

## SEX DIFFERENCES IN JEALOUSY ARE NOT EXPLAINED BY ATTACHMENT STYLE IN MEN AND WOMEN FROM CHILE

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### ABSTRACT

*Romantic jealousy is a sexually-differentiated emotion designed to secure reproductive liaisons. However, some suggest that sexual differences observed in the kind of infidelity that triggers jealousy cross-culturally could be only an artifact of attachment, shaping the masculine mind to develop a dismissing/avoidant attachment style, while the feminine attachment style is more likely to be anxious. This assumption was tested on a sample of 88 men and 170 women from Chile. The kind of infidelity that was more distressing was compared by sex and attachment style. As expected, results showed that men feel more jealousy distress by sexual infidelity scenario, while women by emotional infidelity scenario. However, Logistic Regressions did not support the proposition that attachment style may underlie sex differences in jealousy, because sex was the only significant predictors of the kind of jealousy that was more distressing. The discussion addresses the consistency of the evolved jealousy mechanism as plastic, but opened to specific contextual inputs other than attachment style.*

**Keywords:** attachment, jealousy, sex-differences

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## INTRODUCTION

Parental investment theory predicts asymmetries between men and women in those aspects in which each sex faced different adaptive challenges (Bjorklund, & Shackelford, 1999; Symons, 1979; Trivers, 1972). For women, reproduction requires significant investment and it is reproductively expensive for them to be abandoned and to raise a child on their own, while reproduction requires less minimal obligatory investment from men, but extended parental care and commitment to a long-term reproductive partner involves a great amount of resources allocated to parenting instead of mating (Bjorklund, & Shackelford, 1999). Similarly, social exchange between members of a reproductive dyad and commitment to a partner is a key common goal as is having progeny; these seem to be evolved reproductive strategies that led to the evolution of pair-bonding in humans (Conroy-Beam, Goetz & Buss, 2015; Dunbar, 2010; Fletcher, Simpson, Campbell & Overall, 2015; Fisher, 1992), which, on average, secures reproduction in our species (Buss, 1994, 2013; Gangestad, 2007).

In the past few decades, the evidence supported the notion that sex differences in the adaptive problems men and women faced throughout evolution underlie the kinds of situations that presently trigger jealousy in different ways between the sexes (Buss, Westen, Larsen, & Semmelroth, 1992; Daly, Wilson, & Weghorst, 1982). Therefore, men are predicted to be more distressed than females by sexual infidelity, which threaten paternal certainty and its associated fitness, and women are predicted to be more distressed by emotional infidelity than males, risking the loss of parental investment in the common progeny and diminishing female fitness (Buss, 2013).

For example, when considering the biological value of reproduction, men do have a lot to lose if they do not safeguard sexual exclusivity and paternity certainty, which makes distress highly probable when facing sexual infidelity (Buss et al. 1992). Women, on the other hand, are always certain of their maternity but need extra investment from men to secure improved fitness, leading to increased female reaction to and protection of the emotional bond, which motivates active intra-sexual competition (Campbell, 2004; Fisher, 2004) in an effort to protect the emotional exclusivity of their romantic partner (Buunk & Fisher, 2009). Therefore, an evolutionarily-informed explanation of sexual asymmetries on jealousy predicts that men will respond with more jealousy to threats to sexual exclusivity than women and that women will respond with more jealousy than men to threats to commitment and the emotional bond within a relationship (Buss, 2013; Buss et al., 1992; Buunk & Fisher, 2009; Daly et al., 1982).

Asymmetries in the evocation of jealousy have been universally and cross-culturally documented using forced-choice hypothetical scenarios and some continuous measures (Edlund & Sagarin, 2009) in a variety of populations, age ranges, social contexts, and languages (Buss et al., 1999; Casullo & Fernandez-Liporace, 2003; Cramer, Lipinski, Bowman, & Carollo, 2009; Fernandez, Sierra, Zubeidat & Vera, 2006; Scelza, 2014; Zengel,

Edlund & Sagarin, 2013). For a good review of the debates over sex differences in jealousy, see Tagler & Jeffers (2013).

Past experimental investigations of jealousy include eyeball setting studies, which simulated jealousy situations where a confederate appeared interested in a rival and not an opposite-sex participant (Harmon-Jones, Peterson, & Harris, 2009) and priming jealousy by subliminally presenting a highly attractive rival (Massar & Buunk, 2010), investigations of the kinds of cues that men and women react to or inquire about after a real infidelity occurred (Schützwohl, 2005), and even experimental inductions of jealousy by Landolfi, Geher, & Andrews, (2007), who showed that a picture of a rival with traits that are desired by an opposite sex partner increased the intensity of the jealous response (assessed by changes in heart rate, electro-dermal reaction, and self-report). In the Chilean context, Fernandez et al. (2006) replicated the original sexual asymmetries on jealousy and Fernandez (2012) showed that, when an actual infidelity occurs, the physiological response and the evoked emotions of remembering an infidelity conform to the evolutionary hypothesis.

In spite of the previous evidence, Levy & Kelly (2010) revisited the debate regarding sexual asymmetries on jealousy and inferred that these emerged more as an artifact of proximate circumstances, like the attachment style individuals acquire through socialization, and not from past evolutionary pressures that affect men and women in particular ways. They proposed that sex differences are determined by relational attachment style, which would lead to dissimilarities in the kind of infidelity that are more likely to evoke jealousy in men and women.

Attachment theory was proposed elsewhere as an innate biological model for understanding the emergence of pair-bonding in humans (Bowlby, 1979/1989; Fletcher et al., 2015). From early childhood and throughout life, attachment motivates individuals to seek proximity to significant others, developing anxiety after separation from the primary caretaker and recovering when close contact is reestablished (Ainsworth, 1979; Bowlby, 1979/1989). This model was extended to the comprehension of adult relational attachment styles, proposing that there are affective and cognitive schemas of the self and others in the context of close relationships which influence individuals to develop particular kinds of relationships with significant others (Collins, 1996; Mikulincer & Shaver, 2007). According to Ainsworth (1979), attachment styles could be categorized as *secure* if the person feels loved and valued, and is comfortable establishing close-intimate relationships and can depend on others. In the insecure side, *dismissive* individuals try to avoid dependence on others, and are emotionally independent from being accepted by others; *preoccupied* attachment is characteristic of people seeking the establishment of intimate relationships but worried about rejection and not being loved; and *fearful* individuals tend to have high personal and social anxiety, leading to a generalized fear of rejection (Collins, 1996; Collins & Feeney, 2004). Thus, unlike Levy & Kelly (2010), in our point of view attachment style can be viewed from both, proximate and ultimate perspectives and it is worthy to test if this factor would be the main mediator of jealousy style.

In their research, Levy & Kelly (2010) presented evidence supporting an alternative explanation of sexual asymmetries on jealousy based on attachment style, positing that the masculine mind is more likely to develop a dismissing-avoidant relational style, and consequently has an increased incidence of jealousy evoked by sexual, compared to emotional infidelity. In women, on the other hand, there was an increased prevalence of anxious attachment and therefore an increased sensitivity to emotional infidelity over sexual infidelity. In their analysis, they contrast attachment style with previously reported sex differences in jealousy, focusing on intersexual variability on attachment style as related to more distress by sexual or emotional infidelity.

In contrast, Attridge (2013) found that it is security within a romantic relationship, as well as the emotional dimensions of closeness and dependence in attachment, that are more likely to underlie emotional jealousy. Another study, which used a larger sample than that of Levy & Kelly (2010), found that attachment style is not a significant predictor of sexual asymmetries on jealousy, while sex did explain these differences (Tagler & Gentry, 2012). Considering attachment theory and the proposal that insecure and secure attachments have adaptive significance in our species (leading to differential responding to threats and social bonding in general), Ein-Dor, Mikulincer, Doron & Shaver (2010) laid out an important explanation of the adaptive value of secure and insecure attachment, expecting that no particular sex differences exist in any of these attachment styles. They predicted that jealousy should be lower in people with avoidant attachment and higher in insecure styles with high attachment anxiety (preoccupied and fearful individuals), but that no sex differences should motivate this discrepancy (see Ein-Dor, 2013, for a detailed discussion of the overall advantage that relational attachment insecurity may have).

Thus, the current research sought to test whether sex or attachment styles or both underlie which jealousy type (sexual or emotional) would be most distressing based on a sample of Chilean men and women. Previous research on young college students from Chile reported no significant differences by sex in attachment or the model of the self and others, and found that men tended to be more sexually open than women, and that men perceived they had a better relationship quality than women (Fernandez, Celis-Atenas, Córdova-Rubio, Dufey, Varella, Ferreira, 2013). In line with Tagler & Gentry (2012), we predicted that sex of the participants, and not attachment style, would significantly predict the type of jealousy distress. Further, we did not expect any sex difference in attachment styles, and it was thus not expected that preoccupied or fearful attachment would be systematically associated with higher jealousy to emotional infidelity (which is more characteristic of women), or that dismissing (avoidant) attachment would not be more connected to jealousy than to sexual infidelity (which is more likely in men).

## METHODS

### *Participants*

The sample was composed of 258 heterosexual college students and participants from the local community in Santiago (3.1% men) that voluntarily agreed to complete an online study announced on Facebook and the University cafeteria (55%), and 45% of the sample were members of a study that completed the instruments in the lab as a part of a broader research on couples. Their ages ranged from 18 to 45 years ( $M = 25.09$ ,  $SD = 5.31$ ,  $Mdn = 24.0$ ,  $Mode = 20.0$ ), participants that completed the study online were older ( $M_{age} = 26.85$ ,  $SD = 6.09$ ) than the couples that came to the laboratory ( $M_{age} = 22.94$ ,  $SD = 3.02$ ),  $t(214.65) = 6.70$ ,  $p < .001$ . The majority of the sample (87.9%) reported being in a romantic relationship (88.6% of men and 86.5% of women), and there were no significant differences between the online and lab samples on the variables of interest to the study, although men reported significantly more trust towards their partner than women while women reported on being significantly more jealous than the men (see Table 1).

### *Measures*

Relationship duration was measured in months. Attractiveness was measured by asking participants how he or she ranked “compared with their peers of the same age and sex” and measured in percentile. Jealousy reflected a single item on the self-report from 1 (not jealous at all) to 6 (morbid jealousy). Trust and Satisfaction were measured with a single item on a scale from 1 (nothing at all) to 7 (completely).

**Table 1.** Means, standard deviations, and differences in the descriptive variables, by sex.

	<b>Total</b>	<b>Men</b>	<b>Women</b>	<b><i>t</i></b>	<b><i>P</i></b>
<b>Age</b>	25.09 (5.31)	25.13 (5.26)	25.07 (5.35)	0.07	.94
<b>Relationship duration</b>	38.14 (34.98)	40.62 (38.42)	38.83 (33.72)	0.78	.44
<b>Self-rated attractiveness</b>	57.11 (18.64)	58.20 (15.79)	56.54 (19.99)	0.73	.50
<b>Overall jealousy</b>	2.97 (.94)	2.79 (.97)	3.06 (.92)	-2.15	.03 *
<b>Trust on the partner</b>	6.31 (1.02)	6.52 (.78)	6.18 (1.11)	2.27	.03 *
<b>Relationship satisfaction</b>	5.48 (1.38)	5.65 (1.23)	5.34 (1.48)	1.39	.17

Note: \* $p < .05$

*Attachment Style.* Attachment style was evaluated using Collins' (1996) Adult Relational Attachment Scale Revised, adapted to Chile by Fernandez & Dufey (in press). This scale has 18 items assessing three dimensions of close relationships (closeness, dependence, and

anxiety), which were transformed to a new variable with the four discrete categories of attachment that Ainsworth and Bartholomew and Horowitz proposed, by applying the SPSS syntax available from Collin's page [https://labs.psych.ucsb.edu/collins/nancy/UCSB\\_Close\\_Relationships\\_Lab/Resources.html](https://labs.psych.ucsb.edu/collins/nancy/UCSB_Close_Relationships_Lab/Resources.html). Thus, categorization of attachment contemplated the classic attachment categories that Levy & Kelly (2010) also used: secure, preoccupied, dismissing, or fearful.

*Forced-choice distress to infidelity.* We assessed distress to infidelity using Buss et al.'s (1992) first scenario, in which participants must choose which situation will evoke more jealousy: "the partner forming a deep emotional attachment" to a rival, or "having a passionate sexual encounter" with another person (the local adaptation by Fernandez et al., 2006 was used).

### **Statistical analysis**

Descriptive statistics were calculated for the continuous variables (age, relationship duration, attractiveness, jealousy, trust, and satisfaction) and sex differences were assessed with Student's t-tests (see Table 1). Significance level was set at  $\alpha = 0.05$ .

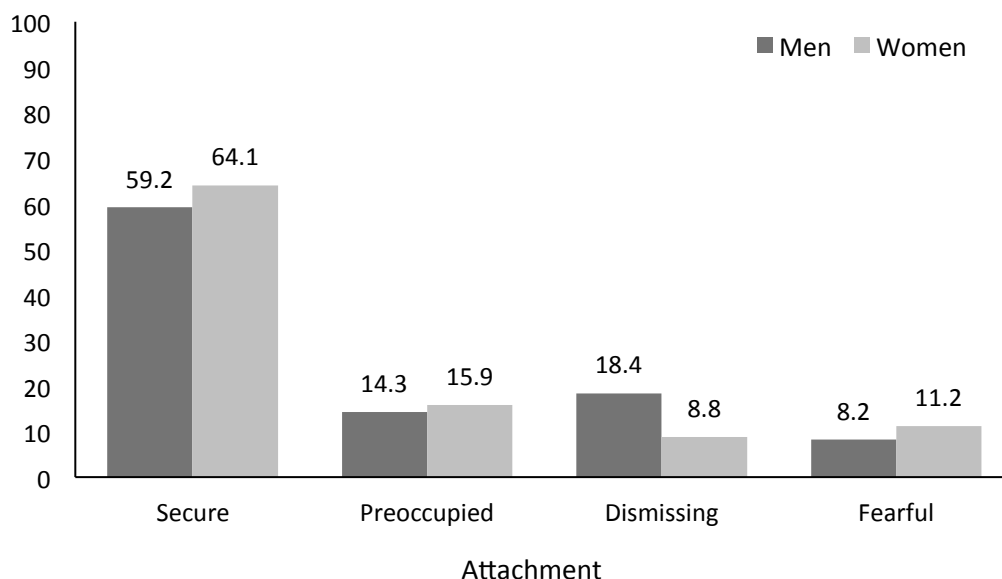
Chi-square analyses were performed to evaluate if sexual or emotional jealousy endorsement and attachment style differed by sex and to explore if jealousy endorsement differed by attachment style. A chi-square analysis was also performed to explore if individuals who differed in relationship status (single individuals versus those in romantic relationships) differed in the type of jealousy they endorsed or attachment style.

A logistic regression was performed with sex and attachment style as categorical predictors of the type of jealousy endorsement. Finally, a logistic regression was performed with sex, attachment style, and relationship status as predictors of jealousy endorsement.

## **RESULTS**

An initial test of the association of sex and the type of the more distressing infidelity was significant,  $\chi^2(1, N = 258) = 11.76, p < .01$ , with 55.7% of men and 33.5% of women being more distressed by sexual, rather than emotional, infidelity, and more women (66.5%) than men (44.3%) endorsing emotional infidelity as more distressing than sexual infidelity.

There were no significant sex differences in attachment style ( $\chi^2[3, N = 58] = 3.47, p = .33$ ); although significantly more participants were characterized by attachment security (62%), followed by preoccupied attachment (16.3%), dismissive style (11.2%) and fearful attachment (10.1%). See Figure 1 for the endorsement of jealousy type by attachment style.



**Figure 1.** Percentage of individuals reporting more jealousy for sexual, rather than emotional infidelity as a function of attachment style.

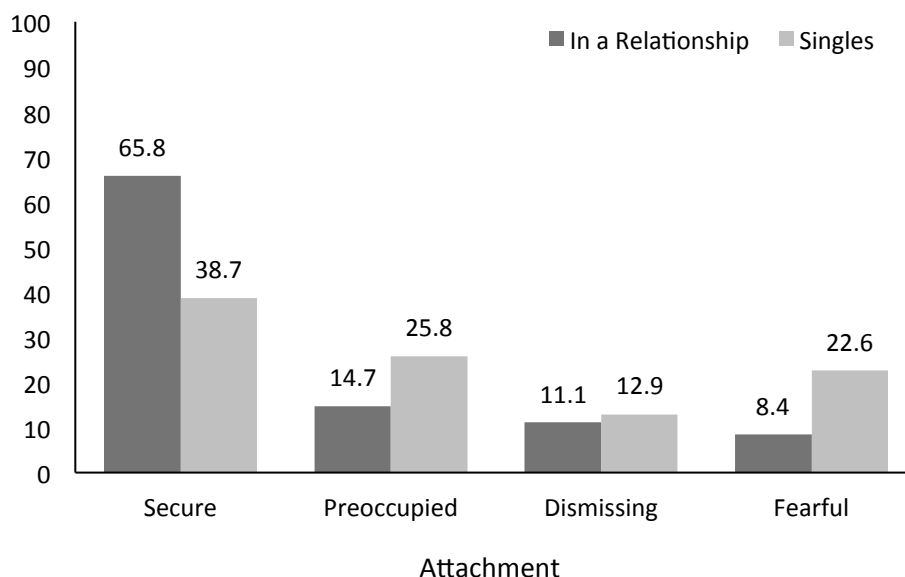
The kind of jealousy that was more distressing and attachment style were not significantly associated ( $\chi^2 [3, N = 258] = 1.65, p = .65$ ). As shown in Table 2, emotional infidelity tended to be more chosen as highly distressing than sexual infidelity by individuals across the four attachment styles.

**Table 2.** Inter-item scale reliabilities (Cronbach's alphas) and factor covariance by sample

Attachment	Emotional Infidelity	Sexual Infidelity
Secure	60.2	39.8
Preoccupied	61.9	38.1
Dismissing	48.3	51.7
Fearful	57.7	42.3

Note that Mating and Parenting dimensions are inversely related across samples.

The results of relationship status and type of jealousy that was more distressing yielded no significant differences ( $\chi^2 [1, N = 258] = 2.62, p = .11$ ), but the attachment style did significantly differ between coupled and single participants ( $\chi^2 [3, N = 258] = 10.74, p = .01$ , see Figure 2).



**Figure 2.** Percentage of individuals in a relationship and singles, categorized by attachment style

Following Levy & Kellys' (2010) analysis, a logistic regression with sex and attachment style as predictors of the type of infidelity that evoked the most jealousy was statistically significant ( $\chi^2 [4, N = 258] = 12.74, p = .01$ ); however, only sex ( $B = .90, p < .001$ ), not attachment style ( $B < .27, p = .79$ ), significantly predicted the infidelity type that was selected.

Finally, a logistic regression predicting the type of jealousy most distressing by sex, attachment type, and relationship status was also significant ( $\chi^2 [5, N = 258] = 16.01, p = .01$ ); but only sex ( $B = .95, p < .001$ ) significantly predicted the infidelity type that was selected.

## DISCUSSION

The present study was designed to determine whether the kind of infidelity that triggered more jealousy in a population from Chile was predicted by sex, attachment style, or their interaction.

The sex of the participants was significantly associated with the infidelity type that was more distressing, supporting the predictions; men were more distressed by sexual infidelity than women and women were more distressed by emotional infidelity than men. Sexual asymmetries in jealousy conformed to the evolutionary explanation of which infidelity are linked to specific adaptive problems faced by men and women. This evolved specific sex differences in jealousy must have a proximate executor, a cognitive mechanism that is plastic



along the ontogenesis but sensitive only to relevant contextual input related to its evolved function.

Contrary to what Levy & Kelly (2010) proposed, and in support with Tagler & Gentry (2011), the Chilean data yielded sex and not attachment style as a significant predictor of the most distressing jealousy type. Furthermore, there was no relationship among the dismissing attachment style and feeling more distress of sexual infidelity, and people with fearful and preoccupied attachment did not differ in their level of jealousy towards emotional infidelity from individuals with secure or dismissing attachments.

Further, we did find a significant association of relationship status and attachment style, which is of theoretical interest, because it confirms that secure individuals tend to be more likely to be in a romantic relationship (Collins & Feeney, 2004), and we did not find more dismissive individuals being single than what we would expect by chance. This result confirms the descriptions of how the working models of attachment affect, cognitively and emotionally, an individual's model of the self and others (Collins, 1996), leading to an increased ability to attain and maintain relationships, in general, by secure individuals.

There are other inferences regarding the comparison of single and coupled individuals that can be also observed in our sample. In contrast to Attridge's (2013) work, the data did not show higher distress by emotional infidelity in participants who were in a romantic relationship compared to singles. However, we had only less than 15% of single participants in the sample, and the tendency of this result was in the predicted direction, which could be interpreted as having higher emotional closeness in the couples, leading to a greater concern for maintaining the romantic bond they shared with each other. This brings about contextual influences on sex differences in the evolved psychology of men and women, which nonetheless does not seem to override our evolved jealousy mechanisms (Buss, 2013).

Similarly, it is interesting to reflect upon the finding that, with a novel attachment measure with more than one vignette, such as Collins' (1996) instrument, the results are sound and conform to the previous literature.

Some limitations are that the measure of attachment used in the study seldom yields sex differences in attachment type (e.g., Collins & Feeney, 2004), which was also found in our study. However, a previous study on a Chilean sample (Fernandez et al., 2013) showed no sex differences in attachment based on the same measure that Levy & Kelly (2010) used. Similarly, the adapted instruments for attachment type and jealousy responses have not been tested for cross-cultural invariance, although they were validated by independent studies to the Chilean context (Fernandez et al., 2006; and Fernandez et al., in press). So it would be necessary that a cross-cultural comparative research including at least two or more populations on this topic is conducted, to shed some light on this topic.

Additional limitations of the research were that most of the participants were involved in a romantic relationship, the majority of the sample was women, and attachment types did differ between those who were not involved in a relationship and those who were single. Additionally, participants that completed the instruments on the Internet were older than

the couples evaluated in the laboratory, which could have implications on the relevance that reproduction may unconsciously have at different ages.

Finally, Ein-Dor et al. (2010) and Ein-Dor (2013) reflected the role of secure, as well as insecure, attachment in evolution, predicted stable rates of attachment styles universally, and argued that insecure attachment does not need to be mal-adaptive. According to Ein-Dor, security promotes seeking closeness to significant others which may be harmful to fitness when emergencies arise, but preoccupied attachment provides a “sentinel like” predisposition to react quickly in emergency situations, and dismissing/avoidant attachment gives individuals the independence to seek an exit from an emergency without worrying about others, which is useful in group living. Accordingly, insecure attachment may play a role in our social behavior more than in our sexually differentiated behavior in the context of committed relationships.

Thus, the sex differences in jealousy, considering the adaptive problems that our species faced throughout evolution, explain that, over time and across different cultural contexts, there are significant amounts of variance in the kinds of adaptive challenges men and women respond to which cannot be attributed only to attachment style; our results suggest that there are affective sex differences related to adaptive problems that enhance reproductive fitness by sex.

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