

THE IMPACT OF SEX AND GENDER IN THE RELATIONSHIPS AMONG  
ATTACHMENT, ROMANTIC JEALOUSY, AND VARYING FORMS OF  
AGGRESSION IN ADULT ROMANTIC RELATIONSHIPS

by

Kathleen M. Warber

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As members of the Dissertation Committee, we certify that we have read the dissertation  
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and recommend that it be accepted as fulfilling the dissertation requirement for the  
Degree of Doctor of Philosophy

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Dr. Tara Emmers-Sommer      Date: 7/10/07

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Dr. Chris Segrin                      Date: 7/10/07

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Dr. Kyle Tusing                      Date: 7/10/07

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## DEDICATION

To my pet, whom I almost killed during the process of writing this dissertation...you are  
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## ABSTRACT

This study seeks to explicate the impact of sex and gender in the relationships among attachment, romantic jealousy, and aggression. Attachment theory (e.g., Bowlby, 1969) posits that unique attachment styles develop based on experiences with primary caregiver(s). These attachment styles (e.g., *secure*, *preoccupied*, *dismissing*, and *fearful*) are enduring, and come to define attachment in adult romantic relationships (Bartholomew & Horowitz, 1992; Hazan & Shaver, 1987). Attachment theory argues that differences in jealousy in adult romantic relationships are a function of attachment style (e.g., Guerrero, 1998). Similarly, attachment frameworks explain aggression (e.g., physical, verbal, and indirect/social/relational) as a function of attachment style, suggesting that these constructs (both aggression and jealousy) are borne from early childhood experiences. Theories that posit sex and gender differences, however, argue that aggression and jealousy are rooted in biological (i.e., sex-linked), evolutionary (i.e., adaptive), and social (i.e., learned) explanations of how men and women differ.

This study aims to examine these theoretical perspectives in an attempt to further understand how differences between the two (attachment and sex/gender theories) can be explained. Results from this study indicate that sex and gender are unique, and do have differential effects on the relationships among attachment, aggression, and romantic jealousy in romantic relationships. Though the moderating effects of sex and gender are not always strong, findings from this study suggest that biology, evolution, and socialization likely interact and influence variability in attachment, aggression, and romantic jealousy.

## CHAPTER I

### INTRODUCTION

Differences, or the lack thereof, between men and women in regard to the way they communicate are a prominent area of focus for communication scholars. It is hard to say with certainty, however, whether or not true sex and/or gender differences actually do exist. The majority of existing research would indicate that men and women are more similar than they are different. The behavioral similarity between men and women has been suggested to be as high as ninety-eight percent, leaving room for only a two-percent difference between them (Andersen, 1998). However, distinctions between men and women are frequently noted. Focusing on differences serves as a way to establish a unique identity, in part explaining why it is that people focus on how men and women are different rather than how they are the same (Brown & Gaertner, 2003; Tajfel, 1978; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987).

Despite vast evidence suggesting more similarities exist between men and women than differences (e.g., Andersen, 1998; Canary & Dindia, 1998; Canary & Hause, 1993; Guerrero & Andersen, 1994; Wilkins & Anderson, 1991), people seem eager to consume information that suggests the two differ considerably. Conceptualizing men and women as bi-polar opposites has been a lucrative endeavor for many. Researchers and laymen alike have profited from the exploitation of differences between the sexes (e.g., Gray, 1992; Tannen, 1990). Stereotyping men and women influences cultural perceptions of the two, often leading to power and status differentials between them. Categorizing men and women by stereotypical traits causes some to act in accordance with those

stereotypes, resulting in a self-fulfilling prophecy wherein stereotypes provide a template for cognition and behavior (Aries, 1998; Canary & Emmers-Sommer, 1997; Vogel, Wester, Heesacker, & Madon, 2003; Wood & Dindia, 1998). Though this type of research often claims to benefit the individual, it could work to the detriment of the individual by exaggerating and reinforcing culturally established stereotypes that might not be based in reality. In order to disentangle the validity of sex and gender influence in communication, it is important to broadly understand the prominent explanations that detail the possible origins of differences between men and women.

#### Explanations for Sex and Gender Differences in Communication

Several explanations have been offered to account for sex and gender differences in communication behavior. Though not mutually exclusive, the three prominent frameworks that explicate the origins of differences between men and women include the *biological*, *evolutionary*, and *social* perspectives. These theoretical perspectives have been frequently pitted against one another, suggesting that one is superior to the other(s) in explaining differences between men and women in attachment, aggression, and romantic jealousy.

##### *Biology*

The biological framework for explaining sex differences in communication argues that variation is resultant from differences that are inherent in the respective physiologies of men and women. Because men and women have a different physical structure, they manifest different traits in varying domains. Due to the fact that the primary biological differences between men and women are closely associated with reproductive roles, the

biological approach runs parallel with the evolutionary perspective. Of the three theoretical perspectives (i.e., biological, evolutionary, and social) that posit sex differences, biological differences are the most fixed. According to the biological approach, behavior is genetically guided. The focus on innate behavior distinguishes biological perspectives from other explanations of sex and gender differences in human communication. A drawback, however, is that the focus on species uniformity fails to attend to individual differences that could help explain a significant amount of variance both within and between men and women (Allen, 1998; Andersen, 1998).

### *Evolution*

The evolutionary framework for explaining sex and gender differences in communication posits that men and women evolved differently due to selection pressures related to successful mating and continuation of the species. From this perspective, genes dictate differences between men and women that are evidenced throughout evolutionary history. Rather than focusing solely on the current state of sex and gender differences as they exist in modern-day culture, the evolutionary perspective aims also to examine the roots of sex and gender differences in terms of how the differences first originated. The evolutionary approach to sex and gender differences stems from Darwin's (1871) explanation of how men and women differ as a function of opposed mate competition strategies. Women invest more in offspring, and hence benefit from being more selective when choosing a mate. Being choosy allows for a woman to secure a genetically fit man who can provide resources for her and her offspring that she could not otherwise provide for herself. Men, on the other hand, invest less in offspring, and as such, benefit



from being less selective in their choice of mates in an attempt to maximize reproductive viability of offspring.

### *Socialization*

The social framework for explaining sex and gender differences in communication is grounded in varying socialization practices that separate the activities of boys and girls, by defining them differently and attributing certain stereotypes to gender-typical behaviors. Segregation of the sexes occurs in societies via symbolization (Epstein, 1986; Wood & Dindia, 1998). Various nonverbal (and verbal) attitudes and behaviors are designated to maintain separation of the sexes in social contexts. Social role theory (Eagly, 1987) is a predominant explanatory framework for the confirmation of gender stereotypes. This theory suggests that social roles are delineated along gender lines that segregate men and women. People confirm these stereotypes by performing behaviors that are consistent with socially established gender-appropriate norms. Stereotypes and gender-normative behaviors are historically rooted in the division of household labor. When people act in accordance with gender stereotypes, both behaviors and stereotypes reciprocate one-another in a cycle of gender reinforcement. This process occurs by learning normative sex-typed behavior. Roles are broadly categorized as either communal (focusing on nurturance and submission) or agentic (characterized by assertiveness and instrumentality) (Archer, 1996, 2004; Eagly, 1997; Eagly & Wood, 1999; Vogel et al., 2003).

Neither the biological, evolutionary, nor the social approach best explains sex and gender differences in attachment, aggression, and romantic jealousy when applied

separately. Current research seems to support the idea that genes and environment are not mutually exclusive, and as such, must be examined as a unit rather than as distinct component parts (Simpson & Kenrick, 1997). Overwhelmingly, extant research suggests that men and women are much more similar than they are different (Aries, 1998; Canary & Emmers-Sommer, 1997; Canary & Hause, 1993; Wood & Dindia, 1998). However, it is important to understand how and where these differences manifest, and how they impact interaction not only between the men and women, but also how they hold influence within men and within women.

### Rationale for Study

#### *Distinguishing Sex from Gender*

Too frequently, the psychological construct of gender is erroneously dichotomized as a categorical variable based solely on biological sex. This makes it difficult to conclude if the differences reported in empirical research between men and women actually exist, or whether these differences are simply a consequence of invalid measurement techniques. Frequently in research, the terms sex and gender are used interchangeably to refer to men and women. Sex and gender, however, are theorized to be conceptually distinct (Allen, 1998). Gender, though sometimes related to biological sex, is a socially constructed continuum of personal identities that people adopt as a way of life (Eagly, 1987). Biological sex, though implicit in gender, is dichotomous; one is either anatomically a man or a woman. The problem is that researchers often use self-report measures of biological sex to operationalize predictions related to the psychological construct, gender (Allen, 1998; Canary & Emmers-Sommer, 1997). This

is problematic because it hastily assumes that both the researcher and all of the participants have shared conceptualizations of both sex and gender that they apply when taking part in social research.

Rarely do social researchers theorize about men and women along biological lines. Dichotomous categories seem insufficient to encompass all of the variation found within and between men and women. To advance existing methods, it is necessary to reexamine whether discrete, sex-linked traits are sufficient to operationalize behavior, or whether a more continuous variable such as gender is warranted to understand the subtle differences that do exist between men and women (Allen, 1998). To that end, this study seeks to further explicate sex and gender as constructs through which differences between men and women can be explored. By contrasting prominent theoretical frameworks that posit sex and gender differences in aggression and jealousy with an attachment framework that argues these differences are not sex-linked, but rather are a function of experience, will allow for enhanced understanding of if and when sex and gender demonstrate influence.

In order to best examine the validity of sex and gender differences between men and women, it is helpful to look to where men and women have historically evidenced reliable differences in the extant research. Two prominent communication-related constructs where men and women have consistently differed are in aggression and romantic jealousy (e.g., Buss, 2000). Attachment serves as an appropriate theoretical framework under which to explicate both aggression and romantic jealousy because sex differences have not been reliably, empirically evidenced in attachment style (Feeney &

Noller, 1996). Thus, examining whether sex and/or gender moderate the relationships among attachment, romantic jealousy, and aggression will enhance the current understanding of if and when these differences exist.

Jealousy is the emotion through which the relationship between attachment and aggression can be partially explained in adult romantic relationships. Aggression in romantic relationships is frequently attributed to jealousy that results from the perception of threat to the relationship (Buss, 2000). The potential for different forms of aggression (e.g., physical, verbal, indirect/social/relational) to manifest in behavioral displays of jealousy has relational consequences that warrant further examination in both academic and applied forums. This study is designed to examine the extent to which attachment style (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Brennan, Clark, & Shaver, 1998; Bartholomew & Horowitz, 1991; Bowlby, 1969, 1973, 1980; Hazan & Shaver, 1978) and romantic jealousy manifest in aggressive communicative responses to jealousy, and whether these differences vary by sex and/or by gender.

Both attachment theory and theories that posit sex and gender differences (e.g., biological, evolutionary, and social) advance arguments for the origins of differences between people in how they develop, experience, and exhibit both aggression and jealousy. Attachment theory posits that different attachment styles result from varying experiences in early childhood. From this point of view, aggression and jealousy manifest differently in individuals with different attachment styles as a function of one's relationships with his/her primary caregiver(s). Theories that posit sex differences argue that differences between men and women are rooted in evolved, biological differences.

Theories that argue gender differences, in contrast, argue that beliefs, attitudes, and behaviors are differentially encouraged in boys and girls from an early age. Perhaps research on attachment would be better served by treating sex and gender as distinct constructs in order to determine if gender differences in attachment style result from the differential treatment of boys and girls from an early age. By examining whether attachment, sex, or gender (or a combination of the three) more accurately explain(s) aggression and romantic jealousy, it will become clearer as to which will serve as a better theoretical framework for use in future research.

#### Attachment

Originally conceptualized by Bowlby's (1969, 1973, 1980) seminal research on children separated from their parents for varying durations of time, attachment theory is an ethological-based theory that assumes that human infants have an innate, hardwired predisposition to stay in close proximity to their primary caregivers. Bowlby's theory has distinct roots in evolutionary psychology, and posits that attachment serves an adaptive function in the survival and reproduction of the species across the lifespan.

From an attachment framework, the interactions that transpire between infant and caregiver early in life lay the groundwork for what will function as an individual's internal representation of him/herself, or *working model*. Working models operate as templates one can use to organize information about the self and about others. Infants can develop different types of working models of the self and of others. If an infant is reared by dependable caregivers that provide security and resources for the infant (i.e., a low stress environment) s/he will likely develop a secure attachment style. The secure

attachment style presumably will lead one to believe s/he is worthy of both love and support. On the contrary, if an infant develops in an environment in which caregivers are unreliable and unpredictable (i.e., a high stress environment), a view of the self will likely emerge that leads one to believe s/he is unworthy of love and support. The working model that one develops underlies his/her attachment style. When stressed, the attachment mechanism is activated and one reverts to his/her default attachment style (Bowlby, 1973).

### *Attachment Styles*

Early attachment theorists (e.g., Ainsworth et al., 1978) argued that there were three unique attachment styles; *secure*, *anxious-avoidant*, and *anxious-ambivalent*. Characteristics of the secure attachment style have caregivers who are sensitive to the needs of their children, who provide affection, resources, and are available to their child. Individuals with an anxious-avoidant attachment style typically have primary caregivers who are unavailable for their children. Further, these caregivers lack the nurturing abilities of caregivers who provide secure attachment. Anxious-ambivalent caregivers can act in inconsistent and unpredictable ways in terms of how they respond to their child. Bowlby (1969, 1973, 1980) argued that these attachment styles are formed early in life, are operative throughout the lifespan, and influence romantic attachments in adulthood.

Bartholomew and Horowitz (1991) introduced a Model of Attachment Styles (see Figure 1) that argued there are four distinct attachment styles; *secure*, *preoccupied*, *dismissing*, and *fearful*. In this categorical model, children develop working models of

the self that are either *positive* or *negative*. Positive views of the self result from feelings of worthiness regarding love and acceptance. Negative views of the self result from perceived unworthiness of love and acceptance. Further, children develop working models of others that are either positive or negative. A positive working model of others predisposes one to believe that other people are trustworthy and available, while a negative working model of others leads one to perceive that others are untrustworthy and unavailable.

		MODEL OF SELF (Dependence)	
		Positive (low)	Negative (high)
MODEL OF OTHERS (Avoidance)	Positive (low)	<b>Cell I</b>  <b>SECURE</b>  Comfortable with intimacy and autonomy	<b>Cell II</b>  <b>PREOCCUPIED</b>  Preoccupied with relationships
	Negative (high)	<b>Cell III</b>  <b>DISMISSING</b>  Dismissing of intimacy Counter-dependent	<b>Cell IV</b>  <b>FEARFUL</b>  Fearful of intimacy Socially avoidant

Figure 1. The Bartholomew and Horowitz (1991) Model of Attachment Styles

The model above was tested in two studies, using peer, parent, and self-reports. Results indicated that individuals with a secure attachment style were perceived as self-confident and warm, had more close friendships, and reported that they valued intimate relationships. Individuals with a dismissing attachment style were self-confident, but did

not demonstrate the warmth that the securely attached individuals did. Further, individuals with a dismissing attachment style were rated lower in intimacy, emotional expression, and self-disclosure. In terms of their relationships, dismissing individuals appeared to place less emphasis on intimate relationships, and focused more on being independent. Individuals with a preoccupied attachment style were not self-confident, but were high on self-disclosure, crying, emotionality, care-giving, and reliance on others. Preoccupied individuals romanticize their partners, and tend to become exceedingly dependent on the relationship. Finally, individuals with a fearful attachment style were low in intimacy, self-confidence, self-disclosure, and reliance on others. Fearful individuals also reported being afraid of rejection, distrusting others, and being avoidant of intimate relationships (Bartholomew & Horowitz, 1991).

In addition, differences in the number and type of interpersonal problems were demonstrated between those with different attachment styles. Individuals with preoccupied and fearful attachment styles had more interpersonal problems than those with either a dismissing or secure attachment style. However, fearful and preoccupied people differed in the type of interpersonal problems experienced. For example, individuals with a fearful attachment style reported problems that were attributed to lack of assertiveness and social inhibition. Individuals with preoccupied attachment styles, on the other hand, had problems attributed to being autocratic, competitive, and dominant. Both fearful and preoccupied individuals use others to sustain a positive image of the self, but they use different mechanisms to do so. Specifically, individuals with a preoccupied attachment style try to control their friends and romantic partners.



Preoccupied individuals might fear rejection from their friends and romantic partners, and thus try to control them so they do not leave the relationship. Individuals with a fearful attachment style, in comparison, tend to be more passive as a relational maintenance strategy (Bartholomew & Horowitz, 1991). These findings suggest that different attachment styles vary on the relational variables of interest in the current investigation, *aggression and romantic jealousy*.

#### *Attachment in Adult Romantic Relationships*

Attachment theory is a viable framework through which both aggression and jealousy in adult romantic relationships can be explicated. Hazan and Shaver (1994, 2004) posit that attachment perspectives can account for a wide range of phenomena in adult romantic relationships. Attachment theory assumes that certain essential needs such as security and resources can best be attained in social relationships. Furthermore, attachment can help to explain the purpose, emotional underpinnings, evolutionary history, and developmental trajectories of human affection. Presumably, the mental models of the self and others that form during early childhood guide the behavior of adults, especially when they experience negative affect (Simpson & Rholes, 1994).

Hazan and Shaver (1987) built on the work of Bowlby (1969, 1973, 1980) and Ainsworth et al. (1978) by examining secure, anxious-ambivalent, and avoidant attachment styles in the romantic relationships of adolescents and adults, lending further support to the idea that attachment styles endure through adulthood. Participants who categorized themselves as having a secure attachment style reported having more happy, friendly, and trusting romantic relationships. Further, securely attached people reported

longer-lasting relationships than those with either an anxious or avoidant attachment style. Participants categorized as anxious viewed love as an obsession, and had a strong longing for romantic relationships. Additionally, anxious individuals demonstrated emotional highs and lows, and evidenced very high levels of sexual attraction and jealousy. Anxiously attached people rarely reported finding true love, but did report that they fell in love easily. Finally, individuals who were categorized as having an avoidant attachment style reported a fear of intimacy. Avoidant individuals also reported feeling lonely, and were prone to say that romantic love is rare and short-lived. Further, individuals with an avoidant attachment style also reported experiencing jealousy, but not to the extent reported by anxious individuals. This suggests that those with different attachment styles likely experience romantic relationships differently, and as such, can be expected to vary in the experience and expression of aggression and romantic jealousy within those relationships.

#### *Sex, Gender, and Attachment*

Because attachment styles are rooted in the experience of infant-caregiver relationships, it is reasonable to assume that these styles are not sex-linked. There should be an approximately even distribution of men and women for each attachment style. However, because society socializes boys and girls differently from an early age, gender socialization could confound the distribution of the sexes across attachment style (Silverman, 1987). Even though men and women might be equally likely to belong to a given attachment style, endorsing a certain attachment style might have different consequences for men and women (Feeney & Noller, 1996). Hazan and Shaver (1987),

in their seminal study on adult attachment, reported no difference between men and women in endorsing the secure, avoidant, and anxious-avoidant styles. Feeney and Noller (1996) argues that this nonsignificant finding is supported in other three-group categorical measures of attachment, as well as in continuous measures of security, avoidance, and anxious-avoidance that fail to evidence differences in attachment style between men and women. Bartholomew and Horowitz' (1991) four-category attachment scheme, however, does evidence differences along gender-stereotypical lines, such that men are more likely than women to report a dismissing attachment style, while women are more likely than men to report a fearful attachment style.

Though it makes sense not to expect sex differences, gender differences in attachment seem plausible. For instance, the fearful characteristic evidenced in individuals with an anxious-avoidant attachment style seems to parallel stereotypical feminine behavior, while characteristics of the avoidant attachment style seems consistent with stereotypical masculine behaviors, suggesting that the way society socializes boys and girls early in life contributes to their romantic attachment style later in life. For instance, because boys and girls are treated differently from a very early age (as early as before birth) (e.g., Worell & Goodhart, 2006; Lytton & Romney, 1991), gender differences in attachment could occur, and as a result, it could appear as if the sexes are not evenly distributed among attachment styles because sex and gender overlap. For example, if individuals pay more attention to little girls, are more likely to pick them up and comfort them when they cry, etc., girls might develop a more secure attachment style than little boys. Similarly, if little boys aren't coddled as much as little girls, it could be

that they develop a less secure attachment style because they experience a more distant relationship with their early caregivers (e.g., Lindahl & Heimann, 2002).

Collins and Read (1990) posit that gender differences in attachment are likely related to traditional gender-role stereotypes wherein women are socialized to be emotional and insecure in their romantic relationships and men are socialized to devalue romantic relationships. Women learn to value closeness and connectedness in relationships, while men learn to value independence in relationships. Interview ratings, self-reports, and partner reports that use the four-category attachment model (e.g., Bartholomew & Horowitz, 1991) suggest that men score higher on dismissing attachment, and women score higher on preoccupied attachment, suggesting this four-category model is more sensitive to differences between men and women in attachment than are other available measures (Feeney & Noller, 1996).

Not much is known about the influences of gender socialization during early infancy, and how this process might contribute to the development of the attachment mechanism. The question of whether or not parents treat boys and girls differently has been debated in the extant research (see Lytton & Romney, 1991). Some research suggests that people treat baby boys and baby girls differently based solely on the sex of the child beginning before birth, making it difficult to determine whether differences between boys and girls are innate (i.e., biologically-based), or learned (i.e., socially-based) (e.g., Worell & Goodhart, 2006). Interpretive theories (e.g., symbolic interactionism) posit that meaning is negotiated through language, and individuals form their sense of self based largely on their perception of how others see them (e.g., Mead,

1934). To that end, people develop meanings based on their experiences with others, suggesting that attachment style is co-constructed.

A study by Lindahl and Heimann (2002) examined social-proximity in mother-daughter and mother-son dyads. The authors reported that mothers with daughters scored higher on physical contact, visual contact, social initiative, and maternal sensitivity when compared to mothers with sons. Further, girls demonstrated more social initiatives than boys did. This study is consistent with the argument that boys and girls have different developmental trajectories, and that these trajectories are influenced by others. The idea of early gender socialization suggests that differences that develop between boys and girls are linked to male and female gender roles in which femininity is connected to nurturing traits (Silverman, 1987).

Though the idea of sex differences in attachment style runs contrary to the theory's primary assumption (i.e., that differences in attachment style are based on experience), gender differences in attachment have been demonstrated. Gender differences in how one perceives different attachment-linked dimensions of close relationships exist, but are often multifaceted and unpredictable (Feeney & Noller, 1996; Rice, Cunningham, & Young, 1997). Feeney and Noller posited that "there is substantial evidence that the effects of attachment style on relationship outcomes are gender specific; in particular, it appears these effects may be moderated by gender role stereotypes" (p. 133). The rationale for examining gender differences in attachment is rooted in differences that are consistently evidenced between the sexes on various developmental, psychological constructs such as aggression and jealousy.

Sex and gender differences in attachment, in theory, could feasibly be explained from a biological, evolutionary, or social standpoint. For instance, Reinisch, Rosenblum, Rubin and Schulsinger (1997) cite that sex differences between boys and girls are biological in nature and can be observed within the first few days, and even hours after birth, before socialization effects can take hold. Fisher (2000) supports this position and argues that, over time, women developed superior nonverbal abilities by attending to babies who could not express what they needed/wanted, suggesting that differences between men and women evolved over the course of human history. Bronstein (2006) and Chaplin, Cole, and Zahn-Waxler (2005), in contrast, posit that people attempt to toughen boys from an early age, and as such, are not as attentive to them as to girls suggesting that gender differences are social in nature, and begin only after birth. This is consistent with Ainsworth (1989), who argues that individual differences in attachment are a result of several factors, including genetics, individual experience, and cultural influence.

For the reasons mentioned above, attachment theory is an ideal framework under which to examine the validity of sex and gender differences. Aggression and romantic jealousy are constructs that, in the existing literature, have consistently shown significant differences between men and women. Because attachment theory accounts for differences in aggression and romantic jealousy by attachment style, looking at whether sex, and/or the psychological construct of gender moderate the relationship between attachment, romantic jealousy, and aggression will help clarify the true nature of these relationships. In order to set the stage for sex and gender as distinct constructs, it is

important to determine if attachment style differs due to sex or gender. For that reason, the following research questions and hypothesis are being advanced.

RQ<sub>1</sub>: Is attachment style independent of sex?

RQ<sub>2</sub>: Can gender be used to classify people into an attachment style?

H<sub>1</sub>: Endorsement of sex-role stereotypes differs by attachment style such that individuals with fearful, preoccupied, and dismissing styles endorse sex-role stereotypes more than those with a secure attachment style.

### Aggression

#### *Defining Aggression*

Buss (1961) defined aggression as “a response that delivers noxious stimuli to another organism” (p. 1). The intent to harm is one component of aggression that most would agree is a necessary component for defining the term. Dollard, Doob, Miller, Mowrer, and Sears (1939) defined aggression as “an act whose goal-response is injury to an organism” (p. 11). In order to classify a behavior as aggressive, one must plan to cause harm to another, and as such, aggression cannot be inadvertent. For example, if someone accidentally bumps into someone else, it cannot be classified as aggression. Even if harm results, that harm is unintentional, not aggressive. The definition provided by Dollard et al. implies that *motivation* is a key underlying factor in human aggression. Why, then, might humans be motivated to aggress against others? To fully understand the answer to this multi-faceted question, it is necessary to move beyond the idea of aggression as simply causing harm to another. Other facets of aggression must also be considered.

One of the most problematic issues regarding a general definition of human aggression is that aggression breaks down into several different subtypes. Aggression has been identified, for example, in terms of being direct/indirect, overt/covert, physical/nonphysical, verbal/nonverbal, laboratory/natural, social, relational, antisocial/prosocial, targeted/targetless, rational, manipulative, strategic, instrumental, hostile, attack/defense, reactive/proactive, and expressive (Underwood, Galen, & Paquette, 2001). Clearly, many of these categories overlap and need to be more clearly defined in order to properly conceptualize, operationalize, and categorize types of aggression. Subtypes of aggression can be grouped into three broad categories; *physical, verbal, and indirect/social/relational*.

*Physical aggression.* First, aggression has typically been conceptualized as *physical aggression* (e.g., direct, overt). This type of aggression is characterized by the presence of threat of bodily harm or bodily harm (e.g., Buss, 1995; Crick & Grotpeter, 1995). Because physical forms of aggression are more overt, and hence more observable, researchers have focused on this type of aggression likely due to its convenience and their ability to easily establish validity.

*Verbal aggression.* Verbal aggressiveness is defined as “a personality trait that predisposes persons to attack the self-concepts of other people instead of, or in addition to, their positions on topics of communication” (Infante & Wigley, 1986, p. 61). According to Infante and Wigley, messages that are verbally aggressive seek to make others feel negatively about themselves by attacking their self-concept. This conceptualization of verbal aggression is consistent with Buss’ (1961) definition of



“delivering noxious stimuli” (p. 1) to another because it suggests that people inflict harm on one another by putting them down and attempting to negatively affect them psychologically. Further, verbal aggression often serves as a precursor to physical aggression, suggesting that different forms of aggression can co-occur. Though physical aggression is typically preceded by verbal aggression, physical aggression does not always follow verbal aggression (Spitzberg, 2000).

*Indirect, social, and relational aggression.* The final broad category of aggression encompasses *indirect*, *social*, and *relational* forms of aggression. These types of aggression are not mutually exclusive, but instead share common threads as well as have distinguishing characteristics. Similarly, they can overlap with the conceptualization of verbal aggression offered above (Coyne, Archer, & Eslea, 2006).

Coyne et al. (2006) compare and contrast indirect, social, and relational forms of aggression and propose that the three subtypes share more commonalities than differences, and as such, can be amalgamated into one construct. They argue that indirect aggression is characterized by its covert nature, and the fact that the aggressor can remain anonymous, thus evading counterattack from the target and censure from others (Lagerspetz, Björkqvist, & Peltonen, 1988). Indirect aggression is administered in a circuitous way, and can be either physical or verbal (Björkqvist, Österman, & Kaukiainen, 1992). Indirect forms of verbal aggression can include, for example, gossiping about someone, spreading rumors about someone, and attempting to get other people to reject a member of the group. Indirect forms of physical aggression include, for example, destroying or stealing the property of others.

Social aggression is also argued by Coyne et al. (2006) to be conceptually analogous to indirect and relational aggression. First explicated by Cairns, Cairns, Neckerman, Ferguson, and Gariépy (1989), and extended by Galen and Underwood (1997), social aggression aims to hurt the self-esteem and/or social status of another through indirect (e.g., rumor) or direct (e.g., negative nonverbal communication). Social aggression seems to include all that indirect and relational forms of aggression include, but is extended to include various nonverbal behaviors such as rolling one's eyes or giving another a dirty look (Coyne et al.).

Relational aggression focuses on “behaviors that harm others through damage to relationships or feelings of acceptance, friendship, or group inclusion” (Crick, Ostrov, Burr, Cullerton-Sen, Jansen-Yeh, & Ralston 1999, p. 77). Relational aggression does not have to be covert, as in indirect aggression. In fact, relational aggression is frequently administered directly to the victim. Coyne et al. (2006) argue that, although relational aggression researchers (e.g., Crick et al.) posit that it is distinct from indirect aggression, many components of relational aggression, such as gossip and rumor, overlap with the conceptualization of indirect forms of aggression. Individuals who research indirect aggression (e.g., Björkqvist et al., 1992) argue that indirect aggression and relational aggression are conceptually the same. Some forms of relational aggression, however, do not fit the definition of indirect aggression (e.g., ignoring someone), suggesting that the two have certain distinguishing characteristics. Relational aggression is characterized by exercised behaviors in which the target is attacked not physically or directly through physical threats but in a roundabout way, through social manipulation. This type of

aggression often involves character defamation and attempts at circumventing the relational goals of others (Crick & Grotpeter, 1995; Crick et al., 2006; Underwood et al., 2001). Relational forms of aggression tend to hurt others by damaging their close, personal relationships with friends, family, and romantic partners (Crick, 1996). Though indirect, social, and relational forms of aggression have distinct components, they are more similar than they are different, and as such, can be conceptualized and operationalized as one.

### *Gender Differences in Aggression*

Gender differences in aggression have been reported in empirical research since the 1920s. Until the 1980s, much of this research was restricted to North American studies. Most of the research that has been done on aggression has taken place in modern Western societies, and typically involves children and young adults (Archer, 2004). Traditionally, it has been argued that boys are more aggressive than girls. However, the differences in aggression between girls and boys are more qualitative than quantitative. Specifically, the issue isn't that girls are less aggressive than boys, but rather that girls engage in a different type of aggression than boys do (Crick, Casas, & Mosher, 1997; Grotpeter & Crick, 1996).

*Early childhood.* Gender differences in aggression begin to emerge at an early age. Cumulative evidence suggests that girls and boys develop fundamentally different strategies of social engagement, particularly pertaining to conflict strategies (Block, 1983; Crick et al., 1997; Eagly & Steffen, 1986). Feshbach (1970) was among the first to propose that girls and boys differed in their mode of expression of aggression. He

suggested that aggression differed not in strength, but in mode (physical vs. nonphysical).

A study by Giles and Heyman (2005) examined preschoolers' (ages 3 to 5) beliefs about the relationship between gender and aggression. Results showed that the most frequent type of aggression among girls was described as relational aggression, while boys were described as more physically aggressive. Similarly, both 3 to 5 year olds and 7 to 8 year olds were prone to assume that characters who demonstrate relational aggression are girls, and those who demonstrate physical aggression are boys. In a third study, findings indicated that preschoolers demonstrate systematic differences in memory when remembering stories that run contrary to gender schemas, implying that children have preconceived notions of gender that influence their processing of social information before they begin school.

*Middle childhood and adolescence.* Much of the existing research on gender differences has centered on development of aggression in middle childhood and adolescence (primarily 9-12 year olds) (Crick, 1996; Crick, 1997; Crick, Bigbee, & Howes, 1996; Crick & Ladd, 1990; Crick & Grotpeter, 1995; Grotpeter & Crick, 1996; Crick & Werner, 1998). Crick and Grotpeter (1995) argued that when peers try to inflict harm on one another, they do it in a way that impedes goals valued by the gender group. For instance, boys try to hurt others through physical aggression (e.g., hitting, pushing, and threatening to beat others up). Such behaviors have been linked to the concepts of instrumentality and physical dominance which have been demonstrated to be valued by boys within the context of peer groups. Girls, on the other hand, are more concerned

with relational issues within the context of social interaction (Block, 1983). This is consistent with research on gender socialization that suggests girls learn to value expressivity.

It has been argued that, in the social system of adolescent girls, reputation is gained (or lost) via the manipulation of information about other people (Eyre, Hoffman, & Millstein, 1998; Goodwin, 1980; Proveda & Crim, 1975; Underwood, 2003). This use of informal social control leads to tighter cliques among girls than boys. Reputation among girls seems dependent on how a girl relates to boys, and as such, has implications for the public assessment of her social sex-role in terms of her social identity. Boys, in contrast, have reputations based on the public assessment of their achieved roles, and are not directly related to their interactions with the opposite sex (Proveda & Crim, 1975). In this regard, girls begin to value more closely tools that aid in the maintenance of personal relationships, while boys benefit by establishing traits associated with more overt dominance. This further explains how socialization effects can evidence in gender differences between boys and girls in their use of aggression.

*Beyond adolescence.* Little research exists regarding gender differences in aggression beyond childhood. Some studies have examined the phenomenon in college populations. Loudin, Loukas, and Robinson (2003) examined the roles of social anxiety and empathy in relational aggression. They found that low levels of empathetic concern, deficits in perspective taking skills, and fear of negative evaluation might be associated with relational aggression. Another study by Linder, Crick, and Collins (2002) looked at relational aggression and victimization in young adults' romantic relationships as they

relate to perceptions of parent, peer, and romantic relationship quality. They found that aggression and victimization were positively related to negative romantic relationship quality, and that they were negatively related to positive relationship qualities. Also, romantic relational aggression helped to explain variance in the quality of romantic relationships. Further research on gender differences in aggression in populations other than children is warranted. As people age, they become aware that there are legal limits in terms of what one can get away with. Social learning theory predicts, for example, that attitudinal aggression can outweigh behavioral aggression in adults because adults are aware of the social sanctions for those aggressive behaviors (Sherry, 2007).

#### *Explanations for Sex and Gender Differences in Aggression*

Several explanations for the origin of human aggression have been explicated in the relevant literature. Much of this controversy is rooted in the age-old nature vs. nurture debate. The nature perspective on human aggression argues that aggressive behaviors are deterministic, and are a function of one's genetic predisposition, while the nurture side of the argument posits that aggression is learned through social interaction. Though biological and social explanations of aggression might at first appear to be at odds with one another, it is likely that in fact the two reinforce one another. The evolutionary perspective on human aggression argues that aggression is an adapted psychological mechanism designed to aid in the survival and reproduction of the species. When trying to fully explicate aggression as a construct, both in terms of conceptualization and operationalization, it is important to consider the varying theoretical perspectives that attempt to explain the phenomenon.

*A biological explanation.* The influence of heredity on human aggression suggests that aggression is an inherited trait. Evidence regarding aggression as a heritable trait is mixed. Some studies suggest that heritability has a comparatively small influence on aggression (e.g., Carmelli, Rosenman, & Swan, 1988; Mednick, Brennan, & Kandel, 1988), while other research suggests that genetic influence supersedes shared environmental influences in explaining aggression (e.g., Rushton, 1988; Rushton, Fulker, Neale, Nias, & Eysenck, 1986). Miles and Carey (1997) reported that genetic influence on aggression is affected by such factors as the age of the sample, whether self-report, parent-report or observation of behavior was used, and how aggression is defined. Furthermore heritable influence does not preclude influence from the environment, which further implies that both biological and environmental forces are operative in human aggression.

Sex differences in aggression are evidenced cross-culturally and across species, and as such, many argue that hormonal differences may underlie aggressive behavior. Testosterone in particular has been examined in regard to sex differences in aggression. Testosterone in men is over ten times higher than in women, and is also responsible for masculine traits such as body hair growth and deepening of the voice. This has led to conclusions that it may contribute to greater male than female aggression in humans (Björkqvist, 1994; Geen, 2001). Empirical research in this domain, however, is often contradictory and inconclusive.

*An evolutionary explanation.* According to sexual selection theory, aggression is an evolved mechanism that developed to aid in the survival and reproduction of the

species. This led to greater male than female reproductive competition and overt aggression. From an evolutionary standpoint, boys develop psychological mechanisms that predispose them to physical forms of aggression. Because boys are physically bigger and stronger than girls, they are apt to use more overt forms of physical dominance. Girls, in contrast, are generally weaker strengthwise. As such, they must rely on more indirect forms of aggression to compete against rivals. Boys then, establish status hierarchies along physical dimensions, while girls establish status hierarchies via relational means. From this perspective, aggression should peak during times when reproductive competition is at its highest, usually during young adulthood (Archer, 2004).

The coevolutionary perspective of gender differences explains evolved mechanisms, biological tendencies, and socialized traits (Archer, 1996). The perspective argues gendered socialization as a process, wherein a Darwinian perspective of adaptation better explains sex differences in social behavior. However, this theoretical perspective also accounts for the role of socialization in human behavior, by arguing that socialization is not distinct from human nature, but rather is a part of it. Archer argues that gender differences likely arose from selection pressures throughout the history of human and prehuman evolution. From this point of view, both genes and culture are responsible for gender differences in social behavior. Many social scientists are aware that independent predictors such as genes and environment can only account for portions of the variance in the dependent variable(s), in this case, gender differences. Because the coevolutionary perspective accounts for the contribution of evolved mechanisms, biology, and environmental influences on aggression, it accounts for more of the



variance, thus more completely explaining the phenomenon than other theories that account for either evolved or social traits, but not both. In addition to having more explanatory power than theories that account for these phenomena separately, the coevolutionary process also has more predictive power in explaining aggression as well.

*A social cognitive explanation.* A competing explanation for the development and manifestation of aggression in humans stems from the perspective, arguing that aggression is learned via socialization processes. Social cognitive theory (formerly social learning theory) (e.g., Bandura, 1986) assumes that biology serves as a template on which experience operates. Though many learning theories emphasize learning through direct experience, social learning explanations emphasize one's ability to learn through observation (i.e., indirect experience). Social learning explanations of human behavior focus on behavior acquisition as a function of the observation of behaviors combined with the perception of corresponding positive or negative reinforcement. In terms of aggression, children witness aggression as it occurs in the real world and in the media. By attending to the consequences associated with aggressive behaviors of a model (i.e., actor), children come to acquire information on how to behave in certain circumstances (e.g., Bandura, 1965, 1973, 1977, 1983, 1986).

The social learning theory of aggression first appeared in the literature in the 1960s and can be largely attributed to the work of prominent Stanford psychologist Albert Bandura. Though Bandura's (e.g., 1983) approach acknowledges the influence of biological factors on aggression, it argues that a causal link between the two cannot be drawn. It seems a truism that aggressive children have aggressive parents. To that end, it

is important to understand how primary caregivers function as models, and how modeling their behavior can help to explain the origin of aggression. This is relevant to the formation of working models in the attachment process (Bowlby). From a social learning perspective, people learn aggression through indirect observation of a model, particularly if they perceive the aggressive behavior is being rewarded. They model aggression to the extent that they perceive they will receive some type of positive reinforcement for engaging in the behavior.

Social role perspectives (Eagly, 1987) parallel social learning theories and argue that differences between men and women are explained by socialization via segregation of the sexes. Boys and girls are socialized differently to adhere to different gender roles. These roles are rooted in the historical division of household labor and are broadly categorized as *expressive/communal* (typically attributed to women) and *instrumental/agentic* (typically attributed to men). Appropriate gender norms for aggression are learned from parents, peers, the media, the educational system, culture, etc. Boys are positively reinforced for overtly expressing their aggression, while girls are rejected for it. Therefore, girls learn to use more covert forms of aggression, as opposed to boys who learn to favor physical forms of aggression. Furthermore, research posits that the expression of anger is more socially acceptable for men than for women. Additionally, the expression of anger by men and women is perceived differently by observers (Canary & Emmers-Sommer, 1997; Knapp & Vangelisti, 2005). Research also supports the contention that women rely on more unilateral manipulation tactics with their partner than men do (Canary & Emmers-Sommer) and that women are socialized to

be manipulative and coy when it comes to interacting with their relational partner (Byers, 1996). Thus, women are socialized to be more covert than men. Though modern society might discourage physical aggression, toughness is certainly a characteristic that is encouraged in boys. Although both evolutionary and social role perspectives argue that aggression is tied to dominance, power, and status, social role theory would argue that these differences are built in to the underlying framework of culture via means of power and status imbalances. Gender roles provide a template to guide behavior, and to interpret the behavior of others (Bem, 1981). Crick (1997) examined gender normative and nonnormative forms of aggression, and found that individuals who engage in gender nonnormative forms of aggression (e.g., relationally aggressive boys and physically aggressive girls) were more likely to be maladjusted than those who act in accordance with normative gender expectations, providing support for a social role explanation of aggression.

Adhering to gender stereotypes can be influenced by circumstance. For instance, when situations are ambiguous, people revert to normative expectations to guide their behavior as they assume less risk. Resorting to default tendencies requires less cognitive effort. When people act in accordance with gender stereotypes, both behaviors and stereotypes reciprocate one another in a cycle of gender reinforcement (Canary & Emmers-Sommer, 1997). A situation in which aggression is present represents an uncertain circumstance under which conforming to gender roles may be perceived as less risky. For instance, Vogel et al. (2003) argue that roles become default when individuals are emotionally vulnerable because such adherence requires less cognitive effort.

One advantage of utilizing social approaches to explain gender differences in aggression is that they are able to account for variance across cultures. Men and women are socialized differently from a very young age, and are positively reinforced for adhering to stereotypical gender norms. Although biological, evolutionary, and social role explanations of sex/gender differences vary at the unit of analysis, all attempt to offer an explanation of how behavior must adapt to environmental conditions. Further, both evolutionary and social structural theories are interactionist as they consider both biological and environmental influences on behavior, but assess each variable differently. Evolutionary theory views adaptation as a genetically dictated response to primitive conditions that resulted in sex-differentiated behaviors. Social structural theory, in contrast, believes that these differences are built into society through the sexual division of labor. Both theories posit that timing of adaptation to changing conditions is central, but each uses a different mechanism to explain the process through which differences occur. Psychological sex differences result from problems that were adaptive in nature in the evolutionary framework, compared to the social structure which accounts for psychological sex differences in cultural frameworks (Eagly & Wood, 1999). In order to further clarify sex and gender as distinct constructs in aggression, the following research questions and hypothesis are advanced.

RQ<sub>3</sub>: Does attachment, sex, and/or gender predict physical aggression in adults?

RQ<sub>4</sub>: Does attachment, sex, and/or gender predict verbal aggression in adults?

RQ<sub>5</sub>: Does attachment, sex, and/or gender predict indirect/social/relational aggression in adults?

H<sub>2</sub>: Sex-role stereotype endorsement and aggression are related such that individuals who endorse sex-role stereotypes are more physically, verbally, and socially aggressive than those who do not endorse sex-role stereotypes.

### Romantic Jealousy

The study, or, for that matter, the experience of jealousy in romantic relationships is nothing new. Since the beginning of time, jealousy has been a typical human response to a threat to a valued relationship. Usually, romantic jealousy does not lead to severe problems for the person experiencing the often turbulent emotion, or for the target of the jealous feelings; however, on occasion, this emotion can prove to be so powerful it can lead one to exhibit behavior that can be harmful and destructive to the self, the relational partner, and the rival (Daly & Wilson, 1988; Daly, Wilson, & Weghorst, 1982). Much research has shown that romantic jealousy is correlated with negative consequences including domestic violence, depression, and low relational satisfaction (e.g., Buunk & Bringle, 1987; Guerrero & Eloy, 1992; Mathes & Severa, 1981; Pines & Aronson, 1983; Salovey & Rodin, 1989). In moderation however, demonstrating romantic jealousy has been argued to be beneficial in maintaining a relationship by making it clear to a partner that the relationship is important, and worth fighting for. It can be interpreted as a symbol of love and caring, and can also be used to elicit a response from a partner, and to ward off possible competitors in an attempt to preserve the relationship (e.g., Buss, 1988; DeSilva & Marks, 1994; Guerrero & Eloy; Guerrero, Eloy, Jorgensen, & Andersen, 1993; Pines, 1992; Salovey & Rodin). In order to understand the relationships among attachment, aggression, and romantic jealousy, it is first necessary to define romantic jealousy as a communication construct.

### *Defining Romantic Jealousy*

Jealousy has become an area of interest for communication scholars due to its wealth of variable material pertaining to the discipline. Jealousy is a multidimensional construct and is typically conceptualized in terms of cognitive appraisals, emotional experience, and behavioral manifestations (Buss, 2000; Buunk & Hupka, 1987; Cramer, Abraham, Johnson, & Manning-Ryan, 2001; Guerrero, Spitzberg, & Yoshimura, 2004; Wiederman & LaMar, 1998). Romantic jealousy is of particular interest to those studying relational communication because the cognitive, emotional, and behavioral components associated with the emotion have implications for relational quality.

Romantic jealousy occurs in a triangular relationship that includes the “primary relationship (between the jealousy person and the beloved), a secondary relationship (between the beloved and the rival), and a rival relationship (between the jealous person and the rival)” (Guerrero et al., 2004, p. 313). This three-party relationship is exclusive of jealousy, and helps to distinguish it from similar emotions such as envy. Though it is commonplace to use the terms jealousy and envy interchangeably, it is important to note that they are, in fact, distinct emotions. Romantic jealousy occurs when one perceives that s/he might lose a beloved to a rival, and results from the perception that someone is trying to take what is rightfully yours. *Envy*, in comparison, involves wanting something that someone else has (e.g., money, material possessions, and status/position). Envy can accompany jealousy, for instance, when one envies a rival’s personal attributes such as wealth and physical attractiveness (Guerrero et al., 2004).

Broadly speaking, jealousy has cognitive, emotional, and behavioral components (e.g., Pfeiffer & Wong, 1987) that can occur in a variety of relational contexts including friendships, familial (e.g., sibling) relationships, and romantic relationships. Together, the cognitive and emotional components of romantic jealousy can be conceptualized as *jealousy experience*, while jealous behaviors can be conceptualized as *jealousy expression*.

#### *Jealousy Experience*

*Cognitive jealousy.* Cognitive jealousy is characterized by worrying that a partner could be attracted to another, and suspicion that a rival relationship exists (Pfeiffer & Wong, 1987). According to White and Mullen (1989), people utilize a three-step cognitive appraisal process when faced with a jealousy-invoking situation. First, people try to approximate the *potential* for a rival relationship to exist. Then, they determine whether the rival relationship *actually* exists. Finally, they approximate the *extent of the threat* that the rival relationship presents. These cognitive appraisals happen in coordination with varying emotional reactions, including anger (e.g., hate and rage), fear (e.g., anxiety and distress), sadness (e.g., depression and hopelessness), envy (e.g., resentment), sexual arousal (e.g., lust and desire), and guilt (e.g., regret and embarrassment). Further, Pfeiffer and Wong (1987) argued that cognitive jealousy is negatively correlated with love.

*Emotional jealousy.* Much extant research defines jealousy not as a single emotion, but as a combination of several different emotions. In 1989, White and Mullen defined jealousy as “a complex of thoughts, emotions, and actions that follows loss of or

threat to self-esteem and/or the existence or quality of the romantic relationship” (p. 9).

This implies that emotions result from cognitive appraisals of stimuli in context. The context provides a frame through which people can recognize, interpret, and comprehend their emotions (Lazarus & Folkman, 1984). Jealousy can often incorporate other emotions such as anger, rage, anxiety, envy, fear, sadness, humiliation, often making it difficult to distinguish the true emotion being felt (Buss, 2000; Pfeiffer & Wong, 1989; White & Mullen).

### *Jealousy Expression*

*Behavioral jealousy.* Much of the existing research on jealousy has focused on the emotion as it occurs within the individual (i.e., intraindividual) in lieu of examining the phenomenon at an interpersonal level. Duck (1992) posited that much of the existing research on jealousy conceptualizes the emotion as something that occurs in private (i.e., the experience of jealousy), virtually ignoring how this emotion is communicated to a romantic partner, and how jealousy is exhibited through behavior (i.e., the expression of jealousy) (Guerrero, 1998). The expression of jealousy in behavior can be either covert or overt.

Baxter and Wilmot (1984) explored covert, “*secret tests*” that individuals use in order to investigate the state of their relationships with romantic partners. They identified “triangle tests” as a category of secret tests used to evaluate the state of their relationship. Triangle tests include both *jealousy tests* and *fidelity checks*. Jealousy tests include, for instance, judging a partner’s response when a former lover’s name is mentioned. Jealousy tests had two categories; *describing alternatives* and *beginning alternatives*.



Describing alternatives incorporates the verbal description of a potential rival to a partner (e.g., a woman talking about an ex-boyfriend to see if her current boyfriend gets angry). Beginning alternatives, on the other hand, goes beyond describing a rival, and includes the physical presence of a potential rival (e.g., a man dating other women and making sure his partner found out about it to see if she would respond with jealousy). A fidelity check, for example, includes seeing how a partner responds to flirtation from an attractive member of the opposite sex (e.g., intentionally leaving a partner alone with a member of the opposite sex). Women, more than men, use secret tests to evaluate relational commitment. From a social learning perspective, women learn different relational strategies than men by observing other women using those strategies. Many women, then, act in accordance with the observed model in their own relationships, resulting in gender role stereotype reinforcement wherein women utilize more covert, indirect strategies to evaluate the status of their romantic relationships.

Romantic jealousy also manifests overtly in behavior. Guerrero, Andersen, Jorgenson, Spitzberg, and Eloy (1995) established six interactive responses to romantic jealousy that involved either engaging in or avoiding direct interaction; *integrative communication*, *distributive communication*, *active distancing*, *expression of negative affect*, *general avoidance/denial*, and *violent communication/threats*. Integrative communication is characterized by the expression of thoughts and feelings without assigning blame to the partner (e.g., explained my feelings to my partner). Distributive communication, in comparison, included negative responses such as accusations and argumentative statements (e.g., yelled or cursed at my partner). Active distancing

includes the intentional use of avoidance as a way of displaying anger or disapproval (e.g., giving my partner the “silent treatment”). Expression of negative affect encompasses behavior such as nonverbal displays of emotions (e.g., appeared hurt in front of my partner). General avoidance/denial involves denying jealous feelings and pretending not to be jealous (e.g., acted like I didn’t care). Finally, violent communication/threats include threat of physical harm to the partner (e.g., pushed, shoved, or hit my partner). Guerrero et al. argued that these communicative responses to jealousy might aid in the achievement of goals including uncertainty reduction, relationship maintenance, and self-esteem restoration.

In addition, Guerrero et al. (1995) identified five general behavioral responses to romantic jealousy; *surveillance/restriction*, *compensatory restoration*, *manipulation attempts*, *rival contacts*, and *violent behaviors*. Surveillance/restriction includes behaviors that are used to find out more about the rival or to restrict a partner’s access to the rival (e.g., kept close tabs on my partner). Compensatory restoration is comprised of behaviors intended to improve the primary relationship (e.g., increased affection or did special things for my partner). Manipulation attempts consisted of behaviors intended to test the partner’s loyalty (e.g., tried to make my partner feel jealousy too). Rival contacts included communication between the self and the rival (e.g., told the rival not to see my partner anymore). Finally, violent behaviors included aggressive acts that were not directed at the partner (e.g., slammed doors). Many of these Guerrero et al.’s communicative responses to jealousy parallel the varying types of aggression that are of interest in this study.

A study by Andersen and Eloy (1995) examined the influence that jealousy experience and expression had on relationship satisfaction. Drawing from Guerrero et al. (1995), they hypothesized that the use of integrative communication to cope with romantic jealousy would be positively associated with relational satisfaction and that the use of distributive communication, active distancing, expression of negative affect, violent communication/threats, and avoidance/denial would be negatively associated with relational satisfaction. Further, they questioned the relative contribution of jealousy experience and jealousy expression in predicting relational satisfaction. A questionnaire containing measures to analyze the effect of cognitive jealousy, emotional jealousy, and communicative responses on relational satisfaction was distributed. Results indicated that cognitive jealousy was a stronger predictor of relational satisfaction than emotional jealousy. They also found that those who employ integrative communication and/or active distancing are the most likely to be satisfied with their relationship. Finally, they found that the expression of jealousy accounts for more variance in relational satisfaction than solely experiencing jealousy.

Other overt and covert jealousy-related behaviors have been conceptualized by Buss and colleagues (Buss, 1988; Buss & Shackelford, 1997). These behaviors are defined as tactics individuals use to retain mates. Buss identifies *vigilance* (e.g., having friends check up on a partner), *mate concealment* (e.g., refusing to introduce a partner to his/her same-sex friends), *time monopolization* (e.g., monopolizing partner's time at social gatherings), *jealousy induction* (e.g., going out with others to make the partner jealous), *emotional manipulation* (e.g., making a partner feel guilty), *commitment*

*manipulation* (e.g., getting the partner pregnant), *violence* (e.g., slapping the rival), *punish mate's infidelity threat* (e.g., ignoring a partner), *derogation of competitors* (e.g., insulting a rivals' physical appearance, strength, or intelligence), *mate derogation* (e.g., telling others that a partner might have a disease), *resource display* (e.g., buying partner expensive gifts), *appearance enhancement* (e.g., dressing more attractively than usual), *love and care* (e.g., becoming more affectionate than usual), *intrasexual threats* (e.g., staring at rival), *verbal possession signals* (e.g., telling rival that partner is "taken"), *physical possession signals* (e.g., kissing a partner in front of a rival), *possessive ornamentation* (e.g., wearing a partner's clothes), *sexual inducements* (e.g., acting sexy to distract a partner from a rival), and *submission and debasement* (e.g., offering to change for partner) as strategies utilized in mate retention. Guerrero et al. (2004) paralleled Guerrero et al. (1995) and Guerrero and Andersen's (1998) communicative responses to jealousy with Buss and colleagues' mate retention strategies. This comparison suggests that communicative responses to jealousy vary between men and women as a result of evolved mating strategies.

Experiencing jealousy does not likely carry the interpersonal consequences of expressing that jealousy through behavior. Whether intra- or interpersonally, individuals who cope with their jealousy in constructive ways likely experience greater levels of relational satisfaction. Individuals who cope with their jealous emotions destructively, in contrast, likely suffer in terms of the quality of their romantic relationships. In order to fully explain sex and gender differences in jealousy, it is important to understand how this construct has been explained in past research.

### *Explanations for Sex and Gender Differences in Jealousy*

*A biological explanation.* A biological explanation for sex differences between men and women in jealousy is largely rooted in the evolutionary explanation that argues that jealousy differences are resultant from the respective physiologies of men and women, and are in large part, genetically determined. Much evidence supports that these differences indeed exist. From a physiological perspective, jealousy leads to increased arousal and other neurochemical processes, implying that jealous reactions to a threat to a valued relationship are innate (Buss, Larsen, Westen, & Semmelroth, 1992; Geary, DeSoto, Hoard, Sheldon, & Cooper, 2001; Hupka, Zaleski, Otto, Reidl, & Tarabina, 1996; Pines & Aronson, 1983).

In a study by Buss et al. (1992), participants' physiological responses (e.g., electrodermal activity, pulse rate, electromyographic activity) were measured in response to imagining their partner in the sexual/emotional infidelity described in the first study, implying that biological components of jealousy differ by sex. This further suggests that the biological and evolutionary explanations for jealousy go hand-in-hand. They found, for example, that men demonstrated significant increases in electrodermal activity when imagining sexual infidelity compared to imagining emotional infidelity. Women, in contrast, demonstrated significant increases in electrodermal activity when imagining emotional infidelity as compared to sexual infidelity, implying that differences between men and women in jealousy could be innate. However, this evidence is not conclusive proof that biological differences between men and women are responsible for this difference. It could be, rather, that differential gender socialization leads to women being

more upset by emotional infidelity and men by sexual infidelity, and that this socialization bias is evidenced through biological responses. If women learn to be more upset by emotional infidelity, and men learn to be more upset by sexual infidelity, it makes sense that the biological distress indicators (e.g., electrodermal activity, pulse rate, electromyographic activity) would react accordingly. These types of issues regarding the directionality of cause and effect make it difficult to determine which theoretical perspective (biological, evolutionary, or social) best explains differences between men and women regarding jealousy.

*An evolutionary explanation.* Buss (1994) argues that biological sex differences in both the experience and expression of jealousy run parallel to evolutionary predictions. Furthermore, jealousy exists in all cultures, suggesting its universal nature (Buss, 2000; Buunk & Hupka, 1987). The evolutionary perspective on sex differences in romantic jealousy argues that jealousy serves as a coping device, passed down over time, to communicate commitment to a partner when a relationship becomes threatened by a real or imagined third party (Buss, 2000; Buss et al., 1992; Buunk, Angleitner, Oubaid, & Buss, 1996; Buunk & Bringle, 1987; Buunk & Hupka, 1987). In this respect, jealousy evolved as a defense against infidelity and abandonment and served as an adaptive response to a recurrent problem of survival and reproduction, much along the lines of natural selection. Consequently, men developed jealousy to protect the continuation of their genes, while women developed jealousy to defend against the loss of resources.

Though popular culture (e.g., books, movies, etc.) usually depict men as being the more jealous sex, in reality men and women experience similar levels of jealousy (Buss,

2000). However, profound differences can be found in the psychological components of jealousy. Buss argues that men and women have different mating strategies. Women mate for long-term purposes while men tend to mate on a short-term basis. When it comes to breaches in fidelity, women place far more importance on emotional fidelity, or the threat that support and resources will be transferred to another mate than men who focus primarily on sexual fidelity, suggesting that the events that trigger jealousy may differ by gender. Buss asserts that the origin of sexual jealousy for men is paternity uncertainty and, for women, it is the threat of loss of commitment and resources. Studies reported by Buss show that up to 63% of men compared to only 13% of women find sexual infidelity more disturbing than emotional infidelity, whereas 87% of women and only 37% of men find emotional infidelity more disturbing than sexual infidelity. These results have been found cross-culturally suggesting that it is a universal difference. However, research regarding sexually explicit material (e.g., Mosher, 1965) suggests that men and women both experience physiological arousal, but that they label the arousal differently. Specifically, men are more likely positively evaluate the arousal, while women are more likely to negatively evaluate the arousal, a concept coined “sex guilt” by Mosher. This finding could be extended to the psychological arousal experienced when imagining sexual and emotional infidelity. Because women are socialized to believe that they should be more concerned with emotional than sexual infidelity, they might manifest this gendered socialization by labeling the physiological arousal associated with emotional infidelity as more distressing than that associated with sexual infidelity, while the reverse could be true for men.

Sex differences that support evolutionary explanations of differences between men and women have been evidenced in the behavioral expression of jealousy. For example, jealous women, more than jealous men, report that they attempt to improve their physical appearance to attract their partner, which has shown to be an effective mate retention strategy for women, but not for men. This is consistent with evolutionary psychology which suggests that men value physical attractiveness in a mate. Men, in contrast, increase their display of financial resources when jealous more than women do, in theory because it is what women value in a mate (Buss, 1988). Further, Guerrero and Reiter (1998) argue that men become more sexually aggressive and promiscuous than women do in response to jealousy.

*A social cognitive explanation.* A social cognitive approach to explaining the differences between men and women in jealousy argue that these differences are learned beliefs about men and women and the role of jealousy in romantic relationships. This perspective posits that differences result from the beliefs that men and women hold about one another (e.g., women believe men can have sex without love) (Ward & Voracek, 2004). One reason why men and women might view infidelity differently is because they define the term differently. Men define infidelity in terms of sexual breaches whereas women provide a definition that is broad ranging and includes emotional as well as sexual breaches (Buss, 2000; DeSteno & Salovey, 1996).

Research supporting a social cognitive explanation of gender differences in jealousy (e.g., Baxter & Wilmot, 1984; Byers, 1996) suggests that women are socialized to be more covert and manipulative than men, and as such, develop different relational



strategies to achieve relational goals. Canary and Emmers-Sommer (1997) also report that extant research findings suggest that women are more unilateral and manipulative in their behaviors than men. Baxter and Wilmot (1984) argue that women are socialized to value interpersonal relationships, and as such, are likely more motivated than men to seek out information about the current status of their relationships. Women might have a greater awareness of sources of uncertainty in the relationship than men. Women might also be more motivated to reduce that uncertainty via information acquisition strategies than men. This is evidenced in behavioral manifestations of jealousy. For instance, Guerrero et al. (2004) report that across different studies, women were more likely than men to seek support from others, to try to improve the relationship, to demand commitment from partners, to express negative affect, to utilize integrative communication, and to use verbal signals of possessiveness in response to feeling jealous. These findings are more easily interpreted as resulting from the gender socialization of men and women, rather than from innate and evolved sex differences.

Aylor and Dainton (2001) investigated biological sex, psychological gender, and relational type as sources of romantic jealousy experience, expression, and goals. This study is central to the argument that gender could moderate the relationship between attachment, jealousy, and aggression because it operationalizes not only biological sex, but also the psychological construct of gender as a continuous variable by measuring it with the Bem's Sex-Role Inventory (BSRI). They looked at participants in romantic relationships and found that men were significantly higher in cognitive jealousy than women. Women, in contrast, were more likely to express their jealousy through

communication. Regarding gender, it was revealed that masculinity/instrumentality was positively related to antisocial jealous behaviors such as distributive communication, possessiveness, rival contact, and manipulation attempts, as measured by the Communicative Responses to Jealousy Scale (CRJ) (Guerrero et al., 1995). Scores on femininity/expressiveness, in contrast, were positively related to prosocial types of integrative communication, and negatively related to antisocial forms of distributive communication, active distancing, avoidance, violent communication, threats, and manipulation. More importantly, the study examined the ability for sex and gender to predict both the experience and the expression of jealousy. Sex emerged as the best predictor of the experience of cognitive jealousy. Gender, in comparison, emerged as the best predictor of some of the communicative responses to jealousy, suggesting a moderating effect of gender between sex, the experience of jealousy, and the expression of jealousy.

Jealousy is an emotion that has been linked to both attachment (e.g., Guerrero, 1998; Sharpsteen & Kirkpatrick, 1997), and aggression (e.g., Archer & Webb, 2006; Grotzinger & Crick, 1996), and serves as an appropriate bridge to connect the two within the context of romantic relationships. However, several competing explanations about the origin of both aggression and jealousy exist that precludes theorists from drawing valid conclusions about the root of these differences. In order to further explore the relationship between these variables, the following research questions are being advanced. In order to better illustrate the nature of the relationships to be investigated in research questions 6a and 6b, see Figure 2.

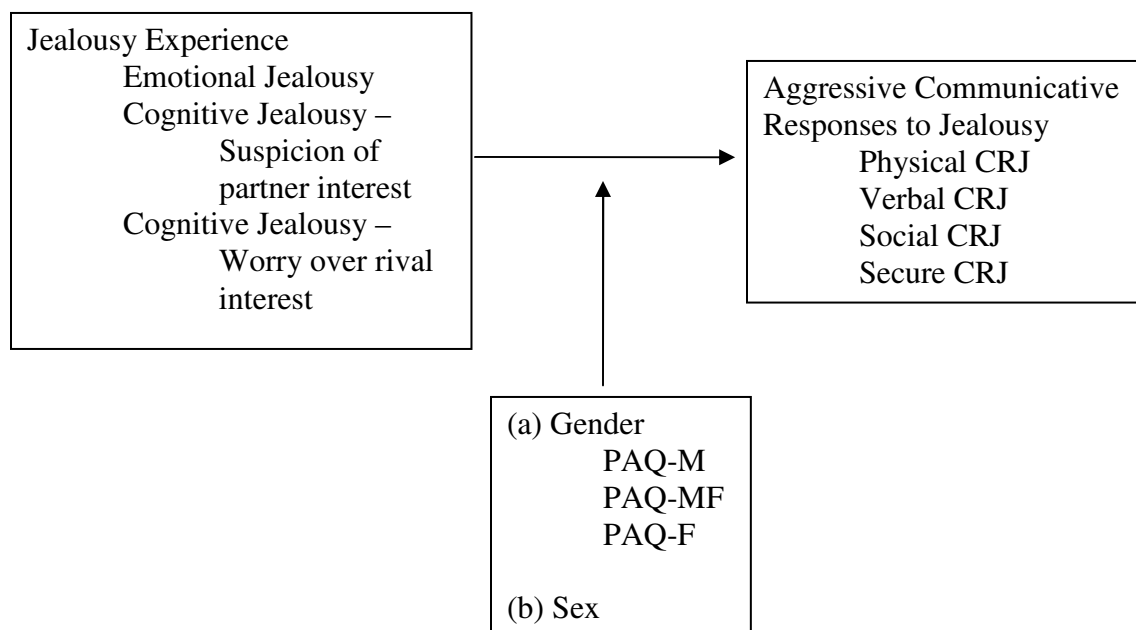


Figure 2. Proposed Model for Gender and Sex as Moderators of Jealousy Experience and Aggressive Communicative Responses to Jealousy

RQ<sub>6a</sub>: When controlling for sex, in what ways does gender moderate the relationship between jealousy experience and aggressive communicative responses to jealousy (CRJ)?

RQ<sub>6b</sub>: When controlling for gender, in what ways does sex moderate the relationship between jealousy experience and aggressive communicative responses to jealousy (CRJ)?

#### The Attachment-Aggression-Jealousy Link

Bowlby (1979) wrote that attachment correlates highly with emotion, suggesting that attachment and jealousy are intertwined. Specifically, Bowlby noted that:

Many of the most intense emotions arise during the formation, the maintenance, the disruption, and the renewal of attachment relationships. The formation of a bond is described as falling in love, maintaining a bond as loving someone, and losing a partner as grieving over someone. Similarly, the threat of loss arouses anxiety and actual loss gives rise to sorrow; whilst each of these situations is likely to arouse anger. The unchallenged maintenance of a bond is experienced as a source of joy (p. 130).

Jealousy in its purest form can be reduced to the fear of abandonment by a valued other. Attachment styles also stem from a fear of abandonment. Sharpsteen and Kirkpatrick (1997) posited that attachment and jealousy share four common features. First, both can be defined as a relationship maintenance process. Second, both are activated by the real or potential separation from a valued third party. Third, both involve accompanying emotions such as anger, fear, and sadness. Finally, both attachment and jealousy are regulated by mental models of the self and other.

Attachment theory (e.g., Ainsworth et al., 1978; Bartholomew & Horowitz, 1991; Bowlby, 1969, 1973, 1980; Hazan & Shaver, 1978) helps to explain both aggression and jealousy from an adaptive standpoint by hypothesizing that infants develop different attachment styles early in life based largely on whether the environment in which they are reared is high or low in stress. Attachment perspectives assume that children reared in a high stress environment develop insecure attachment styles that lead to more opportunistic mating strategies. Individuals who do not develop secure attachment are presumed to mate earlier and more often in an attempt to increase reproductive success that is hindered by a lack of fetal viability in high stress environments. Insecurely attached people tend to remain with mates for shorter periods of time, and invest less emotionally in their relationships. Individuals raised in a low stress environment, in contrast, have a more secure attachment style. As a result, securely attached individuals are presumed to engage in longer-term mating strategies that require higher investment. In terms of aggression, individuals with an insecure attachment style should be more prone to jealousy, and likely manifest their jealousy more aggressively as a relational

maintenance strategy (e.g., mate retention) than those with a more secure attachment style.

White and Mullen (1989) were among the first to argue that different attachment styles could result in varying levels of jealousy. They argued that the mental models that serve as the foundation for attachment styles are in part responsible for if, and how jealousy manifests. Guerrero (1998) looked at attachment-style differences in the experience and expression of romantic jealousy. She argued that because attachment styles develop from varying thoughts, feelings, and behaviors that result from the threat of separation, that jealousy would be an appropriate lens through which to examine differences in attachment and jealousy. She examined people involved in enduring romantic relationships rated on jealousy experience, jealousy expression, and attachment style. She found that individuals with negative self-models experienced more cognitive jealousy than individuals with positive self-models. Further, jealous participants who had negative other-models felt less intense fear, using fewer relationship-maintenance behaviors, and using more avoidance/denial than participants with positive other-models. Additionally, Guerrero reported that individuals with a preoccupied attachment style displayed more negative affect and used more surveillance behaviors than those with different attachment styles. Finally, individuals with a dismissive attachment style felt less fear than those with a secure and preoccupied style, and felt less sadness than those with a preoccupied attachment style when they felt jealous. Though research on attachment and jealousy has begun, much remains unanswered about the relationship

between these constructs. To further explicate the associations between attachment and jealousy, the following research questions and hypotheses are advanced.

RQ<sub>7</sub>: Is there a relationship between attachment style and the type of infidelity one is disturbed by?

H<sub>3</sub>: Jealousy experience differs by attachment style in adults. Specifically, individuals with a fearful attachment style are higher in emotional and cognitive jealousy than those with either a secure, dismissing, or preoccupied attachment style.

H<sub>4</sub>: Aggressive communicative responses to jealousy (CRJ) differ by attachment style in adults. Specifically, individuals with a fearful attachment style exhibit higher physically, verbally, and socially aggressive CRJ than those with either a secure, dismissing, or preoccupied attachment style.

In order to better illustrate the nature of the relationships to be investigated in research questions 8a and 8b, see Figure 3.

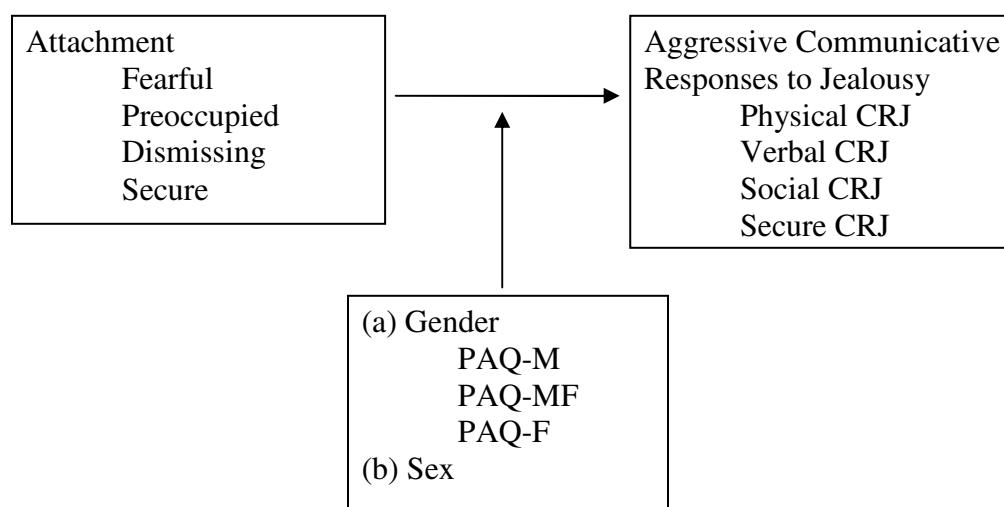


Figure 3. Proposed Model for Gender and Sex as Moderators of Attachment and Aggressive Communicative Responses to Jealousy

RQ<sub>8a</sub>: When controlling for sex, in what ways does gender moderate the relationship between attachment and aggressive communicative responses to jealousy (CRJ)?

RQ<sub>8b</sub>: When controlling for gender, in what ways does sex moderate the relationship between attachment and aggressive communicative responses to jealousy (CRJ)?

Aggression and jealousy have frequently been linked in empirical research.

Physical violence is among the most commonly studied behavioral response to jealousy.

Guerrero et al. (2004) argued that several links exist to connect jealousy to aggression.

For instance, the clinical evaluation of violent patients frequently cites morbid jealousy as a proximate cause of violence. Second, jealousy is cited as a proximate cause of conflict in relationships, which can be correlated with both anger and aggression. Third, positive linear correlations between self-report measures of jealousy and measures of violence and aggression and relationships have been evidenced. Fourth, jealousy has been used to distinguish between aggressive/violent individuals and nonviolent individuals. Fifth, jealousy is attributed, post hoc, as the most prominent proximal cause of relationship violence.

Archer and Webb (2006) examined the relation between scores on the Buss-Perry Aggression Questionnaire (BPAQ) and aggressive acts, impulsiveness, competitiveness, dominance, and sexual jealousy and found that both dominance and sexual jealousy predicted physical aggression, verbal aggression, and anger as operationalize in the BPAQ. A study by Graham and Wells (2001) examined differences between men and women in the experience of physical aggression. Participants described a recent episode of physical aggression in which they were involved. Women reported that they were typically involved in conflict with a male opponent (e.g., spouse, partner, friend), and the conflict was typically attributed to jealousy. Men, in contrast, reported episodes of

physical aggression in which the opponent was also a man (e.g., friend, stranger) and involved several participants. Further, the male-male aggression described by men contained more references to behaviors consistent with the definitions of physical aggression (e.g., punching, threatening) and verbal aggression (e.g., insulting). This evidence indicates that physical aggression is a typical male response to jealousy.

DeSteno, Valdesolo, and Bartlett (2006) argued that jealousy is mediated through self-esteem. They also found that jealousy is a cause of aggression. When explicating the attachment-aggression-jealousy link, it is helpful to conceptualize the expression of jealousy through behavior as occurring on a continuum of different forms of aggression. Jealousy can manifest in the form of physical, verbal, or indirect/social/relational aggression.

Bookwala and Zdaniuk (1998) examined adult attachment styles and aggressive behavior within the context of dating relationships. Specifically, they examined participants who reported being involved in reciprocally aggressive relationships with partners who reported being involved in non-aggressive relationships on measures of attachment and interpersonal problems. They reported that, when controlling for relationship satisfaction and the length of the relationship, participants who were involved in reciprocally aggressive relationships were higher on preoccupied and fearful-avoidant attachment styles. Further, these participants reported experiencing more interpersonal problems than those in non-aggressive relationships. Controlling for interpersonal problems, only the relationship between preoccupied attachment and aggression remained.



In order to further explicate the nature of the attachment-aggression-jealousy link, the following hypothesis is advanced.

H<sub>5</sub>: Aggressive communicative responses to jealousy are positively related physical, verbal, and indirect/social/relational aggression.

## CHAPTER II

### METHOD

#### Participants

Male and female students enrolled in communication classes at a large southwestern university ( $n = 175$ ), as well as men referred to this study by a student in a communication class ( $n = 122$ ), served as participants for this study. The survey was offered as an opportunity for students in the classes to receive extra credit for their participation in departmental research. The final sample used for the analyses consisted of 134 women and 151 men ( $N = 285$ ), ranging in age from 18 to 59 ( $M = 22.91$ ,  $SD = 6.80$ ). The population from which the sample was drawn was majority female. Because this investigation attempts to distinguish between sex and gender differences, special efforts were made to help ensure a balanced distribution of men and women. Once the number of women required for the sample was reached, only men were recruited via referral sampling. At this point in the study, women could earn extra credit only by referring the study to a male acquaintance. Men who had not already completed the study were still allowed to do so directly.

Although the initial sample consisted of 297 participants, some cases were excluded from analysis. Cases were excluded for several reasons. The most common reason for deleting a case was a result of the referral sampling method used to recruit men. A separate link was established to collect data from men only. Participants who reported that they were a woman on this link were deleted from analysis. Second, participants who failed to fill out more than half of the survey items were deleted from

analysis. Finally, one participant reported that s/he was 16 years old, and thus was not used in the analyses because participants were required to be 18 years of age or older.

The majority of participants (78.9%) reported being Caucasian/white ( $n = 225$ ), followed by 9.8% Hispanic/Latino ( $n = 28$ ), 5.3% Asian or Pacific Islander ( $n = 15$ ), 2.8% Black ( $n = 8$ ), 2.1% other/unknown ( $n = 6$ ), and .7% reporting that they were American Indian or Alaskan Native ( $n = 2$ ). Regarding relational status, 40% of participants reported that they were seriously dating ( $n = 114$ ), followed by 30.9% single (not dating anyone) ( $n = 88$ ), 19.3% casually dating ( $n = 55$ ), 8.1% married ( $n = 23$ ), and 1.4% engaged ( $n = 4$ ). Of the sample, 3.9% had been divorced ( $n = 11$ ), while 95.4% had never divorced ( $n = 272$ ). Most of the participants (56.1%) answered the questionnaire in reference to their current relationship ( $n = 160$ ), while 34% answered about a past relationship ( $n = 97$ ), and 8.8% answered regarding an imaginary relationship ( $n = 25$ ). Regarding sexual orientation, 97.2% of the sample reported being heterosexual ( $n = 277$ ), while 1.8% reported being homosexual ( $n = 5$ ), and 1.1% reported being bisexual ( $n = 3$ ).

### Procedures

Participants were addressed by the primary researcher during communication classes. A website was provided where participants could go to complete the survey. Because this investigation had university Institutional Review Board approval, before completing the survey, participants read through the participant disclaimer form (see Appendix A), which was used to obtain consent for the study. Participants were provided with a password that allowed them to access the survey instrument. The only requirement of the survey was that participants be at least 18 years of age. Before

completing the questionnaire (see Appendix B), participant consent was obtained by having participants click on a box that indicates they understand the nature of the research, and agree to have their confidential information used for research purposes. The survey took approximately 20 minutes to complete. When participants finished the survey, they were directed to a separate survey which allowed them to record the class to which they wanted to apply the extra credit (see Appendix C). This form contained identifying information; however, it was completely separate from the data, so no connection between the two was made. This information is stored electronically in a safe, password protected file accessible only to the primary researcher. Also, if participants felt uncomfortable answering any of the survey questions, they could choose not to answer those questions. The participants were provided with contact information for the primary researcher so they could obtain follow-up information on the study once it was complete.

### Instruments

#### *Predictor Variables*

*Attachment.* Attachment style was measured using Bartholomew and Horowitz' (1991) four attachment styles (fearful, preoccupied, dismissing, secure). Participants read four statements, each of which describes a unique attachment style. Participants were asked to rank from 1 (not at all like me) to 7 (very much like me), the extent to which the statement described their general relationship style. Then, participants were asked to choose which of the four statements best described their general relationship style, thus categorizing them into one primary attachment style. Brennan, Clark, and Shaver (1998) factor analyzed 482 items derived from 60 self-report measures of constructs related to

attachment, and found that the items could be reduced to two dimensions, *avoidance* and *anxiety*. Hierarchical cluster analysis revealed that the two factors are conceptually the same as the horizontal (model of self) and vertical (model of others) axes of Bartholomew's four-category typology of attachment styles (e.g., Bartholomew & Horowitz, 1991) (Refer back to Figure 1). Their analysis evidenced four distinct groups that parallel the categories suggested by Bartholomew and Horowitz, such that individuals with a *secure* attachment style scored low on both avoidance and anxiety, individuals with a *fearful* attachment style scored high on both avoidance and anxiety, individuals with a *preoccupied* attachment scored low on avoidance and high on anxiety, and individuals with a *dismissing* attachment scored high on avoidance and low on anxiety. This reinforces the validity of the Bartholomew and Horowitz (1991) model that was be used for analysis. For the purpose of this study, only the self-categorization method was used wherein participants chose which of the four attachment styles best described them. Consistent with previous research (e.g., Brennan, Clark, & Shaver, 1998), 49.1% of participants in this study classified themselves as having a *secure* attachment style ( $n = 140$ ), 21.1% reported a *dismissing* attachment style ( $n = 60$ ), 16.5% reported a *fearful* attachment style ( $n = 47$ ), while 13% reported a *preoccupied* attachment style ( $n = 37$ ).

*Sex.* Sex was measured using a dichotomized response variable that asked participants to report whether they were a "man" or "woman." For all analyses, men were coded as "1," while women were coded as "2."

*Sex-role stereotyping.* Sex-role stereotyping was measured using a slightly modified version of the Sex-Role Stereotyping subscale of the Sexual Attitudes Survey (Burt, 1980). This scale measures whether one subscribes to traditional gender stereotypes. Items on the scale include, for example, “There is something wrong with a woman who doesn't want to marry,” and “It is acceptable for the woman to pay for the date.” Participants rank from 1 (strongly disagree) to 5 (strongly agree) the extent to which they agree with the statements. Higher scores represent greater endorsement of sex-role stereotypes. Cronbach’s *alpha* was originally measured at .80 (Burt, 1980). The Cronbach’s *alpha* for this study was .67 ( $M = 3.21$ ,  $SD = .88$ ).

*Instrumentality/expressiveness.* The Personality Attributes Questionnaire (PAQ) (Spence, Helmreich, & Stapp, 1973, 1974) was used to rate participants on gender-related, or, instrumental (i.e., masculine) and expressive (i.e., feminine) characteristics. The PAQ is a 24-item self-report survey instrument originally designed to operationalize the extent to which one considers him/herself to have socially desirable traits that are either characteristically masculine (M) or feminine (F), or personality traits that stereotypically distinguish men and women, but are said to be more socially desirable for men than for women (MF). Significant gender differences have been reported between men and women in the predicted direction when the measure was completed by men and women (Spence, Helmreich, & Stapp 1975). Further, Spence and Helmreich (1978) found that the PAQ-M and PAQ-F scales related differently and in the predicted direction with variables such as empathy (positively associated with PAQ-F) and competitiveness (positively associated with PAQ-M). Additionally, the PAQ-M and PAQ-F measures can

predict instrumental and expressive behaviors, lending further support to the measure's construct validity (Holmbeck & Bale, 1988; McCreary, 1990). High scores on the PAQ-M and PAQ-MF scales indicate extreme masculine responses, while high scores on the PAQ-F scale indicates extreme feminine responses. Spence and Helmreich (1978) reported Cronbach's *alpha* values of .85, .82, and .78 for the M, F, and MF scales respectively. Further, Wilson and Cook (1984) reported *alphas* of .80 for both the PAQ-M and PAQ-F scales. This measure uses a semantic differential scale with bipolar items that assess whether participants adhere to socially established gender roles (e.g., not at all aggressive/very aggressive, very submissive/very dominant). In the present study, the PAQ-M scale had an *alpha* reliability of .75 ( $M = 3.71$ ,  $SD = .58$ ), the PAQ-MF had an *alpha* reliability of .65 ( $M = 2.93$ ,  $SD = .56$ ), and the PAQ-F had an *alpha* reliability of .80 ( $M = 3.94$ ,  $SD = .56$ ).

*Cognitive and emotional jealousy.* To measure the cognitive and emotional components of jealousy, Guerrero et al.'s (1993) version of Pfeiffer and Wong's (1989) Multidimensional Jealousy Scale (MJS) was used. This 16-item modified scale measures *cognitive jealousy* (8 items), and *emotional jealousy* (8 items). Further, it is reported that the cognitive subscale of the MJS breaks down into two factors, *suspicion of partner interest* ( $\alpha = .90$ ), and *worry over rival interest* ( $\alpha = .85$ ) (Guerrero et al., 1995). Items pertaining to cognitive jealousy include, for example, "I suspect that my partner is secretly seeing someone else" (suspicion of partner interest) and "I am worried that someone is trying to seduce my partner" (worry over rival interest). Items that measure emotional jealousy include, for example, "I feel envious when my partner comments on

how attractive someone else is,” and “I feel jealousy when my partner flirts with someone else.” These items are presented in Likert format and range from 1 (never) to 7 (all the time). This measure has reported Cronbach’s *alpha* reliabilities of .92, .89 and .82 for cognitive jealousy, and .91, .90, and .83 for emotional jealousy (Aylor & Dainton, 2001; Pfeiffer & Wong, 1987; Russell & Harton, 2005). Participants were asked to rank from 1 (never) to 7 (always) the extent to which they experience emotional and cognitive symptoms of jealousy experience. In the present study, Cronbach’s *alpha* for emotional jealousy was .86 ( $M = 3.27$ ,  $SD = 1.21$ ), .89 for cognitive jealousy (suspicion of partner interest) ( $M = 2.14$ ,  $SD = 1.22$ ), and .92 for cognitive jealousy (worry over rival interest) ( $M = 3.20$ ,  $SD = 1.70$ ).

*Social desirability.* Because many of the questionnaire items deal with issues that may elicit biased reporting, a shortened version of the Crowne and Marlowe (1964) Social Desirability Scale was used to determine the extent to which participants provide socially appropriate responses. This 5-item measure has been successfully used to gauge this trait (e.g., Guerrero et al., 1995). However, in the present study, this scale failed to achieve sufficient reliability (Cronbach’s  $\alpha = .51$ ), and thus was not used in any of the analyses.

#### *Outcome Variables*

*Disturbance by emotional and sexual infidelity.* In order to determine which participants are more distressed by, sexual or emotional infidelity, Buss et al.’s (1992) procedure that requires participants to choose between two different options was used. Participants were instructed to think of a committed romantic relationship that they have



had, currently have, or would like to have. Participants chose what they find more distressing, either “imagining your partner forming a deep emotional attachment to that person” (coded as “1” for analysis), or “imagining your partner enjoying passionate sexual intercourse with that other person” (coded as “2” for analysis).

*Physical aggression.* The physical aggression subscale of the Buss and Perry (1992) Aggression Questionnaire (AQ) was used to measure physical aggression. Buss and Perry designed the AQ as a way to improve the psychometric properties of the Buss and Durkee (1957) Hostility Inventory. The AQ is a 29-item self-report measure which, through factor analysis, has evidenced four clear factors with *alpha* coefficients ranging from .72 to .85. The *alpha* for the total score, .89, implies substantial internal consistency. Additionally, test-retest coefficients range from .72 to .85, establishing its reliability (Buss & Perry; Felsten & Hill, 1999). The four factors of aggression include *physical aggression* (9 items), *verbal aggression* (5 items), *anger* (7 items), and *hostility* (8 items). Items that measure physical aggression include, for example, “Given enough provocation, I may hit another person,” “If I have to resort to violence to protect my rights, I will,” and “I can think of no good reason for ever hitting a person.” Participants were asked to rank from 1(never) to 7(always) the extent to which they are likely to engage in physically aggressive behavior. Previous studies using this measure have reported *alpha* levels for the physical aggression subscale of .85 and .82 (Archer & Webb, 2006; Buss & Perry). In the present study, Cronbach’s *alpha* for the 9-item physical aggression subscale of the AQ was .84 ( $M = 2.80$ ,  $SD = 1.14$ ).

*Verbal aggression.* Verbal aggression was assessed with the short version of Infante and Wigley's (1986) Verbal Aggressiveness Scale (VAS). Though originally created as a 20-item unidimensional measure ( $\alpha = .81$ ), this revised 10-item unidimensional measure has shown to be both reliable and valid. The scale has 5 positively worded and 5 negatively worded items. *Alpha* coefficients for the 10-item measure have been reported to range from .74 to .86, (Infante, Chandler, & Rudd, 1989; Martin & Anderson, 1997; Rudd, Burant, & Beatty, 1994; Sabourin, Infante, & Rudd, 1993). Participants were asked to rank from 1 (almost never true) to 5 (almost always true) the extent to which one attacks the self-concept of another. The measure includes items such as, "When individuals are very stubborn, I use insults to soften the stubbornness," "When I attack persons' ideas, I try not to damage their self-concepts," and "When nothing seems to work in trying to influence others, I yell and scream in order to get some movement from them." In the present study, Cronbach's *alpha* for the short, 10-item Verbal Aggressiveness Scale was .78 ( $M = 2.27$ ,  $SD = .60$ ).

*Indirect/ social/relational aggression.* This form of aggression was assessed with the *indirect aggression* subscale of the Richardson Conflict Response Questionnaire (Richardson & Green, 2003). This scale is comprised of 10 statements which assess the extent to which individuals engage in varying forms of indirect aggression. Items on the subscale include, for example, "Made up stories to get them in trouble," "Told others not to associate with them," and "Destroyed or damaged something that belonged to them." Participants were asked to rank from 1 (never) to 5 (always) the extent to which they engage in socially aggressive behavior when upset with someone. Previous *alphas* for

the indirect aggression subscale range from .80 to .84, suggesting it has internal reliability (Richardson & Green). In the present study, Cronbach's *alpha* for the measure was .82 ( $M = 2.29$ ,  $SD = .63$ ).

*Aggressive communicative responses to jealousy.* To measure participants' behavioral responses to jealousy, a modified version of the Communicative Responses to Jealousy Scale (CRJ) was used (Guerrero et al., 1995). This continuous, ordinal 70-item measure asks participants to rank from 1 (never) to 7 (always) how often they have reacted to the feeling of jealousy in their current (or most recent) romantic relationship. Items on this scale include, for example, "when I was jealous, I tried to make my partner feel guilty," "when I was jealous, I cried or sulked in front of my partner," "when I was jealous, I became physically violent," "when I was jealous, I gave my partner the 'silent treatment'" and, "when I was jealous, I hit or threw objects." This measure is being used to examine different aggressive behavioral responses to romantic jealousy. The CRJ is an ideal measure to test for associations between attachment, aggression and romantic jealousy because many of the items on the CRJ appear to parallel varying forms of aggression (e.g., physical, verbal, relational, etc.). The CRJ was designed to measure six interactive responses to jealousy, and five general responses to jealousy. Previous *alphas* for the interactive responses include *active distancing* ( $\alpha = .83, .82, .85$ ), *negative affect expression* ( $\alpha = .82, .77, .78$ ), *integrative communication* ( $\alpha = .83, .86, .84$ ), *distributive communication* ( $\alpha = .83, .92, .84$ ), *avoidance/denial* ( $\alpha = .75, .80, .72$ ), and *violent communication/threats* ( $\alpha = .58, .90$ ). Previous *alphas* for the general responses to jealousy include *surveillance/restriction* ( $\alpha = .81, .89$ ), *compensatory restoration* ( $\alpha =$

.80, .87), *manipulation attempts* ( $\alpha = .73, .77$ ), *rival contacts* ( $\alpha = .78, .83$ ), and *violent behavior* ( $\alpha = .67, .65$ ) (Anderson, Eloy, Guerrero, & Spitzberg, 1995; Aylor & Dainton, 2001; Guerrero et al., 1995).

In the present study, only selected scales that parallel physically aggressive, verbally aggressive, socially aggressive, and secure (i.e., non-aggressive) behavioral responses to jealousy were used. Participants were asked to rank from 1 (never) to 7 (always) the extent to which they are likely to behave in a particular manner when jealous. Specifically, the scales measuring *manipulation attempts* ( $\alpha = .75$ ) ( $M = 2.64$ ,  $SD = 1.19$ ) and *active distancing* ( $\alpha = .87$ ) ( $M = 3.07$ ,  $SD = 1.28$ ) were used to gauge socially aggressive responses to jealousy. Because all items pertaining to *manipulation attempts* and *active distancing* were social in nature, the two subscales were combined for the purpose of this study to form a 10-item measure of socially aggressive responses to jealousy ( $\alpha = .88$ ) ( $M = 2.90$ ,  $SD = 1.13$ ). This 10-item measure was used in all analyses related to socially aggressive responses to jealousy. Physically aggressive responses to jealousy were measured using three of the *violent communication* items from the CRJ ( $\alpha = .84$ ) ( $M = 1.29$ ,  $SD = .78$ ), while verbally aggressive responses to jealousy were measured using five items designated to measure *distributive communication* on the CRJ ( $\alpha = .85$ ) ( $M = 2.80$ ,  $SD = 1.29$ ). Finally, secure (i.e., non-aggressive) responses to jealousy were assessed using five items originally designed to measure *integrative communication* on the CRJ ( $\alpha = .88$ ) ( $M = 4.22$ ,  $SD = 1.48$ ).

## CHAPTER III

### RESULTS

In order to determine whether attachment style was independent of sex (RQ<sub>1</sub>), a 2 X 4 chi-square test of independence was conducted to determine if the two nominal variables were associated. Results revealed that attachment and sex were not significantly associated, Pearson  $\chi^2(3, N = 284) = 7.71, ns$ , suggesting that there is no predictable relationship between sex and the attachment style to which one adheres.

To test RQ<sub>2</sub>, a multiple discriminant function analysis was used to determine whether measures of gender (i.e., PAQ-M, PAQ-MF, and PAQ-F) could classify participants into the four different attachment styles used in this study (i.e., fearful, preoccupied, dismissing, secure). This statistical approach provides a method for identifying significant predictors of categorical response variables. Specifically, discriminant analysis requires that an omnibus test utilizing Wilks' lambda confirm that the predictors perform better than chance at classifying differences among groups. Each predictor is examined to evaluate its contribution to the model in terms of whether the predictor is able to distinguish between groups. Discriminant functions that maximize differences between response groups are created and used to predict group classification.

In this analysis, the three gender measures (i.e., PAQ-M, PAQ-MF, and PAQ-F) were entered simultaneously and three discriminant functions were created. Although each function is independent of the other, generally the first function provides the most useful information in terms of classification. The first discriminant function significantly maximized differences between attachment styles. The overall Wilks' lambda was

significant,  $\Lambda = .81$ ,  $X^2(9, N = 284) = 58.69$ ,  $p < .01$ . The second discriminant function also maximized differences between attachment styles; Wilks' lambda was significant,  $\Lambda = .93$ ,  $X^2(4, N = 284) = 19.84$ ,  $p < .01$ . The third discriminant function did not achieve significance, Wilks' lambda,  $\Lambda = .99$ ,  $X^2(1, N = 284) = .28$ , *ns*.

The pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions were .80 for the PAQ-M and .79 for the PAQ-MF for the first discriminant function. For the PAQ-F, however, the correlation was .29, suggesting the first discriminant function is comprised primarily of the PAQ-M and PAQ-MF. For the second discriminant function, the pooled within-groups correlations between discriminating variables and standardized canonical discriminant function were -.08 for the PAQ-M and -.55 for the PAQ-MF. For the PAQ-F, the correlation was .95, suggesting the second discriminant function was comprised from the PAQ-F. When trying to label the functions, because the first function correlates highly with the PAQ-M and PAQ-MF, a "masculine" function is indicated. Further, the second function correlates most highly with the PAQ-F, while negatively correlating with the PAQ-M and PAQ-MF, indicating a "feminine" function.

It should be noted that Box's test for equality of covariance matrices was violated in this analysis, Box's  $M = 34.74$ ,  $F(18, 82246.30) = 1.88$ ,  $p < .05$ . When this test is violated, it may lessen the ability of the discriminant function to maximize predictability. As a result, accurate classification may be compromised. Despite this, Klecka (1980) notes that "discriminant analysis can be performed when the assumptions of multivariate

normal distributions and equal group covariance matrices are not satisfied" (p. 62). He elaborates by noting that:

For the researcher whose main interest is in a mathematical model which can predict well or serve as a reasonable description of the real world, the best guide is the percentage of correct classifications. If this percentage is high, the violation of assumptions was not very harmful...When the percentage of correct classifications is low, however, we cannot tell whether this is due to violating the assumptions or using weak discriminating variables" (Klecka, 1980, p. 62).

As a result, it is reasonable to question whether the violation of Box's M had an adverse effect on the classification performance of gender. The answer is contingent upon one's interpretation of exactly what qualifies as high and low. Despite this concern, there is no known transformation or correction procedure that can account for the violation of Box's M, thus the results indicate the most accurate estimation available.

In terms of predicted classification, estimation based on prior group size, not equal sizes across all groups, was used. This was done to account for large differences in the size of response groups (i.e.,  $n$  per group: fearful = 47; preoccupied = 37; dismissing = 60; and secure = 140). Consequently, when using this estimation approach, 51.8% of cases were correctly classified by attachment. If the "jackknife" or "leave one out" procedure is used, that figure is reduced to 50.4% of cross-validated grouped cases correctly classified.

An oneway ANOVA was run to determine if the endorsement of sex-role stereotypes differed by attachment style ( $H_1$ ). This hypothesis was not supported. Results demonstrated that the endorsement of sex-role stereotypes did not differ significantly by attachment style  $F(3, 280) = 1.23, ns$ .

Research questions three, four, and five asked which best predicted physical, verbal, and social aggression in adults; attachment, sex, or gender. To test this, variables were entered into a multiple linear regression. It should be noted that the PAQ-F was used as the proxy variable for the gender interactions run in the regressions. The PAQ-F was selected as the proxy because it was the most unique of the three PAQ scales used in analysis. Further, it had the best reliability of the three gender measures ( $\alpha = .80$ ). The PAQ-M and PAQ-MF were moderately positively correlated  $r(285) = .58, p < .01$ , two-tailed. In contrast, the PAQ-F and PAQ-MF were negatively correlated,  $r(285) = -.27, p < .01$ , two-tailed. Though the PAQ-F and PAQ-M are positively correlated,  $r(285) = .18, p < .01$ , two-tailed, it was not as highly correlated as the PAQ-M and PAQ-MF. Though some correlations among the three gender measures was evident, no correlations were above .80, thus multicollinearity was not an issue in these analyses. Additionally, three 2 X 2 chi-square tests of independence were run on each of the median-split gender variables and sex, to determine if sex was significantly associated with the PAQ-M, the PAQ-MF, or the PAQ-F. The PAQ-F, when median-split into high and low categories, did not manifest a significant chi-square value, suggesting that high/low scores on the PAQ-F scores are not contingent on sex,  $X^2(1, N = 285) = 3.11, ns$ . The PAQ-M and PAQ-MF, however, did manifest significant associations between sex and gender. Scores on the high/low PAQ-M were significantly associated with sex,  $X^2(1, N = 285) = 28.01, p < .001$ , Cramer's  $V = .31$ .

An examination of cells in the chi-square suggests that more men are high on masculinity than are low on masculinity, while more women are low on masculinity than



are high on masculinity. Similarly, scores on the high/low PAQ-MF were significantly associated with sex,  $X^2(1, N = 285) = 34.81, p < .001$ , Cramer's  $V = .35$ . This suggests that more men are high on masculinity-femininity than are low on masculinity-femininity, while more women are low on masculinity-femininity than are high on masculinity-femininity. These two significant findings suggest that high scores on both masculinity and masculinity-femininity are more typical of men than women, while low scores on masculinity and masculinity-femininity are more typical of women than men. Therefore, sex and gender overlap considerably on these dimensions.

Sex ( $B = -1.09, SE = .19, sr^2 = .09$ ) explained 9% of the variance in physical aggression (RQ<sub>3</sub>). Specifically, women were less physically aggressive than men. In addition, scores on the PAQ-MF scale were positively associated ( $B = .40, SE = .15, sr^2 = .02$ ) with physical aggression explaining 2% of the variance indicating that with increased masculine gender comes increased exhibition of physical aggression. For more detailed information on the predictors of physical aggression, see Appendix D, Table 1.

The PAQ-F scale ( $B = -.42, SE = .10, sr^2 = .06$ ) explained 6% of the variance in verbal aggression (RQ<sub>4</sub>) indicating that individuals who scored higher on the feminine gender measure exhibited less verbal aggression. In addition, sex ( $B = -.40, SE = .11, sr^2 = .04$ ) explained 4% of the variance in verbal aggression. Thus, women were less verbally aggressive than men. For more detailed information on the predictors of verbal aggression, see Appendix D, Table 2.

The PAQ-F ( $B = -.21, SE = .11, sr^2 = .01$ ) explained 1% of the variance in indirect/social/relational aggression (RQ<sub>5</sub>). Individuals who scored higher on the

feminine gender measure exhibited less indirect/social/relational aggression.

Furthermore, the interaction between the PAQ-F (which was median-split into high/low categories) and the fearful attachment style ( $B = -.43$ ,  $SE = .22$ ,  $sr^2 = .01$ ) explained 1% of the variance in indirect/social/relational aggression. Consequently, among individuals categorized in the fearful attachment style, higher scores on the feminine gender measure were associated with lower levels of indirect/social/relational aggression (See Figure 4). For more detailed results on the predictors of social aggression, see Appendix D, Table 3.

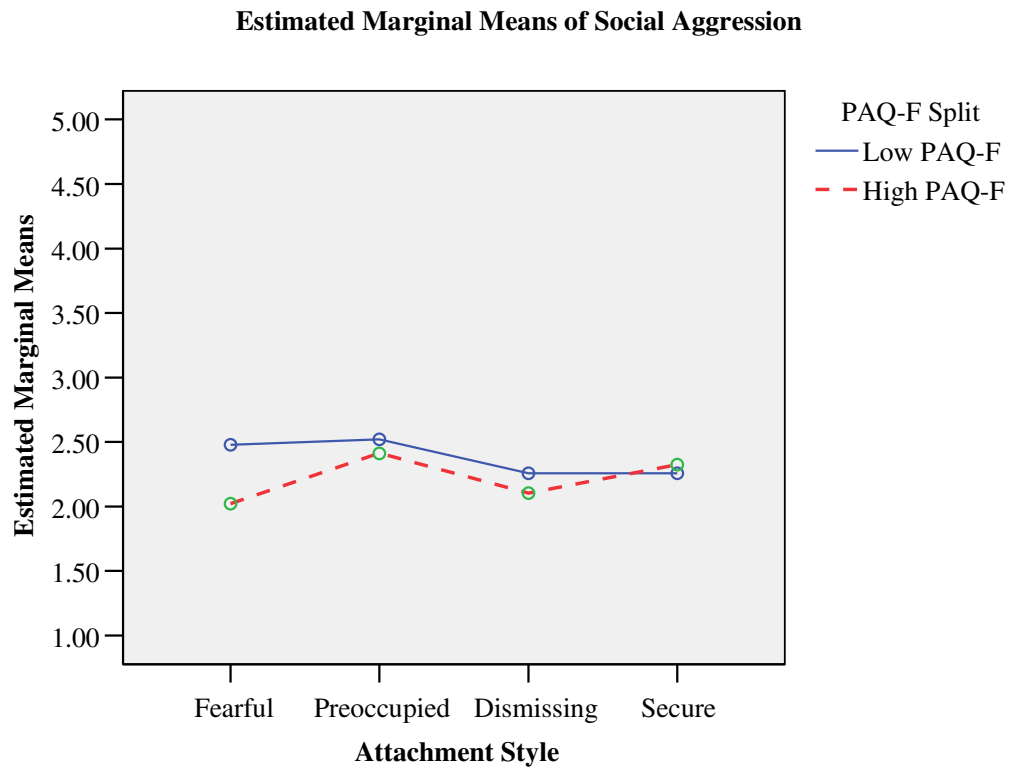


Figure 4. Fearful Attachment X PAQ-F Interaction for Social Aggression

Pearson correlations were conducted to determine whether sex-role stereotyping is positively associated with physical, verbal, and social aggression (H<sub>2</sub>). This hypothesis was partially supported. Significant relationships were revealed among sex-role stereotyping and physical aggression,  $r(285) = .32, p < .01$ , two-tailed and between sex-role stereotyping and verbal aggression  $r(285) = .27, p < .01$ , two-tailed. This indicates that as the propensity to adhere to sex-role stereotypes increases, physical and verbal aggression increase. The relationship between sex-role stereotyping and social aggression failed to achieve significance,  $r(285) = .09, ns$ .

To determine the possible moderating effects of sex and gender in the relationship between jealousy experience and aggressive communicative responses to jealousy (RQ<sub>6a</sub> & RQ<sub>6b</sub>), a multivariate mixed general linear model (GLM) was used. To test these research questions all variables were entered simultaneously into the GLM. The predictor variables were entered as follows: sex, emotional jealousy, cognitive jealousy (suspicion of partner interest), cognitive jealousy (worry over rival interest), the PAQ-M, the PAQ-F, and PAQ-MF. In addition, the following interactions were entered: emotional jealousy X PAQ-M, cognitive jealousy (suspicion of partner interest) X PAQ-M, cognitive jealousy (worry over rival interest) X PAQ-M, emotional jealousy X PAQ-F, cognitive jealousy (suspicion of partner interest) X PAQ-F, cognitive jealousy (worry over rival interest) X PAQ-F, emotional jealousy X PAQ-MF, cognitive jealousy (suspicion of partner interest) X PAQ-MF, and cognitive jealousy (worry over rival interest) X PAQ-MF, emotional jealousy X sex, cognitive jealousy (suspicion of partner interest) X sex, and cognitive jealousy (worry over rival interest) X sex.

A full factorial model was not used, but rather a custom model was utilized because the hypotheses did not call for the testing of all interactions. For example, the sex X gender interactions were not tested because they are considered to be controlled for in the model when testing for each. It would also calculate up to three-way interactions, which were not called for in this study. It should be noted that when creating each of these interactions, the PAQ-M, PAQ-F, and PAQ-MF were median split into high and low, with scores falling directly on the median being categorized as low on the measure. Individuals who were “low” on the gender measures were coded as “0” while individuals who scored “high” on the gender measures were coded as “1.”

The variables explicated above were tested to see if there was an impact on the different aggressive communicative responses to jealousy. The omnibus Wilks’  $\Lambda$  was used to determine if each predictor was significantly related to the dependent variables. Though several main effects were evidenced (see Appendix E, Table 4), none of the three median-split gender measures significantly moderated the relationship between the three jealousy experience factors when controlling for sex, nor did sex moderate when controlling for gender, when considering the four aggressive communicative responses to jealousy together in the multivariate model.

Univariate *F*-tests were run to further explicate the nature of the relationships between each of the significant predictors from the omnibus MANCOVA on the dependent variables of interest (see Appendix E, Tables 5, 6, 7, & 8). Regarding physically aggressive communicative responses to jealousy (i.e., physically aggressive CRJ), cognitive jealousy (suspicion of partner interest) was significantly related.

Although the parameter estimates indicate that the nature of the relationship between cognitive jealousy (suspicion of partner interest) is negatively associated with physically aggressive CRJ and the relationship is not significant, it is not clear if this is the case. Because the univariate *F*-test and the parameter estimates do not reinforce one another, the model is likely inaccurate. The PAQ-MF was also significantly related, such that higher scores on the PAQ-MF were associated with higher scores on physically aggressive CRJ. Additionally, the PAQ-F X emotional jealousy interaction was significant, suggesting that individuals who are high on the PAQ-F who also have high scores on emotional jealousy have lower scores on physically aggressive CRJ than those with low scores on the PAQ-F. Finally, the PAQ-F X cognitive jealousy (suspicion of partner interest) interaction was significant, such that individuals high on the PAQ-F who also have high scores on cognitive jealousy have lower scores on physical aggression than those with low scores on the PAQ-F (see Appendix E, Table 5).

For verbally aggressive communicative responses to jealousy (i.e., verbally aggressive CRJ), emotional jealousy was significant, suggesting that as scores on emotional jealousy increase, so too do verbally aggressive CRJ. Similarly, sex was significantly related to verbally aggressive CRJ such that men are higher than women (see Appendix E, Table 6).

Regarding socially aggressive responses to jealousy (i.e., socially aggressive CRJ), emotional jealousy was significantly related to socially aggressive CRJ, suggesting an increase in emotional jealousy leads to an increase in socially aggressive CRJ. Cognitive jealousy (suspicion of partner interest) was also significant, suggesting that as

cognitive jealousy (suspicion of partner interest) increases, so too do socially aggressive CRJ. Finally, sex was significantly related to social CRJ, such that men demonstrated more socially aggressive CRJ than women (see Appendix E, Table 7).

For secure, non-aggressive communicative responses to jealousy (i.e., secure CRJ), emotional jealousy was significantly related. Here too, the univariate *F*-test was significant, but the parameter estimates were not. The parameter estimates suggest that emotional jealousy is positively associated with non-aggressive CRJ. However, these results are subject to criticism because the parameter estimates do not reinforce the *F*-test. Cognitive jealousy (suspicion of partner interest) was significantly related, suggesting that as cognitive jealousy (suspicion of partner interest) increases, secure, non-aggressive CRJ decrease. Sex was also significantly associated, such that men were higher on secure CRJ than women. In addition, the PAQ-M was significantly associated, implying that as scores on the PAQ-M increase, so do scores on secure CRJ. Finally, the PAQ-MF was significant, suggesting that high scores on the PAQ-MF are negatively associated with scores on secure CRJ (see Appendix E, Table 8).

To test for a relationship between attachment style and the type of infidelity one is most disturbed by (RQ<sub>7</sub>), a chi-square test of independence was conducted to see if a relationship could be detected among the two variables. The test revealed a significant association between the two variables, Pearson  $\chi^2(3, N = 283) = 9.13, p < .05$ , Cramer's  $V = .18$ .

A series of follow-up 2 X 1 chi-square comparisons were run to determine where the difference between disturbance by sexual or emotional infidelity occurs within each

attachment style. There was no significant difference between disturbance by sexual vs. emotional infidelity among those with a fearful attachment style,  $X^2(1, n = 47) = .53, ns$ . Similarly, the difference for those with a dismissing attachment was also nonsignificant,  $X^2(1, n = 60) = .00, ns$ , as was the difference for those with a secure style,  $X^2(1, n = 139) = .35, ns$ . Individuals with a preoccupied attachment style, in contrast, were significantly more disturbed by emotional infidelity than sexual infidelity,  $X^2(1, n = 37) = 9.76, p < .01$ . With one exception, the sample as a whole, regardless of attachment style, did not show a significant difference in disturbance by emotional infidelity or sexual infidelity,  $X^2(1, n = 284) = 1.70, ns$ .

To test whether jealousy experience differs by attachment style ( $H_3$ ), all relevant variables were entered simultaneously into a multivariate GLM. In this case, a MANOVA model was utilized, accounting for the four classification variables and the three jealousy experience factors (i.e., emotional, cognitive jealousy (suspicion of partner interest), and cognitive jealousy (worry over rival interest)). The attachment dimensions served as predictors and were entered as follows: fearful, preoccupied, dismissing, secure.

The omnibus Wilks' lambda was used to determine if each predictor was significantly related to the dependent variables. The results indicated that attachment style was significantly related to cognitive and emotional jealousy, Wilks'  $\Lambda = .93, F(9, 676.73) = 2.30, p < .05, \eta^2 = .02$ . Univariate  $F$ -tests were then conducted to establish the nature of the specific relationships between attachment style and the three jealousy experience outcome variables (i.e., emotional, cognitive jealousy (suspicion of partner

interest), and cognitive jealousy (worry over rival interest)). Results indicated that attachment style was significantly related to emotional jealousy,  $F(3) = 7.27, p < .01, \eta^2 = .05$  and cognitive jealousy (suspicion of partner interest),  $F(3) = 3.87, p < .05, \eta^2 = .04$ . Attachment was not significantly related to cognitive jealousy (worry over rival interest). In this analysis, both cognitive jealousy (suspicion of partner interest) and cognitive jealousy (worry over rival interest) failed Levene's test of equality of error variances. For emotional jealousy, Levene's test revealed  $F(3, 280) = 1.14, ns$ . For cognitive jealousy (suspicion of partner interest),  $F(3, 280) = 2.63, p < .05$ , and for cognitive jealousy (worry over rival interest),  $F(3, 280) = 6.51, p < .01$ . Further, Box's test for equality of covariance matrices was violated in this analysis, Box's  $M = 40.49, F(18, 86246) = 2.19, p < .01$ .

Follow up Tukey HSD post hoc comparisons indicated that in terms of emotional jealousy, individuals with a fearful attachment style ( $M = 3.77, SD = 1.03$ ) had higher scores than individuals with a dismissing style ( $M = 3.13, SD = 1.16$ ) and secure style ( $M = 3.087, SD = 1.25$ ), providing partial support for  $H_3$ . The difference between dismissing and secure was not significant. In addition, follow up Tukey HSD post hoc comparisons indicated that in terms of cognitive jealousy (suspicion of partner interest), individuals with a fearful attachment style ( $M = 2.61, SD = 1.49$ ) had higher scores than those with a secure attachment style ( $M = 1.96, SD = 1.16$ ), providing additional support for  $H_3$ . There were no other significant differences.

To test whether aggressive communicative responses to jealousy differ by attachment style ( $H_4$ ), all relevant variables were entered simultaneously into a



multivariate GLM. A MANOVA model was utilized accounting for the four classification variables and the different aggressive communicative responses to jealousy (i.e., physical, verbal, social, and secure CRJ). The attachment dimensions served as predictors and were entered as follows: fearful, preoccupied, dismissing, secure.

The omnibus Wilks' lambda was used to determine if each predictor was significantly related to the dependent variables. The results indicated that attachment style was significantly related to aggressive communicative responses to jealousy, Wilks'  $\Lambda = .90$ ,  $F(12, 733.16) = 2.27$ ,  $p < .01$ ,  $\eta^2 = .03$ . Univariate  $F$ -tests were then conducted to establish the nature of the specific relationships between attachment style and the four communicative responses to jealousy (i.e., physical, verbal, social, and secure CRJ). Results indicated that attachment style was significantly related to socially aggressive communicative responses to jealousy,  $F(3) = 6.54$ ,  $p < .001$ ,  $\eta^2 = .07$  and verbally aggressive communicative responses to jealousy,  $F(3) = 3.65$ ,  $p < .05$ ,  $\eta^2 = .04$ . Attachment was not significantly related to either physically aggressive or secure communicative responses to jealousy. In this analysis, neither Levene's test of equality of error variances nor Box's test for equality of covariance matrices were violated.

Follow up Tukey HSD post hoc comparisons indicated that in terms of socially aggressive communicative responses to jealousy, individuals with a fearful attachment style ( $M = 3.48$ ,  $SD = 1.13$ ) had higher scores than those with a dismissing style ( $M = 2.81$ ,  $SD = 1.10$ ). Furthermore, individuals with a fearful style ( $M = 3.48$ ,  $SD = 1.13$ ) also had a higher score than those with a secure style ( $M = 2.70$ ,  $SD = 1.07$ ). These findings

provide partial support for H<sub>4</sub>. There were no other significant differences regarding socially aggressive communicative responses to jealousy.

Additional Tukey HSD post hoc comparisons indicated that individuals with a fearful attachment style ( $M = 3.31$ ,  $SD = 1.47$ ) had higher scores on verbally aggressive communicative responses to jealousy than those with a secure attachment style ( $M = 2.63$ ,  $SD = 1.26$ ). Additionally, fearful individuals ( $M = 3.31$ ,  $SD = 1.47$ ) scored higher on verbally aggressive communicative responses to jealousy than those with a dismissing style ( $M = 2.67$ ,  $SD = 1.17$ ). These finding also provide partial support for H<sub>4</sub>. There were no other significant differences regarding verbally aggressive communicative responses to jealousy.

To determine the possible moderating effects of sex and gender in the relationship between attachment and aggressive communicative responses to jealousy (RQ<sub>8a</sub> & RQ<sub>8b</sub>), a multivariate mixed general linear model (GLM) was used. To test these research questions all variables were entered simultaneously into the GLM. The predictor variables were entered as follows: attachment, sex, the PAQ-M, the PAQ-F, and PAQ-MF. In addition, the following interactions were entered: attachment X PAQ-M, attachment X PAQ-F, attachment X PAQ-MF, and attachment X sex. A full factorial was not used, but rather custom model was utilized because the hypotheses did not call for the testing of all interactions. It should be noted that when creating each of these interactions, the PAQ-M, PAQ-F, and PAQ-MF were median split into high and low, with scores falling directly on the median being categorized as low on the measure.

Individuals who were “low” on the gender measures were coded as “0” while those who scored “high” on the gender measures were coded as “1.”

The variables were tested to see if there was an impact on the different aggressive communicative responses to jealousy. The omnibus Wilks’  $\Lambda$  was used to determine if each predictor was significantly related to the dependent variables. The PAQ-M and PAQ-F were significantly related to the different aggressive communicative responses to jealousy.. All remaining predictors were nonsignificant, and there were no significant gender-related or sex-related interactions. Though many main effects were evidenced (see Appendix F, Table 9), none of the three median-split gender measures significantly moderated the relationship between attachment style when controlling for sex, nor did sex moderate when controlling for gender, when considering the four aggressive communicative responses to jealousy together in the multivariate model.

Univariate  $F$ -tests were run to further explicate the nature of the relationships between each of the significant predictors from the omnibus MANCOVA on the dependent variables of interest for  $RQ_{8a}$  (see Appendix F, Tables 10, 11, 12, & 13). Regarding physically aggressive communicative responses to jealousy (i.e., physically aggressive CRJ), the PAQ-F was significantly related, suggesting that lower scores on the PAQ-F were associated with higher scores on physically aggressive CRJ. The attachment X PAQ-F interaction was significant, but only for individuals with a secure attachment style. Individuals who were secure with low scores on the PAQ-F were higher in physically aggressive CRJ than secure individuals high on the PAQ-F (see Figure 5). For

more detailed information on the predictors of physically aggressive CRJ, see Appendix F, Table 10.

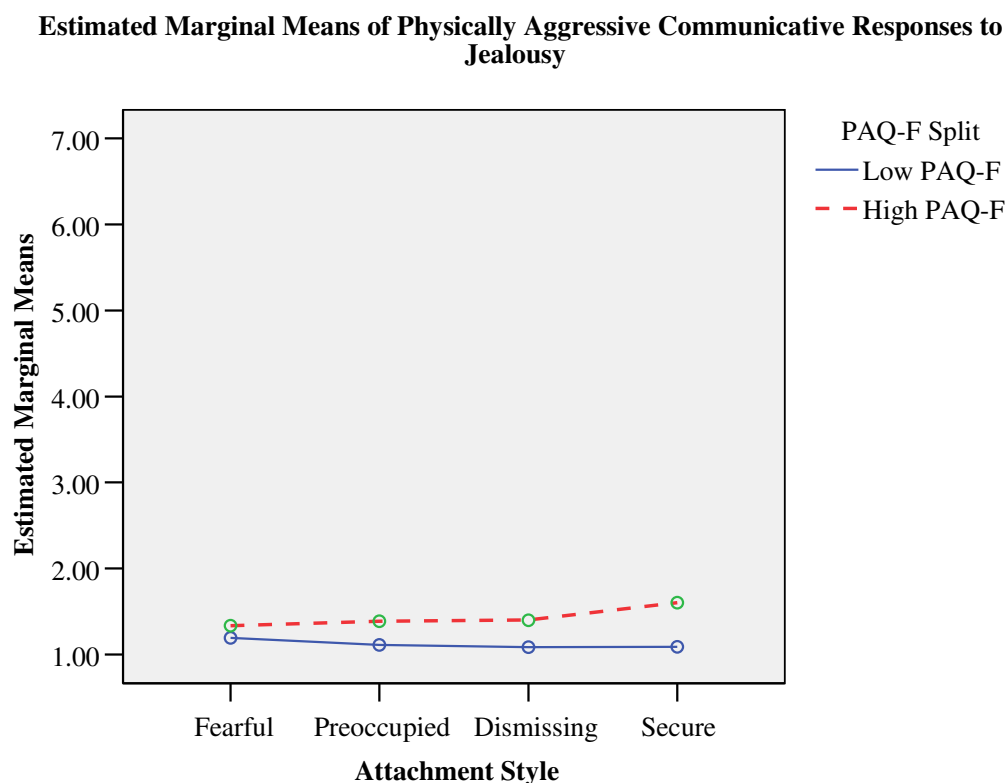


Figure 5. Secure Attachment X PAQ-F Interaction

None of the variables significantly related to verbally aggressive communicative responses to jealousy (i.e., verbally aggressive CRJ) in the univariate test (see Appendix F, Table 11).

Regarding socially aggressive responses to jealousy (i.e., socially aggressive CRJ), the PAQ-F was the only variable significantly related, suggesting that lower scores on the PAQ-F were associated with high scores on socially aggressive CRJ. For more

detailed information on the predictors of socially aggressive CRJ, see Appendix F, Table 12.

For secure, non-aggressive communicative responses to jealousy (i.e., secure CRJ), the PAQ-M was significantly related, such that high scores on the PAQ-M were positively associated with high scores on secure CRJ. The sex X attachment interaction was also significantly related, but only for individuals with a dismissing attachment style. This finding suggests that dismissing men are higher on secure CRJ than dismissing women (see Figure 6). For more detailed information on the predictors of secure (i.e., non-aggressive) CRJ, see Appendix F, Table 13.

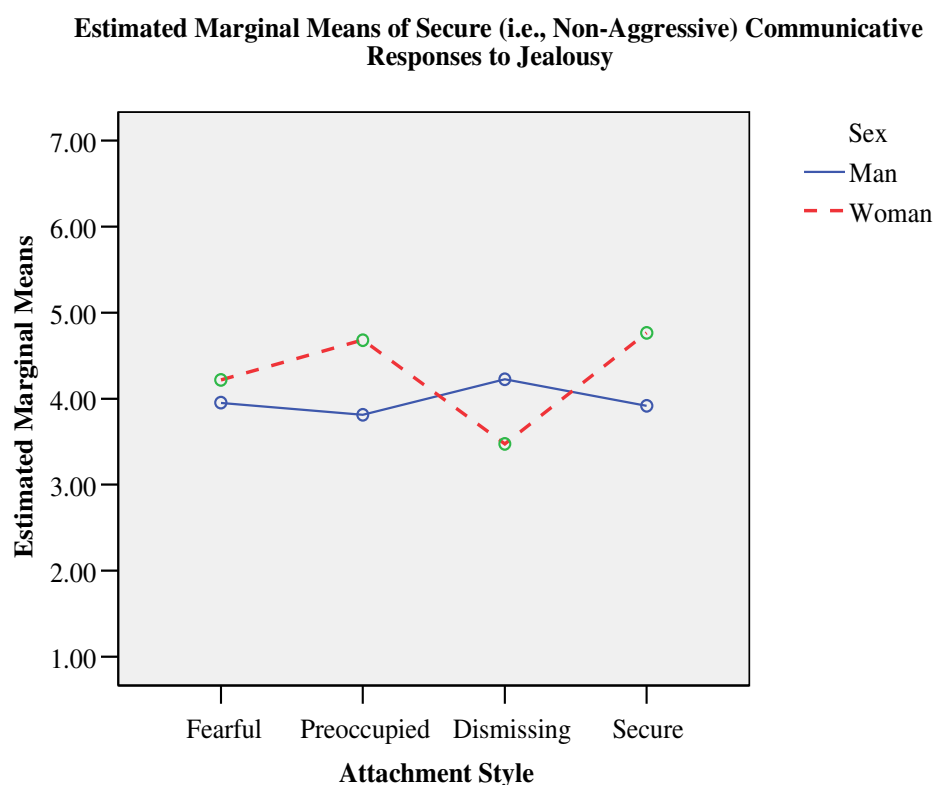


Figure 6. Sex X Dismissing Attachment Interaction for Secure (i.e., Non-Aggressive) Communicative Responses to Jealousy

In order to determine if the relationships among physical, verbal, social, and secure responses to jealousy are positively associated with physical, verbal, and social aggression (H<sub>5</sub>), Pearson correlations were conducted. Several significant correlations were revealed, supporting H<sub>5</sub> (see Table 14).

Table IV-1

Correlations among Physical, Verbal, Social, and Secure Communicative Responses to Jealousy and Physical, Verbal, and Social Aggression

	PCRJ	VCRJ	SCRJ	SECRJ	PAgg	VAgg	SAGg
PCRJ	--						
VCRJ	.37**	--					
SCRJ	.33**	.75**	--				
SECRJ	-.04	.19**	-.00	--			
PAgg	.21**	.14*	.11*	.01	--		
VAgg	.32**	.28**	.23**	-.17**	.35**	--	
SAGg	.32**	.38**	.33**	-.00	.21**	.39**	--

\* = correlation is significant at the  $p < .05$  level

\*\* = correlation is significant at the  $p < .01$  level

Table note:

PCRJ = physically aggressive communicative responses to jealousy

VCRJ = verbally aggressive communicative responses to jealousy

SCRJ = socially aggressive communicative responses to jealousy

SECRJ = secure (i.e., non-aggressive) communicative responses to jealousy

PAgg = physical aggression

VAgg = verbal aggression

SAGg = social aggression

## CHAPTER IV

### DISCUSSION

#### Contributions to Scholarship

The goal of this research was to attempt to establish sex and gender as theoretically distinct constructs, and to further understand how these variables relate to attachment, aggression, and romantic jealousy in adult romantic relationships. Specifically, biological sex, psychological gender, and attachment were examined as intervening variables in the relationship between jealousy experience and aggressive communicative responses to jealousy. Further, an attempt was made to determine the unique contributions of sex and gender in relationships among these variables.

#### *Sex, Gender, and Attachment*

Results derived from the first research question help frame the other research questions and hypotheses that guide this study. Attachment style was found not to be contingent on sex. Because sex differences were not evident in the four-category attachment classification measure used in this study, differences in attachment are not likely biological in nature. However gender differences in attachment were evident, which could partially support the argument that the way society socializes boys and girls from an early age impacts the development of respective attachment styles that endure through adulthood. However, the fact that sex did not correlate with attachment does not definitively imply that gender is the only operative mechanism in attachment. It is probable that other factors contribute to differences evidenced in attachment style. If attachment were a function of biological sex differences, it would be expected that an

uneven distribution of men and women in the four attachment categories would exist. However, findings from this study reveal that sex and attachment category were independent, perhaps providing some support for a social learning perspective (e.g., Bandura, 1977; Eagly, 1987) wherein socialization effects dominate both biological and evolutionary perspectives in explaining the differences between men and women. The nonsignificant relationship between sex and attachment becomes more interesting when considering it in light of the results from the second research question that helped to clarify just how, if at all, gender can be used to classify attachment dimensions.

The findings derived from the second research question might also support the idea that gender is a socially created psychological construct that, although influenced by sex, varies both within and between men and women (Allen, 1998; Canary & Emmers-Sommer, 1997). The discriminant analysis allowed for the examination of whether gender could be used to predict attachment. Gender emerged as a better than chance predictor of attachment style indicating that dimensions of masculinity and femininity are related to attachment style. Additionally, the first discriminant function was labeled a “masculinity” function because the PAQ-M and PAQ-MF loaded most strongly on that function. This finding suggests that masculinity is the best classification tool when categorizing attachment along gendered dimensions, followed by femininity, when using the PAQ measure. It should be noted, however, that the masculinity and femininity functions used to classify attachment only provided the ability to classify attachment slightly better than chance, suggesting that factors other than gender are operative in classifying attachment. Although this result indicates that the multiple discriminant



model performed better than chance in classifying attachment style by gender, the results are lackluster. However, because sex differences were not evidenced by attachment style, but gender differences were, the differences that exist are not likely biological in nature. However, the notion that gender, in coordination with other socially constructed variables, moderates the relationship between attachment and relational variables including aggression and jealousy seems viable.

#### *Sex, Gender, Attachment, and Aggression*

One of the primary objectives of this study was to try to distinguish between sex and gender as intervening variables in different types of aggression, and to understand the unique contributions of each. Further, attachment style was posited as another possible predictor of aggression that has been evidenced in existing literature. Sex and the PAQ-MF emerged as significant predictors of physical aggression. Men ( $M = 3.39$ ,  $SD = 1.01$ ) were significantly higher in physical aggression than women ( $M = 2.14$ ,  $SD = .89$ ) in this study,  $t(283) = 11.07$ ,  $p < .001$ , which supports previous findings that posit a main effect for sex on physical aggression, such that men are more physically aggressive than women (Crick et al., 1997; Feshbach, 1970; Giles & Heyman, 2005). This finding represents the biggest statistical impact out of all relationships examined in this study, but perhaps one of the least novel. Of the three types of aggression, physical aggression is the one that is most stereotypically associated with men. The fact that the PAQ-MF also predicted physical aggression is not surprising. Higher scores on the PAQ-MF imply higher scores on physical aggression. In this investigation, high scores on the PAQ-MF appear to measure the presence of extreme masculine stereotypes (e.g., very little need for security,

never cries), so it stands to reason that individuals high on these traits are also higher on physical aggression, which is a stereotypical masculine form of aggression. However, due to the poor reliability of the PAQ-MF in this study ( $\alpha = .65$ ), these findings should be cautiously interpreted. Though not clearly evident in these analyses, the PAQ-MF should measure traits that vary between the sexes in terms of social desirability (Spence, Helmreich, & Stapp, 1974). Overall, valid conclusions cannot be made from this measure in this study due to the low reliability of the scale.

As individuals age, they are less likely to engage in physical aggression, because social norms and established laws enforce negative consequences for physically aggressive behavior. So, if it is true that boys are naturally (i.e., biologically) more physically aggressive than girls, then it stands to reason that as they grow up, boys have to exercise greater control over their own physical aggression than do girls in order to adhere to socially established norms of society. Therefore, gender may be a stronger moderator in men than in women when examining physical aggression in adulthood. So, overall this finding implies that sex, which is biological, likely better predicts aggression but that gender, stereotypical masculinity in particular, also plays a role. This supports the notion that biological and social explanations may not be mutually exclusive, and that they should instead be examined in unison rather than separately (Simpson & Kenrick, 1997).

The fact that attachment, the PAQ-M, the PAQ-F, and none of the interactions in this test emerged as significant predictors of physical aggression is curious for several reasons. First, the PAQ-M and the PAQ-MF both measure traits that are socially

normative for men. So, the fact that the PAQ-MF predicted physical aggression, but the PAQ-M did not could be due to the fact that the PAQ-MF had poor reliability, and that in reality, neither the PAQ-M nor PAQ-MF are significant predictors of physical aggression. This might imply that a Type I error is to blame for the significant findings of the PAQ-MF. In addition, because the PAQ-F failed to predict physical aggression, it might be that gender overall is not a good predictor of physical aggression, particularly when compared to sex. The nonsignificant interactions in this analysis were not surprising because few of the main effects were significant, and it is rare to have a significant interaction when the main effects in that interaction are not significant on their own.

The PAQ-F emerged as a predictor of verbal aggression, as did sex. Individuals who scored higher on femininity were lower in verbal aggression than those low in femininity. When considering the traits that make someone stereotypically feminine (e.g., kind, warm in relations with others, gentle, etc.), it follows from theory that individuals who lack these traits (i.e., individuals low in femininity) would be higher in verbal aggression because verbal aggression presupposes that one is attempting to damage the self concept of another (Infante & Wigley, 1986). Intentionally derogating someone runs contrary to stereotypically feminine traits. The findings here suggest that gender influences the extent to which one is verbally aggressive. This could possibly mean that social learning is operative in verbal aggression. However, sex also emerged as a predictor of verbal aggression which could mean that biology influences verbal aggression as well. Further, gender might interact with other predictors of verbal

aggression, such as sex, to influence the verbally aggressive behaviors. In addition, men ( $M = 2.42$ ,  $SD = .60$ ) were more verbally aggressive than women ( $M = 2.11$ ,  $SD = .57$ ) in this study,  $t(283) = 4.43$ ,  $p < .001$ , which supports previous research that reported a main effect for sex, such that men are more verbally aggressive than women. This finding is not surprising in light of the fact that physical and verbal aggression tend to co-occur (Spitzberg, 2000), and men were also higher than women on physical aggression in this study.

In the analyses utilizing the three PAQ gender scales, it is surprising and somewhat contradictory that one of the gender measures (e.g., the PAQ-F) would demonstrate a significant impact on the dependent variable(s) of interest, and the other(s) would not. The way that the PAQ measures gender is by using items on a semantic differential scale (e.g., very submissive/very dominant). So, it seems intuitive to assume, for instance, that people high on femininity would be low on masculinity, and vice versa. If this were true, it would be expected that if one PAQ gender measure predicts the dependent variable, that the others would as well. This, however, does not appear to be the case. This confusing finding speaks to issues pertaining to the conceptualization and operationalization of gender as a distinct construct. It also implies that participants and researchers might have a different subjective understanding of gender, and as such, conclusions drawn from research using gender as an explanatory variable must be called into question. If a conceptualization of a variable cannot be agreed upon, then the resultant operationalization of that variable cannot adequately or validly measure that construct.

Finally, the PAQ-F predicted social aggression, as did the PAQ-F X attachment interaction. High scores on the PAQ-F were indicative of lower social aggression, which suggest that individuals who are more feminine are less socially aggressive than those who are low in femininity. This runs contrary to what theory would predict, which is that social aggression is a stereotypically feminine form of aggression, compared to both verbal and physical aggression. However, it could be equally plausible that those who are high in femininity are less aggressive overall than those who are low in femininity. Here, it is interesting to note that sex did not emerge as a significant predictor of social aggression, suggesting that social aggression not linked to biological sex. Much extant research exists, however, which supports the assertion that girls/women are more socially aggressive than boys/men (e.g., Crick et al., 1997; Feshbach, 1970; Loudin et al., 2003). This implies that sex and gender are in fact distinct constructs, and can be examined as separate variables. Further, it suggests that previous research has likely operationalized gender incorrectly, by dichotomizing it based on biological sex. This makes it even more complicated to disentangle the true nature of sex and gender differences. If sex and gender cannot be empirically separated, it is difficult to impossible to determine which theoretical perspective best explains them.

Despite the nonsignificant finding for sex in this particular multiple regression, women ( $M = 2.39$ ,  $SD = .61$ ) in this study did score higher on social aggression than men ( $M = 2.21$ ,  $SD = .59$ ), and significantly so,  $t(283) = -2.49$ ,  $p < .05$ . However, it appears that this sex difference is not attributable to one's level of femininity. One explanation for this finding could rest in the fact that those high in femininity are assumed to be

empathetic, as indicated by the item on the PAQ-F which assesses the extent to which one is “very aware of others’ feelings.” Empathy allows one to assume the role of the other, in effect putting him- or herself in the other’s position. As such, it would be expected that those high in empathy would be less socially aggressive because they are better able to understand how that aggression might negatively affect the other. This would support research by Loudin et al. (2003) which found that lower levels of empathetic concern, coupled with deficits in perspective taking skills are associated with relational forms of aggression.

In addition, for fearful individuals, those with higher scores on the PAQ-F were significantly lower in social aggression than fearful individuals with low scores on the PAQ-F. This interaction between attachment and gender is interesting, because it suggests that fearful individuals fundamentally differ in social aggression depending on their level of femininity. This implies that gender might impact unique attachment styles differently. This finding reinforces another finding from the hypothesis which predicted fearful individuals would differ from the other attachment styles such that they would be more physically, verbally, and socially aggressive in response to jealousy. Fearful individuals are higher than both secure and dismissing individuals on socially aggressive communicative responses to jealousy. Taken in combination with the finding that the PAQ-F predicts social aggression, it could be argued that gender interacts with attachment, and that interaction effect has consequences for relational outcomes pertaining to aggression and jealousy.

Social aggression is the only form of aggression that demonstrated any effect of attachment in this set of analyses. Attachment has been linked to both jealousy (e.g., Guerrero, 1998; White & Mullen, 1989) and aggression (e.g., Bookwala & Zdaniuk, 1998). Thus, it is surprising that only one attachment style finding emerged. Moreover, it is somewhat puzzling that attachment styles did not manifest as significant predictors of physical and/or verbal aggression, because these types of aggression have been examined more in the extant literature in terms of how they relate to attachment style. Theory would predict that because preoccupied individuals are obsessed with maintaining their romantic relationships, they would use social aggression as it is harder to detect. This, however, was not the case. Only femininity and the femininity X fearful interaction demonstrated an impact on social aggression.

Sex-role stereotyping was also predicted to be positively associated with different forms of aggression. Individuals high in physical aggression were more likely to endorse sex-role stereotypes than those low in physical aggression. The same was true for individuals high in verbal aggression. These findings suggest that aggression and endorsement of sex-role stereotypes are related. These findings are consistent with the tenets of social learning theory, which posit that aggression is learned through socialization from an early age. Individuals who adhere strongly to sex-role stereotypes use stereotypes as a model to direct behavior, as well as a guide to understand the behavior of others (Bem, 1981). It makes sense, then, that individuals who strongly endorse sex-role stereotypes would be more likely to engage in gender-stereotypical forms of aggressive behavior. Indeed, one of the items on Burt's (1980) Sex-Role

Stereotyping scale addresses a man “fighting” for his woman if she is insulted by another man. It also supports findings by Feeney and Noller (1996) which assert that the effect of attachment on relational outcomes are gender specific, and are likely moderated by gender role stereotypes.

The fact that social aggression did not positively correlate with sex-role stereotyping is somewhat puzzling. If social aggression is supposedly linked to sex, such that girls/women are more socially aggressive than men (e.g., Coyne et al., 2006; Crick & Grotpeter, 1995; Crick et al., 2006; Feshbach, 1970; Loudin, et al., 2003; Underwood et al., 2001), then it would be expected that those who more strongly endorse sex-role stereotypes would be higher on all forms of aggression associated with their sex. This, however, was not the case. It could be that social aggression is not yoked to sex, but rather is more a function of gender. It could also suggest that social aggression is perceived as a less stereotypical form of aggression than both physical and verbal aggression, and as such, does not correlate as strongly with sex-role stereotyping. The definition of social aggression is much broader than the definitions associated with physical and verbal aggression. Hence, social aggression may vary more within men and women, than between men and women.

#### *Sex, Gender, Jealousy and Aggression*

Understanding the unique impact of sex and gender in moderating the relationships between jealousy experience and the different types of aggressive responses to jealousy is helpful in piecing out the validity of varying theoretical perspectives that attempt to explain the relationships. Biological theories posit sex differences between



jealousy and aggression, while social learning theories argue that gender differences are learned, rather than innate. Though no moderating impact of sex and/or gender were evidenced in the multivariate model, some of the follow-up results in the between subjects effects and parameter estimates indicate that, in fact, gender may moderate the relationship between jealousy experience and aggressive CRJ to some extent. For instance, the relationship between emotional jealousy and physically aggressive CRJ is moderated by femininity, such that individuals with high emotional jealousy and high femininity have low scores on physically aggressive CRJ, whereas those with high emotional jealousy and low femininity have high scores on physically aggressive CRJ. Similarly, individuals with high scores on cognitive jealousy (suspicion of partner interest) and high femininity have low scores on physically aggressive CRJ, whereas those high in cognitive jealousy but low in femininity have higher scores of physically aggressive CRJ. These moderating effects of femininity imply that, although individuals low and high in femininity might experience jealousy in the same way, they manifest that jealousy differently when it comes to physically aggressive CRJ. These effects are significant while controlling for sex, suggesting that the extent to which someone is physically aggressive in response to feeling jealousy is dependent on gender. These findings somewhat align with Mosher's (1965) argument that men and women can experience arousal similarly, but label it differently. It could be that women label jealousy and respond to that labeling differently than men when it comes to physical aggressive CRJ because physical aggression is more socially acceptable for men to

exhibit than women, and more aligned with gender role stereotypes (e.g., Burt, 1980; Byers, 1996; Knapp & Vangelisti, 2005).

### *Attachment and Jealousy*

This study was the first, to the author's knowledge, to examine attachment style as it relates to jealousy that results from disturbance by sexual and emotional infidelity. Disturbance by emotional infidelity and disturbance by sexual infidelity have commonly been cited as activators of both physiological and psychological components of romantic jealousy (e.g., Buss et al., 1992; Cramer et al., 2001; DeSteno & Salovey, 1996; Ward & Voracek, 2004). Distress over emotional infidelity occurs when one either knows or believes that his/her partner is emotionally attached to, or in love with, another person (i.e., a rival). Distress over sexual infidelity, in contrast, occurs when one knows or believes that his/her partner has engaged in, or wants to engage in, sexual activity with another person (Guerrero et al., 2004). Previous research has reported a main effect for sex, such that women rate emotional infidelity as more severe, and men rank sexual infidelity as more severe. The evolutionary explanation for this rests on the assumption that emotional infidelity implies a loss of resources for women, and sexual infidelity implies paternity uncertainty in men (Buss, 2000). This implies that this difference between men and women is biological in nature. However, it is equally plausible that women have been gender-socialized to react more strongly to breaches to emotional fidelity, whereas men have been gender-socialized to react more strongly to breaches of sexual fidelity, which implies that this difference might not be biological at all. This argument would align more closely with traditional sexual scripts (Byers, 1996).

Investigating disturbance by sexual and emotional infidelity by attachment style is a valuable contribution to the existing body of research because one's attachment style is assumed to be indicative of how they will behave within the context of romantic relationships. Results from this study do indicate substantial differences between attachment styles regarding disturbance by sexual and emotional infidelity, particularly among those classified as preoccupied. Preoccupied individuals are significantly more disturbed by emotional than by sexual infidelity. This difference was not notable among fearful, dismissing, or securely attached individuals, suggesting that preoccupied individuals are unique in this regard. Individuals with a preoccupied attachment style lack self-confidence, but are high on characteristics including self-disclosure, crying, emotionality, care-giving, and reliance on others. Preoccupied individuals romanticize their partners, and tend to become exceedingly dependent relationships (Bartholomew & Horowitz, 1991).

This is particularly interesting in comparison to those with dismissing and fearful attachment styles. Individuals with a dismissing style tend to be self-confident, but do not demonstrate the warmth that the securely attached individuals do. Further, individuals with a dismissing attachment style are lower in intimacy, emotional expression, and self-disclosure. Dismissing individuals appear to place less emphasis on intimate relationships, and focus more on being independent. Fearfully attached individuals, in contrast, are low in intimacy, self-confidence, self-disclosure, and reliance on others. Fearful individuals also report being afraid of rejection, distrusting others, and being avoidant of intimate relationships (Bartholomew & Horowitz, 1991). The

characteristics of fearful and dismissing individuals indicate that they are less emotionally attached than those with a preoccupied attachment style. It stands to reason, then, that preoccupied individuals would place additional emphasis on emotional infidelity and would be more disturbed by emotional infidelity, as they are more emotionally attached. They have a positive view of others, but a negative view of the self, which often results in the idealization of the partner. This difference does not manifest in individuals with a fearful or dismissing style, because they do not value emotionality in relationships to begin with. Furthermore, both dismissing and fearful individuals have a negative view of others (Bartholomew & Horowitz). Thus, if dismissing or fearful individuals experience infidelity in the relationship their expectations are less violated than those with a preoccupied or secure style, which hold positive views of the other. This is particularly true for individuals with a preoccupied style, whose negative view of the self and positive view of the other can result in the most discrepant perception of reality when expectations, such as fidelity in romantic relationships, are violated. Research has shown that preoccupied individuals often try to control their partners. This control is rooted in the fear of rejection by the romantic partner. Individuals who are fearful, in contrast, are more passive in relational maintenance, and as such, do not exhibit the controlling mechanism that appears to be operative in preoccupied individuals (Bartholomew & Horowitz). This could imply that preoccupied individuals experience more self blame in light of a breach of fidelity in the relationship, and hence rate that breach more severely.

Results from this study support previous findings regarding the relationship between attachment and the experience of romantic jealousy, thus sustaining and further validating that which has been reported in the existing body of research (e.g., Guerrero, 1998). Both emotional jealousy and cognitive jealousy (suspicion of partner interest) evidenced differences by attachment style in this study. Specifically, individuals with a fearful attachment style experienced greater levels of emotional jealousy when compared to those with a dismissing or secure attachment style. Individuals with a fearful attachment style were also higher in cognitive jealousy (suspicion of partner interest) than those with a secure attachment style.

Attachment and jealousy share a primary component; the fear of separation from a valued other. Fearful individuals tend to have a negative view of the self that results from the perception that they are unworthy of love and acceptance. Feeling jealous implies that one has the perception or fear that a partner might stray from the primary relationship, which can lead to inflated feelings of worthlessness in those with a fearful attachment style. Fearful individuals base their sense of self on others, and as such, could interpret jealousy and breaches to fidelity as face threatening. Individuals who have negative models of the self are known to experience more cognitive jealousy than those with positive models of the self (Guerrero, 1998). In addition, fearful individuals tend to hold a negative view of others, believing that other people are generally unavailable and untrustworthy. Perceiving the self as unworthy and the other as untrustworthy could prove a volatile combination for the fearful individual within the context of a romantic

relationship, specifically in terms of jealousy experience and expression (Bartholomew & Horowitz, 1991).

In comparison, securely attached individuals report more self-confidence and warmth in their valued relationships than fearful and dismissing individuals (Bartholomew & Horowitz, 1991). This self-confidence likely serves a protective function against the deleterious effects of jealousy experience. Further, securely attached individuals report greater trust of their relational partners. This relational trust manifests in reduced levels of jealousy experience when compared with fearful individuals.

Dismissing individuals, on the other hand, are self-confident, but are not as warm in their interpersonal relationships as are secure individuals. Dismissing individuals are typically lower in both emotional expression and intimacy. Further, dismissing individuals focus less on interpersonal relationships, and more on independence; therefore, they do not value interpersonal relationships as much as fearful individuals do to begin with. Though both fearful and dismissing individuals are highly avoidant, the dismissing individual appears to be so by choice. The fearful individual, in contrast, appears to want intimate relationships, but seems relegated to avoidance based on the fear of rejection. The dismissing individuals' positive view of the self and the fearful individuals' negative view of the self can likely explain differences between these attachment styles regarding jealousy experience.

Significant differences also emerged among attachment styles in aggressive communicative responses to jealousy (CRJ). These findings are consistent with the results pertaining to attachment differences in jealousy experience discussed above.

Interestingly, fearful individuals also differed from both secure and dismissing individuals in their aggressive CRJ. Specifically, individuals with a fearful attachment style were higher on social aggression than both dismissing and secure individuals. Fearful individuals were also higher on verbal aggression than either dismissing or secure individuals. Findings in this study support previous research by Guerrero (1998) which found that individuals who have negative models of the self (which fearful individuals do) also have greater levels of cognitive jealousy compared to those with positive models of the self. Emotional and cognitive jealousy are positively associated with aggressive communicative responses to jealousy, and individuals with a fearful attachment style were the highest of the four attachment styles on emotional jealousy, cognitive jealousy (suspicion of partner interest) and cognitive jealousy (worry over rival interest)

#### *Sex, Gender, Attachment, and Jealousy*

Understanding the unique impact of sex and gender in moderating the relationship between attachment and the different types of aggressive responses to jealousy is helpful in piecing out the validity of varying theoretical perspectives that attempt to explain the relationships. Though no moderating impact of sex and/or gender were evidenced in the multivariate model, some of the follow-up results in the between subjects effects and parameter estimates indicate that, in fact, sex and gender may moderate the relationship between jealousy experience and aggressive CRJ somewhat. For example, for individuals with a secure attachments style, those with low femininity were higher on physically aggressive CRJ than those with high femininity, who were low on physically aggressive CRJ. Sex also emerged as a moderator between attachment and secure (i.e.,

non-aggressive) CRJ for individuals with a dismissing attachment style. Specifically, dismissing men were higher on secure CRJ than dismissing women, who are lower on secure CRJ. The moderating effect of femininity on secure attachment and physically aggressive CRJ suggest that individuals who are characteristically feminine are less physically aggressive in response to jealousy than those who are not characteristically feminine. This effect is significant while controlling for sex, suggesting that the extent to which secure individuals are physically aggressive is dependent on gender. The moderating effect of sex on the relationship between dismissing attachment and non-aggressive CRJ implies dismissing women are lower in non-aggressive responses to jealousy than are dismissing men. This effect is significant when controlling from gender, suggesting that the extent to which dismissing individuals are non-aggressive in response to jealousy is dependent on sex.

#### *Aggression and Jealousy*

Because the items that were used to measure physical, verbal, social, and secure communicative responses to jealousy (CRJ) in this study were not originally intended by Guerrero et al. (1995) to specifically measure “aggressive” responses to jealousy, correlations were run with pure measures of physical, verbal, and social aggression in order to help verify that the physical, verbal, social, and secure CRJ were operationalized correctly. Results from this analysis suggest that physical aggression is correlated with physical CRJ, Social aggression is positively correlated with social CRJ, and verbal aggression is positively correlated to verbal CRJ. Even more interesting is that physical, verbal, nor social aggression was positively correlated with secure CRJ. In fact, verbal



aggression was significantly negatively correlated with secure CRJ. This makes theoretical sense in light of the fact that the items used to measure secure communicative responses to jealousy were largely rooted in behaviors such as talking it out with the partner through explaining, sharing, and discussing jealous feelings calmly with the partner to reach an understanding of the jealousy-invoking situation. These constructive, non-aggressive communicative behaviors run contrary to the primary tenet of verbal aggression, which asserts that individuals who are verbally aggressive attempt to make others feel badly about themselves by attacking their self-concept, and negatively affecting them psychologically by putting them down.

#### Limitations of the Current Study

One limitation of the current research is that data were collected from a relatively homogenous sample of participants, who were similar in age, ethnicity, sexual preference, and relationship status. This limits the generalizability of the results to populations other than the one from which the sample was drawn. Because there was little variance among the sample, questions regarding the role of age, ethnicity, sexual preference, and relationship status could not be adequately addressed in this study.

The sample was similar in that most of the participants ranged in age from 18-24, were primarily upper-division communication majors, and, because most have had a research methods course, could have made assumptions about what the study was trying to test, hence providing answers they believed to be germane to the researcher's goals. This could be particularly supported by the poor reliability ( $\alpha = .51$ ) of the social desirability scales used in this study. To its detriment, most research in the social

sciences is obtained from samples from college populations. It is important, though, to consider whether college students differ from other populations in ways that would affect the variables of interest. Regarding biological sex differences, it is possible to generalize results to non-college populations to the extent that there is little genetic variation between populations. Thus, if differences are proposed to be biological in nature, then findings can likely be generalized outside of college samples. However, gender differences among men and women may vary considerably from college populations to non-college populations, as college populations are qualitatively different from non-college populations (Allen, 1998).

The procedure used in this study might also limit the validity and generalizability of the results. Because the survey was available online, and could be completed anywhere, it was difficult to ensure quality control over the method used. For example, because a referral procedure was used to gain access to male participants, and because extra credit was being offered, it is possible that participants might have misrepresented themselves simply to get the credit without having to expend the effort needed to actually refer a man to the study. In addition, because there were issues of aggression and romantic jealousy in the survey, participants might have been motivated to give socially desirable answers so as not to appear inconsistent with social norms and expectations.

The scales that were used to measure gender in this study, specifically the PAQ-M and PAQ-MF (Spence, Helmreich, & Stapp, 1973, 1974), were significantly associated with sex, suggesting that sex and gender are largely confounded. The PAQ-F was the only gender-related variable that did not significantly associate with sex, suggesting that

high scores on the PAQ-F are not indicative of whether one is a man or a woman. To the extent that sex and gender overlap, it becomes difficult to partial out the effect of each. Thus, determining which theoretical perspective best explains differences between men and women is challenging.

This study is also limited by the operationalization of attachment that was used. Participants were required to classify themselves into one distinct attachment style by reading four short sentences; one describing each attachment style. The validity of this measure rests on the assumption that participants are accurately able to classify themselves along this dimension. Other attachment classification measures exist that use methods other than self-report to gauge attachment (see Jacobvitz, Curran, & Moller, 2002). For example, the Adult Attachment Interview (AAI) (George, Kaplan, & Main, 1996) relies on narrative interview methods in order to classify attachment. This multidimensional measure of attachment could have better convergent validity than a one-item classification system. Additionally, some research suggests that the Bartholomew and Horowitz (1991) four-category model can be reduced to a two-factor model which assesses dimensions of avoidance and anxiety (Brennan, Clark, & Shaver, 1998). Another criticism here has to do with the validity of the parallel nature between attachment in relationships with primary caregivers during infancy, and attachment as it pertains to adult romantic relationships. Different methodologies can result in systematically different classifications for the same individual. These differences suggest that research utilizing differing methodologies might not, in fact, be comparing the same thing, as has often been assumed (Jacobvitz et al.).

Another limitation of the study was that some of the scales used had reliabilities under .70 (e.g., sex-role stereotyping, PAQ-MF, social desirability). Therefore, results from hypotheses derived from these scales must be considered with caution. The social desirability measure had such poor reliability ( $\alpha = .51$ ), that it could not be used in analyses. The ability to control for socially desirable responses would be useful in interpreting the relationships among aggression and jealousy. Aggression is not a socially desirable trait, and as such, participants might be motivated to underreport it so as to appear consistent with established societal norms. For instance, despite the notion that social aggression is a more stereotypically feminine form of aggression, those high on femininity were lower in social aggression than those low on femininity. Though highly feminine individuals may be less aggressive overall, they also might be more likely to give socially desirable answers to appear consistent with gender norms and expectations. The ability to gauge participants' propensity to provide socially desirable answers would have allowed for a clearer determination of the impact of gender on aggression and romantic jealousy.

Additionally, the way that aggressive communicative responses to jealousy were operationalized in this study is open to criticism. Though physical, verbal, and social aggression were highly, positively correlated with physical, verbal, and social communicative responses to jealousy respectively, these variables were by no means perfectly correlated. This suggests that although the constructs likely share several common features, they also differ on certain dimensions.

A final limitation of the study was the model used to test the moderating effects of sex and gender. The models used in RQ<sub>6a</sub> and RQ<sub>6b</sub> and RQ<sub>8a</sub> and RQ<sub>8b</sub>, although specified, were likely too cluttered to result in easily interpretable results. There were close to twenty predictors entered in the respective models when considering the independent predictors in addition to the interaction terms posited in the research questions. This was due to the fact that many of the predictor variables had multiple levels, creating a myriad of possible combinations. The results from the GLM failed to evidence moderating effects of sex or gender, however, some of the subsequent univariate *F*-tests did suggest significant interactions. Additionally, despite the fact that some of the interactions in the univariate *F*-tests were significant, the parameter estimates were not significant, likely because of number of variables entered in the model in the first place. Though power was sufficient to detect significant effect sizes in the multivariate models in this study, power diminished in predicting univariate effect. Increasing power by increasing sample size and reducing the number of possible predictors would help identify the true impact of variables that do influence aggression and romantic jealousy.

These statistical issues could be addressed by entering the data into a structural equation model (SEM) wherein the predictor variables with multiple levels could form a latent variable to represent the variable of interest. For instance, SEM would allow for the combining of scores on the PAQ-M, PAQ-MF, and PAQ-F in order to create a single gender variable. This would also be true for the jealousy experience predictor, which is composed of emotional jealousy, cognitive jealousy (suspicion of partner interest), and

cognitive jealousy (worry over rival interest). However, to test moderator effects in SEM, a much larger sample size would be required than was available in the current study.

### Directions for Future Research

Future research should examine the distinctive roles of sex and gender as moderating factors in aggression- and jealousy-related research pertaining to variables including age, ethnicity, sexual preference, and relationship status because they too have competing explanations based in biology, evolution, and socialization. Of particular interest here would be looking at the role of sex, gender, and sexual preference as they pertain to attachment, aggression, and jealousy. Some research exists in the domain of romantic jealousy in homosexual romantic relationships, and it is helping to disentangle the biological, evolutionary, and social components of jealousy. From this perspective, homosexuals should not experience sexual jealousy, because paternity certainty is not an issue. However, research has reported jealousy over sexual and emotional infidelity in this population (e.g., Dijkstra, Groothof, & Poel, 2001). Dijkstra et al. reported that gay men are more likely than lesbian women to report emotional infidelity by their mate as most upsetting. Lesbian women, on the other hand, reported sexual infidelity by a mate to be most upsetting, more than gay men did. This suggests that homosexuals are similar to their heterosexual opposite-sex counterparts regarding reactions to the threat of sexual and emotional infidelity. Further, they reported that the effect of sex on infidelity choice was mediated by the perception that sexual and emotional infidelity co-occur. Here, the evolutionary perspective falls short in explaining sex differences in jealousy. However,

examining the role of psychological gender in this relationship would contribute to what is known about the role of sexual preference as it pertains to aggression and jealousy in romantic relationships. Aforementioned findings on gay and lesbian responses to jealousy appear to align with those of their heterosexual counterparts—that gay men appear to parallel the feminine gendered response and lesbian women appear to mirror the masculine gendered response.

Questions still remain as to whether the attachment style developed in infancy is stable across the lifespan. Future research should aim to clarify whether the attachment mechanism that develops in infancy remains operative throughout adulthood. Furthermore, studies should examine whether the attachment style developed with primary. Additionally, more studies need to be run to determine if systematic differences can be found in attachment classification when using varying methodologies. Research findings are only as good as the instruments used in measurement. If differences between classification systems result in ambiguous categorization of attachment, validity of the findings derived based on group categorization must be questioned.

Future studies should aim to develop both reliable and valid measures specifically designed to assess different types of aggressive behavioral manifestations of romantic jealousy. Romantic jealousy has received much more attention as an intrapersonal phenomenon than in interpersonal one. Understanding how romantic jealousy is communicated to a relational partner through both overt and covert behavior will enhance what is known about the roles of sex and gender within the context of romantic relationships. To that end, measures designed specifically to assess how behaviors that

manifest as a result of jealousy parallel different forms of aggression would be beneficial in explaining the nature of the relationship between jealousy and aggression and would. Furthermore, it would enhance the current understanding of how attachment, sex, and gender influence this relationship.

Future research should aim to further distinguish sex from gender, by focusing more specifically on variation within the sexes. Looking at whether women who are high in femininity differ from women who are low in femininity, for example, could prove useful in establishing the unique impact of gender socialization and the role of social learning above and beyond what is known based on sex alone. Furthermore, knowing if gender has a different impact for men than it does for women, for instance, would imply that the moderating effects of gender are stronger for one sex than for the other. To that end, further research is necessary to determine how the endorsement of sex-role stereotypes relates to aggression and romantic jealousy. Because physical, verbal, and social aggression have been discussed in terms of sex and gender, it stands to reason that those who are more stereotypically masculine or feminine should manifest gender-normative behavior consistent with sex-role stereotypes. Though an impact for sex-role stereotyping was evidence in this study for both physical and verbal aggression, no impact of gender on social aggression was evident. No hypotheses were tested in this study related to sex-role stereotyping and jealousy. However, if differences in physical and verbal aggression manifest as a function of adherence to sex-role stereotype endorsement, it makes sense to argue that sex-role stereotype endorsement would also influence the expression of jealousy in romantic relationships. Future researchers should



use a variety of established gender measures to determine which specific components of gender are relevant in moderating relationships among attachment, aggression, and jealousy. If differences manifest between different measurements of gender, then new measures should be sought.

An improvement could also be made toward more validly conceptualizing and operationalizing gender by sampling from more diverse populations. Diverse populations would allow researchers to clarify which differences are found across populations, and which are population-specific. This would help researchers piece out variability accounted for by sex, and by gender. To that end, future research should seek to ensure greater quality control. The online survey used in this study did not provide the researcher with the ability to verify that the people filling out the survey were actually who they said they were. Perhaps posting the survey to existing websites, or asking for identifiable information in order to verify participation could circumvent issues related to inaccurate and dishonest responses. However, collecting identifiable information would also compromise anonymity and confidentiality, which are typically encouraged for human subjects review board approval.

When determining whether differences between men and women truly exist, it is necessary to first establish that variables are being conceptualized and operationalized correctly, and that statistical results are being interpreted in the right way. The problem is not a lack significant findings in sex and gender research, the problem is that there are few to no viable theoretical frameworks through which to explicate these findings, nor are there adequate instruments to measure the basis for existing differences (Allen, 1998).

This piece supports the notion that gender is difficult to operationalize. If gender cannot be validly and reliably measured, researchers need to reevaluate whether it is useful to examine in social research. Scholars will continue to struggle to disentangle the overlap between sex and gender. Sex and gender do broadly correlate, such that women tend to be more feminine and men tend to be more masculine (Bem, 1974). Because society tends to reinforce biological differences through gendered expectations, it is difficult to identify unique variance accounted for by sex and gender separately. Because of this, it is difficult to establish whether the two are truly conceptually distinct concepts as commonly assumed. Further, though sex is a fixed variable, gender is a fluid, ever-evolving variable whose conceptualization must struggle to stay current to encompass all the qualities that people use to categorize themselves along gendered lines. In a time when people struggle to find dimensions along which they can positively differentiate themselves, they continually create and recreate reality to better fit their experiences.

Furthermore, society is becoming more accepting of different gender identities. Attitudes that may have been repressed for social desirability reasons might increase in frequency of reporting, which will ultimately result in a clearer understanding of the dynamic nature of gendered identities. Researchers will likely struggle to keep instruments of gender current and valid. Operationalization of gender, in this regard, will be hindered not only by researchers' abilities to produce quality work in a timely manner, but also by the time gap that often accompanies a change in phenomenon and the subsequent observation of that change. In other words, it is possible that by the time an instrument is designed to measure a particular shift, the phenomenon may have already

shifted again, making it difficult to establish validity. Thus, a phenomenon that should be granted sufficient thought in terms of theoretical development will likely continue to suffer from hurried attempts at explaining sex and gender differences by examining, post hoc, where differences manifest, and trying to extrapolate theory from research rather than predicting differences based on theory as the rules of scientific inquiry dictate.

Additionally, the inability to come to a generally agreed upon conceptualization of gender inhibits development of theory because the primary theoretical construct (i.e., gender) will vary across time and context. The subjective nature of gender as a concept implies that it may mean different things to different people. This further challenges researchers to design measures that can be generalized from samples to larger populations. To that end, researchers might be well served to utilize both quantitative and qualitative assessments of gender in an attempt to establish construct validity. Having an understanding of gender at the individual, in addition to the group level, will aid in understanding gender as a product of culture that can be empirically separated from biological sex.

The PAQ (Spence, Helmreich, & Stapp, 1973, 1974) is not the first gender measure to manifest unreliable results. The Bem Sex-Role Inventory (BSRI) (Bem, 1974) is also subject to much criticism, suggesting existing gender measures are insufficient in determining differences in gender. It is unclear what scales like the PAQ and the BSRI actually measure. Some believe they are merely measures of instrumentality and expressiveness, which do not necessarily translate to masculinity/femininity. Bem, however, argues that instrumentality and expressiveness

are merely aspects measured by the BSRI, but that the instrument goes beyond those components to measure masculinity and femininity as well as one's likelihood of interpreting the world in terms of gender (Hoffman & Borders, 2001). The conceptualization and operationalization of the key tenets masculinity and femininity are unclear, and tend to vary across studies. One factor that complicates this issue further is a cultural shift in perceptions that has occurred regarding masculine and feminine attributes. In the 1970s, when the measures were created, participants likely viewed gender through a very different lens than the one through which it is viewed today.

This evidence above implies that the classification system used in gender measures like the PAQ (Spence, Helmreich, & Stapp, 1973, 1974) and BSRI (Bem, 1974) might be outdated, as the terms used on the femininity scales may no longer be evaluated as feminine, and terms used on the masculinity scales may not longer be evaluated as masculine. This compromises the validity of the items that comprise gender measures. A change in the underlying assumptions upon which existing gender measures were constructed may lead to the breakdown of theoretical frameworks that have been developed using the measures. Realizing that masculinity and femininity are not dichotomous categories wears away the validity of research findings that conceptualize them as such. Until social researchers gain clarification of exactly what the scales like the PAQ and BSRI measure, construct validity issues that surround the measures cannot be resolved.

Nevertheless, the PAQ (Spence, Helmreich, & Stapp, 1973, 1974) and BSRI (Bem, 1974) are among the most widely used instruments of masculinity and femininity

to date, and as such, have earned their place in history as benchmarks against which other similar measures will be judged. The criticisms of gender measures will serve the greater good, in that the heuristic value generated among scholars and practitioners alike will work to move the study of sex and gender forward. Theorists must acknowledge that commonly held perspectives can falter if the assumptions upon which those perspectives are built change, or are proven false. Researchers must recognize the potential for change, and must build that potential into their theoretical frameworks by allowing the falsifiability of primary tenets. To that end, researchers should come to realize that they must be cautious and responsible in the measures they construct and publish. If, for whatever reason, researchers continue to use questionable measures to operationalize concepts, they potentially perpetuate false truth. Only through testing and evaluating previously existing knowledge can new knowledge be discovered in the pursuit of reality as it truly exists.

One statistical issue that might affect how sex and gender differences are interpreted in social research has to do with understanding the normal curve. In the normal curve, the majority of the scores cluster around the middle of the distribution. The normal curve is symmetrical, with half of the scores falling above the mean, and half of the scores falling below the mean. Outliers, or extreme scores that deviate from the norm, tend to fall toward the outer tails of the distribution. Outliers are assumed to occur infrequently. These outliers, in effect, could help to explain stereotypes, as stereotypes tend to represent an extreme value on a trait ascribed to all members of a group. Differences between men and women become more extreme when moving from the

middle of the distribution to the tails of the distribution. Though people tend to focus on outliers, it is a statistical fallacy to assume that they apply to an individual in the population. This is because any participant in a sample would have a predicted value equal to mean of that distribution. By definition, extreme scores deviate from the mean, and thus cannot be used to predict normative traits. The tendency to revert to stereotypes stems from failure to recognize the vast differences that exist at the individual level.

When testing for statistical significance between groups, ANOVA-like procedures designed to assess variance determine whether the curve associated with a treatment is from the same distribution as the theoretical normal distribution associated with the null hypothesis. A significant result indicates that the curves yield from different distribution, while a nonsignificant result precludes researchers from concluding the curves are from different distribution (Allen, 1998). When debating the validity of sex and gender differences in communication, one must consider whether these differences are simply an artifact of measurement. One key standard that is often used to establish differences between the sexes/genders is the concept of statistical significance. However, statistical significance becomes easier to achieve as sample sizes increase, leading to an increase in power to reject the null hypothesis despite a seemingly small mean difference. Other criteria including the amount of variance in behavior that can be attributed to sex, as well as effect sizes need to be examined in relation to sex/gender differences. Effect sizes are particularly useful because they can be used to explain the results of a single study, or they can be used in meta-analyses, which combine the effect sizes across studies to report

an overall effect size of a given phenomenon (Aries, 1998; Vogel, et al., 2003; Wood & Dindia, 1998).

In summary, the findings from this study suggest that all three antecedents (i.e., attachment, sex, and gender), affected aggressive communicative responses to jealousy. This piece adds to the body of existing research which calls into question the validity of existing gender measures used to operationalize masculine and feminine traits. Future research should aim further understand the unique contribution of each, as well as how these variables interact and lead to varying relational outcomes. Specifically, more research needs to be done that looks at the impact of gender as it occurs with men, and within women. Only by understanding the unique role of gender, can sex effects be clarified.

## APPENDIX A

### Participant Disclaimer Form

#### Survey of Romantic Relationships

#### Participant Disclaimer form

Title of Project: Survey of Romantic Relationships

You are being invited to voluntarily participate in the above-titled research study. The purpose of the study is to understand communication in interpersonal relationships with regard to romantic jealousy and aggression. You are eligible to participate because you are a student in a communication class at the University of Arizona that is 18 years of age or older, or you are a man (age 18 or older) that was referred to this study by a student in the Department of Communication at the University of Arizona.

If you agree to participate, your participation will involve filling out an online questionnaire about your behavior in interpersonal relationships. You can access the questionnaire via the Internet, and it should take about 20 minutes of your time to complete. Following the completion of the questionnaire, you will receive a brief explanation about the purpose of the study. You may choose not to answer some or all of the questions. Your name will not appear on the questionnaire.

You may withdraw from the study at any time. Refusal to participate will not result in any penalties or loss of benefits to which you are entitled. There are no known risks from your participation and no direct benefit from your participation is expected. There is no cost to you except for your time, and you (or the person who referred you to this study if you are not enrolled in a communication class) will be compensated for participation by receiving extra credit in a communication class at the University of Arizona.

Only the principal investigator will have access to your name in order to provide you with extra credit. This information will be given to us on a separate sheet and cannot be connected to the responses you give on the questionnaire in any way. In order to maintain your confidentiality, your name will not be revealed in any reports that result from this project. Questionnaire information will be stored electronically in a secure, password protected place and will be accessible only to the primary researcher.

You can obtain further information from the principal investigator, Kathleen M. Warber, Ph.D. candidate, at (520) 621-8236. If you have questions concerning your rights as a research subject, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721 (If out of state use the toll-free number 1-866-278-1455).



By completing the questionnaire, you are giving permission for the investigator to use your information for research purposes. Please print a copy of this form for your records.

Thank you.

Kathleen M. Warber, Principal Investigator  
Tara Emmers-Sommer, Advisor

By clicking on “Next >>” below, I affirm that I have read the information contained in the form, that the study has been explained to me, that my questions have been answered and that I agree to take part in this study. I do not give up any of my legal rights by clicking on “Next >>” below.

**Next >>**

## APPENDIX B

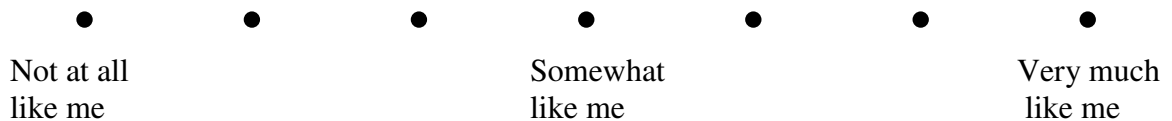
Survey Instrument  
(Adapted from Online/Electronic Format)

Please answer the questions below by clicking on the bubble that best describes you.

1. Sex
  - Man
  - Woman
2. Age (in years): \_\_\_\_\_
3. Which of the following best describes your racial background?
  - American Indian or Alaskan Native
  - Asian or Pacific Islander
  - Black
  - Caucasian/White
  - Hispanic/Latino
  - Other/Unknown
4. Current relationship status:
  - Single (not dating anyone)
  - Casually dating
  - Seriously dating
  - Engaged
  - Married
5. Have you ever been divorced?
  - Yes
  - No
6. Which best describes your sexual orientation?
  - Bisexual
  - Heterosexual
  - Homosexual

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The following are four general relationship styles that people often report. Please read each one and rate the extent to which you think it corresponds to your general relationship style from not at all like me, to very much like me. Click on the bubble that best describes where you fall on the scale.



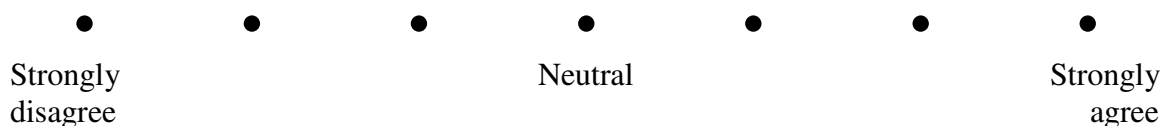
7. I am not comfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others, or to depend on them. I often worry that I will be hurt if I allow myself to become too close to others.
8. I want to be completely emotionally intimate with others, but I find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.
9. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.
10. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others accept me.
11. Looking over the four statements above, which one do you feel best describes your general relationship style?

- #7
- #8
- #9
- #10

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**Next >>**

The following statements involve your feelings about appropriate behavior for men and women. Please indicate how much you agree with each statement. Click on the bubble that most closely represents your agreement with each statement from strongly disagree, to strongly agree.



12. A man should fight when the woman he's with is insulted by another man

13. It is acceptable for a woman to pay for a date.

14. A woman should be a virgin when she marries.

15. There is something wrong with a woman who doesn't want to marry.

16. A wife should never contradict her husband in public.

17. It is better for a woman to use her feminine charm to get what she wants rather than ask for it outright.

18. It is acceptable for a woman to have a career, but marriage and family should come first.

19. It looks worse for a woman to be drunk than for a man to be drunk.

20. There is nothing wrong with a woman going to a bar alone.

21. There is something wrong with a woman who doesn't want to raise a family.

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The items below inquire about what kind of person you think you are. Each item consists of a pair of characteristics. Each pair describes contradictory characteristics - that is, you cannot be both at the same time. The bubbles form a scale between the two extremes. Please click on the bubble that describes where you fall on the scale for each pair.

22. Not at all aggressive	●	●	●	●	●	Very aggressive
23. Not at all independent	●	●	●	●	●	Very independent
24. Not at all emotional	●	●	●	●	●	Very emotional
25. Very submissive	●	●	●	●	●	Very dominant
26. Not at all excitable in a MAJOR crisis	●	●	●	●	●	Very excitable in a MAJOR crisis

27. Very passive	●	●	●	●	●	Very active
28. Not at all able to devote self completely to others	●	●	●	●	●	Able to devote self completely to others
29. Very rough	●	●	●	●	●	Very gentle
30. Not at all helpful to others	●	●	●	●	●	Very helpful to others
31. Not at all competitive	●	●	●	●	●	Very competitive
32. Very home oriented	●	●	●	●	●	Very worldly
33. Not at all kind	●	●	●	●	●	Very kind
34. Indifferent to others' approval	●	●	●	●	●	Highly needful of others' approval
35. Feelings are not easily hurt	●	●	●	●	●	Feelings are easily hurt
36. Not at all aware of others' feelings	●	●	●	●	●	Very aware of others' feelings
37. Can make decisions easily	●	●	●	●	●	Have difficulty making decisions
38. Give up very easily	●	●	●	●	●	Never give up easily
39. Never cry	●	●	●	●	●	Cry very easily
40. Not at all self-confident	●	●	●	●	●	Very self-confident
41. Feel very inferior	●	●	●	●	●	Feel very superior
42. Not at all understanding of others	●	●	●	●	●	Very understanding of others
43. Very cold in relations with others	●	●	●	●	●	Very warm in relations with others
44. Very little need for security	●	●	●	●	●	A very strong need for security

45. Go to pieces under pressure      ●      ●      ●      ●      ●      Stand up well under pressure

[<< Prev](#)      [Next >>](#)

For the following statements, please rank from never, to always, the extent to which each statement describes your behavior. Click on the bubble that best represents your response.

●      ●      ●      ●      ●  
Never      Sometimes      Always

46. I have never deliberately said something to hurt someone's feelings.

47. I am always courteous, even to people who are disagreeable.

48. I never hesitate to go out of my way to help someone in trouble.

49. There have been occasions when I took advantage of someone.

50. No matter who I'm talking to, I'm always a good listener.

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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.

51. What would distress or upset you more?

- Imagining your partner forming a deep emotional attachment to that person.
- Imagining your partner enjoying passionate sexual intercourse with that other person.

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For the following set of questions, please think of your significant other. If you are not currently in a romantic relationship, please think back to your most recent romantic relationship and answer the questions according to your past experiences in that relationship. If you have never been in a romantic relationship, please imagine how you would feel based on the following scenarios, and answer according to your thoughts. Please click from never, to always, based on your feelings.



68. I think that someone else may be romantically interested in my partner.

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Most people experience jealousy at some point in their romantic relationships. Jealousy occurs when a person believes that a third party (sometimes called a “rival”) threatens his or her romantic relationship in some way.

Please think about the times you have felt jealous in a romantic relationship. The following questions ask you to evaluate how often you have used various behaviors to respond to jealousy. Please be as honest as possible when answering the statements.

●	●	●	●	●	●	●
Never			Occasionally			Always

When I was jealous, I:

- 69. Tried to make my partner feel guilty
- 70. Ignored my partner
- 71. Quarreled or argued with my partner
- 72. Gave my partner the “silent treatment”
- 73. Made hurtful or mean comments to my partner
- 74. Explained my feelings to my partner
- 75. Shared my jealous feelings with my partner
- 76. Stopped calling or initiating communication
- 77. Yelled or cursed at my partner
- 78. Physically pulled away from my partner
- 79. Gave my partner cold or dirty looks
- 80. Decreased affection toward my partner
- 81. Pushed, shove, or hit my partner



- 82. Acted rudely toward my partner
- 83. Used physical force with my partner
- 84. Threatened to harm my partner
- 85. Confronted my partner in an accusatory manner
- 86. Discussed bothersome issues with my partner
- 87. Tried to get revenge on my partner
- 88. Tried to talk to my partner and reach an understanding
- 89. Calmly questioned my partner
- 90. Tried to make my partner feel jealous too
- 91. Tricked my partner to test her/his loyalty

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For the statements below, please rate from never, to always, the extent to which the statement is typical of your behavior. Please click on the bubble that most closely represents how the statement reflects you.

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99. I have threatened people I know.

100. I have become so mad that I have broken things.

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The following questions are concerned with how we get people to comply with our wishes. Indicate how often each statement is true for you personally when you try to influence other people, and click on the bubble that best reflects how you act.

●	●	●	●	●
Almost never true		Occasionally true		Almost always true

101. I am extremely careful to avoid attacking individuals' intelligence when I attack their ideas.

102. When individuals are very stubborn, I use insults to soften the stubbornness.

103. I try very hard to avoid having other people feel bad about themselves when I try to influence them.

104. I try to make people feel good about themselves even when their ideas are stupid.

105. If individuals I am trying to influence really deserve it, I attack their character.

106. When I attack persons' ideas, I try not to damage their self-concepts.

107. When nothing seems to work in trying to influence others, I yell and scream in order to get some movement from them.

108. When individuals insult me, I get a lot of pleasure out of really telling them off.

109. When I try to influence people, I make a great effort not to offend them.

110. When people simply will not budge on a matter of importance, I lose my temper and say rather strong things to them.

<< Prev      Next >>

Here is a list of things you might do when angry with someone. Please think of what you usually do when you have a conflict or disagreement with someone. Answer below

based on how often you have used each of the following responses when angry or upset by clicking on the bubble that best represents your actions.



- 111. Made up stories to get them in trouble.
- 112. Made negative comments about their appearance to someone else.
- 113. Spread rumors about them.
- 114. Took something that belonged to them.
- 115. Gossiped about them behind their back.
- 116. Called them names behind their back.
- 117. Told others not to associate with them.
- 118. Told others about the matter.
- 119. Destroyed or damaged something that belonged to them.
- 120. Gathered other friends to my side.

[<< Prev](#)
[Next >>](#)

NOTE: IN ORDER TO RECEIVE EXTRA CREDIT, YOU MUST COMPLETE THE INFORMATION FORM THAT FOLLOWS THIS PAGE. CLICK ON "DONE >>" BELOW TO PROCEED.

Thank you for taking the time to complete this survey. Your time and information are certainly appreciated. The purpose of this study was to examine the role of different relational styles and jealousy in different types of aggression in romantic relationships. I am testing whether or not people with different relational attachment styles behave differently in romantic relationships. I am also looking at whether gender differences exist regarding attachment, jealousy, and aggression. You can obtain further information from the principal investigator, Kathleen M. Warber, Ph.D. candidate, at (520) 621-8236. If you have questions concerning your rights as a research subject, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721 (if out of state use the toll-free number 1-866-278-1455). Thank you again for your participation.

Next, you will be directed to a separate link which will ask for identifying information, solely for the purpose of providing extra credit for completing this survey. You must proceed in order for you, or the person who referred you to this study, to receive extra credit in a communication course at the University of Arizona. On the following page, you will need:

1. Your last name
2. Your first name
3. If applicable, the name (first and last) of the person who referred you to this survey
4. The name and section number of the course (e.g., COMM 228, section 002) to which you want the extra credit to be applied
5. The name of the instructor for the course to which the extra credit will be applied.

**<< Prev**

**Done >>**

## APPENDIX C

### Extra Credit Survey (Adapted from Online/Electronic Format)

#### Extra Credit Information for Survey of Romantic Relationships Questionnaire

#### Extra Credit Information

NOTE: THE INFORMATION PROVIDED BELOW CANNOT BE CONNECTED TO THE ANSWERS TO THE SURVEY QUESTIONS YOU JUST PROVIDED. THIS INFORMATION WILL ONLY BE SHARED WITH COMMUNICATION INSTRUCTORS FOR THE PURPOSE OF PROVIDING EXTRA CREDIT TO YOU, OR TO THE STUDENT WHO REFERRED YOU TO THIS SURVEY.

In order to ensure that you, or that the person who referred you to this survey receives extra credit in his/her communication class at the University of Arizona, please complete all of the applicable questions below.

1. What is your last name?
2. What is your first name?
3. If applicable, what is the name (first and last) of the person who referred you to this study?
4. To which communication course do you, or the person who referred you to this survey, want the extra credit applied? Please give the course name and number, as well as the section number (e.g., COMM 228, section 791).
5. What is the name of the instructor for the course listed in question 4 above?

**Next >>**

Finished!

Thank you. You are now done with the survey, and extra credit information has been recorded and will be provided to the instructor listed on the previous page.

**<< Prev**

**Done >>**

## APPENDIX D

Table 1

## Regression Results Predicting Physical Aggression

	$\beta$ (SE)	Beta	t	$\text{spr}^2$
<i>Block 1</i>				
Constant	3.63 (.85)		4.26**	
PAQ-F	-.11 (.16)	-.06	-.67	
PAQ-M	-.00 (.14)	-.00	-.03	
<b>PAQ-MF</b>	<b>.40 (.15)</b>	<b>.20</b>	<b>2.66**</b>	<b>.02</b>
<b>Sex</b>	<b>-1.09 (.19)</b>	<b>-.48</b>	<b>-5.87**</b>	<b>.09</b>
Fearful	-.57 (.52)	-.19	-1.09	
Preoccupied	.30 (.63)	.09	.48	
Dismissing	.00 (.45)	.04	.22	
<i>Block 2</i>				
Sex X PAQ-F	-.00 (.12)	-.00	-.03	
Sex X Fearful	.30 (.33)	.16	.92	
Sex X Preoccupied	.00 (.37)	.03	.15	
Sex X Dismissing	-.00 (.31)	-.02	-.11	
PAQ-F X Fearful	.25 (.33)	.06	.77	
PAQ-F X Preoccupied	-.18 (.36)	-.04	-.50	
PAQ-F X Dismissing	-.00 (.31)	-.00	-.06	
Adj R <sup>2</sup>		.31		
<i>n</i> = 273				

\* = predictor is significant at the  $p < .05$  level\*\* = predictor is significant at the  $p < .01$  level

Table 2

## Regression Results Predicting Verbal Aggression

	$\beta$ (SE)	Beta	t	$\text{spr}^2$
<i>Block 1</i>				
Constant	4.84 (.51)		9.42**	
<b>PAQ-F</b>	<b>-.42 (.10)</b>	<b>-.39</b>	<b>-4.28**</b>	<b>.06</b>
PAQ-M	.00 (.08)	.01	.10	
PAQ-MF	-.12 (.09)	-.11	-1.34	
<b>Sex</b>	<b>-.40 (.11)</b>	<b>-.33</b>	<b>-3.58**</b>	<b>.04</b>
Fearful	-.39 (.32)	-.24	-1.23	
Preoccupied	-.12 (.38)	-.07	-.32	
Dismissing	-.40 (.28)	-.26	-1.44	
<i>Block 2</i>				
Sex X PAQ-F	-.00 (.08)	.01	.06	
Sex X Fearful	.24 (.20)	.24	1.22	
Sex X Preoccupied	.00 (.22)	.05	.25	
Sex X Dismissing	.28 (.19)	.28	1.47	
PAQ-F X Fearful	.10 (.20)	.04	.52	
PAQ-F X Preoccupied	.00 (.22)	.02	.21	
PAQ-F X Dismissing	.00 (.19)	.02	.21	
Adj R <sup>2</sup>		.15		
n = 269				

\* = predictor is significant at the  $p < .05$  level\*\* = predictor is significant at the  $p < .01$  level

Table 3

## Regression Results Predicting Social Aggression

	$\beta$ (SE)	Beta	t	$\text{spr}^2$
<i>Block 1</i>				
Constant	3.37 (.55)		6.11**	
<b>PAQ-F</b>	<b>-.21 (.11)</b>	<b>-.19</b>	<b>-2.00*</b>	<b>.01</b>
PAQ-M	-.00 (.09)	-.03	-.30	
PAQ-MF	-.13 (.10)	-.12	-1.35	
Sex	.14 (.12)	.11	1.19	
Fearful	.00 (.35)	.01	.02	
Preoccupied	.45 (.41)	.24	1.10	
Dismissing	.19 (.29)	.13	.67	
<i>Block 2</i>				
Sex X PAQ-F	.00 (.08)	.09	.82	
Sex X Fearful	.00 (.22)	.09	.41	
Sex X Preoccupied	-.12 (.24)	-.11	-.49	
Sex X Dismissing	-.14 (.20)	-.13	-.68	
<b>PAQ-F X Fearful</b>	<b>-.43 (.22)</b>	<b>-.17</b>	<b>-2.00*</b>	<b>.01</b>
PAQ-F X Preoccupied	-.25 (.24)	-.09	-1.07	
PAQ-F X Dismissing	-.17 (.20)	-.07	-.86	
Adj R <sup>2</sup>		.06		
n = 270				

\* = predictor is significant at the  $p < .05$  level\*\* = predictor is significant at the  $p < .01$  level



## APPENDIX E

Table 4

Multivariate Effects for Jealousy, Sex, and Gender on Aggressive Communicative Responses to Jealousy

	<i>F</i>	Sig.	Wilks' $\Lambda$	Partial $\eta^2$
<b>Emotional Jealousy</b>	<b>8.358</b>	<b>.000</b>	<b>.887</b>	<b>.113</b>
<b>Cognitive Jealousy (Partner Interest)</b>	<b>7.560</b>	<b>.000</b>	<b>.103</b>	<b>.103</b>
Cognitive Jealousy (Rival Interest)	1.018	.399	.985	.015
<b>Sex</b>	<b>5.195</b>	<b>.000</b>	<b>.927</b>	<b>.073</b>
<b>PAQ-M</b>	<b>3.987</b>	<b>.004</b>	<b>.943</b>	<b>.057</b>
<b>PAQ-MF</b>	<b>2.935</b>	<b>.021</b>	<b>.957</b>	<b>.043</b>
PAQ-F	1.729	.144	.974	.026
PAQ-M X Emotional Jealousy	1.095	.360	.984	.016
PAQ-MF X Emotional Jealousy	.929	.448	.986	.014
PAQ-F X Emotional Jealousy	.979	.419	.985	.015
PAQ-M X Cognitive Jealousy (Partner Interest)	.846	.497	.987	.013
PAQ-MF X Cognitive Jealousy (Partner Interest)	.048	.996	.999	.001
PAQ-F X Cognitive Jealousy (Partner Interest)	1.998	.095	.030	.030
PAQ-M X Cognitive Jealousy (Rival Interest)	.491	.742	.993	.007
PAQ-MF X Cognitive Jealousy (Rival Interest)	.580	.678	.991	.009
PAQ-F X Cognitive Jealousy (Rival Interest)	.845	.498	.987	.013
Sex X Emotional Jealousy	1.257	.287	.981	.019
Sex X Cognitive Jealousy (Partner Interest)	.550	.699	.992	.008
Sex X Cognitive Jealousy (Rival Interest)	.253	.908	.996	.004

Variables in bold are statistically significant, at least  $p = .05$

Table 5

Univariate Effects and Parameter Estimates for Jealousy, Sex, and Gender on Physically Aggressive Communicative Responses to Jealousy

	<i>F</i>	Sig.	B	SE	<i>t</i>	Partial $\eta^2$
Emotional Jealousy	.416	.520	-.023	.107	-.217	.000
<b>Cognitive Jealousy (Partner Interest)</b>	<b>24.429</b>	<b>.000</b>	<b>-.022</b>	<b>.128</b>	<b>-.172</b>	<b>.000</b>
Cognitive Jealousy (Rival Interest)	1.775	.184	.043	.084	.511	.001
Sex	.699	.404	-.219	.262	-.836	.003
PAQ-M	1.576	.210	-.175	.140	-1.255	.006
<b>PAQ-MF</b>	<b>5.145</b>	<b>.024</b>	<b>.326</b>	<b>.144</b>	<b>2.268</b>	<b>.019</b>
PAQ-F	3.657	.057	-.238	.124	-1.912	.014
PAQ-M X Emotional Jealousy	1.672	.197	-.100	.078	-1.293	.006
PAQ-MF X Emotional Jealousy	3.579	.060	.159	.084	1.892	.060
<b>PAQ-F X Emotional Jealousy</b>	<b>3.920</b>	<b>.049</b>	<b>-.139</b>	<b>.070</b>	<b>-1.980</b>	<b>.015</b>
PAQ-M X Cognitive Jealousy (Partner Interest)	2.340	.127	.174	.114	1.530	.009
PAQ-MF X Cognitive Jealousy (Partner Interest)	.100	.752	.036	.114	.316	.000
<b>PAQ-F X Cognitive Jealousy (Partner Interest)</b>	<b>4.866</b>	<b>.028</b>	<b>.227</b>	<b>.103</b>	<b>2.206</b>	<b>.018</b>
PAQ-M X Cognitive Jealousy (Rival Interest)	.014	.905	-.008	.071	-.119	.000
PAQ-MF X Cognitive Jealousy (Rival Interest)	1.893	.170	-.099	.072	-1.376	.007
PAQ-F X Cognitive Jealousy (Rival Interest)	.140	.709	-.022	.060	-.374	.001
Sex X Emotional Jealousy	.563	.454	.070	.093	.750	.002
Sex X Cognitive Jealousy (Partner Interest)	.534	.465	.081	.110	.731	.002
Sex X Cognitive Jealousy (Rival Interest)	.281	.596	-.040	.075	-.530	.001

Variables in bold are statistically significant, at least  $p = .05$

Table 6

Univariate Effects and Parameter Estimates for Jealousy, Sex, and Gender on Verbally Aggressive Communicative Responses to Jealousy

	<i>F</i>	Sig.	B	SE	<i>t</i>	Partial $\eta^2$
<b>Emotional Jealousy</b>	<b>21.257</b>	<b>.000</b>	<b>.141</b>	<b>.179</b>	<b>.791</b>	<b>.002</b>
Cognitive Jealousy (Partner Interest)	2.561	.111	-.011	.214	-.051	.000
Cognitive Jealousy (Rival Interest)	.137	.711	.145	.141	1.030	.004
<b>Sex</b>	<b>5.398</b>	<b>.021</b>	<b>-1.017</b>	<b>.438</b>	<b>-2.323</b>	<b>.020</b>
PAQ-M	.159	.691	.093	.233	.399	.001
PAQ-MF	.135	.714	-.088	.240	-.367	.001
PAQ-F	.622	.431	-.164	.208	-.789	.002
PAQ-M X Emotional Jealousy	.075	.785	.035	.130	.274	.000
PAQ-MF X Emotional Jealousy	.707	.401	.118	.140	.841	.003
PAQ-F X Emotional Jealousy	.148	.700	-.045	.118	-.385	.001
PAQ-M X Cognitive Jealousy (Partner Interest)	.144	.705	.072	.190	.380	.001
PAQ-MF X Cognitive Jealousy (Partner Interest)	.000	.991	.002	.191	.011	.000
PAQ-F X Cognitive Jealousy (Partner Interest)	1.229	.269	.191	.172	1.108	.005
PAQ-M X Cognitive Jealousy (Rival Interest)	.365	.546	-.072	.118	-.604	.001
PAQ-MF X Cognitive Jealousy (Rival Interest)	.580	.447	-.092	.120	-.762	.002
PAQ-F X Cognitive Jealousy (Rival Interest)	.096	.757	-.031	.100	-.310	.000
Sex X Emotional Jealousy	3.587	.059	.295	.156	1.894	.013
Sex X Cognitive Jealousy (Partner Interest)	.005	.944	.013	.185	.070	.000
Sex X Cognitive Jealousy (Rival Interest)	.205	.651	-.057	.125	-.452	.001

Variables in bold are statistically significant, at least  $p = .05$

Table 7

Univariate Effects and Parameter Estimates for Jealousy, Sex, and Gender on Socially Aggressive Communicative Responses to Jealousy

	<i>F</i>	Sig.	B	SE	<i>t</i>	Partial $\eta^2$
<b>Emotional Jealousy</b>	<b>21.757</b>	<b>.000</b>	<b>.190</b>	<b>.148</b>	<b>1.280</b>	<b>.006</b>
<b>Cognitive Partner Jealousy</b>	<b>4.302</b>	<b>.039</b>	<b>.069</b>	<b>.177</b>	<b>.386</b>	<b>.001</b>
Cognitive Jealousy (Rival Interest)	.917	.339	.087	.117	.744	.002
<b>Sex</b>	<b>4.337</b>	<b>.038</b>	<b>-.757</b>	<b>.364</b>	<b>-2.083</b>	<b>.016</b>
PAQ-M	.073	.787	-.053	.194	-.271	.000
PAQ-MF	.009	.926	.018	.199	.092	.000
PAQ-F	1.924	.167	-.239	.173	-1.387	.007
PAQ-M X Emotional Jealousy	.373	.542	-.066	.108	-.611	.001
PAQ-MF X Emotional Jealousy	.535	.465	.085	.116	.731	.002
PAQ-F X Emotional Jealousy	.108	.743	-.032	.098	-.329	.000
PAQ-M X Cognitive Jealousy (Partner Interest)	.198	.656	.070	.158	.445	.001
PAQ-MF X Cognitive Jealousy (Partner Interest)	.017	.896	.021	.158	.131	.000
PAQ-F X Cognitive Jealousy (Partner Interest)	.651	.420	.115	.143	.807	.002
PAQ-M X Cognitive Jealousy (Rival Interest)	.250	.618	.049	.098	.500	.001
PAQ-MF X Cognitive Jealousy (Rival Interest)	.704	.402	-.084	.100	-.839	.003
PAQ-F X Cognitive Jealousy (Rival Interest)	.028	.868	-.014	.083	-.166	.000
Sex X Emotional Jealousy	2.607	.108	.209	.129	1.614	.010
Sex X Cognitive Jealousy (Partner Interest)	.194	.660	-.067	.153	-.440	.001
Sex X Cognitive Jealousy (Rival Interest)	.161	.689	-.042	.104	-.401	.001

Variables in bold are statistically significant, at least  $p = .05$

Table 8

Univariate Effects and Parameter Estimates for Jealousy, Sex, and Gender on Secure (i.e., Non-Aggressive) Communicative Responses to Jealousy

	<i>F</i>	Sig.	B	SE	<i>t</i>	Partial $\eta^2$
<b>Emotional Jealousy</b>	<b>6.726</b>	<b>.010</b>	<b>.174</b>	<b>.210</b>	<b>.828</b>	<b>.003</b>
<b>Cognitive Jealousy (Partner Interest)</b>	<b>4.143</b>	<b>.043</b>	<b>-.634</b>	<b>.251</b>	<b>-2.530</b>	<b>.024</b>
Cognitive Jealousy (Rival Interest)	.741	.390	.130	.165	.786	.002
<b>Sex</b>	<b>17.243</b>	<b>.000</b>	<b>-2.132</b>	<b>.513</b>	<b>-4.153</b>	<b>.061</b>
<b>PAQ-M</b>	<b>14.195</b>	<b>.000</b>	<b>1.031</b>	<b>.274</b>	<b>3.768</b>	<b>.051</b>
<b>PAQ-MF</b>	<b>6.043</b>	<b>.015</b>	<b>-.639</b>	<b>.282</b>	<b>-2.458</b>	<b>.022</b>
PAQ-F	1.964	.162	.341	.244	1.401	.007
PAQ-M X Emotional Jealousy	.728	.394	-.130	.152	-.853	.003
PAQ-MF X Emotional Jealousy	.014	.907	-.019	.164	-.117	.000
PAQ-F X Emotional Jealousy	.000	.997	-.001	.138	-.004	.000
PAQ-M X Cognitive Jealousy (Partner Interest)	.979	.323	.220	.223	.990	.004
PAQ-MF X Cognitive Jealousy (Partner Interest)	.048	.827	.049	.224	.218	.000
PAQ-F X Cognitive Jealousy (Partner Interest)	3.343	.069	.369	.202	1.828	.012
PAQ-M X Cognitive Jealousy (Rival Interest)	.007	.934	.011	.139	.083	.000
PAQ-MF X Cognitive Jealousy (Rival Interest)	.168	.682	-.058	.141	-.410	.001
PAQ-F X Cognitive Jealousy (Rival Interest)	3.274	.072	-.211	.117	-1.809	.012
Sex X Emotional Jealousy	1.944	.164	.254	.182	1.394	.007
Sex X Cognitive Jealousy (Partner Interest)	1.303	.255	.247	.216	1.141	.005
Sex X Cognitive Jealousy (Rival Interest)	.508	.477	.104	.147	.713	.002

Variables in bold are statistically significant, at least  $p = .05$

## APPENDIX F

Table 9

Multivariate Effects for Attachment, Sex, and Gender on Aggressive Communicative Responses to Jealousy

	<i>F</i>	Sig.	Wilks' $\Lambda$	Partial $\eta^2$
Attachment	1.181	.292	.947	.018
Sex	1.772	.135	.973	.027
<b>PAQ-M</b>	<b>4.084</b>	<b>.003</b>	<b>.940</b>	<b>.060</b>
PAQ-MF	1.172	.324	.982	.018
<b>PAQ-F</b>	<b>5.576</b>	<b>.000</b>	<b>.920</b>	<b>.080</b>
Sex X Attachment	1.213	.270	.946	.018
PAQ-M X Attachment	1.080	.370	.936	.016
PAQ-MF X Attachment	1.252	.222	.926	.019
PAQ-F X Attachment	.878	.595	.947	.013

Variables in bold are statistically significant, at least  $p = .05$

Table 10

Univariate Effects and Parameter Estimates for Attachment, Sex, and Gender on  
Physically Aggressive Communicative Responses to Jealousy

	<i>F</i>	Sig.	<i>B</i>	<i>SE</i>	<i>t</i>	Partial $\eta^2$
Attachment	.350	.790				
Fearful			-.074	.367	-.202	.000
Preoccupied			-.610	.374	-1.633	.010
Dismissing			-.454	.294	-1.543	.009
Sex	1.119	.291	-.010	.136	-.072	.000
PAQ-M	2.883	.091	-.258	.152	-1.698	.011
PAQ-MF	1.127	.289	.166	.157	1.062	.004
<b>PAQ-F</b>	<b>21.202</b>	<b>.000</b>	<b>-.628</b>	<b>.136</b>	<b>-4.605</b>	<b>.075</b>
Sex X Attachment	.911	.436				
Sex X Fearful			-.015	.286	-.054	.000
Sex X Preoccupied			.475	.296	1.604	.010
Sex X Dismissing			.084	.267	.312	.000
PAQ-M X Attachment	1.171	.324				
PAQ-M X Fearful			-.424	.322	-1.317	.007
PAQ-M X Preoccupied			.151	.315	.478	.001
PAQ-M X Dismissing			.235	.257	.916	.003
PAQ-M X Secure			-.154	.164	-.940	.003
PAQ-MF X Attachment	.629	.642				
PAQ-MF X Fearful			.122	.292	.420	.001
PAQ-MF X Preoccupied			.232	.345	.671	.002
PAQ-MF X Dismissing			.252	.238	1.059	.004
PAQ-MF X Secure			.224	.168	1.332	.007
PAQ-F X Attachment	2.510	.042				
PAQ-F X Fearful			-.144	.261	-.552	.001
PAQ-F X Preoccupied			-.276	.267	-1.035	.004
PAQ-F X Dismissing			-.315	.248	-1.269	.006
<b>PAQ-F X Secure</b>			<b>-.513</b>	<b>.165</b>	<b>-3.115</b>	<b>.036</b>

Variables in bold are statistically significant, at least  $p = .05$

Table 11

Univariate Effects and Parameter Estimates for Attachment, Sex, and Gender on Verbally Aggressive Communicative Responses to Jealousy

	<i>F</i>	Sig.	B	SE	<i>t</i>	Partial $\eta^2$
Attachment	1.532	.207				
Fearful			-.100	.634	-.158	.000
Preoccupied			-.280	.646	-.434	.001
Dismissing			-.924	.508	-1.819	.013
Sex	.043	.836	-.316	.235	-1.343	.007
PAQ-M	.401	.527	.166	.263	.633	.002
PAQ-MF	.819	.366	-.245	.271	-.905	.003
PAQ-F	3.383	.067	-.433	.236	-1.839	.013
Sex X Attachment	1.091	.353				
Sex X Fearful			-.008	.494	-.017	.000
Sex X Preoccupied			.296	.512	.577	.001
Sex X Dismissing			.804	.462	1.740	.011
PAQ-M X Attachment	1.501	.202				
PAQ-M X Fearful			1.134	.556	2.041	.016
PAQ-M X Preoccupied			.531	.545	.975	.004
PAQ-M X Dismissing			.500	.444	1.126	.005
PAQ-M X Secure			-.053	.283	-.187	.000
PAQ-MF X Attachment	.647	.630				
PAQ-MF X Fearful			-.642	.504	-1.274	.006
PAQ-MF X Preoccupied			-.265	.597	-.444	.001
PAQ-MFX Dismissing			.111	.411	.271	.000
PAQ-MF X Secure			.152	.291	.524	.001
PAQ-F X Attachment	.621	.648				
PAQ-F X Fearful			.384	.451	.853	.003
PAQ-F X Preoccupied			.231	.461	.501	.001
PAQ-F X Dismissing			-.005	.429	-.011	.000
PAQ-F X Secure			-.262	.285	-.921	.003

Variables in bold are statistically significant, at least  $p = .05$



Table 12

Univariate Effects and Parameter Estimates for Attachment, Sex, and Gender on Socially Aggressive Communicative Responses to Jealousy

	<i>F</i>	Sig.	B	SE	<i>t</i>	Partial $\eta^2$
Attachment	2.135	.096				
Fearful			.027	.537	.050	.000
Preoccupied			-.383	.548	-.699	.002
Dismissing			-.519	.431	-1.205	.006
Sex	1.836	.177				
PAQ-M	.042	.838	-.046	.223	-.205	.000
PAQ-MF	.244	.622	-.113	.2330	-.494	.001
<b>PAQ-F</b>	<b>4.439</b>	<b>.036</b>	<b>-.421</b>	<b>.200</b>	<b>-2.107</b>	<b>.017</b>
Sex X Attachment	.403	.751				
Sex X Fearful			-.167	.419	-.399	.001
Sex X Preoccupied			.134	.434	.308	.000
Sex X Dismissing			.348	.392	.887	.003
PAQ-M X Attachment	.551	.699				
PAQ-M X Fearful			.530	.471	1.124	.005
PAQ-M X Preoccupied			.133	.462	.288	.000
PAQ-M X Dismissing			.448	.377	1.190	.005
PAQ-M X Secure			.080	.240	.334	.000
PAQ-MF X Attachment	.241	.915				
PAQ-MF X Fearful			.076	.427	.178	.000
PAQ-MF X Preoccupied			.326	.506	.644	.002
PAQ-MFX Dismissing			-.208	.349	-.596	.001
PAQ-MF X Secure			-.050	.247	-.204	.000
PAQ-F X Attachment	.657	.622				
PAQ-F X Fearful			.245	.382	.640	.002
PAQ-F X Preoccupied			.217	.391	.553	.001
PAQ-F X Dismissing			.123	.364	.339	.000
PAQ-F X Secure			-.246	.242	-1.017	.004

Variables in bold are statistically significant, at least  $p = .05$

Table 13

Univariate Effects and Parameter Estimates for Attachment, Sex, and Gender on Secure (i.e., Non-Aggressive) Communicative Responses to Jealousy

	<i>F</i>	<i>Sig.</i>	<i>B</i>	<i>SE</i>	<i>t</i>	Partial $\eta^2$
Attachment	1.549	.202				
Fearful			-1.700	.708	-2.403	.022
Preoccupied			-.395	.721	-.548	.001
Dismissing			-2.046	.567	-3.606	.047
Sex	1.792	.182	-.848	.263	3.532	.038
<b>PAQ-M</b>	<b>12.476</b>	<b>.000</b>	<b>1.036</b>	<b>.293</b>	<b>3.532</b>	<b>.046</b>
PAQ-MF	2.346	.127	-.463	.302	-1.532	.009
PAQ-F	.335	.563	.152	.263	.579	.001
<b>Sex X Attachment</b>	<b>3.460</b>	<b>.017</b>				
Sex X Fearful			.582	.552	1.054	.004
Sex X Preoccupied			-.020	.572	-.035	.000
<b>Sex X Dismissing</b>			<b>1.598</b>	<b>.516</b>	<b>3.096</b>	<b>.035</b>
PAQ-M X Attachment	1.005	.405				
PAQ-M X Fearful			.451	.621	.726	.002
PAQ-M X Preoccupied			.303	.608	.498	.001
PAQ-M X Dismissing			.807	.496	1.627	.010
PAQ-M X Secure			-.146	.316	-.462	.001
PAQ-MF X Attachment	1.153	.332				
PAQ-MF X Fearful			.829	.563	1.474	.008
PAQ-MF X Preoccupied			-.512	.667	-.768	.002
PAQ-MFX Dismissing			.363	.459	.790	.002
PAQ-MF X Secure			-.227	.325	-.699	.002
PAQ-F X Attachment	.545	.703				
PAQ-F X Fearful			.538	.503	1.068	.004
PAQ-F X Preoccupied			.342	.515	.664	.002
PAQ-F X Dismissing			-.147	.479	-.308	.000
PAQ-F X Secure			-.116	.318	-.365	.001

Variables in bold are statistically significant, at least  $p = .05$

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