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## ORIGINAL RESEARCH ARTICLE

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### The Relationships among Sex, Gender and Attachment

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This study seeks to explicate the relationships among sex, gender and attachment. 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, 1991; Hazan & Shaver, 1987). Biological, evolutionary and socialization theoretical approaches exist regarding the relationship among sex, gender and attachment. Explicating the possible nature of those relationships is important for communication research, particularly research that explicates sex and gender differences in romantic attachment.

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

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between men and women are frequently noted. For example, we know that cultural factors (e.g., social stereotypes, traditions, and customs) influence perceived gender differences between men and women (Canary & Dindia, 1998; Canary & Emmers-Sommer, 1997). 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, 2002; Tannen, 2001). 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; Sherman, Allen, & Sacchi, 2012; Vogel, Wester, Heesacker, & Madon, 2003; Wood & Dindia, 1998). This type of categorization by stereotype is pervasive by sex, gender, culture, and ethnicity. 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.

## SEX AND GENDER DIFFERENCES IN RELATIONAL BEHAVIOR

Several explanations have been offered to account for sex and gender differences in relational and communicative behavior; behavior that could be reflective of one's attachment style (e.g., Bowlby, 1969; Bartholomew & Horowitz, 1991; Guerrero, 1996). 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.

## 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). In several cultures (e.g., French, German, Greek), linguistic

forms of sexist discrimination are common, and vary as a function of age, attitudes toward women, language and culture (Oriane, Ute, & Pascal, 2012; Parks & Robertson 2004, 2008; Wasserman & Weseley, 2009). 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). The classification of gender normative behavior is reinforced in the way that language is structured, particularly in cultures that have gendered language with distinctly feminine and masculine words (Seigneuric, Zagar, Meunier, & Spinelli, 2007), making false stereotypes difficult to remedy.

Neither the biological, evolutionary, nor the social approach best explains sex and gender differences in attachment 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 an attachment framework allows for exploration into the notion that 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.

## 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 (Table 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.

Table 1

*The Bartholomew and Horowitz (1991) Model of Attachment Styles*

		MODEL OF SELF (Dependent)	
		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

The model in Table 1 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).

### 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. Attachment style differences in language use reinforce many of the psychological dimensions of attachment that also underlie sex and gender differences in communication (Stone, 2004).

Those with preoccupied attachments use words that suggest they desire close relationships, but fear others don't want to be as close to them as they would like. Dismissing individuals, in contrast, seem to use language that is indicative of their perceptions of relationships as unimportant. Fearful individuals likely use language that reflects increased levels of anxiety and fear of abandonment, while secure individuals express intimacy in a way that reflects a high regard for themselves as being worthy of love and affection, and others as trustworthy (Warber & Fox, 2011). These language differences reinforce Bartholomew and Horowitz' (1991) conceptualization of working models of the self and other.

## 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. For that reason, the following research questions and hypothesis are being advanced to examine the relationships among sex, gender and attachment.

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.

## 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, 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, 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. 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

### *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 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 et al., 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 ( $M = 3.94, SD = .56$ ).

## RESULTS

In order to determine whether attachment style was independent of sex ( $RQ_1$ ), 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  $RQ_2$ , 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,  $\Lambda = .81, \chi^2(9, N = 284) = 58.69, p < .01$ . The second discriminant function also maximized differences between attachment styles; Wilks' lambda was significant,  $\Lambda = .93, \chi^2(4, N = 284) = 19.84, p < .01$ . The third discriminant function did not achieve significance, Wilks' lambda,  $\Lambda = .99, \chi^2(1, N = 284) = .28, ns$ .

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 one-way 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  $F(3, 280) = 1.23, ns$ .

## DISCUSSION AND CONCLUSIONS

Results indicated that 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 & Emmer-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. Value indicated from this finding dispels the notion that men and women are biologically predetermined in terms of their attachment styles in adult relationships. Conditioning appears to be key when it comes to attachment styles in adult romantic relationships. Furthermore, other contextual factors must be considered (e.g., economic fluctuations) when working to understand sex and gender differences and the role they play in romantic relationships (Hill, Rodeheffer, Griskevicius, Durante, & White, 2012).

## LIMITATIONS

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. 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 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. Since data was collected for this project, a confirmatory factor analysis of the PAQ was conducted calling into question the factor structure of the measure (Curran & Warber, 2011; Ward, Thorne, Clements, Dixon, & Sandord, 2006). It is important to continue to assess the reliability and validity of the measures we use to operationalize gender.

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. Another limitation of the study was that two of the scales used had a reliability slightly under .70 (e.g., sex-role stereotyping, PAQ-MF). Therefore, results from hypotheses derived from these scales must be considered with caution.

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