking sexual opportunities when I find them	1	2	3	4	5	6	7
10. I would have to be closely attached to someone (both emotionally and psychologically)	1	2	3	4	5	6	7

before I could feel comfortable and fully enjoy having sex with him or her							
11. I am interested in maintaining a long-term romantic relationship with someone special	1	2	3	4	5	6	7
12. I hope to have a romantic relationship that lasts the rest of my life	1	2	3	4	5	6	7
13. I would like to have a romantic relationship that lasts forever	1	2	3	4	5	6	7
14. Long-term romantic relationships are not for me	1	2	3	4	5	6	7
15. Finding a long-term romantic partner is not important to me	1	2	3	4	5	6	7
16. I can easily see myself engaging in a long-term romantic relationship with someone special	1	2	3	4	5	6	7
17. I cannot imagine spending the rest of my life with one sex partner	1	2	3	4	5	6	7
18. I can see myself settling down romantically with one special person	1	2	3	4	5	6	7
19. If I never settled down with one romantic partner, that would be OK	1	2	3	4	5	6	7
20. I would like to have at least one long-term committed relationship during my lifetime	1	2	3	4	5	6	7

21. How often do you fantasize about having sex with someone other than your current partner (or most recent partner if you are not currently in a romantic relationship)?

1. Never
2. Once every two or three months
3. Once a month
4. Once every two weeks
5. Once a week

6. A few times each week
7. Nearly every day
8. At least once a day

n/a I've never been in a romantic relationship

22. During your entire life, with how many partners have you had sexual intercourse with?

_____

23. With how many different partners have you had sex (sexual intercourse) within the past year?

_____

24. With how many different partners have you had sex on one and only one occasion?

_____

25. How many different partners do you foresee yourself having sex with during the next 5 years? (Please give a specific, realistic estimate).

_____

Appendix E

Multidimensional Jealousy Scale

How often do you have the following thoughts about your current romantic partner (if you are currently single, think back to your last romantic partner; if you have never been in a romantic relationship, please skip this section)

	Never				Always
I suspect that X is secretly seeing someone of the opposite sex.	◉	○	○	○	○
I am worried that some member of the opposite sex may be chasing after X.	◉	○	○	○	○
I suspect that X may be attracted to someone else.	◉	○	○	○	○
I suspect that X may be physically intimate with another member of the opposite sex behind my back.	◉	○	○	○	○
I think that some members of the opposite sex may be romantically interested in X.	◉	○	○	○	○
I am worried that someone of the opposite sex is trying to seduce X.	◉	○	○	○	○
I think that X is secretly developing an intimate relationship with someone of the opposite sex.	◉	○	○	○	○
I suspect that X is crazy about members of the opposite sex.	◉	○	○	○	○

How would you emotionally react to the following situations?	Indifferent / Wouldn't care				Very upset
X comments to you on how great looking a particular member of the opposite sex is.	◉	○	○	○	○
X shows a great deal of interest or excitement in talking to someone of the opposite sex.	◉	○	○	○	○
X smiles in a very friendly manner to someone of the opposite sex.	◉	○	○	○	○
A member of the opposite sex is trying to get close to X all the time.	◉	○	○	○	○
X if flirting with someone of the opposite sex.	◉	○	○	○	○
Someone of the opposite sex is dating X.	◉	○	○	○	○
X hugs and kisses someone of the opposite sex.	◉	○	○	○	○
X works closely with a member of the opposite sex (in	◉	○	○	○	○

school or office).

How often do you engage in the following behaviors?	Never				Always
I look through X's drawers, handbag, or pockets.	◉	○	○	○	○
I call X unexpectedly, just to see if he or she is there.	◉	○	○	○	○
I question X about previous or present romantic relationships.	◉	○	○	○	○
I say something nasty about someone of the opposite sex if X shows any interest in the person.	◉	○	○	○	○
I question X about his or her telephone calls.	◉	○	○	○	○
I question X about his or her whereabouts.	◉	○	○	○	○
I join in whenever I see X talking to a member of the opposite sex.	◉	○	○	○	○
I pay X a surprise visit just to see who is with him or her.	◉	○	○	○	○

Appendix F

Hormonal/Reproductive Questions

(Women Only)

1. Are you currently pregnant (please circle) **YES** **NO** **MAYBE**

2. Are you currently lactating/breast-feeding/nursing? **YES** **NO** **MAYBE**

3. Which statement below best describes you
[ ] I am currently taking oral contraceptives ("the pill")
[ ] I previously used the pill but I am no longer using it
[ ] I have never taken oral contraceptives ("the pill")

4. If you previously took oral contraceptives/the pill, how long ago did you stop taking it? _____ **months** and _____ **years**

5. If you are currently taking any type of hormonal contraceptive (e.g., the pill, the patch, injections, IUD, the ring), select the type of hormonal contraceptive you are currently taking.

Oral Contraceptive:

[ ] Alesse	[ ] Linessa	[ ] Norlevo	[ ] Seasonique
[ ] Apri	[ ] Lo-Femenal	[ ] Ortho 0.5/35	[ ] Select 1/35
[ ] Aviane	[ ] Loestrin 1.5/30	[ ] Ortho 1/35	[ ] Synphasic
[ ] Brevicon 0.5/35	[ ] Marvelon	[ ] Ortho 10/11	[ ] Tri-Cyclen
[ ] Brevicon 1/35	[ ] Micronor	[ ] Ortho 7/7/7	[ ] Tri-Cyclen Lo
[ ] Cyclen	[ ] Min-Ovral	[ ] Ortho-Cept	[ ]Triquilar
[ ] Demulen 30	[ ] Minestrin 1/20	[ ] Portia	[ ] Yasmin
[ ] Demulen 50	[ ] Next Choice	[ ] Seasonale	[ ] Yaz

[ ] Other (please specify): _____

Injected Contraceptive:

[ ] Depo-Provera

Contraceptive Patch:

[ ] Evra

[ ] Lunelle

[ ] Other (Please specify): _____

[ ] Other (Please specify): _____

Intrauterine Device (IUD):

[ ] Mirena (hormonal)

[ ] Nova-T (non-hormonal; copper)

[ ] Flexi-T (non-hormonal; copper)

[ ] Other (Please specify): _____

Vaginal Ring:

[ ] NuvaRing

[ ] Other (Please specify): _____

6. If you are taking a hormonal contraceptive, what phase of your hormonal contraceptives are you currently in?

___ Week 1 of active pills/patch/ring
___ Week 2 of active pills/patch/ring
___ Week 3 of active pills/patch/ring
___ I take or use my pills/Depo-Provera injection/patch/ring continuously so I don't get my period
___ Pill/patch/ring-free/Inactive/Sugar pill/ week (when most women have their period)
___ I don't know

7. If you are currently taking a hormonal contraceptive, how long have you been taking the above stated hormonal contraceptive? _____ **Years** and _____ **Months**

8. What is the average length of your menstrual cycle right now (i.e., How many days are there from the first day of one period to the day before your next period. Most people range between 25 and 35 days)?

a)_____ **DAYS**
b) _____ I have gone through menopause and I do not have a period

9. How many days does your period/menses/bleeding usually last?

a) _____ **DAYS**

b) _____ I have gone through menopause and I do not have a period

10. Which statement best describes your menstrual cycle **right now**? (Check the box with an "X" beside the appropriate response.)
[ ] I have gone through menopause and do not have a period
[ ] I am not currently menstruating because I am currently lactating/breast feeding
[ ] I never have my period.

[ ] Some months I get my period and some months I don't.
[ ] I usually get my period every month, but it is irregular and I cannot predict when it will start.
[ ] I usually get my period within two or three days of when I expect it.
[ ] My period is like clockwork and the same number of days elapse between periods each month.

11. Generally speaking, are your periods regular or irregular? That is, is the length of time between your periods about the same each cycle?

[ ] My periods are generally regular

[ ] My periods are generally irregular

[ ] I don't know

The next few questions pertain to your last and next period. Please refer to the following calendar.

July 2012

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August 2012

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

September 2012

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

October 2012

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

November 2012

December 2012

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
		30	31			

January 2013

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

February 2013

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

12. When did your last period start? That is, when was your first day of bleeding (month/day)?
_____

13. How confident are you that the first day of your last period is accurate?

(Circle the best response)

0%		25%		50%		75%		100%
0	1	2	3	4	5	6	7	8

14. When do you expect your next period to start. That is, what do you think will be the first day of bleeding? (month/day)?_____

15. How confident are you that your period will start on that day? (Circle the best response)

0%		25%		50%		75%		100%
0	1	2	3	4	5	6	7	8

16. Are you currently menstruating or having your period? **YES** **NO**

If **YES**, how many days have you been bleeding (e.g., 1 day if this is your first day of bleeding)?

_____ DAYS

17. What day of your menstrual cycle are you on today? (Day 1 of the menstrual cycle is on the first day of bleeding. If your period started on January 1st, and today is January 25th, you would be on day 25 of your menstrual cycle. Please refer to the calendar above.)

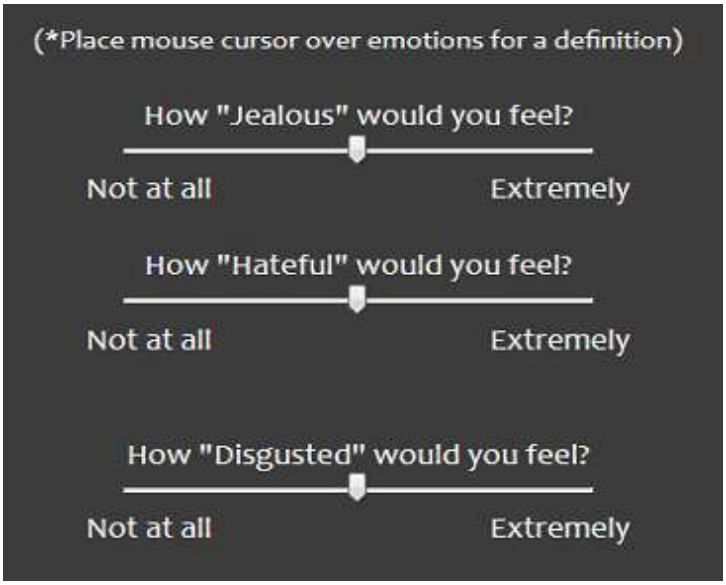
DAY _____

18. How old were you when you first started menstruating (i.e., when you first got your period)?
_____ years old

19. Do you think that you have started to go through menopause? YES NO MAYBE

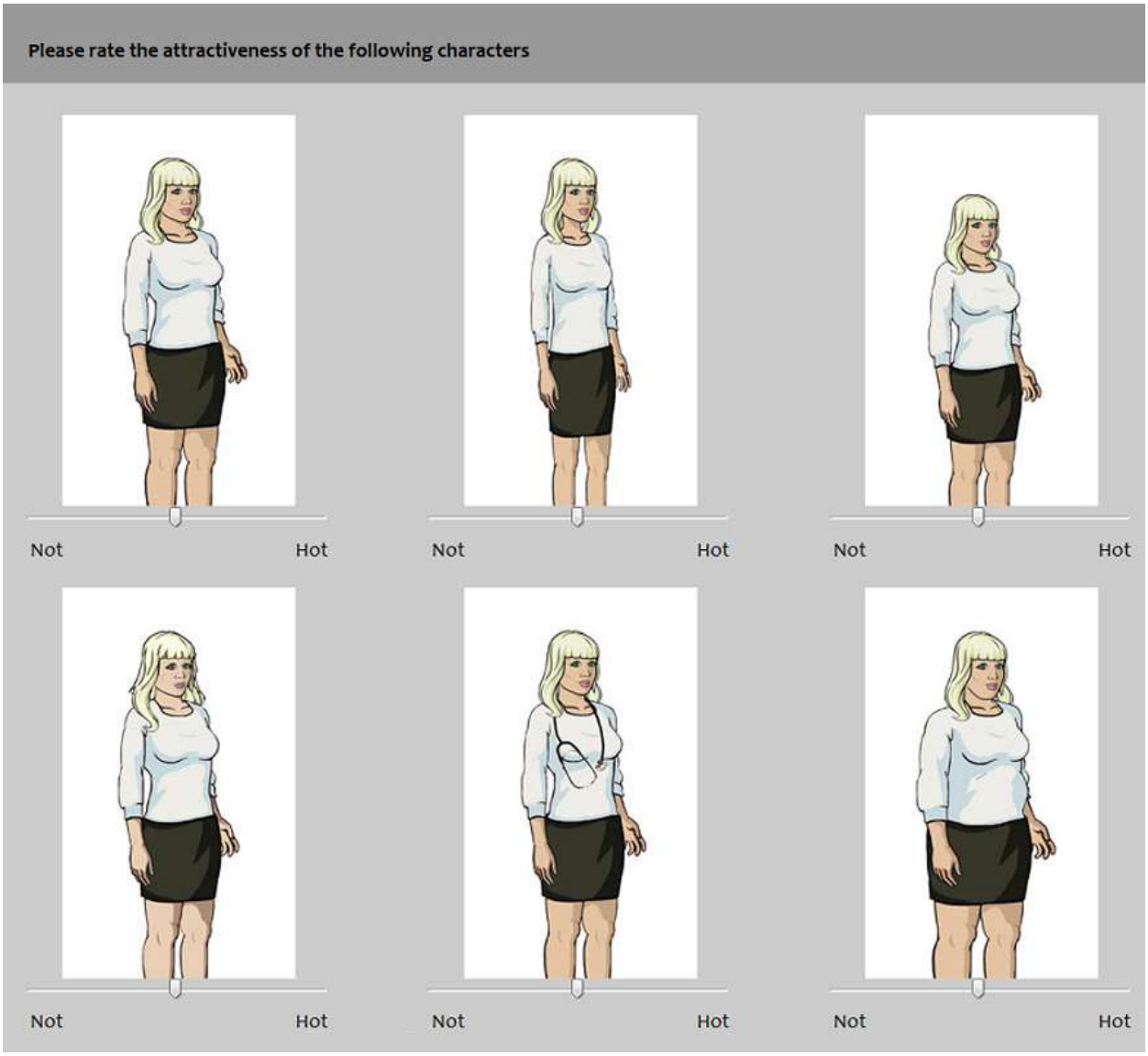
Appendix G

Example of Visual Analogue Scales as seen and employed by participants during the infidelity videos.



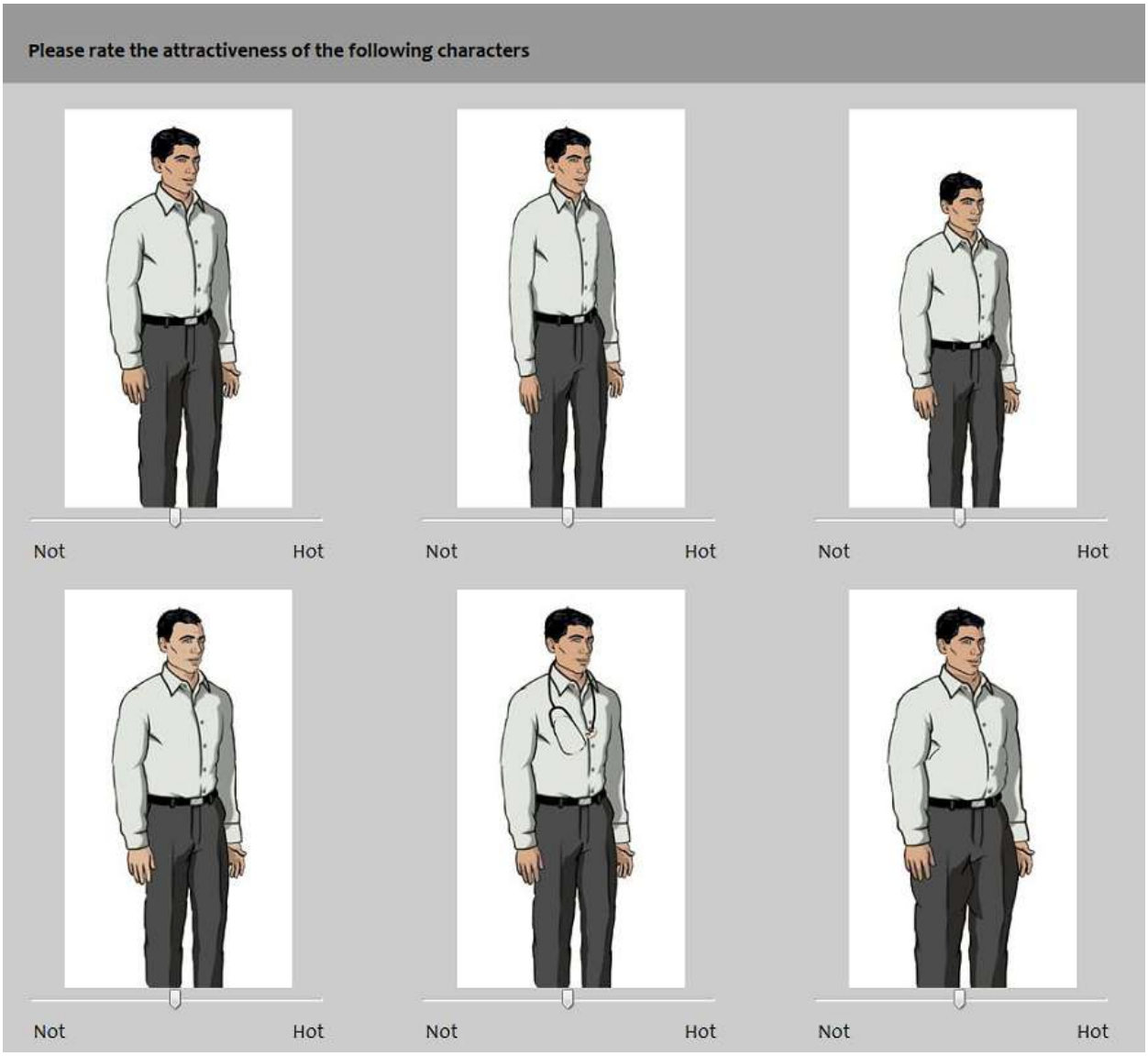
Appendix H

Lineup Attractiveness Ratings of Tatiana Characters



Appendix I

Lineup Attractiveness Ratings of Archer Characters



Appendix J

Recruitment Poster

Psychology Study

Researchers in the department of Psychology are looking for Women and Men to participate in a study on:

JEALOUSY & INFIDELITIES

Participants will be required to complete questionnaires and view animated jealousy-provoking videos. Participation will take approximately 45 to 60 minutes.

This study has received ethical approval from Lakehead University's Research Ethics Board (807.343.8283 or research@lakeheadu.ca).

For more information or to participate, visit:

www.JealousyStudy.com

(Or e-mail: slarocqu@lakeheadu.ca)

www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com	www.JealousyStudy.com

Appendix K

Class-wide e-mails

Study on Jealousy and Infidelity

You are invited to participate in a psychology study investigating **Jealousy and Infidelity**. We are looking for both female and male participants to complete questionnaires and view jealousy-provoking videos in a study which should take between 45 to 60 minutes to complete. The study is conducted online at www.JealousyStudy.com. Introductory Psychology students will receive one bonus point towards their course grade for participation.

Please be informed that the questionnaire includes personal questions about your background including your sexual history and romantic relationships.

This study has been approved by Lakehead University's Research Ethics Board (807.343.8283 or research@lakeheadu.ca)

To participate in the online questionnaire, please visit:

www.JealousyStudy.com

If you have any questions regarding this study please email me, Sébastien Larocque, at slarocqu@lakeheadu.ca.

Sincerely,

Sébastien C. Larocque, H.B.A.
M.A. Candidate
Lakehead University
955 Oliver Road
Thunder Bay, Ontario P7B 5E1
email: slarocqu@lakeheadu.ca

Dr. Kirsten Oinonen Ph.D., C. Psych.
Associate Professor
Department of Psychology
Lakehead University
955 Oliver Road
Thunder Bay, Ontario P7B 5E1
email: koinonen@lakeheadu.ca

Appendix L

Letter to Participants and Consent Form

Lakehead UNIVERSITY

Department of Psychology
(807) 343-8441
(807) 346-7743
kirsten.oinonen@lakeheadu.ca

Study on Jealousy and Infidelity

Dear Potential Participant,

This study is being conducted by Sébastien Larocque and Dr. Kirsten Oinonen from the Health Hormones and Behaviour Laboratory (HHABLAB) in the department of Psychology at Lakehead University. The main purpose of this study is to examine how people **emotionally react to infidelities and jealousy-provoking situations**. Some of the data will be used in Sébastien *Larocque's* master's thesis on this topic, and the data will also be used to examine other exploratory research questions in the areas of health, mating, and development in the HHAB LAB. The study consists of **one session conducted online and which should take 45 to 60 minutes to complete**. The session involves viewing two jealousy-provoking animated videos, providing responses to various jealousy and personality related scales, and answering questions pertaining to your romantic and sexual history. There are no obvious risks involved in participating in this study other than the fact that some participants may feel uncomfortable answering some personal questions or may gain new positive or negative thoughts about themselves after answering the questions (i.e., new personal insight). Please note that you are not required to answer all questions and can skip any question that makes you uncomfortable. This study is open to Lakehead University students 16 years or older as well as members of the general public who are 18 years or older.

Lakehead University Psychology 1100 students will receive one bonus point for participation. Your participation in this study is completely voluntary and you have the right to withdraw at any time without penalty or explanation prior to completing and submitting the online questionnaire. If you wish to withdraw from the study, simply close your browser window. All records of your participation will be kept confidential and reports of the study will not reveal your identity. However, Lakehead University Psychology students will be requested to provide some identifying information so that bonus points can be given. Identifying information will be removed once bonus points have been recorded. No one, including the researchers, will be able to connect any information gathered to a specific individual once the study is complete.

University regulations state that all data must be stored for a minimum of five years; data will be kept in a secure location by Dr. Oinonen and will remain confidential and anonymous. If you have any questions or concerns regarding the study please contact Sébastien Larocque or Dr. Oinonen. This study has been approved by the Lakehead University Ethics Board (807-343-8283 or research@lakeheadu.ca) and they can also be contacted about any concerns.

Upon completion of the study, interested participants are welcome to contact one of the researchers to request a summary of the results. You may wish to print this page for your own records and to have a copy of relevant contact information. Thank you very much for your time. We very much appreciate your contribution to our research.

Sébastien C. Larocque, H.B.A.
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Lakehead University
955 Oliver Road
Thunder Bay, Ontario P7B 5E1
email: slarocque@lakeheadu.ca

Dr. Kirsten Oinonen Ph.D., C. Psych.
Associate Professor
Department of Psychology
Lakehead University
955 Oliver Road
Thunder Bay, Ontario P7B 5E1
email: koinonen@lakeheadu.ca
(807) 343-8096

Consent:

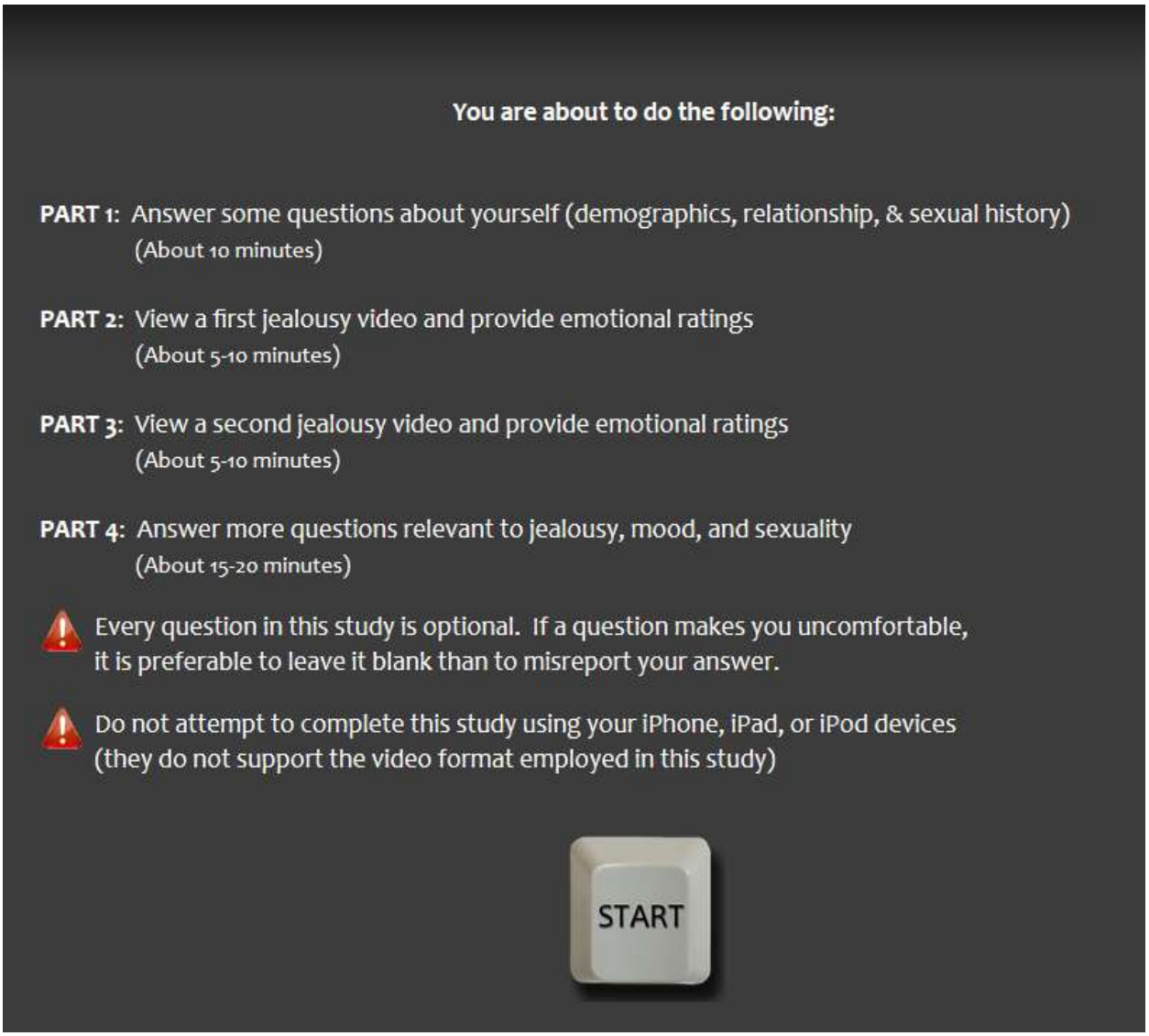
I have read and understood the above information and I agree to participate in this study under these conditions. I also understand that I am not obliged to answer questions which make me uncomfortable and that I am free to withdraw from the study at any time without penalty or other consequence. I understand that my consent to the above is implied if I click on the 'PROCEED TO THE STUDY' button to the right.	

Appendix M

Sex Selection Screen

Appendix N

Study Preview Screen



Appendix O

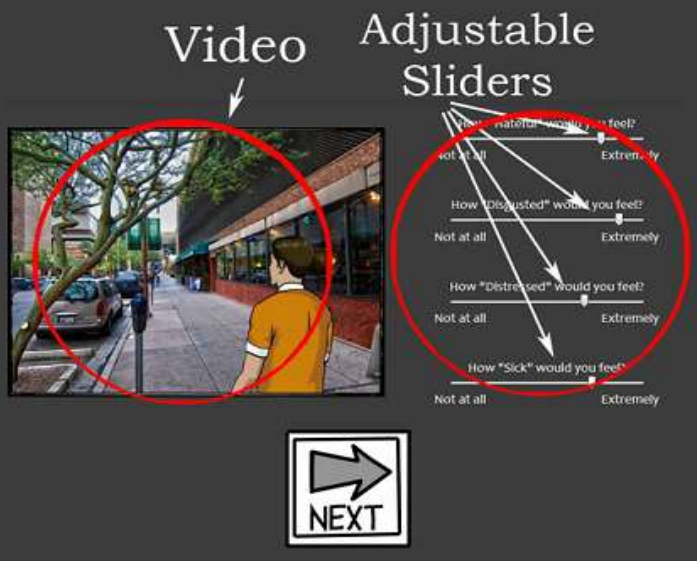
Video instructions for participants

Part 2/4: A First Infidelity (Instructions)

Over the past several months, we have been asking people to tell us about their experiences with infidelity and jealousy. From these, two powerful yet very different infidelities were animated and will now be played for you (there is no sound in these videos). While the animations that follow may appear somewhat comical in nature, it is important to remember that these events actually happened. We ask you to **please imagine that you are in this person's shoes** and report what you would realistically expect to feel in such a situation.

Instructions:

- On the following page, you will see the animated sequence loop (play continually) on the left side of the window while the right side will contain a list of emotions accompanied with sliders (see image below). Please allow the animated sequence to play through completely at least once before adjusting these sliders. Click on "Next" when you are ready to proceed...



Appendix P

About This Study Questionnaire

ABOUT THIS STUDY (OPTIONAL READ)
Click on "Next" at bottom to Finish and Submit your answers

The purpose of the study you have just completed is to investigate the various patterns of emotions people may experience when they become jealous. We are also investigating whether situational variables (such as the "type" of infidelity) influence these patterns. Finally, we are also looking at individual and sex differences in these emotional patterns. The following **three brief and optional questions** will reveal more about the study you have just completed:

---

1. Did you know that infidelities can be emotional (i.e., developing romantic feelings for someone other than your current romantic partner) and/or sexual (i.e., engaging in sexual activities with someone other than your current partner)?

○ YES
○ NO

Optional information: "Pure" emotional or sexual infidelities may not actually exist. For example, we might assume that someone who has been sexually unfaithful also had romantic feelings for the person with whom they were unfaithful. Or, if someone develops strong emotions for a person, we might also automatically assume that some forms of sexual activity has also taken place or is about to. Nevertheless, one of these dimensions (emotional or sexual) may be more upsetting than the other. In this study you witnessed two infidelities; one predominantly depicted a sexual infidelity whereas the other was predominantly an emotional infidelity.

2. Did you know that rather than being a specific emotion in and of itself, jealousy has frequently been understood as a blend of several other, more basic, emotions?

○ YES
○ NO

Optional information: What we understand as "jealousy" can be described as the activation of several other emotions; Anger (such as feelings of hatred, contempt, and annoyance) is most strongly associated with jealousy. Fear (or anxiety, worry, and distress) and sadness (depressive and helpless feelings) are also likely to be experienced when we become jealous. Experiencing guilt (or regret) and various bodily sensations (feeling 'sick' or 'dizzy') is also likely. Depending on certain situations (i.e., emotional versus sexual infidelities) a different combination of emotions may be experienced. Investigating these patterns is the reasons you were asked to provide ratings for so many different emotions in this study.

3. Did you know that the characters in the animation sequences that you have just seen were adapted from a television series called "Archer"?

○ YES
○ NO

Optional information: The characters employed in this study were created by taking screenshots of some of the characters in an American animated sitcom television series called Archer. Created by Adam Reed for the FX network, it premiered in early 2010 and is currently in its fourth season. The screenshots we took of the characters in this series were then modified and animated (with much less finesse than the actual television show) for the purposes of this study.

If you would like further information please refer to the references listed below or contact Sébastien Larocque (slarocqu@lakeheadu.ca).

Buunk, A. P., Solano, A. C., Zurriaga, R., & González, P. (2011). Gender differences in the jealousy-effect of rival characteristics: A study in Spain and Argentina. *Journal of Cross-Cultural Psychology*, *42*(3), 323-339.

Buss, D. M., & Haselton, M. (2005). The evolution of jealousy. *Trends in Cognitive Sciences*, *9*(11), 506-507.

Schützwohl, A. (2008). The intentional object of romantic jealousy. *Evolution and Human Behavior*, *29*, 92-99.

Shackleford, T. K., LeBlanc, G. J., & Drass, E. (2000). Emotional reactions to infidelity. *Cognition and Emotion*, *14*(5), 643-659.

Appendix Q

Debriefing Form

Thank-you for participating in this study on jealousy and infidelity. Portions of the data you provided will be used to complete a Master's thesis by Sébastien Larocque under the supervision of Dr. Kirsten Oinonen. Specifically, data will be used to investigate differences in the types of infidelities and rival characteristics that influence jealousy responses. Additional exploratory research questions will also be examined within the Health Hormones and Behaviour Laboratory (HHABLAB). This research project was approved by the Lakehead University Research Ethics Board (807-343-8283). If you are a Lakehead University Psychology 1100 student, please be advised that your professor will be notified regarding your bonus point for participation in the study by the end of the course (if you have provided all the relevant information).

Please be assured that all data will remain anonymous and confidential. If you would like to receive a summary of the results of the study, please email one of the researchers and, upon completion of the study, a summary of the results will be emailed to you. Please note that providing your email address does not jeopardize your anonymity.

Emotional Distress and Crisis Helplines:
If you find yourself in crisis or emotional distress as a result of your participation in this study (or for any other reason) and need to speak to someone immediately, **do not hesitate** to contact one of the following free and completely anonymous services. All these services can provide help 24 hours a day, 365 days a year.

Region:	**Organization:**	**Contact Information:**
Ontario	Mental Health Helpline	1-866-531-2600 www.mentalhealthhelpline.ca
Canada & United States	National Suicide Prevention Lifeline	1-800-273-TALK (8255) www.suicidepreventionlifeline.org
	Note from Lifeline: "If you feel you are in a crisis, whether or not you are thinking about killing yourself, please call the Lifeline. People have called us for help with substance abuse, economic worries, relationship and family problems, sexual orientation, illness, getting over abuse, depression, mental and physical illness, and even loneliness"	
United Kingdom	Samaritans	08457 90 90 90 (UK) 1850 60 90 90 (ROI) www.samaritans.org

Thank you very much for your time. We very much appreciate your contribution to our research.

Sébastien C. Larocque, H.B.A.
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Dr. Kirsten Oinonen Ph.D., C. Psych.
Associate Professor
Department of Psychology
Lakehead University
955 Oliver Road
Thunder Bay, Ontario P7B 5E1
email: koinonen@lakeheadu.ca

Appendix R

Appendix Q

Bonus Point Form

For Lakehead University Introductory Psychology Student only:

BONUS POINT

For participating in the Jealousy and Infidelity Study, you are entitled to receive one bonus point. All of your information will be kept confidential and this identifying information will be kept separate from the answers you have just finished providing. **In order to receive your bonus point, you must provide the following information**:

Name _____

Student number _____

Email address _____

Course name _____

Instructor's name _____