



Seattle Pacific University
LIBRARY
Discover, Create, Share

Seattle Pacific University
Digital Commons @ SPU

Clinical Psychology Dissertations

Psychology, Family, and Community, School of

Winter 3-14-2018

Investigating the Effects of Adult Insecure Attachment on Interpersonal Attraction

Fiona B. Kurtz Ms.
Seattle Pacific University

Follow this and additional works at: http://digitalcommons.spu.edu/cpy_etd



Part of the [Clinical Psychology Commons](#)

Recommended Citation

Kurtz, Fiona B. Ms., "Investigating the Effects of Adult Insecure Attachment on Interpersonal Attraction" (2018). *Clinical Psychology Dissertations*. 29.

http://digitalcommons.spu.edu/cpy_etd/29

This Dissertation is brought to you for free and open access by the Psychology, Family, and Community, School of at Digital Commons @ SPU. It has been accepted for inclusion in Clinical Psychology Dissertations by an authorized administrator of Digital Commons @ SPU.

Investigating the Effects of Adult Insecure Attachment on Interpersonal Attraction

Fiona B. Kurtz

A dissertation submitted in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

In

Clinical Psychology

Seattle Pacific University

March 14, 2018

Approved by:

John Thoburn Ph.D.
Professor of Clinical Psychology
Dissertation Chair

Lynette Bikos Ph.D.
Professor of Clinical Psychology
Committee Member

Jacob Bentley, Ph.D.
Professor of Clinical Psychology
Committee Member

Reviewed by:

Amy Mezulis, Ph.D.
Chair, Clinical Psychology

Katy Tangenberg, Ph.D.
Dean, School of Psychology,
Family & Community

Table of Contents

List of Tables	iii
List of Figures.....	iv
Abstract.....	v
Chapter I: Introduction.....	1
Chapter II: Literature Review.....	4
Interpersonal Attraction: An Essential Human Experience.....	4
Attachment: Theories, Anxiety, and Connections to Attraction	23
The Moderating Influence of Attachment Avoidance	35
The Present Study	42
Chapter III: Method	45
Participants.....	45
Research Design	47
Measures	49
Analyses	54
Chapter IV: Results	56
Participation Flow.....	56
Data Preparation and Analysis of Assumptions	58
Preliminary Analyses.....	58
Moderation Analysis.....	59
Chapter V: Discussion	62
Interpretation of Findings: Theoretically, Empirically, and Methodologically.....	62
Clinical Implications.....	70
Limitations and Future Research.....	74
Conclusion	78
References.....	79

List of Tables

Table 1. *Bivariate Correlations and Descriptive Statistics among Study Variables*.....59

Table 2. *Results of Moderation Analysis on the Outcome Variable Interpersonal Attraction*.....61

List of Figures

<i>Figure 1.</i> Conceptual, diagrammatic model of hypothesized relationships.....	43
<i>Figure 2.</i> Statistical, diagrammatic model of hypothesized relationships (using primary variable) and potential confounding variables (i.e., control variables).....	44
<i>Figure 3.</i> Participant flow and attrition through the stages of the study.....	57
<i>Figure 4.</i> Statistical model with resulting beta weights.....	60
<i>Figure 5.</i> Graph of interaction between attachment anxiety and avoidance on attraction..	61

Fiona B. Kurtz

279 words

Abstract

The present study examined the relationship between variables of insecure attachment and feelings of initial attraction between young adults. Previous research has consistently supported the positive link between anxious attachment and hyperactivation of the attachment system in adults, resulting in preoccupied proximity seeking evaluations and behaviors. As such, emerging findings suggest that anxious attachment contributes to elevated levels of interpersonal attraction upon initial meetings with others, particularly those who may serve as future romantic partners. Despite a growing body of literature, little is known or understood about the impact of avoidant attachment in shaping early views of others, or how attachment avoidance may impact the relationship between anxiety and attraction. Utilizing an analogue, speed-dating context, this study explored the relationships between attachment anxiety, attachment avoidance, and interpersonal attraction occurring between young adult (i.e., ages 18-22) male-female dyads who were previously unacquainted. Participants were asked to converse and share stories for 10 minutes with each other, and then to independently complete measures of adult attachment and their feelings of attraction towards their experimental partner. Contradictory to what was expected, attachment anxiety did not predict elevated interpersonal attraction ($F[1, 94] = .02, p = .88$), nor did avoidance significantly moderate this relationship ($F[1, 89] = 1.07, p = .30$). Despite a lack of support for principal hypotheses, alternative findings suggested a positive relationship between attachment anxiety and attachment avoidance ($r = .51, p < .01$), as well as a negative relationship between relationship status and attachment anxiety ($r = -.50, p < .01$) and

avoidance ($r = -.52, p < .01$). These results offer emerging insight to clinicians working with insecurely attached patients aiming to facilitate intimate relationship building.

Keywords: interpersonal attraction, goal, adult attachment, anxiety, & young adulthood

Chapter I: Introduction

There has been consistent empirical interest in interpersonal attraction in the field of clinical psychology, and researchers have paid increasing attention to how early human bonds impact the expression of attraction in adults (Finkel & Eastwick, 2015). The purpose of this study is to add to the empirical literature by examining how the interaction between the two variables of adult attachment (i.e., anxiety and avoidance) influence initial feelings of interpersonal attraction. Interpersonal attraction represents the positive emotional evaluation of another person, often leading to behavioral approach or affiliation and favorable cognitive assessments (Montoya & Horton, 2014; Zajonc, 1968). Interpersonal attraction is often the predecessor to the development of desired relationships, whether platonic (e.g., friendships or occupational relationships; Langlois et al., 2000), or romantic (Berscheid & Graziano, 1979; Perse & Rubin, 1989).

The attachment experience is one significant precursor to romantic relationships. Broadly speaking, the construct of attachment represents behavioral and emotional expression in intimate relationships as influenced by initial bonds formed during early development. In infants and children, attachment tends to reveal itself in relationships with the caregiver, whereas in adults, attachment manifests in romantic or sexually intimate relationships (Fraley & Shaver, 2000). Attachment research has converged on a definition of adult attachment based on its two primary dimensions, anxiety and avoidance (Sibley, Fischer & Liu, 2005). First, attachment anxiety reflects a predisposition toward vigilance and concern regarding rejection or abandonment in relationships; second, attachment avoidance relates to discomfort with intimacy or dependency, and a reluctance to be emotionally close with others (Fraley & Shaver, 2000).

Numerous studies have provided support for the association between attachment and initial feelings of attraction (Brumbaugh & Fraley, 2010; Eastwick & Finkel, 2008b; Finkel & Eastwick, 2015; McClure, Lydon, Baccus & Baldwin, 2010; Mikulincer & Shaver, 2007), but none have specifically investigated the effects of attachment on attraction or the interaction of attachment dimensions to one another. Specifically, the research lacks an examination of the relationship between attachment avoidance and attachment anxiety in shaping feelings of interpersonal attraction. While prior research supports a positive association between attachment anxiety and initial romantic attraction (McClure et al., 2010), the literature also suggests that the two elements of attachment may have conflicting influences on initial feelings of attraction (Finkel & Eastwick, 2015), though this has not yet been tested. This study serves to examine how these two components of attachment manifest and significantly interact to shape initial attraction.

Early childhood situational factors can play a prominent role in the development of personality and future psychosocial functioning. Studying the relevance and power of relational factors inspired Bowlby to establish attachment theory (Meyer & Pilkonis, 2005), which placed the focus on infant-caregiver relationships in the development of personality, as opposed to internal forces alone, as proposed by Freud (1962). As the theory developed, it became increasingly clear that attachment patterns influence individuals throughout the lifespan. In particular, theorists recognized the connection between infant-caregiver relationships and adult romantic relationships (Mikulincer & Shaver, 2007). In fact, long-term romantic partners often serve as primary attachment figures during adulthood.

More recently, researchers have begun to explore the role of adult attachment in interpersonal attraction (Finkel & Eastwick, 2015). Significantly, feelings of initial attraction are

a key predictor in establishing romantic relationships (Perse & Rubin, 1989). However, individuals who are insecurely attached appear to struggle to initiate and maintain relationships (Mikulincer & Shaver, 2014) and therefore, may demonstrate dysfunctionality in their attraction patterns. Brumbaugh and Fraley (2010) argue, “even when formal bonds are not yet established, using individual differences in attachment to examine the earliest phases of romantic interactions can provide new insights into how people ultimately arrive where they do in their important relationships” (p. 600). Also of importance, a subpopulation of insecurely attached individuals (i.e., the anxiously attached) greatly desire romantic relationships, yet potential partners generally find this population to be less attractive in comparison to secure individuals (Botwin, Buss, & Shackelford, 1997). Feelings of rejection or isolation may reinforce negative views of the self in insecurely attached individuals. In addition, there is a specific need to investigate how attachment avoidance, a variable that has not received significant attention in relation to attraction, may interact with attachment anxiety in shaping initial feelings of interest in another. Those individuals who are highly avoidant and highly anxious in their attachment patterns may exhibit the most disorganized manifestations of interpersonal attraction, warranting empirical attention to inform clinical intervention. Given the significant psychic tension and distress that may result from the dissonance between experiencing attachment anxiety and avoidance, an examination of the relationship between the two attachment variables is needed (i.e., specifically whether the two variables interact), along with intricate empirical analysis to test how these relationships manifest in individuals through variation in attachment variables.

Chapter II: Literature Review

Interpersonal Attraction: An Essential Human Experience

Introduction and current definition. Interpersonal attraction is a fundamental aspect of human life, functioning, and evolution of the species. People are wired to categorize people and things as either good, bad, worth approaching, or not worth approaching, for adaptive purposes (Berscheid & Walster, 1978). Categorization and evaluation guide thoughts and feelings of attraction to others and aid in behavioral expressions of those feelings or thoughts. Despite attraction's significance in life, it appears there is still an incomplete understanding in the research of the nature of the specific mechanisms at play in the attraction process. This study will contribute to the literature by exploring the ways that initial attraction is experienced, particularly in relation to patterns developed as a result of bonds made during early life experiences with enduring consequences into adulthood.

Interpersonal relationships, romantic connections, and attraction between sexually mature individuals are universal experiences. Romantic love is a fundamental drive, utilizing highly motivated thoughts and actions towards one individual (Fisher, 1998). The intense emotional experience of attraction and new love is a mechanism that evolved to promote long-term bonding patterns, to protect both parties involved and ensure the best possible circumstances for producing and raising offspring (Maner, Rouby, & Gonzaga, 2008). In fact, interpersonal attraction has been found to have a more significant contribution to partner selection than ideal mate preferences (Eastwick, Luchies, Finkel, & Hunt, 2014). Specifically, initial attraction is a better predictor of the selection of romantic partners than is the expectation that the relationship will be stable, positive, and fruitful.

Defining interpersonal attraction as a construct has received considerable attention in the literature, and recent research has differentiated between pre-cognitive and conscious thought's role in defining the experience of attraction (Montoya & Horton, 2014). As noted, attraction is essentially defined as a positive mental and emotional evaluation of another individual that elicits an affective (e.g., emotional feelings of positive regard) and / or behavioral (e.g., choice to affiliate) response from that individual (Montoya & Horton, 2014). Zajonc (1980) argues that attraction, as a primarily affective evaluation, is pre-cognitive and independent from the conscious assessments that we may make about potential partners. This supports the notion that initial, interpersonal attraction tends to be more heavily influenced by inherent qualities in an individual, such as emotional and behavioral patterns developed through early experiences.

Despite the common understanding of attraction as primarily pre-cognitive in nature, the two-dimensional model of attraction (TDMA; Montoya & Horton, 2014) suggests that initial romantic attraction emerges after two assessments of the observed individual have been satisfied: (a) a perceived capacity for the target individual to meet the needs and interests of the observer and (b) a perceived willingness of the target individual to satisfy those needs. A potential mate seen as an *ideal* partner (i.e., sexually attractive, intellectually attractive, and socially attractive) may still elicit little response from the observer if viewed as being unwilling, uninterested, or unable to aid in the attainment of the observer's needs.

This model of attraction developed as a way of conceptualizing and integrating the pre-cognitive (i.e., affective and behavior) and cognitive components of attraction, and represents the most modern understanding and definition of interpersonal attraction. What follows is a historical examination of the theoretical evolution of how and why individuals are drawn or attracted to others. The TDMA suggests that the research on interpersonal attraction has

converged upon an understanding of attraction that combines inherent, subconscious needs and conscious thoughts (Montoya & Horton, 2014).

Interpersonal attraction as based on reward. Historically, one of the most consistent and documented explanations for why people are attracted to others is the degree to which others are rewarding for them (Levinger & Snoek, 1972). People are invariably concerned about whether the things and people around them are rewarding or punishing, having evolved from primitive organisms with the adaptive need to evaluate stimuli within the environment (Berscheid & Walster, 1978). The basic principle guiding this theory is reinforcement: we like those who reward us and we dislike those who punish us (Berscheid & Hatfield, 1969). Thibaut and Kelley (1959) initially proposed that attraction occurs as a function of the extent to which the observer evaluates a reward-cost ratio in excess of a minimum, comparison level. This theory, which proposes that attraction occurs as a function of reward, remains popular today as supported by Miller (2012) who argued that the fundamental basis of attraction are the rewards experienced in the presence of others. Satisfying needs is also a rewarding experience, and much of the research on interpersonal attraction has revolved around the general needs people can successfully attain through interpersonal exchanges in varying relationships (Finkel & Eastwick, 2015). In the literature, psychologists have paid particular attention to five specific needs met and rewards provided through interpersonal attraction: self-esteem, anxiety and stress reduction, consistency, belonging, and hedonic pleasure.

Self-esteem need. People meet the basic need of self-esteem through positive evaluations of self, and the most powerful way to facilitate this process is through interpersonal exchanges (Leary & Baumeister, 2000). The attainment of this need warrants significant clinical attention because it appears that individuals with high self-esteem are more receptive to another's love

(i.e., another fundamental human need; Maslow, 1971) and have stronger interpersonal connections than those with lower self-esteem (Berscheid & Hatfield, 1969; Rogers, 1951). The experience of attraction appears to function to increase or protect self-esteem through several mechanisms, including the similarity effect, the reciprocity effect, the pratfall effect, and the low comparison level theory.

The similarity effect (Byrne, 1961) is arguably one of the most robust phenomena in the attraction literature. Research consistently suggests that the perception that a target has increased similarity to an observer (in terms of attitudes, personality, and attributes) is positively associated with increased attraction to the target (Byrne & Nelson, 1965; Montoya, Horton, & Kirchner, 2008; Newcomb, 1961; Swami, 2015). Thibaut and Kelley (1959) elaborated that if we assume that individuals are in need of social support for their attitudes and characteristics, the agreement with those beliefs and of those traits will constitute a reward for them, and thus will aid in feelings of attraction. In other words, individuals tend to be drawn to those who fulfill the need of self-esteem through shared validation of their beliefs and traits. However, research has also found evidence against the association between similarity and attraction. For example, one study found that participants intending to initiate a relationship preferred potential mates who they believed possessed dissimilar interests, potentially because this dissimilarity may facilitate the process of self-expansion (Aron, Steele, Kashdan, & Perez, 2006). In addition, mediators such as importance of the subject matter on which there is similarity may be the true mechanism for the association (Byrne, 1961).

The reciprocity effect is another mechanism thought to explain attraction in the context of satisfying self-esteem (Gouldner, 1960). Theoretically, researchers generalized the norm of reciprocity (i.e., that we should help or do no harm to others who help us) to feelings of

attraction (Montoya & Horton, 2014). In addition, Dittes (1959) found that approval from other people is particularly reinforcing or rewarding to individuals with low self-esteem. This approach is also underscored by social exchange theory, which purports that the social approval or acceptance of others is generally reinforcing (Homans, 1961). Therefore, people may be motivated to be emotional and behaviorally drawn to others whom they know share mutual feelings of attraction. As suggested by the TDMA (Montoya & Horton, 2014), discovering that one is liked by another individual likely leads to feelings of attraction because the received sense of attraction demonstrates the target's intent to act in a trustworthy, and safe way during future interactions together (Montoya & Insko, 2008).

Research has consistently demonstrated support for the reciprocity effect on interpersonal attraction (Finkel & Eastwick, 2015). Multiple studies have also shown that people are attracted to those who are interested in them specifically and distinctly, suggesting that individuals desire those whom demonstrate a unique attraction to them (Eastwick, Finkel, Mochon, & Ariely, 2007; Walster, Walster, Piliavin, & Schmidt, 1973). However, exceptions or moderators of the reciprocity effect have also been acknowledged, such as incongruency (when an individual's self-views are inconsistent with the idea of being liked), ingratiation (the assumption that the admirer has an ulterior motive), and sequence (the reciprocity effect is contingent on a build-up of feelings of attraction, rather than immediate displays of attraction; Berscheid & Walster, 1978; Aronson & Linder, 1965). In addition, Vonk (2002) was unable to find that the reciprocity effect on attraction is mediated by self-esteem, indicating that the theoretical basis for a connection between reciprocity and attraction may still be somewhat ambiguous.

Comparison of oneself to others (or a target) may be an additional factor in considering the connection between self-esteem and attraction. For instance, the pratfall effect, or observing

an appealing other committing a display of embarrassment, is another contributor to the association between attraction and self-esteem. Consistently, research participants have demonstrated increased feelings of attraction when a physically attractive target is observed to commit a pratfall (Aronson, Willerman, & Floyd, 1966; Montoya & Horton, 2014). This effect appears to occur because although individuals like appealing or physically attractive targets, attraction only occurs if the observer does not feel as though his or her self-esteem is threatened by social comparison (Herbst, Gaertner, & Insko, 2003). In addition, meta-analytic research supports that people generally tend to pair up with, connect with, or be attracted to others who more or less match their level of physical attractiveness (Walster, Aronson, Abrahams, & Rottmann, 1966). Finally, those who maintain a low comparison level (such as individuals low in self esteem or high in attachment anxiety) tend to experience stronger feelings of attraction towards others (Berscheid & Hatfield, 1969; Finkel & Eastwick, 2015; Walster, 1965). Put simply, this population tends to have lower standards for receiving self-based validation from a potential romantic partner. Thus, anxious individuals who are inherently concerned about losing an attachment figure are more vulnerable to the powerful reinforcing effects of attraction on self-esteem. In sum, self-esteem is a powerful need that appears to be gratified through attraction resulting from feelings of similarity, reciprocity, and protection of one's self esteem. As a result, attraction has been shown to be motivated and reinforced by the fulfillment of this need.

The need for anxiety and stress reduction. Another critical need that may be met through interpersonal attraction is stress reduction. People experiencing acute anxiety tend to be attracted to others who have the potential to help them manage that distress (Finkel & Eastwick, 2015). A review of 25 studies assessing the influence of anxious distress on affiliation (or the act of pursuing being in the presence of others) supported that distress breeds affiliative behavior

(Montoya & Horton, 2014). Psychologists hypothesized that the sheer presence of others is rewarding in that affiliation is relaxing when one is feeling fearful, anxious, or alone (Berscheid & Hatfield, 1969). Bovard (1959) theorized an explanation for why affiliation or time with others may reduce stress. In emphasizing the difference between psychological and physical stress, he proposed that there are intentional techniques to prevent the negative effects of psychological stress on human functioning, given the mediating role of the central nervous system (Back & Bogdonoff, 1964). These include placing oneself in the physical presence of another individual, particularly one with whom the anxious individual has affiliated in the past. Bovard (1959) insisted that this affiliative process activates the parasympathetic response, therefore inhibiting and reducing the effect of the stress responses. Attraction is motivated by the resulting negative reinforcement of relieving stress in the presence of another.

Further, Schachter (1959) empirically found that stressed participants were most attracted to those in a similar situation (i.e., in this case, other participants who they believed were going to get shocked). He reasoned that affiliating with another person in a stressful setting may be explained by the desire for: (a) escape by talking to the person about ways to avoid pain, (b) cognitive clarity regarding the situation, (c) direct anxiety reduction through comfort in solidarity and reassurance, (d) indirect anxiety reduction through distraction, or (e) self-evaluation or affirmation of reasonableness of reactions. Regardless of the motivating factors, research has suggested that people are prompted to engage with others interpersonally (and are thus behaviorally attracted to them) when experiencing stress or anxiety. Schachter's theories have been reevaluated several times, and reviews of existing data conclude that there is consistent support that anxious arousal intensifies emotional reactions, and that anxious arousal in an interpersonal context is often attributed to romantic attraction (Reisenzein, 1983; White,

Fishbein, & Rutsein, 1981). Despite consistent reliance upon Schachter's results and theory, alternative researchers have critiqued his conclusions, arguing that fear (rather than anxiety or stress) leads to attraction or affiliation while anxiety has the opposite effect, prompting distancing (Sarnoff & Zimbardo, 1961) and that most studies are purely correlational in nature, limiting inferences that may be made (Montoya & Horton, 2014).

Consistency needs. Related to the need for anxiety reduction is the basic human need for consistency. Feeling a lack of consistency or cognitive dissonance can lead to feelings of anxiety or feelings of tension. Therefore, when we seek consistency, we also often desire a sense of stability, which provides stress relief. Consistency, in the context of its relationship to attraction, is defined in terms of people's motivation to believe that their thoughts and behaviors are internally coherent. Heider's (1958) theory underlies the proposition that people need consistency and may pursue it through attraction; he suggested that people seek balance in their evaluations of others. In fact, Aronson and Cope (1968) found that study participants were especially attracted to others who had punished their enemies and rewarded their friends, therefore exhibiting behaviors consistent with the participant's evaluations. It has also been proposed that humans require a feeling of internal consistency, or equity between cognitions and self-assessments, and that this need drives feelings of attraction to others (Finkel & Eastwick, 2015). Interestingly, individuals tend to turn to others for self-verification, or feedback that their beliefs regarding themselves are accurate, even if this verification results in feelings of distress. In addition, it appears that people are attracted to others who promote feelings of external consistency, or those who reciprocate favors in order to fulfill a desire for exchange norms based on principles of reciprocity in society (Clark & Mills, 1979). Empirically, this theory has

received little attention, but the connection between consistency and attraction may be linked more so to the need for anxiety reduction given the tension that often results from ambivalence.

The need for belonging. Humans strive for feelings of love and belonging, two essential interpersonal needs (Maslow, 1971), ever since experiencing the first interpersonal bond through attachment formation. Feelings of belonging derive from a sense of connectedness and shared experiences. One primary attraction effect which drives the satisfaction of the need for belonging is the sense of familiarity. It seems that people are often attracted to those who are within closer proximity, or physical distance (Festinger, Schachter, & Back, 1950; Segal, 1974), which instills a sense of familiarity and comfort. In fact, early social psychological research found an inverse relationship between the distance separating potential marriage partners and number of actual marriages (Bossard, 1932). Underlying this connection between propinquity and attraction is potentially the motivation to acquire increased information about the other person and about the rewards that they may offer (Bersheid & Hatfield, 1969). Indeed, when acquiring a great deal of information about another individual to whom one is physically close, one more often recognizes rewards than punishments (Newcomb, 1956), thus aiding in the process of attraction formation (Back, Schmukle, & Egloff, 2008).

The theory that attraction is motivated by a sense of comfort and physical closeness is also supported by the mere exposure effect, which suggests that people experience greater attraction with familiar stimuli (i.e., people) versus unfamiliar stimuli, even unconsciously (Zajonc, 1968). Moreland and Beach (1992) found support for this effect in an empirical study exploring attraction in college students. In their analysis, the authors detected elevated attraction levels toward a confederate who had posed as a student in the participants' course during several lectures, despite never interacting. It is likely that the major reason that this occurs is that the

human psyche is hardwired to bond with close others (Hazan & Diamond, 2000; Hazan & Zeifman, 1994). Further, Kellerman, Lewis and Laird (1989) found that experiencing a brief instance of intimacy with another person resulted in attraction to the target of the shared intimacy, even when participants did not select the target. These findings point to an association between the innate need to connect and feel close to others and the resulting feelings and evaluations of interpersonal attraction.

Pleasure fulfillment needs. The final need that, when satisfied by feelings of attraction results in a feeling of reward, is pleasure. In general, humans are adapted to approach physical and psychological pleasure and avoid the inverse, physical and psychological pain (Atkinson, 1964; Thorndike, 1935). Not surprisingly, people are motivated to approach (and be interpersonally attracted to) others whom they associate with pleasure and avoid those who they relate to the schema of pain (Lott & Lott, 1974). In relation to the TDMA, a characteristic in another individual leads to greater feelings of attraction when it is perceived to make the target more capable of facilitating the assessor's personal interests, such as increasing a feeling of pleasure (Montoya & Horton, 2014). While the qualities that we associate with pleasure are generally idiosyncratic, the literature has found consistent traits that are considered to be desirable, and associated with elevated attraction: physical attractiveness, sense of humor, and status and resources (Newcomb, 1956).

Physical attractiveness appears to be the most robust predictor of initial, interpersonal attraction (Feingold, 1990; Luo & Zhang, 2009). This propensity to be attracted to physically attractive individuals appears to be at least somewhat explained by a general tendency to be drawn to beautiful, easy-to-process objects in humans, as well as nonhumans (Reber, Winkielman, & Schwarz, 1998). Several empirical articles have suggested that physical

attractiveness is associated with a sense of pleasure and greater attraction, as evidenced by activation of the reward circuitry of the brain (Cloutier, Heatherton, Whalen, & Kelley, 2008) and overall self-report ratings of feelings of interpersonal attraction (Walster et al., 1966) when presented with physically attractive others. Sense of humor, on the other hand, is presumed to be associated with attraction in that laughter is inherently one of the most universally pleasurable experiences (Pfeifer, 1994); indeed, it is one of the most desired qualities in a romantic partner for both men and women (Buss, 1988; Feingold, 1992). The final nearly-ubiquitously desired trait is status or resources, in that people tend to be more romantically and interpersonally attracted to others who are wealthy or ambitious (Fletcher, Simpson, Thomas, & Giles, 1999). It is hypothesized that attraction is associated with these traits because of the desire to interrelate with others who may provide the individual with greater accessibility to a luxurious and pleasure-filled lifestyle. Overall, attraction aids in the pursuit of pleasure gratification, and the expression of attraction appears to be altered by the distinctive variables that may be associated with greater pleasure.

To conclude, researchers have consistently proposed and found support for the theory that interpersonal attraction occurs due to the inherent rewards that are associated with shared exchanges. In addition, the sense of satisfying particular needs through interpersonal interactions reinforces feelings of attraction, the initial sensation prompting interpersonal contact. Examining the literature reveals an emphasis on the conscious gratification of needs through which attraction is ignited. However, even the unconscious association of an individual with the experience of a reward can lead to greater feelings of attraction (Lott & Lott, 1961, Williams & Bargh, 2008). Determining exactly which factors or variables contribute to feeling more gratified or rewarded in a given individual may warrant further exploration. Nonetheless, the experience

of attraction associates consistently with positive outcomes, such as increases in fulfillment, comfort, pleasure, and self-esteem and decreases in anxiety, discomfort, and threats to self-esteem. These findings suggest that those who are particularly vulnerable to psychological threats proximally or distally (including anxiety and feelings of low self-worth) may be more likely to be motivated to attract to others, in order to gain the benefits described above.

Furthermore, an innate tendency to be attracted to others is likely to contribute to affiliative behaviors. Moving ahead, focus will be placed upon how the evolution of human species, as well as the early formative experiences one has during infant development and initial attachment formation, may innately shape interpersonal attraction.

Evolutionary theory of interpersonal attraction. The evolutionary perspective is the second, prominent approach to theorizing about interpersonal attraction. This theory suggests that people have explicit needs that are linked to reproductive success, and that these particular needs can only be met through specific means (e.g., attraction; Finkel & Eastwick, 2015). For example, humans' fundamental need to reproduce and pass on genes can be satisfied, in the long-term, by their partner demonstrating sexual attraction towards them, but not by receiving a compliment from a friend. Two primary developments in the field of evolutionary psychology led to the use of evolution as an explanation for interpersonal attraction: adaptation as an explanation for behavior (Wilson, 1975), and Trivers (1972) theory regarding differential parental investment in males versus females (Finkel & Eastwick, 2015). These advancements aided in the formulation of utilizing evolution as explanatory model for attraction formation.

Mate preferences and gender differences. Early research supporting an evolutionary explanation for attraction focused on mate preferences, or the qualities looked for in a partner prompting initial attraction (Buss, 1989; Hill, 1945; Kenrick & Keefe, 1992). Authors presumed

that potential partners act on evolved cognitive-affective heuristics (i.e., evaluations of attraction) that lead them to seek out mates with traits related to the possession of genes promoting survival of the offspring and also related to the ability and inclination to contribute resources that could facilitate the offspring's survival (Kenrick, Groth, Trost, & Sadalla, 1993). In order to test this theory, using a sample of over 10,000 participants, Buss (1989) assessed and compared female and male mate preferences. This radical study emphasized identifying specific adaptive problems faced by humans' ancestors and developing testable hypotheses regarding sex differences based on these problems. Buss hypothesized and found support for the ideas that (a) women were more likely than men to seek characteristics related to resource acquisition, (b) men were more likely to seek characteristics related to reproductive capacity, and (c) males were more likely than females to seek traits related to sexual purity. The first finding supported an evolutionary explanation for attraction because it provided evidence that males monopolized and defended resources in the evolutionary past and the survival of women and offspring are more dependent on gaining such resources from their partners. The second result demonstrated support for the evolutionary theory that men's reproductive success is constrained by challenges associated with gaining sexual access to fertile women. The final result was based on the evolutionary fact that men can never truly know with certainty that they are the parent of a given offspring of a woman. Overall, Buss's (1989) innovative study suggested that we are primed to be attracted to and seek partners that aid in our evolved needs as a species.

Social evolutionary theory, proposed by Kenrick and Trost (1989), provided an expanded understanding of interpersonal attraction based on adaptively furthering the human species. This theory also places focus on resource exchange as a basis of courtship and imagines that individuals act selfishly in a way designed to maximize personal gain from a relationship

(Kenrick et al., 1993). Support for these theories has also been shown by Brehm (1985) who found that male partners are more valued for their economic success than female partners, and Cameron, Oskamp, and Sparks (1977) who revealed that women prefer higher status men for mates. In addition, the cross-cultural universality of these findings regarding male and female mate preferences provides further evidence to suggest that the evolutionary factors may explain interpersonal attraction (Buss, 1989).

Buss furthered his examination of an evolutionary basis for attraction in studies investigating sexual strategies theory (Buss & Schmitt, 1993). This theory proposes that (a) historically, both men and women have pursued short-term and long-term mating specifically when the reproductive benefits have outweighed the costs, (b) men are more likely to spend more effort on short term mating than women because of the gender differences in parental investment, and (c) because the reproductive opportunities and limitations differ for the two sexes in these contexts, the adaptive problems that women must solve when pursuing a strategy are often different from those that men must solve (Buss & Schmitt, 1993). In short, evolutionarily, men have been constrained by the challenge of obtaining sexual access to fertile women, while women have been constrained by pursuit of obtaining access to adequate resources for offspring, resulting in different long and short term strategies between men and women. This theory was supported by Clark and Hatfield (1989) who found that male participants were more likely than female participants to agree to sexual engagement upon an initial meeting of a physically attractive confederate. This theory has also been evidenced by the literature regarding the sex differences in sociosexuality, a personality variable representing a person's willingness to have short-term, uncommitted sexual relations (Schmitt et al., 2003; Simpson & Gangestad, 1992).

Put together, early research regarding the evolutionary basis of attraction suggests that humans tend to be attracted to individuals who are more likely to aid in the acquisition of evolutionarily-based goals. This is even supported by the fact that humans tend to mate with others who match them in subjective quality because the potential partner represents one's belief that they can feasibly achieve a desired goal (i.e., continuation of their genes in their offspring) (Finkel & Eastwick, 2015). In terms of evolutionary value, self-esteem serves as one's self-perceived quality as a romantic partner (Kenrick et al., 1993). Kirkpatrick and Ellis (2004) found that one function of self-esteem is to assist in the process of approach toward others who are high in mate quality, but not so high that they do not reciprocate attraction or benefits. Therefore, we tend to be attracted to those with whom we feasibly believe we will be able to maximize our reproductive fitness. However, it may also be the fact that a hyperactive concern regarding attaining these adaptive goals (resulting from early life experiences) may influence the degree to which we are attracted to others.

Social cognition. More recent research has recognized the role that cognition plays in an evolutionary basis for interpersonal attraction (Finkel & Eastwick, 2015; Maner et al., 2003). Priming, for instance, has been shown to have an impact on interpersonal attraction; specifically, when primed with sexual thoughts, individuals have a more difficult time looking away from physically attractive targets (Maner, Gailliot, Rouby, & Miller, 2007). Relationship status is another cognitive factor that appears to influence interpersonal attraction in that participants who report being involved in a committed relationship tend to feel less drawn to physical attraction (Finkel, Molden, Johnson, & Eastwick, 2009; Maner, Rouby, & Gonzaga, 2008). It seems that specific cognitive factors may moderate the influence that the adaptive nature of humans has on initial attraction experiences. These findings suggest that people may have evolved mechanisms

that either reinforce attraction to aid in evolutionary processes (i.e., reproduction) or protect against risky attraction to undesired targets (i.e., if already satisfied with a current mate and potential offspring or resources).

Instrumentality: A modern theory of interpersonal attraction. In a recent examination of past and current literature on the theories of interpersonal attraction, Finkel and Eastwick (2015) proposed that there may be a way to unify theories of attraction under one concept: instrumentality. The authors pointed to Lewin (1935) who claimed that people tend to evaluate others positively or negatively based on the degree to which they facilitate or encumber goal pursuit. In addition, we tend to find others to be rewarding when they aid in our ability to engage in activities we find enjoyable, which may be an innate desire (Newcomb, 1956). Though there has been little recognition of the role of instrumentality in prompting feelings of attraction, the research suggests that there is, however, a strong link between instrumentality and relationships. For decades, theorists have hypothesized that people manage their social life in ways that maximize goal attainment (Kelley, 1979; Seeley & Gardner, 2006). In addition, Fitzsimons and Shah (2008) empirically tested this theory and found that people have preferences for romantic partners who are instrumental for a current, important goal. This effect was found to be moderated by the attainment of the goal; that is, the tendency to be attracted to potential mates reduced or disappeared once the participant had made significant progress in achieving the goal (Fitzsimons & Fishback, 2010). This effect may occur due to a social disengagement process that allows people to focus and manage their efforts on goals that require the most urgent attention, therefore maximizing the reward ratio.

Though researchers had not previously recognized instrumentality as an explanation for attraction, Finkel and Eastwick (2015) argue that the fundamental principle underlying all

attraction mechanisms is that people become attracted to others based on the degree to which they help achieve a specific goal that is currently high in motivational priority. This attraction is contingent upon the instrumentality value of the person, or how critical the target is in making progress towards the goal. Therefore, attraction can shift and change as a result of changes in prioritization of a given goal and the role a person plays in each goal. For example, individuals tend to be attracted to a sexually skilled partner when they have a goal of engaging in sexual behavior; however, once that goal has been achieved, it loses priority and attraction has been shown to minimize (DeWall, Baumeister, & Vohs, 2008). The instrumentality theory also seems to fit with the attachment literature in that people experiencing satisfaction of attachment needs are less likely to be attracted to others with the potential to foster bonding and belonging and more attracted to the potential to promote the pursuit of other goals, taking greater priority at that point (Finkel & Eastwick, 2015). Interestingly, for those who experienced insecure attachment early in development, instrumentality theory suggests that the attachment need will maintain priority until gratification is met and secure attachment develops, through attraction related behaviors. This process may take a lifetime or may never occur, particularly for impenetrable cases in which achievement of the goal is extremely challenging given the person's troubled history of attachment relationships. For instance, those who experience competing forces of and motivations for attachment (i.e., the desire to connect as well as the desire to protect from pain) are likely to exhibit complex attraction behaviors, according to instrumentality theory. The significance of attachment needs hold sway over many others, particularly in the context of romantic attraction and relationship. Therefore, it is difficult to overlook the emphasis placed on this inherent need based on early life experiences.

Limitations and rationale for continued study of attraction. It appears that the complex factors contributing to the experience of initial, interpersonal attraction warrant additional empirical attention. Various limitations among prior research suggest that there is still much to be explored. For instance, the conflicting nature of theories of attraction (i.e., reward theory versus evolutionary theory) indicate that there is not yet consensus regarding an explanation for why and how individuals attract to one another (Finkel & Eastwick, 2015). In addition, there have been specific limitations within each theory. Reward theory research has been limited by conflicting findings (Vonk, 2002; Luo & Zhang, 2009), exceptions to proposed mechanisms, such as reciprocity (Berscheid & Walster, 1978), and misattributions of rewards (i.e., the reduction of fear versus anxiety) that prompt attraction (Sarnoff & Zimbardo, 1961). In addition, core rewards (i.e., self-esteem) theorized to be associated with interpersonal attraction and resulting relationships have been shown to be explained by other significant mechanisms (i.e., attachment; Molero, Shaver, Cuadrado, & Alonso-Arbiol, 2010).

Similarly, the evolutionary perspective has been plagued by confounding variables such as socialization (Eagly & Wood, 1999), and methodological concerns related to failure to control for the impact of time (Finkel & Eastwick, 2015). In addition, researchers have historically acknowledged that chance or coincidence may be factors that explain interpersonal attraction, rather than rewards or evolution (Berscheid & Hatfield, 1969). Also of significance, people experience a constant tension between approaching a desired goal or outcome, and the desire to avoid potential pain that may accompany either losing what we once desired or failing to achieve it in the first place. While reward theory and evolutionary theory both provide evidence for this tension's presence and role in shaping human attraction, neither fully encapsulates how people respond to the ubiquitous tension. Reward theory explains how we are motivated to evaluate

others positively and behaviorally react to these evaluations (i.e., through approach) in order to reach our goals of attaining self-esteem, stress reduction, consistency, belonging and pleasure. However, evolutionary theory indicates that expressions of attraction are inherently based upon and shaped by self-preservation and protection of oneself, both of which may be threatened by loss (i.e., resulting in avoidance). Therefore, theories of attraction require acknowledgement of this tension and a possible explanations that might resolve it. Here, I propose that it is not reward, evolution, or chance that suggests why research has been somewhat inconclusive in explaining attraction, but rather complexity and the role of critical experiences during infant and child development. It appears that the theory of instrumentality does, however, set the stage to properly resolve this tension by recognizing the interacting drives and resulting behaviors among people.

There is a final, innovative approach to understanding interpersonal attraction that has not yet been discussed, but may provide a more inclusive explanation for attraction; that is, the attachment perspective, on which this study is based. Attachment theory suggests that we are motivated to approach attachment figures (e.g., romantic partners) in times of distress in an attempt to establish an internal sense of security (Bowlby, 1969). If instrumentality is the unifying principle for attraction theory, then the instrumental nature of attachment is in the sense of security afforded by the attachment bond; the security experienced through association with an index person provides the platform from which attraction develops (Hazen, 2000). The attachment bond is determined, in part, by the amount of anxiety and or avoidance inherent in the primary attachment relationships during childhood, therefore the impact of anxiety and avoidance on attachment security will likely endure into adult relationships.

The role of attachment in initial attraction formation has seen empirical validation, and findings are even linking past theories of attraction to attachment. For instance, McClure et al. (2010) empirically examined the connection between romantic attraction and attachment anxiety. They found that initiating a romantic relationship, which begins with initially communicating shared attraction, often invokes an approach-avoidance conflict. This conflict is illustrative of the tension of combined desire for affiliation coupled with the fear of rejection. McClure and colleagues (2010) tested whether individuals who are insecurely attached in an anxious or preoccupied way tend to approach ambivalence by either being fearfully selective or by taking an indiscriminate approach. The researchers revealed that these insecurely attached individuals were more likely to be non-selective, communicating elevated levels of attraction than non-anxious participants. The approach-avoidance conflict demonstrates that there is more to be examined in understanding the process of attraction and also how early attachment experiences seem to play a critical role in the attraction formation process. The section that follows will explore the origins, development, and application of attachment security to the context of interpersonal attraction.

Attachment: Theories, Anxiety, and Connections to Attraction

Attachment theory development and application to infants. Unlike prior psychodynamic theorists, Bowlby (1982) stressed the importance of relational events as causal elements in development of personality disturbances and interpersonal difficulties. He proposed three aspects explaining the significance of the attachment system in the formation of adolescent and adult characteristics. First, he suggested that young children are equipped with innate, biologically based motivation systems that serve to promote proximity between child and caregiver especially in threatening situations (Corr & Matthews, 2009). Second, Bowlby proposed that attachment motivation is distinct from other motivations, such as food or sex

(Meyer & Pilkonis, 2005). Specifically, attachment leads to increased protection and ultimately to strengthened exploration of the external environment. Third, Bowlby argued that the attachment system is activated by both internal and external cues. External cues include threatening stimuli or distance from the caregiver; internal cues, such as fear, illness, and fatigue, signal to the child that resources of independent mastery of the environment are threatened (Meyer & Pilkonis, 2005).

Bowlby emphasized that the attachment figure, often represented by the mother or a person significant during infant and child development, functions as a secure base from which the child sets out to explore the environment. Therefore, support and availability provided by the caregiver encourages discovery, play, and social behavior in the child (Meyer & Pilkonis, 2005). Bowlby (1969) argued that these behaviors were necessary for proper psychological development and were dependent on the bonding environment in which the child was raised (Corr & Matthews, 2009). Bowlby's attachment theories motivated future psychologists to expand upon and create an even stronger foundation for the model.

Drawing inspiration from Bowlby's emphasis on the mother-child relationship, Ainsworth and Bell (1970) provided evidence for the significance of individual differences of attachment relationships. Ainsworth and Bell (1970) experimentally explored Bowlby's theories of attachment in the famous study, the Strange Situation, assessing the proximity seeking behavior of infants under varying degrees of stress. By observing several infant and mother dyads, Ainsworth established three categorical patterns of attachment that are still used today to describe infant-caregiver associations. The first was secure attachment, as presented by independent engagement in confident exploration of the environment when the caregiver is

present. In conditions of threat, securely attached infants responded with distress and sought proximity to the caregiver.

The two other styles of attachment established by Ainsworth and Bell (1970) are insecure forms, in that they deviate from patterns reflective of healthy infant-caregiver connections. In the strange situation, children characteristic of an anxious-ambivalent style responded to threat with intense distress; when the caregiver reunited with the infant, he or she was not easily consoled and displayed mixed distress and contact seeking (Ainsworth & Bell, 1970).

Additionally, these infants tended to remain preoccupied with monitoring the proximity of the caregiver throughout a new situation (Meyer & Pilkonis, 2005). A second form of insecure attachment was an avoidant style, characterized by a lack of distress when caregivers departed from the strange situation (1970). Even upon arrival of the caregiver, these infants ignored or actively avoided the caregiver. Subsequent to early testing of the strange situation, Main and Solomon (1990) continued Ainsworth's legacy by adapting a final insecure, infant attachment style, disorganized-disoriented, characterized by inconsistent, unsystematic strategies for dealing with stress. The disorganized-disoriented attachment style was characterized by a breakdown in the organization of attachment strategies, resulting in either oscillation between hyperactivation and deactivation of the attachment system, or overall bizarre and irregular behavior. Establishing specific attachment styles assisted psychologists in assessing attachment patterns from birth to adulthood, and helped to predict adult interpersonal behaviors. Further researchers have also expanded Ainsworth's work by acquiring and reporting the prevalence of infant attachment styles. Research suggests that 58% of infants are secure, 24% are avoidant, and 18% are preoccupied (Bakermans-Kranburg & van Ijzendoorn, 1993). The publication of the high prevalence of insecure attachment (approximately 42%, combining the prevalence of avoidance

and preoccupied attachment) magnified the importance of continuing to investigate the mechanisms by which attachment formation occurs, and the pervasive impact of it.

Drawing upon the framework developed by Bowlby and Ainsworth, researchers proposed theories surrounding the neural component in the development of attachment (Amini, Lewis & Richard, 1996; Schore, 1994). Schore (1994) developed and introduced the concept of affect synchrony, or attunement, between mother and infant, to explain the process of emotional regulation and attachment formation during normative infant development. Affect synchrony affects circuit wiring of the orbitofrontal cortex, a key region of the brain involved in attachment formation. The right orbitofrontal cortex coordinates social communication, emotion regulation, and empathic attunement or synchrony, which are all crucial elements in attaching to another being (Schore, 2000). Attachment theory also suggests that a key factor in affect synchrony and right orbitofrontal development is the critical period during which it occurs. During the first 33 months of life (Schore, 1994), the infant is particularly open to the influence of the environment and to its effect on his or her future mental representations of the world.

Amini et al. (1996) integrated the physiological bases of infant development of affect, attachment, and implicit memory to conceptualize emotional functioning (and dysfunctioning) throughout the life course. The authors stress the importance of social reference and context (i.e., the caregiver) during infancy in order to develop and maintain affective homeostasis through the synchronous exchange of emotions (i.e., similar to attunement, proposed by Schore, 1994). Inadequate or poor attachment formation during the early years of life is associated with dysregulation and neurobehavioral despair, as demonstrated by social incompetence and an overly activated stress response (e.g., increased heart rate and cortisol levels). Long-term detrimental effects of poor attachment include the inability to self-regulate affect, experiencing

increased negative emotional states, and having a greater vulnerability to psychopathology. In contrast, healthy attachment and communication of affect between infant and caregiver allows the tuning of each other's physiological and emotional homeostasis, and ultimately maximizes the infant's (and later, adult's) capacity for self-regulation. Amini et al. (1996) indicate that these early neurological processes are responsible for the infant or child acquiring implicit knowledge regarding relationships, how to function within them, and the rules surrounding them. Therefore, the attachment relationship forms the basis for how to feel and behave in future relationships, potentially having a profound impact on adult interpersonal functioning.

Applying attachment theory to adulthood. Attachment theorists unanimously understood the application of attachment to juvenile behaviors and relationships. However, several years after the fundamental research surrounding infant attachment, theorists empirically tested and applied the theory to adult relationships (Geore, Kaplan, & Main, 1985; Hazan & Shaver, 1987). This progression to adult attachment research only seemed appropriate given the infant attachment-based implications for adult affective and interpersonal functioning suggested by Bowlby (1982) and Main (1985). Prior to the direct application to adults, Bowlby (1980) acknowledged that the human bond characterized through attachment is experienced as a source of security and the renewal of a bond with another as a source of joy, two feelings that continue to be experienced throughout the life-course. He reasoned that since these emotions are typically a reflection of the state of a person's attachment bonds, the psychology of emotion is largely explained by the psychology of affectional bonds, therefore suggesting attachment's continual impact into adulthood.

Following suit, Main, Kaplan and Cassidy (1985) began the exploration of attachment later in life by developing the Adult Attachment Interview (AAI) to study adolescent and adult

mental representations of attachment, and classified three primary categories of attachment (i.e., secure, dismissing, and preoccupied) which mirror those of infancy. Hazan and Shaver (1987) also developed a categorical self-report measure to assess adult attachment style, and their findings led them to make notable connections to romantic relationships. Fraley and Shaver (2000) succinctly summarized the four seminal points made by Hazan and Shaver. First, the researchers proposed that the emotional and behavioral interactions of infant-caregiver relationships and adult romantic relationships are controlled by the same biological system proposed by Bowlby (i.e., the homeostatic control system maintaining a “set goal” of psychical and psychological proximity to a potential caregiver). Secondly, the kinds of individual differences seen in infant attachment relationships (i.e., attachment styles) are similar to those observed in romantic relationships. Later research (discussed below) defined adult attachment styles, recognizing patterns similar to infant manifestations. Third, the theorists reasoned that individual differences in adult attachment are demonstrations of beliefs formed about self and others (particularly those with whom the individual is close) based upon attachment experiences and history in the form of “internalized working models.” Finally, romantic love involves the interaction of attachment, caregiving, and sexual intimacy. The authors also developed questionnaires to examine the application and utility of attachment to common adult experiences. Hazan and Shaver’s (1987) self-report measures asked subjects to reflect on their behaviors, thoughts, and emotions in relationship to romantic partners. In sum, Hazan and Shaver (1987) reasoned that adult peer and romantic relationships fulfill many of the same need-based functions that characterize the infant-caregiver dyad early in life.

Shortly after Hazan and Shaver’s (1987) proposal and questionnaire development, Bartholomew and Horowitz (1991) adapted a model for adult attachment styles, as inspired by

Ainsworth's categorization style and adult groupings proposed by Main et al. (1985). The authors' model included four independent groups based upon levels of attachment anxiety and attachment avoidance. Attachment anxiety represents an individual's representations of self. Those with a positive, stable, and secure view of self-worth tend to have low attachment anxiety, while those with a negative view of the self are highly dependent upon others and tend to have high attachment anxiety (Finkel & Eastwick, 2015). Attachment avoidance describes problematic mental representations of others. Comfort in relationships and positive views of close partners or attachment figures are characteristics of low attachment avoidance, while, maintaining a primarily negative view of others and evading close bonds or interdependence with others are signs of attachment avoidance (Fraley, Niedenthal, Marks, Brumbaugh, & Vicary, 2006). Based upon these constructs, Bartholomew and Horowitz's (1991) adapted a schema containing four adult attachment styles: (a) secure (low avoidance and low anxiety), (b) preoccupied (high anxiety and low avoidance), (c) dismissing (high avoidance and low anxiety), and (d) fearful (high avoidance and high anxiety). Therefore, in conceptualizing attachment styles, Bartholomew and Horowitz (1991) proposed that secure individuals tend to have a positive view of the self and others, preoccupied individuals tend to see others more positively and view the self as inferior, dismissing adults view themselves highly while seeing others in a negative light, and fearful individuals have a poorly formed perception of self and others. As shown through the different adult attachment styles and their applications to clinical practice, it became clear that attachment anxiety and avoidance are two critical constructs in the exploration of manifestations of attachment insecurity.

Avoidance and anxiety as the primary measures of attachment. Through their categorical approach, Hazan and Shaver (1987) and Main and Solomon (1991) found that

people's self-reported adult attachment patterns corresponded to several relevant theoretical variables, such as belief about love and companionship, recollection of early experiences with caregivers, and experiences in work (or "exploration") environments. Yet, the categorical nature of Hazan and Shaver's work had two notable limitations. First, categorical measures are based on the belief or assumption that variation among people within each category is irrelevant or does not exist. The categorical approach assumes that individuals within a category do not differ in such a way that they can be defined or characterized by a specific pattern. Second, test-retest reliability of categorical measures tends to be lower (i.e., approximately .4 in terms of Hazan & Shaver's measure), suggesting that there may be instability as a result of true change in attachment over time (Baldwin & Fehr, 1995). Therefore, properly defining and measuring adult attachment required further investigation.

Successively, two developments in attachment research have greatly improved the overall ability to assess adult romantic attachment and related constructs. First, to address the limitations of the categorical approach, researchers broke the type-descriptions into Likert-scale items from Hazan and Shaver's measures, factor-analyzed them, and turned them into continuous scales of avoidance and anxiety (Fraley, Waller, & Brennan, 2000). Research has continuously demonstrated that the dimensional, versus categorical, model of attachment is better equipped for conceptualizing individual differences in adults (Fraley, Hudson, Heffernan, & Segal, 2015). This improvement provided further support for the ability to define attachment by its two primary variables: attachment avoidance and attachment anxiety. Second, the four-style conceptual scheme created by Bartholomew and Horowitz (1991) was instrumental, in that it created a map based on the measures of attachment avoidance and anxiety, yet again evidencing the utility and significance of avoidance and anxiety. This innovative development spurred the

emphasis of the two key components of attachment (avoidance and anxiety) and utilization of these components as the superior way to define attachment expression.

In the construction of their scheme, Bartholomew and Horowitz (1991) theorized that the two dimensions of attachment were independent constructs. Attachment anxiety corresponded to self-evaluations and emotional responses, while avoidance related to perceptions of others and behavioral responses to those perceptions. Further, Mikulincer, Shaver, Sapir-Lavid, and Avihou-Kanza (2009) assumed that the attachment components were not only on independent scales but were statistically unrelated or orthogonal variables. For instance, the description of secondary attachment strategies (see below) were proposed to be either / or responses to attachment related threats or cues, suggesting that the two variables are unrelated. While they have been theoretically proposed as independent, researchers have failed to empirically demonstrate the complete independence of the two dimensions (Cameron et al., 2012); however, the relationship between anxiety and avoidance and the potential significance of their relationship has received limited investigation.

Following the recognition of avoidance and anxiety as the primary components of attraction, theorists began to very closely examine the process by which these two dimensions develop (Mikulincer & Shaver, 2007). As noted, inconsistent caregiving during development may have profound implications for how an infant learns to relate to others as an adult. Shaver and Mikulincer (2002) developed a model that posited that insecure attachment results in predictable, detrimental patterns in adult attachment behaviors. More specifically, lack of responsiveness or inadequate caregiving during infancy triggers a cascade of mental and behavioral processes that threaten wellbeing, individual adjustment, and relationship satisfaction later in life (Mikulincer & Shaver, 2007). The authors suggested that caregiver neglect forces

individuals to adopt secondary attachment styles, such as attachment system hyperactivation, deactivation, or a combination, that persists into adulthood.

The system of attachment anxiety: explanation and negative implications.

Attachment anxiety triggers hyperactivation of the attachment system; the individual feels a constant need to strive for closeness to attachment figures. Hyperactivation results from a childhood state of mind requiring significant effort to gain love, attention, and protection from the desired caregiver or figure (Fraley & Shaver, 2000; Mikulincer & Shaver, 2007).

Hyperactivation stimulates vigilance to attachment-related threats, extreme appraisals of threat, and brooding or ruminating about potentially threatening experiences. Fraley et al. (2006) found that persons with hyperactivated attachment systems are significantly more sensitive to and aware of relationship cues, such as facial expressions. Unfortunately, this hypervigilance and anxiety results in overly activated attachment systems even in the absence of objective threats to the attachment relationship (Mikulincer & Shaver, 2007). Therefore, it is a generalized experience that causes distress in insecurely attached individuals.

Hyperactivation is prompted by the primary goal to obtain the attachment figure's attention or support. Therefore, these individuals are likely to intensely monitor potential or actual relationship partners, and will exhibit strong efforts to maintain enmeshed closeness (Mikulincer & Shaver, 2007; Sperling & Borgaro, 1995). Yet, this intensity may have the opposite effect than intended; anxiously attached individuals may experience damage to self-image, increased feelings of helplessness and vulnerability, and heightened negative or persecutory appraisals of others who are actually nonthreatening (Mikulincer & Shaver, 2007). In fledging relationships or early romantic encounters, attachment anxiety tends to be high, and hyperactivation of the attachment system occurs (Eastwick & Finkel, 2008b), therefore, intense

emotional and behavioral responses are likely to result. How does hyperactivation influence initial feelings of attraction? We now turn our attention to theories regarding the relationship between the two constructs.

Attachment anxiety and its relation to attraction. The current literature supports a positive link between attachment anxiety and attraction (Finkel & Eastwick, 2015). Those who have high attachment anxiety appear to be significantly preoccupied with attaining closeness to an attachment caregiver. Braunbaugh and Fraley (2010) reported that in the presence of a potential partner, attachment anxiety hyperactivates the attachment system and stimulates people to engage in attachment behaviors such as obsessive acts of proximity seeking, with the final goal of establishing relationships. Because proximity seeking begins with feelings and demonstrations of attraction, authors argued that these individuals likely have heightened feelings of attraction (Finkel & Eastwick, 2015).

To test such a theory, McClure et al. (2010) examined the interplay between attachment anxiety and indications of attraction in the context of speed dating. The study produced two significant findings in support of the association between attraction and attachment anxiety. First, the authors explored the approach-avoidance conflict of relationship initiation, as discussed prior. McClure et al. (2010) found support for the hyperactivated, approach condition; anxious participants were more focused on fleeing their aversive state of loneliness (a motivating factor of attachment) than risking potential rejection. This was indicated through a positive correlation between loneliness motivation and attachment anxiety, as well as the behavior described next. Second, McClure and colleagues (2010) found that not only did anxious participants overcome fear of rejection to reach a normative level of romantic approach, this group also was highly indiscriminate and non-selective in pursuing potential partners, making significantly more

positive romantic evaluations than secure participants. McClure et al.'s (2010) study made significant strides in providing empirical support for links between attachment anxiety and attraction; the indiscriminate nature and reduced selectivity of anxious participants suggest that this population acquires feelings of attraction with increased ease, resulting in elevated scores.

While the study by McClure and colleagues (2010) provides the most concrete support for the association between attraction and attachment anxiety, other studies also have supported a connection between the two constructs. Bartz and Lydon (2006) found that attachment anxiety predicts subtle behaviors that indicate a desire for close relationships. Vorauer, Cameron, Holmes, and Pearce (2003) discovered that anxious individuals tend to overestimate the extent to which behaviors communicate romantic interest, again supporting hyperactivated attachment systems. Anxiously attached people tend to demonstrate greater attachment anxiety about desired romantic partners than established romantic partners (Eastwick & Finkel, 2008b), implying that anxious individuals are hyperactivated by new people, increasing the capacity for initial, interpersonal attraction. In sum, a connection between attachment anxiety and attraction is empirically supported, and appears to be mediated by a hyperactivated attachment system. However, the approach-avoidance research is predicated on an individual seeking proximity to another in order to avoid psychic pain, such as loneliness. Researchers have not explored the interplay between hyperactivation and deactivation as a potential response by individuals to avoid psychic pain. McClure et al. (2010) offer a glimpse into a possible interaction between avoidance and anxiety in relation to attraction, but the research has yet to explicitly consider how attachment anxiety and avoidance may interact in shaping expressions of interpersonal attraction. Given the acknowledgement of attachment styles containing both elevated or minimized levels

of attachment avoidance and anxiety (Bartholomew & Horowitz, 1991), it is warranted that the literature recognize both variables in the context of attraction.

The Moderating Influence of Attachment Avoidance

Though it has not yet been emphasized in the attraction literature, avoidance is another emotional, behavioral, and cognitive pattern of insecure attachment. As infants, humans develop an avoidant attachment style after repeated experiences of lack of availability of an adequate caregiver and learning that proximity seeking behavior (i.e., that which is exhibited by anxious or secure individuals) is not a viable option (Cassidy & Kobak, 1988; Shaver & Mikulincer, 2002). The avoidance pattern of insecure attachment is characterized by deactivation of the attachment system, involving distancing of the self from threat and typical attachment-related cues (Fraley & Shaver, 2000). The reason that individuals adopt an avoidant strategy is because they develop a mindset based on consistent failure to acquire a sense of felt security or positive emotions through attachment related efforts (Mikulincer, Shaver, & Pereg, 2003). This troubling cascade of processes and learned adaptations has significant consequences, particularly in relationship development and the formation of future attachment bonds.

In their examination of the deactivating attachment system, Mikulincer and Shaver (2007) outlined several processes and strategies that underlie attachment avoidance. First, deactivation of the attachment system involves direct (intentional and unintentional) diversion of one's attention away from attachment related-threats and thoughts that might ignite the attachment system. Second, deactivation leads to distancing the self from threats and preventing oneself from thinking about needs for protection and security or the comfort that could be derived from a loving and safe relationship. Finally, deactivation, according to Mikulincer and Shaver (2007), presents as compulsive, independent reliance on the self, as opposed to reaching

out to others for support or assistance. Avoidant individuals have two main attachment-related goals: (a) to acquire whatever they need while also maintaining detachment from others, a sense of control, and self-reliance, and (b) to deny and or inhibit attachment needs and avoid negative emotion states that might activate the attachment-system.

These patterns and strategies appear to have negative consequences for avoidant individuals. For instance, persistent deactivation of the attachment system effects an individual's mental organization in that he or she ignores or excludes thoughts or emotions that suggest vulnerability, sensitivity, or dependence, all of which are normative states of being. In addition, the processes of inhibiting such content results in the dismissing of significant information about both psychological and physical threats, personal weaknesses, and the responses of potential attachment figures (Shaver & Mikulincer, 2002). The result is likely to be an overly inflated self-perception and denigration or marginalized views of others. These feelings of personal superiority and generalized inferiority of others may in fact shape the way avoidantly-attached people evaluate and assess others upon initial encounters. It seems, based upon the deactivation process proposed by attachment theorists, that avoidant individuals may be more prone to distancing in the process of initial evaluations of interpersonal attraction to others.

The way in which the attachment system activates (or deactivates) may have a compounding influence on the experience of interpersonal attraction. For deactivated individuals, the desire or goal to avoid an attachment bond and threat may be a strong motivator of relationship avoidance, and therefore weaken evaluations and behaviors related to relationship formation (i.e., attraction). Avoidant individuals demonstrate a reduced desire for closeness and intimacy with others, and prefer and utilize strategies that are unlikely to lead to (or prevent directly) the formation of committed and attached relationships (Finkel & Eastwick, 2015).

Sexual expression of avoidant individuals. Research suggests that avoidant individuals do engage in physically intimate, or sexual, behaviors (Mikulincer, 2006); however, the way in which they engage in sexual behavior and the motives for it support a lack of true attraction or desire for connection. For instance, attachment avoidance has been shown to positively correlate with a preference for casual sexual relationships over serious or committed sexual relationships (Brennan & Shaver, 1995; Feeney, Noller, & Patty, 1993). Attachment avoidance is negatively associated with the intention of forming an exclusive intimate relationship (Schachner & Shaver, 2002). Adolescents with higher levels of attachment avoidance have reported lower sexual drive, and reduced likelihood of engaging in or enjoy sex (Mikulincer, 2006). Researchers have also considered the driving force that prompts avoidantly-attached individuals to participate in sexual relationships, and non-romantic goals have conclusively emerged. Specifically, Mikulincer (2006) found that avoidant adolescents who engage in sexual behaviors are motivated by self-enhancement and elevations in reputation, and Schachner and Shaver (2004) discovered a similar goal of increasing one's status and prestige triggering sexual engagement among adult participants. Therefore, their sexual behaviors do not appear to be motivated by feelings of interpersonal attraction, positive evaluations, the desire to affiliate, or the hope of committing and bonding with another individual. Mikulincer (2006) concluded that given that attachment avoidance favors emotional distance, intimately shared exploration of sexual pleasures with a partner risks a greater likelihood of psychological vulnerability and connection, triggers a greater desire to retreat, and creates an overall discomfort with sexual intercourse.

Intimacy among avoidantly attached people. While there appears to be a significant amount of data surrounding attachment avoidance in relation to sexual behaviors, researchers have generally failed to emphasize or recognize the impact of avoidance on initial evaluations (or

attraction ratings) of potential romantic partners. That being said, the literature suggests that avoidance is likely to negatively influence attraction in that it is a significant precursor to the formation of romantic bonds. For instance, Fraley and Shaver (1997) found that attachment avoidance was negatively related to the desire to participate in physically and emotionally intimate behaviors such as sharing eye gaze, holding hands, or cuddling. While avoidant individuals have not been shown to circumvent romantic engagement all together, their relationship initiation behaviors demonstrate a reduced prioritization of the emotionally intimate elements of romantic relationships. Overall and Sibley (2008) utilized a diary study to explore the relationship between attachment avoidance and romantic attraction with established partners. Their research found that avoidant participants exhibited a lower romantic attraction during interactions with current partners compared to non-avoidant participants. These findings reveal that when the attachment system is activated, as in a romantic relationship or in a context that suggests intimate connection, avoidant individuals' attraction evaluations of partners appear to be lower than those of more secure or anxious others.

Limitations and rationale for continued study of attachment. There is no debating the significant and extensive research conducted regarding attachment theory, attachment security, manifestations of attachment in infants and adults, and the clinical relevance of attachment (Fraley, 2002). However, despite examination of attachment throughout the lifespan and in relation to specific behaviors, thoughts, and emotions, researchers and theorists alike have not provided significant examination of the interaction between attachment avoidance and anxiety. It has been concluded that the two components of attachment are orthogonal variables (Bartholomew & Horowitz, 1991), notwithstanding the fact that Bowlby (1973) originally posited that the two dimensions could be oblique in reality, though orthogonal in theory. Fraley

and Shaver (2000) reported that anxiety could be argued as a monitoring system while avoidance constitutes a behavioral orientation system, therefore separate systems with potentially related instrumentality. In fact, meta-analysis has shown that even utilizing a highly validated and robust scale (i.e., the Experiences in Close Relationships Scale- Revised) reveals a correlation between anxiety and avoidance at times (Cameron et al., 2012). Therefore, the orthogonal nature of the variables does not imply that (a) independence of the variables is required for the framework and (b) the two variables may never moderate one another in shaping specific attachment expression. Specifically, such conflicting expressions of the attachment system may influence the predecessors of the development of adult pair bonds, including interpersonal attraction.

For instance, consider individuals who are fearfully attached. This attachment category's population maintains high levels of attachment avoidance and of attachment anxiety. Such a population is likely to experience dissonance due to the preoccupied concern regarding attaining and losing an attachment figure coupled with an inherent desire to distance from potential attachment figures after repeated experiences of failed attachment-seeking behaviors. Therefore, fearful individuals' initial evaluations of potential attachment figures, or their experiences of attraction, are likely to be influenced by conflicting needs and goals. It seems, as proposed by Fraley and Shaver (2000), that a fearfully attached individual's highly activated monitoring system (i.e., highly anxious) will interact with their deactivated (i.e., highly avoidant) behavioral system resulting in an amalgamated expression of attraction. As a result, these individuals, who compose approximately 24% of the population, (Bifulco, Moran, Ball, & Bernazzani, 2002) are likely to respond in a particularly disorganized and complex way in their expression of attraction.

Furthermore, considering the instrumentality of attraction supported by Finkel and Eastwick (2015), this population is experiencing two motivating, and interacting forces: (a) the

anxious, monitoring system associated with the desire to be connected to and protected by another, and (b) the avoidant, behavioral system influenced by the goal to protect oneself through pathological self-reliance and deviation from others, therefore shaping feelings of interpersonal attraction. When the two forces compete for prioritization, there occurs an interaction between attachment anxiety and avoidance, consequently influencing feelings of attraction. Presently, there has been a limited examination of the complex phenomena by which attachment anxiety and avoidance may mutually shape and activate the attachment system, particularly during attraction formation. Therefore, it appears that the attachment literature still warrants a concrete and specific examination of insecure attachment variables in relationship with one another, and in relation to attraction.

Based upon the above investigation of the theories of interpersonal attraction, it seems that instrumentality theory, that which subsumes reward, evolutionary, and attachment theories, may provide a unique and encompassing explanation for how interpersonal attraction manifests and relates to early human bonding. Instrumentality theory recognizes the function of attraction in goal attainment for those goals in high motivational priority, simultaneously acknowledges the importance of the attachment relationship (particularly for insecurely attached individuals whose various attachment needs are prioritized and influence attraction), and explains how attachment variables of anxiety and avoidance may interact. Adults think, feel, and behave according to their understanding and development of attachment needs (Amini et al., 1996), whether healthy or dysfunctional. Reward theory has not previously defined attachment as one of the primary needs motivating attraction; however, it seems that the reinforcing experience of connection or safe distance that results from attachment-related behaviors may explain, at least in part, why persons attract to others. In addition, the initial attachment relationship sets the stage for how the infant

(and future adult) will regulate emotions and behaviorally respond to them, in order to self-preserve and maximize evolutionary fitness. Cognitions regarding the ways in which one is able to maximize his or her reproductive fitness are undoubtedly formed by the infant or child's implicit understanding of how relationships work and the rules that govern them, which are again a result of the attachment relationship. These rules and understandings regarding interactions with others appear to remain relatively consistent through life, therefore repeatedly influencing response to others such as initial feelings of attraction.

Attachment theory demonstrates that people are continuously navigating a desire to approach others to meet needs for connection while also feeling an inherent desire to protect and preserve self, prompting avoidance. Instrumentality theory proposes that inherent attachment needs will influence the prioritization of the tendency to anxiously monitor others or avoidantly behave. Recognizing and testing the role attachment anxiety and avoidance play in critical relationship experiences (i.e., attraction) may uncover essential, complex processes at play in daily functioning and life satisfaction, given the importance of interpersonal relationships. Therefore, instrumentality theory may be the unifying approach to understanding the complex experience of interpersonal attraction, particularly in relation to attachment, despite the fact that research has generally failed to empirically probe at how or why this may be.

While past research has shown support for the impact of attachment anxiety on romantic attraction independently (Luo & Zhang, 2009; McClure et al., 2010), and has considered the impact of attachment avoidance on attraction independently (Luo & Zhang, 2009), no research to date has specifically examined how the two elements of attachment might interact to influence attraction. It has been particularly concerning how limited the number of studies are that have examined the potential role attachment avoidance may play in attraction, specifically given that

attachment avoidance has been found to be even more detrimental than attachment anxiety in eventual relationship satisfaction (Molero et al., 2010). In addition, the researchers who developed studies exploring these two constructs together have failed to use psychometrically supported measures of interpersonal attraction, instead measuring attraction through means created by the researchers of the given studies. Therefore, the literature lacks an investigation of the ways in which attachment avoidance may shape a relationship between attachment anxiety and psychometrically-sound measure of interpersonal attraction.

The Present Study

Given the lack of detailed and focused investigation of insecure attachment variables in relation to interpersonal attraction and also the lack of emphasis on attachment as a significant theory related to attraction research, this study aims to answer the specific question of how these two components of attachment (i.e., avoidance and anxiety) interact with one another in the expression of interpersonal attraction among young adults. The first hypothesis of this study will seek to replicate previous research findings where attachment anxiety will positively predict interpersonal attraction among a college sample (McClure et al., 2010). The second hypothesis is that attachment avoidance will moderate the relationship between attachment anxiety and interpersonal attraction. That is, it is expected that at higher levels of attachment avoidance, the relationship between attachment anxiety and interpersonal attraction will be reduced, while at lower levels of attachment avoidance, the positive relationship between attachment anxiety and interpersonal attraction will increase. In order to account for possible alternative hypotheses, I will control for potential confounding variables based upon the literature that support a significant impact on attachment and interpersonal attraction (i.e., gender, relationship status, and physical attraction; Brehm, 1985; Buss, 1989; Cameron et al., 1977; Feingold, 1990; Finkel et

al., 2009; Kirkpatrick & Davis, 1994; Luo & Zhang, 2009; Maner et al., 2008; Pietromonaco & Carnelley, 1994; Poulson, Holman, & Busby, 2013). The hypothesized relationships in the form of a conceptual model are displayed in Figure 1 and in the form of a statistical model in Figure 2.

The results section provides the statistical model with resulting beta weights.

in

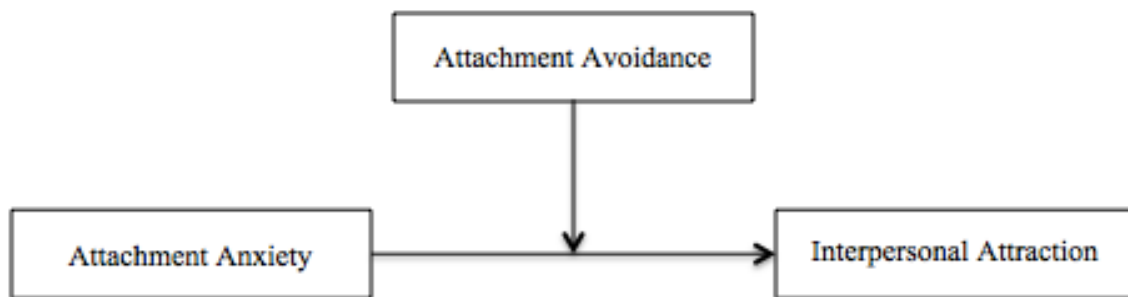


Figure 1. Conceptual, diagrammatic model of hypothesized relationships.

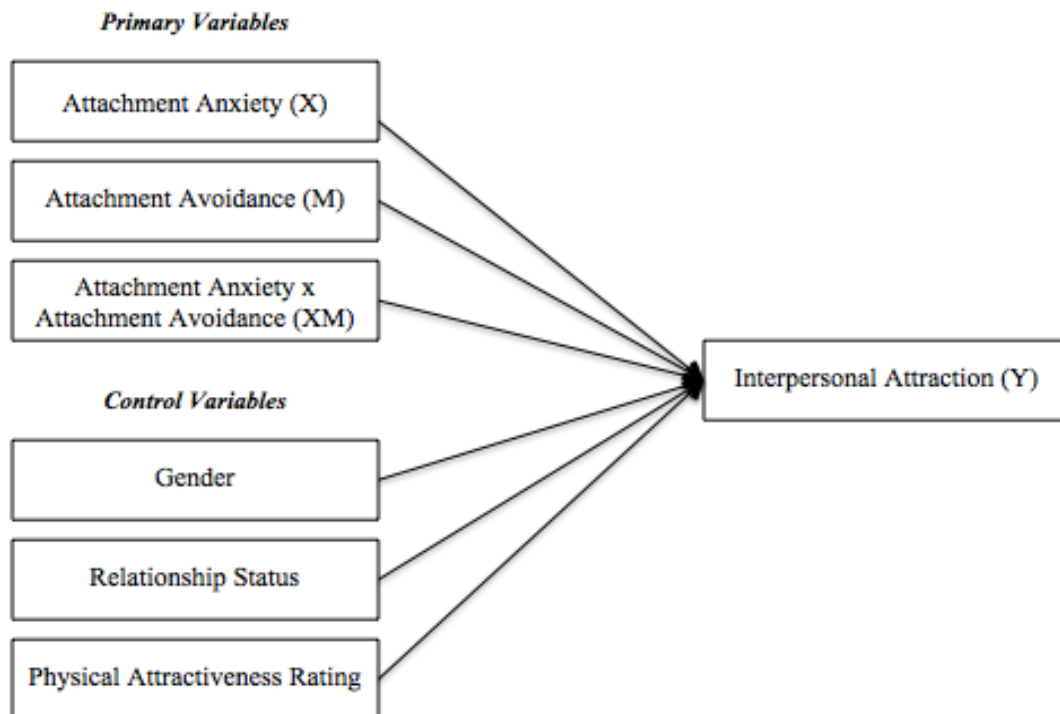


Figure 2. Statistical, diagrammatic model of hypothesized relationships (using primary variable) and potential confounding variables (i.e., control variables)

Chapter III: Method

Participants

Sample size, power, and precision. Participants were recruited from the undergraduate student body of a private university in the Pacific Northwest. Based on the anticipated magnitudes of this study's model paths, to obtain a power of .80 with a moderate effect size of $f^2 = .15$, the required N was 71 (Faul, Erdfelder, Lang, & Bauchner, 2007). Prior studies exploring the associations between attachment and attraction either neglected the use of effect size to report results or confirmed that a moderate to high effect size of results is anticipated when detecting an effect (Eastwick & Finkel, 2008; Kellerman et al., 1989; McClure et al., 2010; Overall & Sibley, 2008). Equivalent studies exploring these variables reflected a range in sample size from 84 to 116 individuals (Luo & Zhang, 2009; McClure et al., 2010; Overall & Sibley, 2007). The sample size for the present study was 96.

Sampling procedures. Participants were recruited by means of email, handing out informative study flyers, and notifying classes in person about the opportunity to participate. Through email, the primary means of recruitment, we invited the entire undergraduate student body of a small, private university to participate in the study during the first year of recruitment and data collection. The following year, incoming freshman, incoming transfer students, and sophomores were emailed invitations to participate. Individuals began participation by completing an online demographics questionnaire after providing informed consent. The demographics questionnaire served to determine eligibility for the study. Two hundred sixty five individuals completed the online questionnaire during the first year of recruitment and data collection: 73% female and 27% male. One hundred fifty nine participants completed the online, demographic questionnaire during the second year of recruitment and data collection; 69%

female, 28% male, and 3% unreported. All eligible males were invited to participate; females were selected and then invited in order to be paired with males with whom they were not previously acquainted, for the in-person interaction phase of the study.

Participant characteristics. The resulting, final sample included 96 participants out of a total of 4,160 students: 3,258 students invited the first year and 902 new students invited the second year (2.31%). Individuals were required to meet two criteria to be eligible to participate in this study. First, it was required that participants be between the ages of 18 and 22, because it was critical that participants were sexually mature adults in order to verify the capacity to form physical feelings of attraction (McClintock & Herdt, 1996). Additionally, the five-year age range was selected because males and females, during the early mating years, generally tend to be most attracted to others of similar age (Kenrick & Keef, 1992). The sample had a mean age of 19.33 ($SD = 1.27$).

The second eligibility criterion required that participants be attracted to individuals of the opposite sex (i.e., heterosexual, bisexual, or pansexual). We included this criterion because research indicates that stress arising from societal pressures felt by the homosexual population may change the expression of attraction (Rivers & D'Augelli, 2001). Therefore, limiting participant sexual orientation prevented this confound from influencing romantic attraction expression, strengthening internal validity. If participants indicated a sexual orientation besides heterosexual, bisexual, or homosexual (i.e., pansexual or asexual), I assessed whether their sexual orientation included attraction to the opposite sex to determine eligibility and pairing capacity. Thus, 94% of the participants of the resulting sample were heterosexual and 6% were either bisexual or pansexual. Due to the pairing of genders for an in-person session (see below), there was an equal gender split between participants, resulting in 48 female participants and 48

male participants. Moreover, of the 96 participants, 74% were Caucasian, 10% were Asian, 7% were African American, 5% were Hispanic, 1% was Hawaiian/Pacific Islander, and 3% were of either of other or unknown ethnic background.

Participants first agreed to the informed consent before completing the demographic questionnaire online. I then invited them to participate in the in-person session by follow-up email, coordinating a time for the in-person session. Our research team conducted the in-person sessions on a university campus, in private classrooms. The in-person session concluded with participants independently completing a survey online. Data transmitted from the site to computer data systems (Excel; SPSS) were identified only by participant ID number. To protect the confidentiality of potential participants, anonymity was maintained until completion of the demographic questionnaire, at which point participants provided contact information; we informed interested individuals of the lack of anonymity during the informed consent process. Once beginning participation, confidentiality was protected by the fact that once a participant began the demographic questionnaire, Qualtrics.com (a website designed for survey materials) assigned each participant a randomly generated ID number. Additionally, I password protected excel files and data, and stored the files on my private computer. The local Institutional Review Board approved the study before initiation of recruitment or data collection.

Research Design

Participant interaction procedure. In this investigation, a cross-sectional study design was implemented investigating the relationship between attachment anxiety and interpersonal attraction as moderated by attachment avoidance. For each independent in-person session, two participants were randomly assigned to male and female dyads. In the pairing process, there were three constraints: individuals were required to be previously unacquainted, of opposite sex,

and needed to have similar study-session availability. To facilitate the pairing of unacquainted individuals and because the majority of individuals who completed the demographic questionnaire were female, we selected females based on discrepant years in school from the invited males with whom they were paired.

The investigator informed participants that the study examined attraction and asked the participants to each tell a story about themselves to their dyad partner that revealed an element of their character. Participants were each given five minutes for this activity. After the 10-minute session, participants independently completed a final, online survey to assess attraction levels. To assess for adult attachment anxiety and avoidance, participants completed a questionnaire in one of two ways. During the first year of data collection, participants were administered the measure of attachment variables online via email following the in-person session, which also contained a debriefing statement at the end. During the second year of data collection, participants completed the attachment measure directly after the attraction measure during completion of the final survey of the in-person session, followed by a debriefing statement.

The design of this study facilitated its purpose in two ways. First, by mimicking speed dating for the in-person interaction, the study design created a context that was likely to activate the attachment system (and elicit attachment avoidance and anxiety) in participants (Eastwick & Finkel, 2008a; McClure et al., 2010). The reason this environment was likely to activate the attachment system is because (a) the study subject of attraction was already primed in the participants' mind when they volunteered for and began participation, and (b) because the process involved isolated engagement in conversation surrounding intimate subjects of their choosing, with another person of their sexually preferred gender. Second, by asking the participants to engage in an activity with a shared goal (i.e., each to communicate a personally

significant story as instructed by research assistants), we developed a task that would theoretically facilitate the manifestation of interpersonal attraction in participants (i.e., based on the instrumentality theory; Finkel & Eastwick, 2015), the outcome variable of our study.

Measures

Participant demographic characteristics. The demographic survey was adapted by our research team and consisted of 9 items (see Appendix A). Specifically, three questions served to ascertain eligibility (i.e., gender [a control variable], sexual orientation, and participant availability). Five questions assessed general demographic information such as age, relationship status (a control variable), religious affiliation, culture/ethnic background, and class standing. Lastly, the questionnaire included an item asking for participants' email addresses to be contacted to schedule the in-person session.

Interpersonal attraction. The Interpersonal Attraction Inventory (IAI; McCroskey & McCain, 1972) is a 30-item self-report measure used to assess an individual's evaluations of interpersonal attraction to a target individual (see Appendix B). The IAI was developed as a multidimensional approach to attraction, and is supported by previous research in interpersonal attraction. The principle components of the IAI are social attraction, physical attraction, and task attraction. Social attraction pertains to the degree to which the assessor found the target to be attractive in a friendly way; that is, this how likely it would be that the assessor would desire social interaction with the target and "like" them. The physical attraction component regards the assessor's evaluation of the exterior appearance of the individual. The task attraction element regards the assessor's belief that the target is respectable and would be supportive in goal personal attainment. There are 10 items per each element of attraction and items were organized in a randomized sequence developed by the researcher. Participants rate items on the IAI using a

7-point response Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), such that higher scores correspond with higher levels of social, task, physical, and overall attraction.

Sample items include, “he (she) would be pleasant to be with” (task attraction), and “You could count on him (her) getting a job done” (task attraction).

McCroskey and McCain (1972) developed the IAI in order to acknowledge the multi-dimensionality of attraction previously unrecognized in measures of attraction. After developing 30 items hypothesized to fit within separate domains of attraction, the authors analyzed the psychometric properties of the measure on a sample of 215 undergraduate students enrolled in introductory communication courses at Illinois State University. Students were instructed to respond to the questionnaire based on evaluation of another student with whom they were acquainted. The researchers utilized principle components factor analysis with varimax rotation to examine the structural validity of the measure. In addition they required three criteria to be met for interpretation of the results: (a) an eigenvalue of 1.0, (b) a value of .60 for an item to be considered to load adequately on a factor, and (c) at least three items loaded onto an item for it to be considered statistically and conceptually meaningful to the construct of interpersonal attraction. If items did not meet criterion two, the researchers conducted supplementary principle components analysis.

McCroskey and McCain (1972) found that during the initial factor analysis, three factors emerged which they subsequently labeled social, physical and task attraction. The solution for the social attraction domain accounted for 49% of the variance of factor one, the solution for the physical attraction domain accounted for 18% of the variance for factor two, and the solution for the task attraction domain accounted for 14% of the variance for factor three. Twelve items emerged as failing to meet the authors’ criteria of adequacy during the initial factor analysis;

however, subsequent analyses revealed that these items had little influence on the overall factor solution of the measure (Quiggen, 1972). Following satisfaction of the factor structure of the IAI, the authors determined that the internal reliability of the social attraction dimension was $\alpha = .75$, of the physical attraction dimension was $\alpha = .80$, and of the task attraction dimension was $\alpha = .86$ (McCroskey & McCain, 1972). Subsequent testing of this measure has revealed that reliability estimates range from .67 to .93 for social attraction, .66 to .95 for physical attraction and .69 to .90 on task attraction (McCroskey, McCroskey, & Richmond, 2006).

For this study, interpersonal attraction scores were combined across task and social attraction, in order to acknowledge the multidimensional nature of attraction as well as to incorporate the key elements of attraction supported by research (i.e., instrumentality, through task attraction and desire to affiliate, through social attraction; Finkel & Eastwick, 2015). For statistical analysis, item scores were summed within the attraction component groups, creating two separate attraction variable scores. Following this process, the two component scores were summed together to acquire comprehensive scores of overall interpersonal attraction (i.e., task and social attraction). Because this inventory uses both positively and negatively worded questions (i.e., 5 each per dimension, equating to 15 negatively worded questions), all negatively worded items were reversed scored, such that higher scores demonstrated higher levels of attraction. Within this sample, the internal reliability was $\alpha = .85$ for overall interpersonal attraction (including task and social attraction items). For the independent dimensions, the internal consistency values equated to $\alpha = .79$ for social attraction and $\alpha = .70$ for task attraction.

Physical attractiveness rating. Due to the high degree of weight physical attractiveness holds upon initial attraction evaluations (i.e., Luo & Zhang, 2009), as well as the variability of attractiveness of the given target based on the study design, I controlled for physical

attractiveness ratings of targets by participants. The IAI developed by McCrosky and McCain (1972) was utilized to measure physical attractiveness evaluations by participants (See Appendix B). Research also suggests that physical attractiveness is generally consistent across raters, and is unlikely to be influenced by observer characteristics (i.e., attachment) (Luo & Zhang, 2009). See the prior section for a detailed description of the IAI. A sample physical attraction item includes, “I think he (she) is quite handsome (pretty).” In this study, the internal consistency value equated to $\alpha = .91$ for the physical attraction domain of the IAI.

Attachment avoidance and attachment anxiety. The Experiences in Close Relationships Questionnaire-Revised (ECR-R; Fraley et al., 2000) is a modification of the original Experiences in Close Relationships Scales (Brennan, Clark, & Shaver, 1998). The self-report measure was created to assess an individual’s level of attachment anxiety and avoidance in romantic relationships. The ECR-R is composed of 36 items, in a randomized order, where individuals are asked their thoughts, behaviors and feelings in emotionally intimate relationships, in general (not isolated to a current relationship; see Appendix C). Eighteen of the 36 items belong to the attachment avoidance subscale while the other 18 items compose the attachment anxiety subscale. Items are rated on a seven point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores on each dimension signify greater respective attachment anxiety or avoidance. Sample items include, “I’m afraid that I will lose my partner’s love” (anxiety), and “I find it difficult to allow myself to depend on romantic partners” (avoidance).

The ECR-R resulted as an attempt to improve the original ECR; Fraley and colleagues (2000) used item response theory to evaluate the extent to which ECR avoidance and anxiety scales discriminate with equal sensitivity across their full ranges. The authors found that the

scales did not, selected the items with the highest discrimination values, and also added items from Brennan et al.'s (1998) pool of 323 items to replace some of the original items from the ECR, with the intent of yielding better discrimination at the secure ends of the two scales. The ECR-R signifies their final result. Thirteen of the 18 Anxiety items were retained and 7 of the 18 Avoidance items were retained (Fraley et al., 2000). Shortly after the creation of the ECR-R, Sibley et al. (2005) assessed the measure's test-retest reliability and structural validity, convergent, and discriminant validity, through three separate studies. With a sample of 172 college students (72% female, $M = 22$), Sibley et al. (2005) examined the three-week test-retest stability of the ECR-R; latent indicators of the measures at each time period were assessed using three parcels of six randomly selected items evaluated through structural equation modeling. The results produced high reliability scores for both attachment avoidance ($\beta = .90, R^2 = .84$) and anxiety ($\beta = .92, R^2 = .85$). The researchers also assessed for model fit and using criteria of the Root Mean Square Error of Approximation (RMSEA) and the Comparative Fit Index (CFI), the model provided adequate fit (RMSEA = .05, CFI = .99).

Sibley and colleagues (2005) utilized confirmatory factor analysis to assess the structural validity of the ECR-R, with a sample of 478 undergraduate students (70% female; $M = 20$), to see whether the ECR-R sufficiently fit the hypothesized two-factor solution representing attachment-related anxiety and avoidance. The authors used the partial disaggregation procedure, in which items assessing attachment anxiety and avoidances were each parceled into six groups of three randomly selected items. The hypothesized two-factor solution in which the six parcels assessing attachment avoidance loaded on one latent factor (β s > .84, z s > 22.29) and the six parcels assessing anxiety loaded on a second latent factor (β s > .78, z s > 19.90) provided an excellent fit to the data, $\chi^2(53, N = 478) = 142.26$.

Finally, in a third study, Sibley et al. (2005) examined the proportions of variance in general and attachment-specific emotions in social interactions involving a romantic partner predicted by ECR-R measures of romantic attachment, to test convergent and discriminant validity of the measure. The sample was composed of 82 undergraduate students (74% female; $M = 21$). The authors found that the ECR-R measures of romantic attachment anxiety ($r = .46, p < .001$) and avoidance ($r = .51, p < .001$) predicted large portions of the variance in respective diary ratings of anxiety and avoidance experienced during social interactions with a romantic partner, demonstrating support for convergent validity. Sibley and colleagues (2005) also discovered that the ECR-R's anxiety ($r = -.09, p > .05$) and avoidance ($r = -.29, p > .05$) scales were non-significantly related to diary ratings of anxiety, avoidance, and enjoyment in social interactions with a family member or close friend, evidencing discriminant validity.

In the current study, the ECR-R measure was used to obtain separate scores for attachment anxiety and attachment avoidance, as continuous variables. To score the ECR-R items were averaged across each domain (i.e., attachment anxiety and avoidance), as recommended by Fraley and colleagues (2000), resulting in a single score ranging from 1 to 7 for each dimension of attachment. Because this inventory uses both positively and negatively worded questions per variable, all negatively worded items (14 total) were reversed scored, such that higher scores demonstrated higher levels of attachment anxiety or avoidance. The internal consistency values were found to be $\alpha = .93$ for attachment anxiety and also $\alpha = .93$ for attachment avoidance.

Analyses

To test the hypothesized model, I used Hayes' (2013) PROCESS Macro in SPSS, version 2.13 to estimate the effects using 10,000 bootstrapped samples. All three of the study variables

(attachment anxiety, attachment avoidance, and interpersonal attraction) were treated as continuous. I derived the attachment variable scores by averaging all items (i.e., 16 for each variable) from the scale. The interpersonal attraction variable scores were established by summing all the values from the task attraction and social attraction scales from the IAI. To test the first hypothesis specifically, I examined the simple regression of attachment anxiety on interpersonal attraction. To test my second hypothesis, I explored the moderating effect of attachment avoidance on the relationship between attachment anxiety and both interpersonal attraction variables; to test these relationships, PROCESS' Model 1 was used. In addition, these hypothesized relationships were examined while controlling for three possible confounding variables: (a) physical attraction ratings, (b) gender, and (c) relationship status.

Chapter IV: Results

Participation Flow

Figure 3 summarizes the participants' flow and attrition through the study, including recruitment and selection criteria. During the first year of data collection, there were three phases to the study participation: (a) completion of the demographic questionnaire online, (b) attending the in-person session (involving the dyadic interaction and attraction measure (i.e., the IAI) questionnaire) and (c) providing responses to the attachment measure (i.e., the ECR-R) online, once emailed by the principle investigator. During this third and final step, participants were notified that the informed consent was revised (and would need to be re-signed before completing the survey), in that the researcher was asking them to complete this additional measure. Participants were emailed up to three times as a reminder and request to complete the final stage of the study.

During the second year of data collection, participation only included two phases. To clarify, the second and third phase of the first year of data collection, were combined into one phase (i.e., the attachment measure was included in the final questionnaire, along with the attraction measure, to be completed independently). Therefore, all participants included in the final sample completed all elements of the study, though some completed phases two and three independent from one another, while others completed them together. The purpose of combining the two study measures (i.e., the IAI and the ECR-R) in the in-person questionnaire was to maximize participant retention throughout the entire study. The local Institutional Review Board approved these amendments to the study design.

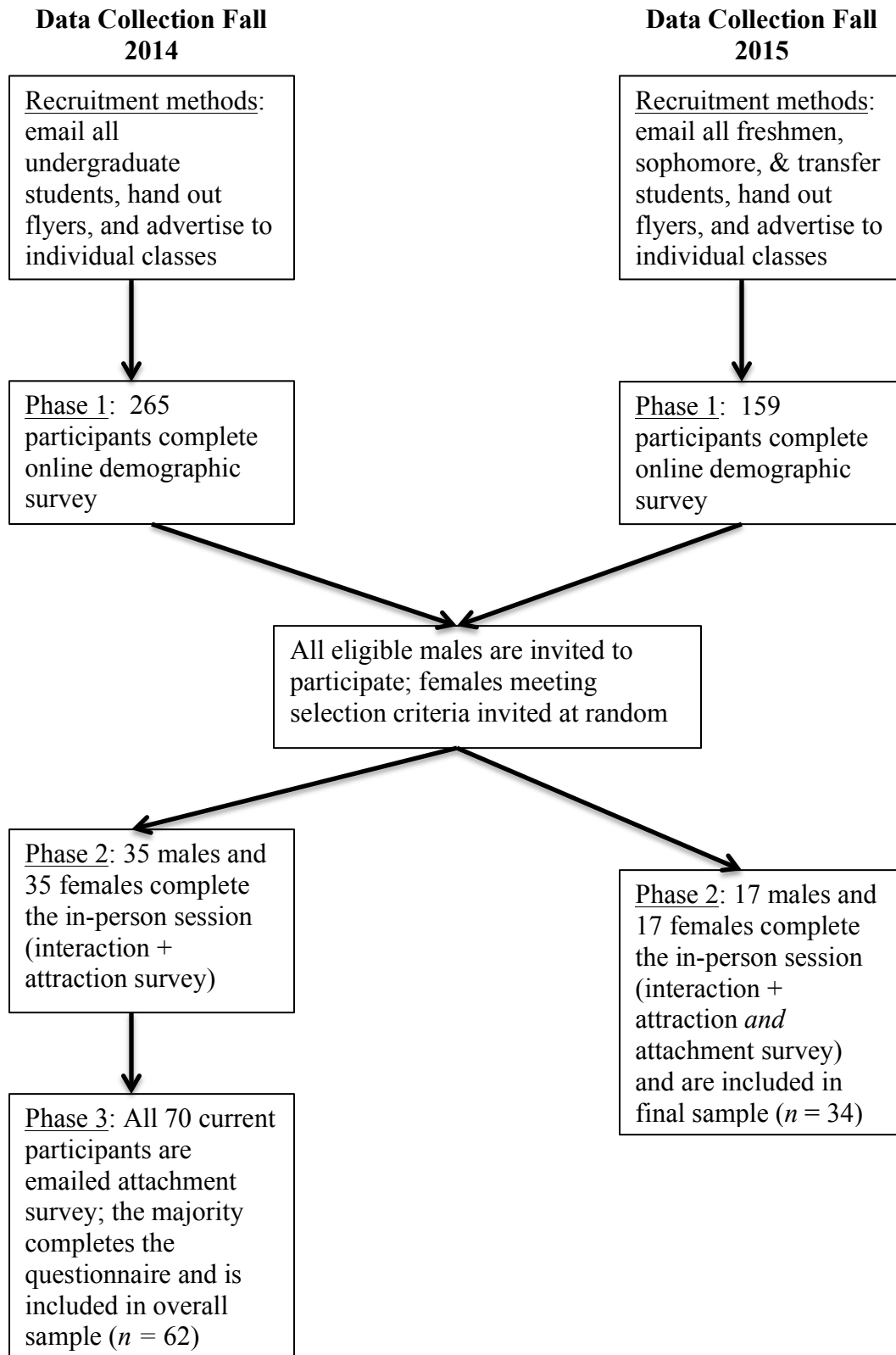


Figure 3. Participant flow and attrition through the stages of the study

Data Preparation and Analysis of Assumptions

Missing data was managed using the multiple imputation tools in SPSS version 22. Forty-eight percent of the variables and 18.75% of the cases had some missing data. Importantly, 99.48% of the values in the entire model had complete data. Data analysis revealed a primarily haphazard pattern of missingness, therefore justifying the retention of all variables. All cases were retained for the multiple imputation because the maximum percent of data missing per participant was 6.66% and in order for the principal researcher to protect power. The multiple imputation procedure yielded five novel data sets. The data set most aligning with the original data's descriptive statistics was used for the data analysis. Regarding the testing of assumptions, I did not test residual normality because I used bias-corrected bootstrapping to measure moderation effects, and this procedure is robust to violations of normality (Hayes, 2013). I visually inspected the scatter plots for the bivariate relationships among the three focal variables to ensure the linearity and homoscedasticity assumptions were met.

Preliminary Analyses

Descriptive statistics and bivariate correlations were computed first. A summary of descriptive statistics and a correlation matrix for the study are provided in Table 1. As expected, there was a significant bivariate correlation between attachment anxiety and attachment avoidance ($r = .51, p < .01$), despite the fact that this finding contradicts traditional theories of attachment suggesting that the two constructs are orthogonal (Mikulincer et al., 2009). Significant correlations were also found between relationship status and attachment anxiety ($r = -.50, p < .01$), relationship status and attachment avoidance ($r = -.52, p < .01$), and interpersonal attraction and physical attraction ratings ($r = .72, p < .01$), providing support for the use of these variables (i.e., relationship status and physical attraction ratings) as controls. There was no

significant relationship found between attachment anxiety and interpersonal attraction, contrary to what was expected.

Table 1:

Bivariate Correlations and Descriptive Statistics among Study Variables

Variable	<i>M</i>	<i>SD</i>	Range	1.	2.	3.	4.	5.	6.
1. Attachment Anxiety	3.37	1.12	1-5.94	---					
2. Attachment Avoidance	2.67	0.91	1-5.22	.51**	---				
3. Interpersonal Attraction	104.23	12.52	54-129	-.02	-.11	---			
4. Gender	0.50	0.50	0-1	.18	-.09	-.01	---		
5. Relationship Status	1.30	0.45	1-2	-.50**	-.52**	.04	-.02	---	
6. Physical Attractiveness Ratings	51.00	10.57	21-69	.02	-.15	.72**	.13	.13	---

Notes. * $p < .05$; ** $p < .01$; Interpersonal Attraction was calculated by summing Task and Social Attraction subscales of the IAI. The Physical Attractiveness Rating scores were obtained from the entirety of the Physical Attraction IAI subscale

Moderation Analysis

Utilizing Hayes' (2013) PROCESS Macro, I examined the simple moderation model to see whether (a) attachment anxiety positively predicted interpersonal attraction among the college sample and (b) attachment avoidance moderated the relationship between attachment anxiety and interpersonal attraction. Using the PROCESS template model 1, I specified the model predicting interpersonal attraction (Y; as defined by combined scores of task and social attraction). The focal predictor was attachment anxiety (X) and the primary moderator was

attachment avoidance (M). The model contained three covariates: gender, marital status, and physical attraction rating. The regression analysis of the overall model accounted for 54% of the variance of interpersonal attraction. See Figure 4 for the statistical model and resulting beta weights.

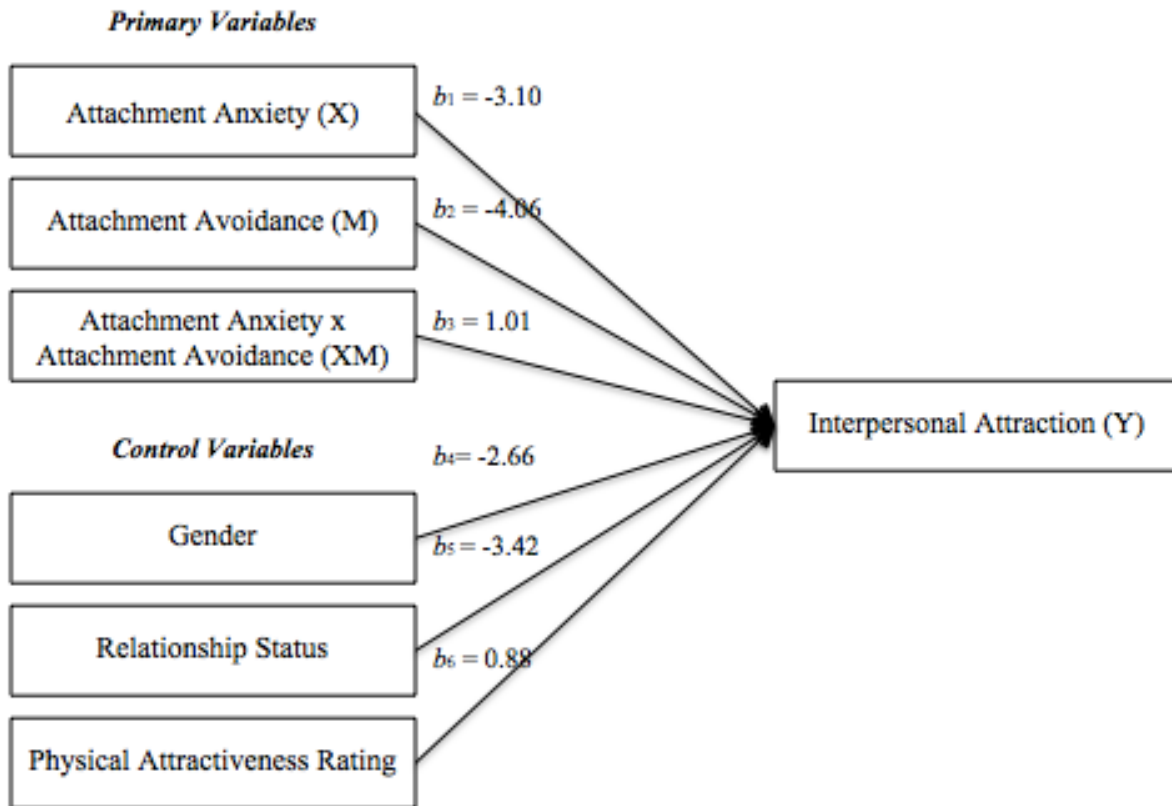


Figure 4. Statistical model including all variables and resulting beta weights.

The simple regression model revealed that attachment anxiety did not significantly predict interpersonal attraction ($F[1, 94] = .02, p = .88$). The interaction between attachment anxiety and attachment avoidance accounted for .55% of the variance of Y, and was not found to be statistically significant ($F[1, 89] = 1.07, p = .30$). Further results of the moderation analysis are provided in Table 2; a graphical depiction of the interaction is provided in Figure 5.

Table 2

Results of Moderation Analysis on the Outcome Variable Interpersonal Attraction

Predictor	β	p	95% CI	
Attachment Anxiety	-3.10	.26	-8.58,	2.38
Attachment Avoidance	-4.06	.27	-11.32,	3.20
Attachment Anxiety x Attachment Avoidance	1.01	.30	-0.93,	2.96

Notes. * $p \leq .05$; $R^2 = .0055$; Gender, relationship status, and physical attraction ratings were controlled for in this analysis

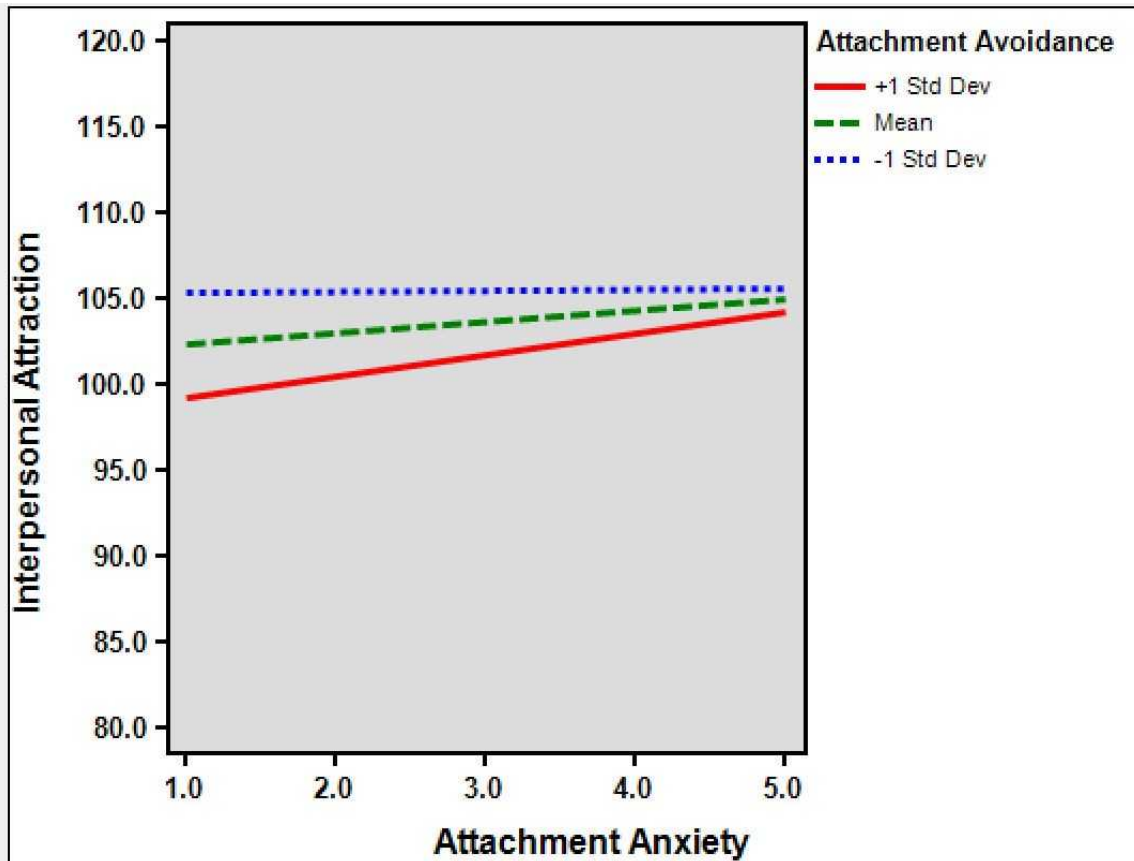


Figure 5. Graph of interaction between attachment anxiety and avoidance on attraction.

Chapter V: Discussion

The results of the present study do not directly support the initial hypotheses, despite the emergence of alternative significant and potentially clinically relevant findings. The first hypothesis was not supported in that attachment anxiety did not significantly predict interpersonal attraction (as measured by the sum of social and physical attraction). The data also did not support the second hypothesis of the study in that there was not a significant interaction between attachment anxiety and attachment avoidance in predicting interpersonal attraction. Put simply, the levels of attachment avoidance did not alter the relationship between attachment anxiety and interpersonal anxiety. While principal hypotheses were not supported, significant correlations emerged among: (a) attachment anxiety and attachment avoidance, (b) relationship status and both attachment variables, and (c) interpersonal attraction and physical attraction ratings. I will discuss potential explanations for these findings in the next section.

Interpretation of Findings: Theoretically, Empirically, and Methodologically

Attachment and interpersonal attraction. The results of this study offer novel insight into the relationship between insecure attachment variables and interpersonal attraction. Contrary to expectation, attachment anxiety and avoidance did not significant impact interpersonal attraction, independently or when analyzed together through moderation. These findings conflict with a large body of both theoretical and empirical research that would suggest otherwise, particularly in terms of the link between attachment anxiety and attraction. Mikulincer and Shaver (2007) explained in detail that anxious individuals experience a hyperactivation of this system; theoretically speaking, the hyperactivation of the attachment system triggered by anxiety suggests that individuals will engage in preoccupied proximity seeking to potential attachment figures. Empirically, McClure et al. (2010) directly examined how attachment anxiety manifests

in a speed-dating setting, which the authors hypothesized would hyperactivate the attachment system. They discovered that anxiously attached individuals were more likely to endorse romantic interest in partners than their secure counterparts (McClure et al., 2010). This corroborated similar findings by Eastwick and Finkel (2008) that activation of the attachment system, and attachment anxiety in particular, was observable in a speed-dating scenario. Despite the lack of empirical examination of the relationship between avoidant attachment and interpersonal attraction, a negative relationship between the two is again supported by the attachment system theory; however, as Mikulincer and Shaver (2007) argued, avoidance would trigger deactivation of the attachment system and distancing from others. Given that interpersonal attraction tends to be the initial prerequisite for attachment relationship formation, one would anticipate that avoidance would be negatively associated with attraction, while anxiety would be positively associated. Yet, the findings did not support this theory.

Unlike any study before, this specific study investigated the relationship between interpersonal attraction and attachment variables in a unique setting emulating a naturalistic environment, and without manipulating partner characteristics. That is to say, participants were paired at random, and personal characteristics of partners were not held steady. This approach served to produce the most organic and realistic examination of initial feelings of attraction, and aimed to produce the most accurate portrayal of activation of the attachment system, whereby both partners were participating, rather than just one (i.e., in the case of a confederate design).

These findings, indicating no significant relationship between attachment anxiety and avoidance and interpersonal attraction variability, suggest that attachment may not have a direct and immediate impact on evaluations of others at initial meeting points. Furthermore, considering attachment theory (Fraley & Shaver, 2000; Mikulincer & Shaver, 2007), it may in

fact be that an initial non-dating encounter lasting only 10 minutes does not effectively activate the attachment system, eliciting accurate manifestations of this system. In addition, one study, by Sperling and Borgaro (1995) hypothesized and found results that indicated that attachment does not independently predict feelings of attraction. Instead, the authors argued and found support for the theory that attraction is only predicted by attachment if positive interpersonal feedback (i.e., indications of reciprocity) were present. Put simply, Sperling and Borgaro (1995) found that no relationship between the two constructs exists, without the presence of verbal feedback, which was not present in the current study.

Methodologically, it is also possible that the results of this study reflect a lack of variability of attachment in the sample, and therefore, a limited capacity to tap into the relationship between attachment anxiety / avoidance and other variables. To examine this possible methodological explanation for the results, norms from Fraley's ECR-R were compared to the present sample. Norms were established in 2005 from over 17,000 online respondents of the ECR-R (Fraley, 2012). Fraley's norms revealed an attachment avoidance mean of 2.92 ($SD = 1.19$) and an attachment anxiety mean of 3.56 ($SD = 1.12$). In contrast, our sample revealed means of 2.67 ($SD = .91$) and 3.37 ($SD = 1.12$), respectively. Also noteworthy, our sample produced maximum scores of 5.22 for avoidance and 5.94 for anxiety, versus the maximum scores of 7 for both anxiety and avoidance in Fraley's sample.

Given the limited range of scores for both attachment variables (i.e., 1-7), these contrasting sample means (with differences of .19 or greater) may imply a clinically significant distinction between our sample and the general population. Post-hoc normative comparison via statistical analysis (i.e., clinical equivalency t and traditional t test comparisons) was utilized to evaluate this possibility; results produced conflicting results (i.e., both tests were significant)

suggesting inconclusive findings about the differences of these samples. Specifically, the clinical equivalency test for the two groups on attachment avoidance was significant ($_{CEt}[17094] = 11.84, p < .05$) suggesting significant similarity between the groups. However, the traditional t test, which compared the present study scores and normative scores, was also significant ($_{tradt}[17094] = 2.07, p < .05$), suggesting a significant difference between the two. While the normative comparison results were not conclusive, and also considering that over-interpretation from use of the online norms is cautioned (Fraley, 2012), the findings do hint that the present study's sample, entirely derived from a small private university, may not accurately reflect the true range of attachment variability present in the general population. Thus, limited variability among the present sample may have in turn limited the power of the data to reveal intricate moderating relationships among the principle study variables.

Attachment anxiety and attachment avoidance. While not a primary hypothesis, a moderate, positive correlation was found between attachment anxiety and attachment avoidance as the present researcher expected. Past literature provides conflicting data and theory regarding the relationship between attachment avoidance and attachment anxiety. To review, Bartholomew and Horowitz's (1991) scheme depicts the construct of attachment as composed of two independent measures: avoidance and anxiety. They suggested that attachment anxiety corresponds to self-evaluations while attachment avoidance pertains directly to other-directed behaviors. Furthermore, Mikulincer et al. (2009) assumed and proposed that the two components are not only conceptually distinct, but also statistically orthogonal, or unrelated. However, the actual relationship between these two variables of attachment has received little direct attention or empirical evaluation.

In fact, Cameron and colleagues (2012) specifically pointed out that prior to their examination, no study had provided concrete support for the complete independence of attachment anxiety and avoidance. The authors' thorough investigation through meta-analysis revealed a significant relationship between the two variables (Cameron et al., 2012), and the present study corroborates this finding. In support of Fraley and Shaver's (2000) conceptualization, it is possible that the two relate on a theoretical level; they pose that anxiety likely serves as the monitoring system that guides the avoidance-prompted behavioral system. Put together, the two attachment variables may be linked by their instrumentality; avoidance may serve the function of reflecting the evaluations as a result of attachment anxiety through observable behavior, avoidant behavior.

In considering methodology, this positive correlation between attachment anxiety and attachment avoidance may be another example of how the characteristics of the study sample may have influenced the data. As noted above, the descriptive statistics of our sample show a slight skew towards reduced anxiety and avoidance. Considering Bartholomew and Horowitz's (1991) conceptualization (which is still often referenced today; Troisi, Carola, & Gross, 2017) those with low attachment anxiety and low attachment avoidance are considered to have a secure attachment style. Therefore in this specific subset of the population (i.e., those who are securely attached), there appears to be a positive correlation between the two attachment components. Given that the present study sample may more closely represent secure attachment than the general population, data may have also been influenced, thus producing a stronger correlation between anxiety and avoidance than would be true among the general population. Nonetheless, this guiding theory suggests that among two large subgroups of the population (i.e., securely attached individuals and fearfully attached individuals), there exists a clear relationship between

the two attachment variables, calling into question the orthogonal theory of attachment anxiety and attachment avoidance.

Relationship status and insecure attachment. The results also revealed a moderate (i.e., greater than .50), negative correlation between (a) attachment anxiety and relationship status and (b) attachment avoidance and relationship status. Specifically, the data trends suggested that those who endorse higher levels of insecure attachment, either anxiety or avoidance, are less likely to be in a committed romantic relationship, among a young adult sample. Overall, the data extends the literature in a unique way by distinctly showing that attachment insecurity is significantly related to reporting a relationship status of “single,” highlighting either a lack of interest or lack of ability to maintain romantic relationships. While researchers have examined these constructs together (e.g., Chappell & Davis, 1998; Feeney & Noller, 1992; Kirkpatrick & Davis, 1994; Klohnen & Luo, 2003; Mikulincer & Shaver, 2014; Poulson et al., 2013; Young & Acitelli, 1998), this specific, isolated negative association has yet to be found in both types of insecurely attached populations.

The isolated negative correlations between relationship involvement and both attachment anxiety and attachment avoidance offer unique insight into how attachment insecurity presents in young adults. Theoretically, anxious attachment may be related to difficulty building and sustaining relationships due to a hyperactivated attachment system (Mikulincer & Shaver, 2007). In contrast to impacting the immediate interaction and feelings of initial, interpersonal attraction (as shown in this study), it appears that the attachment system's impact becomes significant only after a greater number of interactions or longer period of time. The associated cognitive and behavioral vigilance of hyperactivated systems prompts extreme appraisals of threat, brooding, and monitoring behavior, which is likely unattractive to potential or novel partners. It has been

argued that their intensity to maintain enmeshment with others is directed outward, observable to others, and may be perceived as unappealing (Sperling & Borgaro, 1995).

Avoidantly attached individuals, from a theoretical perspective, may repel relationships due to the strength and visibility of their deactivated attachment systems (e.g., compulsive signs of self-reliance and resistance to the comfort of others) as well as the proposed direct rejection of developing connection associated with this deactivation (Mikulincer & Shaver, 2007). Again, this rejection may not be clear at initial encounter. Shaver and Mikulincer (2002) further hypothesized that by inhibiting the process of experiencing closeness and the security of others, avoidant individuals fail to intake the salient information regarding the reinforcing qualities of relationships, and develop misinformed views of personal weaknesses or psychological threat. Finkel and Eastwick (2015) ultimately theorized that avoidantly attached individuals will maximize their use of cognitive, behavioral, and emotional strategies that are likely to directly prevent intimate relationship formation. Overall, attachment theory proposes that too much of either hyperactivation or deactivation of the attachment system may be troublesome in the formation of relationships, and that secure attachment is preferable for enduring and healthy dyadic functioning (Hazan & Ziefmann, 1994; Poulson, Holman, Busby, & Carroll, 2013). In sum, past theories of the attachment system support an association between being single and being insecurely attached, and this association only becomes clear after more than one instance with another individual.

Empirically, these negative correlations correspond with as well as offer adjunctive support for previous adult attachment findings in the literature. For instance, Sanford (1997) showed that being either attachment avoidant or attachment anxious is related to less frequent dating behavior when compared to being secure. Kirkpatrick and Davis (1994) revealed that

insecurely attached couples, and particularly anxious male and avoidant female dyads, are more likely to terminate their relationships. Young and Acitelli (1998) found that avoidant and anxious partners are more likely to have negative appraisals about their significant others than do secure individuals. These negative perceptions may result in more tension, conflict, and ultimate relationship dissolution. In regards to anxious individuals specifically, Botwin et al. (1997) found that potential partners tend to find this group to be less attractive than secure individuals. Attachment avoidance, specifically, has been shown to relate to greater likelihood to end relationships (Feeney & Noller, 1992) and is negatively associated with the desire to form exclusive, intimate relationships (Schachner & Shaver, 2002) and engage in emotional intimacy (Fraley & Shaver, 1997), a core element of Sternberg's (1986) triangular love essential to close relationships. Put together, a large body of research has culminated in the conclusion that attachment insecurity is likely to be dysfunctional in maintaining intimate relationships. The present study provides further, novel support that attachment anxiety and avoidance may contribute to the failure to establish and hold salient, romantic relationships.

Interpersonal attraction and physical attractiveness. Lastly, the results produced a strong positive correlation between physical attractiveness ratings and interpersonal (combined social and task attraction) attraction. Because participants were randomly paired, physical attraction, a variable often argued to be objective and consistent across raters (Luo & Zhang, 2009), was not stable across pairings. That is, some individuals were paired with objectively, physically attractive partners, while others were paired with objectively less attractive partners. Therefore, physical attraction was not included in analysis of interpersonal attraction as it was uncontrolled across pairings and considered to be a variable uninfluenced by other constructs (i.e., attachment). However, given its highly significant relationship to interpersonal attraction,

physical attraction may have been a necessary dimension to include in operationalizing the construct of interpersonal attraction.

Clinical Implications

The theoretical implications of this study, particularly those which are systemic, in turn suggest possible clinical implications for those therapists treating young adult patients with insecure attachment. However, it must be acknowledged that practical implications are limited by the analogous nature of the study design. Therefore, what follows are potential suggestions for providers based on the translation of findings in a more naturalistic setting. Furthermore, clinical targets are proposed based on key study findings. For one, it was found that attachment anxiety and avoidance are related; while we cannot be certain, this suggests that these variables may contribute to, maintain, or increase one another. In addition, it was discovered that attachment anxiety and attachment avoidance are associated with a reduced likelihood to be in romantic relationships in young adults, suggesting that insecurely attached individuals may have greater difficulty developing and maintaining intimate relationships.

These results suggest that exploring and targeting attachment variables may be beneficial to treatment in two distinct ways. First, aiming to reduce attachment anxiety and/or avoidance may interrupt the possible maintaining relationship between these insecure attachment variables, and reduce the likelihood of development of other pathological correlates of insecure attachment (e.g., substance abuse; Thornberg & Lyvers, 2006). Second, targeting to reduce attachment insecurity may be associated with facilitating establishing a committed relationship. While not causal, the study finding indicating a significant link between attachment insecurity and a reduced likelihood to be in a relationship suggests that reducing avoidance and/or anxiety may be associated with relationship commitment building. Bowlby (1988) argued that his aim in

developing attachment theory was to apply and use the concepts in therapy practice, rather than solely building research and theory. The findings of this study provide preliminary support (albeit, through an analogous study) that addressing attachment variables through the process of therapy may offer psychiatric benefits by possibly (a) interrupting a reciprocal relationship between anxiety and avoidance, and/or (b) increasing the likelihood of being in a committed, romantic relationship.

Integrating interventions to build attachment security. According to the present data, avoidance and anxiety are significantly related, and may be bidirectional, or building off of one another. For example, if an individual is cognitively experiencing anxiety, his or her behavioral urge may be to avoid tension, with the self or others, feeling that this will offer a sense of protection. In this example, unintentional anxiety is governing how the individual feels and behaves; the client is experiencing the distress of anxiety without behaviorally engaging it through discourse, and instead deciding to avoid. To interrupt this cycle and modify deep-seated patterns and representations, the clinician must make overt and clear what has been covert, unintentional, and hidden, through therapeutic exploration, processing, and experiential engagement (Sonkin, 2005; Wallin, 2007).

One way to initiate this process is through a nonverbal channel exploration intervention (Wallin, 2007). Covert representations of the self and others often may only be accessible through nonverbal means (e.g., eye contact behaviors, facial expressions, postures, gestures, and tones of voice). Because these nonverbal behaviors may be indicative of unconscious attachment processes (e.g., avoidance and anxiety) occurring in the present moment of therapy, the clinician should observe them as they occur (in both the patient and him or herself) and discuss them openly in the moment to uncover meaning (Britsch, 2002; Wallin, 2007). The reason for the

clinician to observe his or her own reactions evoked by the patient is that they may reflect projective identification, whereby the patient places his or her underlying feelings onto the clinician as a defense. Therefore, the clinician's nonverbal responses to feelings in the present moment of therapy may in fact reveal the patient's underlying emotions. Enhancing awareness in the patient through this exploratory exercise may prepare the insecure individual for more overt and direct exercises.

Another effective intervention, with more behavioral focus, that is applied to insecurely attached patients is mindfulness (Cordon, Brown, & Gibson, 2009; Wallin, 2007). In therapeutic clinical practice, mindfulness is "non-judgmental observation of the ongoing stream of internal and external stimuli as they arise" (Baer, 2003, p. 125). A well-established approach to general anxiety and depression reduction, the practice of mindfulness has also been shown to be empirically effective with anxiously attached individuals (Cordon et al., 2009). When adapted for insecurely attached patients, the therapist is advised to direct attention on authentically verbalizing responses to sensations and emotions through the interpersonal process of therapy. The therapist is also encouraged to use attunement, marked emotional mirroring, during mindfulness practice with this population. Therapist-client attunement may facilitate affect regulation (Schore, 2002) and building genuine and reliable representing of emotions in increasingly nuanced and self-knowledgeable ways (Wallin, 2007).

Facilitating intimate relationship building. As I found in this study, there was a negative relationship between insecure attachment and being in a committed romantic relationship among young adults. Further, research has consistently supported barriers to maintaining healthy, intimate relationship for anxiously- and avoidantly-attached individuals (e.g., Botwin, 1997; Fraley & Shaver, 1997; McClure et al., 2010; Sanford, 1997; Young &

Acitelli, 1998). Therefore, the results of this study imply that to help individuals develop significant relationship, a therapist may benefit from targeting attachment anxiety and/or avoidance in order to increase the likelihood that they will be able to function successfully in intimate and fulfilling relationships.

Predominant attachment anxiety. Individuals who are anxiously attached have been characterized as “merger hungry” (Goldbart & Wallin, 1997, p. 88), seeking fusion and dependence upon others. Thus, the clinician is encouraged to facilitate the patient’s capacity for emotional balance, independent sense of security, and trust of others. In addition, Wallin (2007) suggested that addressing helplessness is key and may be done by (a) being alert to the patient’s eagerness to rescue or be idealized, (b) promoting discussion of these type of anxious impulses to illuminate key parts of the patient’s experience, (c) constructing a personal role as the patient’s secure base, reliably and not based on contingencies, and (d) training and encourage riding the discomfort of independent exploration mindfully (Wallin, 2007). As referenced prior, mindful meditation may be a particularly beneficial therapeutic approach with insecure patients, and notably those who are anxiously attached. This population is particularly likely to benefit from physiological and cognitively calming exercises (e.g., mindfulness) given that hyperactivation of the attachment system is related to activation of the parasympathetic nervous system (Schoore, 2002; Wallin, 2007). Overall, through reduced helplessness and increased physiological and cognitive control, the anxious patient’s security may be enhanced and their capacity for successful and meaningful relationships increases.

Predominant avoidant attachment. In contrast to their anxious counterparts, the avoidant patient is “merger wary” and tends to “sabotage love” (Goldbart & Wallin, 1997, p. 93) according to theorists. While this group may claim that they are satisfied with their level of

emotional distance from others, physiological measures have indicated otherwise, as avoidant individuals have been shown to have elevated heart rates and oxytocin levels when their attachment systems are activated (Fox & Card, 1999). Psychotherapy aiming to reduce avoidant tendencies includes (a) targeting the individual's pattern of controlling, and (b) using the therapeutic relationship to make an emotional connection with the patient, such that the therapist genuinely matters to him or her, possibly creating a relational dynamic of reciprocity for the first time in the patient's life (Wallin, 2007).

Limitations and Future Research

While this study offers interesting findings that may provide added insight into insecure attachment, salient methodological limitations exist and must be acknowledged in the context of the study conclusions. Importantly, the findings of this study were drawn from an analogue situation whereby individuals were instructed to engage with one another. Because data was not derived from a naturalistic environment, results must be considered in the context of laboratory manipulation. While the study aimed to emulate a speed-dating context, it is possible that the artificial environment developed by the researchers impacted the results and confounded the feelings of attraction. Furthermore, the theoretical and practical implications in considering interpersonal attraction are limited by this design.

Secondly, the present study's generalizability to the entire adult population is considerably limited by the homogeneity of the sample. For one, data was collected from individuals between the ages of 18 and 22 years old. While this age range was selected based on theoretical rationale from the attraction literature (Kenrick & Keef, 1992), its closer proximity to early developmental experiences suggests a potential impact on the manifestation of adult attachment (i.e., as compared to older or more mature adults). In addition, given that research

suggests the brain is not fully developed until the mid-20s (Sowell, Thompson, Holmes, Jernigan, & Toga, 1999), it is possible that this sample's understanding and evaluations of interpersonal attraction are skewed as compared to the general adult population. Therefore, the findings of this study may only be applied to the young adult population.

The sample was further limited by the context in which the data was collected – a small, private, Christian university in the Pacific Northwest region of the United States. All participants were students at this university, limiting socioeconomic, national, religious, and ethnic variability among the sample. In addition, while random sampling was used in the selection and pairing of participants for the interaction procedure, the risk of selection bias (based on interest and availability) must be acknowledged. Specifically, the final sample was composed only of individuals who agreed to participate in all stages of the study and who were previously unacquainted with their partners, therefore limiting the number and range of participants (approximately 2.5% of those accessed during recruitment). This further limited our study as it may be expected that more avoidantly-attached individuals chose not to participate, given that recruitment materials reflected the attraction-oriented subject matter. Finally, our sample was limited to individuals with the capacity for romantic attraction to the opposite sex (i.e., identifying as heterosexual, bisexual, or pansexual). This eligibility criterion was included in order to ease random pairing as well as limit the confound of fear of social stigma, as suggested in the literature (Rivers & D'Augelli, 2001). However, this clearly limits the external validity in exploring interpersonal attraction across the spectrum of sexual orientations. Overall, the lack of variability within the sample not only limits generalizability, but also may have had a secondary impact on the findings by further reducing potential variance among constructs.

Third, internal validity may have been limited by this study's operationalization of the principal variables. First, we utilized the IAI to measure interpersonal attraction, which was adapted by McCroskey and McCain in 1972 and includes questions that are very blunt and direct (e.g., "I feel I know him (her) personally" and "He (she) is repulsive to me"). These questions are immediate, cognitive assessments of the partnered individual, which perhaps does not account for the pre-cognitive aspects of attraction hypothesized in the literature (Zajonc, 1980). Furthermore, the present researcher elected to control for physical attraction and define interpersonal attraction by combining task and social attraction. While this decision was theoretically grounded given the weight this variable holds over other interpersonal evaluations (Luo & Zhang, 2009), it could be argued that physical attraction is essential to the manifestation of interpersonal attraction as associated with attachment. Therefore, the removal of this component of attraction arguably weakened the validity of study overall. Secondly, the ECR-R was utilized to operationalize and measure the variables of attachment anxiety and avoidance, despite some critiques that the measure (a) fails to tap into attachment security, (b) utilizes inferior wording/language to other measures, and (c) provides limited improvement in reliability over its predecessor (Mikulincer & Shaver, 2007).

Finally, a third limitation of this study was the inconsistency in the environment of in-person interaction emulating a speed-dating scenario. While this phase of data collection consistently took place in a university classroom, the rooms varied in size and lighting, potentially unconsciously shaping participants' perspectives. In addition, individuals participated at different times of day (e.g., sessions could be scheduled any time between 9:00 AM and 6:00 PM), which may have influenced participant engagement, energy, and mood. Further, different research assistants conducted the sessions, which could have invariably influenced or primed

participant feelings of attraction. Another consideration in regards to the limitations of the analogous environment was the presence of video cameras. This additional environmental factor may have served as a distraction for participants, confounded the genuine development of attraction, and deterred from the attempt to create a natural setting to elicit attraction.

While the present study was limited in certain ways, it offers novel insight into possible avenues for future research. For one, the limitations of this study suggest that future research should seek to emulate this design but (a) include a larger and more representative sample (particularly in terms of sexual orientation and attachment variability), (b) incorporate physical attraction in the measure of interpersonal attraction, and (c) seek greater consistency across in-person interactions (e.g., in terms of room utilized, time of day, and research assistants involved). In order to incorporate physical attraction into the measurement of interpersonal attraction, it is advised that future researchers utilize one male and one female confederate for in-person interactions; data would thus be collected from single participants at a time, during each interaction.

Another consideration for future research based on this study is to explore the predictive relationships between insecure attachment and relationship status. The results produced significant correlations between anxiety and avoidance and relationship status, but additional investigation is needed to parse out causality and better inform the utility of these findings in clinical practice. In addition, the literature would likely benefit from further research examining these variables across cohorts varying in age. For instance, it would be interesting to see how the relationship between attraction and insecure attachment compares between young adults, middle-aged adults, and older adults. Furthermore, future research on attachment would be strengthened by a longitudinal study evaluating how this relationship varies or changes over time. Finally,

future attachment literature would be bolstered by qualitative research examining the narratives of insecurely attached individuals regarding the emergence of intimate relationships. Such a study would offer rich insight into complex variables, qualities, and approaches employed by this population that foster healthy relationship functioning.

Conclusion

The present study aimed to evaluate how attachment anxiety and attachment avoidance interact in shaping initial evaluations of interpersonal attraction. Hypotheses were informed by the instrumentality theory of interpersonal attraction (Finkel & Eastwick, 2015) and attachment system activation theory (Mikulincer & Shaver, 2007). While principal study hypotheses were not supported, the results provide statistical evidence that attachment anxiety and attachment avoidance are non-orthogonal variables, as originally argued (Bartholomew & Horowitz, 1991). Furthermore, data from this pilot, analogue study supports past theoretical literature suggesting that individuals who are insecurely attached are less likely to be in committed relationships. The pilot findings from this study offer psychoeducational information for clinicians who are aiming to build wellbeing with insecurely attached patients.

References

- Ainsworth, M. D. S., & Bell, S. M. (1970) Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child Development, 41*, 49-67. doi:10.2307/1127388
- Amini, F., Lewis, T., Lannon, R., & Louie, A. (1996). Affect, attachment, memory: Contributions toward psychobiological integration. *Psychiatry: Interpersonal and Biological Processes, 59*, 213-239. Retrieved from <http://www.tandfonline.com/loi/upsy20#.Vy-kGpMrK8U>
- Aron, A., Steele, J., Kashdan, T., & Perez, M. (2006). When similars do not attract: Tests of a prediction from the self-expansion model. *Personal Relationships, 13*, 387-396. doi:1350-4126/06
- Aronson, E. (1969). Some antecedents of interpersonal attraction. In W. J. Arnold, & D. Levine (Eds.), *Nebraska symposium on motivation* (Vol. 17, pp. 143-173). Lincoln, NE: University of Nebraska Press.
- Aronson, E., & Cope, V. (1968). My enemy's enemy is my friend. *Journal of Personality and Social Psychology, 8*, 8-12. doi:10.1037/h0021234
- Aronson, E., Willerman, B., & Floyd, J. (1966). The effect of a pratfall on increasing interpersonal attractiveness. *Psychonomic Science, 4*, 227-228. Retrieved from <http://www.springer.com/psychology/cognitive+psychology/journal/40628>
- Atkinson, J. W. (1964). *An introduction to motivation*. Princeton, NJ: Van Nostrand.
- Back, K. W. and Bogdonoff, M.D. (1964). Plasma lipid responses to leadership, conformity, and deviation. In P. H. Leiderman and D. Shapiro (Eds.) *Psychobiological Approaches to Social Behavior*. Stanford, CA.: Stanford University Press, pp. 36-39.
- Back, M. D., Schmukle, S. C., & Egloff, B. (2008). Becoming friends by chance. *Psychological Science, 19*, 439-440. doi:10.1111/j.1467-9280.2008.02106.x
- Backman, C. W. and P. F. Secord, P. F. (1959). The effect of perceived liking on interpersonal attraction. *Human Relationships, 12*, 379-384. doi:10.1177/001872675901200407
- Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (1993). A psychometric study of the Adult Attachment Interview: Reliability and discriminant validity. *Developmental Psychology, 29*, 870-879. Retrieved from <http://www.apa.org/pubs/journals/dev/>
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: a test of a four-category model. *Journal of personality and social psychology, 61*(2), 226-244. doi: 0022-3514/91/

- Bartz J., & Lydon J. (2006). Navigating the interdependence dilemma: Attachment goals and the use of communal norms with potential close others. *Journal of Personality and Social Psychology, 91*, 77-96. doi:10.1037/0022-3514.91.1.77
- Berscheid, E., & Graziano, W. (1979). The initiation of social relationships and interpersonal attraction. In R. L. Burgess & T. L. Huston (Eds), *Social Exchange in Developing Relationships*, pp. 31-60. doi:10.1016/B978-0-12-143550-9.50002-1
- Berscheid, E. & Hatfield, E. (1969). *Interpersonal Attraction*. Reading, MA: Addison-Wesley Publishing Company.
- Berscheid, E. & Walston, E. (1978). *Interpersonal Attraction* (2nd ed). Reading, MA: Addison-Wesley Publishing Company.
- Bifulco, A., Moran, P. M., Ball, C., & Bernazzani, O. (2002). Adult attachment style. I: Its relationship to clinical depression. *Social Psychiatry and Psychiatric Epidemiology, 37*, 50-59. Retrieved from <http://link.springer.com/journal/127>
- Bossard, J. H. S. (1932). Residential propinquity as a factor in mate selection," *American Journal of Sociology, 38*, 219-224. doi:10.1086/216031
- Botwin, M. D., Buss, D. M., & Shackelford, T. K. (1997). Personality and mate preferences: Five factors in mate selection and marital satisfaction. *Journal of Personality, 65*, 107-136. doi:10.1111/j.1467-6494.1997.tb00531.x
- Bovard, E. W. (1959). The effects of social stimuli on the response to stress. *Psychological Review, 66*, p. 267-277. doi:10.1037/h0045556
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York, NY: Basic Books.
- Bowlby, J. (1973). *Attachment and loss, Vol 2. Separation*. New York, NY: Basic Books.
- Bowlby, J. (1982). *Attachment and loss, Vol. 1, Attachment* (2nd ed). New York, NY: Basic Books.
- Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. London: Routledge.
- Brehm, S. S. (1985). *Intimate relationships*. New York, NY, US: Crown Publishing Group/Random House.
- Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin, 21*, 267-283. Retrieved from <http://psp.sagepub.com/>
- Brisch, K. H. (2002). *Treating attachment disorders*. New York, NY: The Guilford Press.

- Brumbaugh, C. C., & Fraley, R. C. (2010). Adult attachment and dating strategies: How do insecure people attract mates?. *Personal Relationships, 17*, 599-614. doi:10.1111/j.1475-6811.2010.01304.x
- Buss, D. M. (1988). The evolution of human intrasexual competition: Tactics of mate attraction. *Journal of Personality and Social Psychology, 54*, 616-628. doi:10.1037/0022-3514.54.4.616
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypothesis tested in 37 cultures. *Behavioral and Brain Sciences, 12*, 1-49. doi:10.1017/S01405X00023992
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*, 204-232. doi:10.1037/0033-295X.100.2.204
- Byrne, D. (1961). Interpersonal attraction and attitude similarity. *Journal of Abnormal and Social Psychology, 62*, 713-715. doi:10.1037/h0044721
- Byrne, D. & Nelson, D., (1965) Attraction as a linear function of proportion of positive reinforcements, *Journal of Personality and Social Psychology, 1*, 659-663. doi:10.1037/h0022073
- Cameron, J. J., Finnega, J. J., & Morry, M. M. (2012). Orthogonal dreams in an oblique world: A meta-analysis of the association between attachment anxiety and avoidance. *Journal of Research in Personality, 46*, 472-476. doi:10.1016/j.jrp.2012.05.001
- Cameron, G, Oskamp, S., & Sparks, W (1977). Courtship American style: Newspaper ads. *Family Coordinator, 26*, 27-30. doi:10.2307/581857
- Cassidy, J., & Kobak, R. R. (1988). Avoidance and its relationship with other defensive processes. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 300–323). Hillsdale, NJ: Erlbaum.
- Clark, R. D., & Hatfield, E. (1989). Gender differences in receptivity to sexual offers. *Journal of Psychology and Human Sexuality, 2*, 39-55. doi:10.1300/J056v02n01_04
- Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology, 37*, 12-24. doi:10.1037/0022-3514.37.1.12
- Cloutier, J., Heatherton, T. F., Whalen, P. J., & Kelley, W. M. (2008). Are attractive people rewarding? Sex differences in the neural substrates of facial attractiveness. *Journal of Cognitive Neuroscience, 20*, 941-951. doi:10.1162/jocn.2008.20062
- Cordon, S. L., Brown, K. W., & Gibson, P. R. (2009). The role of mindfulness-based stress reduction on perceived stress: Preliminary evidence for the moderating role of attachment

- style. *Journal of Cognitive Psychotherapy*, 23(3), 258-269. doi:10.1891/0889-8391.23.3.258
- Corr, P. J., & Matthews, G. (Eds.). (2009). *The Cambridge handbook of personality psychology*. New York, NY: Cambridge University Press.
- DeWall, C. N., Baumeister, R. F., & Vohs, K. D. (2008). Satiated with belongingness? Effects of acceptance, rejection, and task framing on self-regulatory performance. *Journal of Personality and Social Psychology*, 95, 1367-1382. Retrieved from <http://www.apa.org/pubs/journals/psp/>
- Dittes, J. E. (1959). Attractiveness of group as function of self-esteem and acceptance by group, *Journal of Social Psychology*, 59, p. 77-82. doi:10.1037/h0041812
- Eagly, A. H., & Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. *American Psychologist*, 54, 408-423. doi:10.1037/0003-066X.54.6.408
- Eastwick, P. W., & Finkel, E. J. (2008a). Speed-dating: A powerful and flexible paradigm for studying romantic relationship initiation. In S. Sprecher, A. Wenzel, J. Harvey, S. Sprecher, A. Wenzel, J. Harvey (Eds.) ,*Handbook of relationship initiation* (pp. 217-234). New York, NY, US: Psychology Press
- Eastwick, P. W., & Finkel, E. J. (2008b). The attachment system in fledgling relationships: An activating role for attachment anxiety. *Journal of Personality and Social Psychology*, 95, 628-647. doi:10.1037/0022-3514.95.3.62
- Eastwick, P. W., Finkel, E. J., Mochon, D., & Ariely, D. (2007). Selective versus unselective romantic desire: Not all reciprocity is created equal. *Psychological Science*, 18, 317-319. doi:10.1111/j.1467-9280.2007.01897.x
- Eastwick, P. W., Luchies, L. B., Finkel, E. J., & Hunt, L. L. (2014). The predictive validity of ideal partner preferences: A review and meta-analysis. *Psychological Bulletin*, 140(3), 623-665. doi:10.1037/a0032432
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, 39, 175-191. Retrieved from <http://www.springer.com/psychology/cognitive+psychology/journal/13428>
- Feeney, J. A., & Noller, P. (1992). Attachment style and romantic love: Relationship dissolution. *Australian Journal of Psychology*, 44(2), 69-74. doi:10.1080/00049539208260145
- Feeney, J. A., Noller, P., & Patty, J. (1993). Adolescents' interactions with the opposite sex: Influence of attachment style and gender. *Journal of Adolescence*, 16, 169-186. Retrieved from <http://www.journals.elsevier.com/journal-of-adolescence/>

- Feingold, A. (1990). Gender differences in effects of physical attractiveness on romantic attraction: A comparison across five research paradigms. *Journal of Personality and Social Psychology*, *59*, 981–993. doi:10.1037/0022-3514.59.5.981
- Feingold, A. (1992). Gender differences in mate selection preferences: A test of the parental investment model. *Psychological Bulletin*, *112*, 125-139. doi:10.1037/0033-2909.112.1.125
- Festinger, L., Schachter, S., & Back, K. (1950). *Social pressures in informal groups: A study of human factors in housing*. Stanford, CA: Stanford University Press.
- Finkel, E. J., & Eastwick, P. W. (2015). Interpersonal attraction: In search of a theoretical Rosetta Stone. In M. Mikulincer, P. R. Shaver, J. A. Simpson, J. F. Dovidio, M. Mikulincer, P. R. Shaver, ... J. F. Dovidio (Eds.), *APA handbook of personality and social psychology, Volume 3: Interpersonal relations* (pp. 179-210). Washington, DC: American Psychological Association. doi:10.1037/14344-007
- Finkel, E. J., Molden, D. C., Johnson, S. E., & Eastwick, P. W. (2009). Regulatory focus and romantic alternatives. In J. P. Forgas, R. F. Baumeister, & D. M. Tice (Eds.), *Self-regulation: Cognitive, affective, and motivational processes* (pp. 319-335). New York, NY: Psychology Press.
- Fisher, H. E. (1998). Lust, attraction, and attachment in mammalian reproduction. *Human Nature*, *9*, 23–52. doi:10.1007/s12110-998-1010-5
- Fitzsimons, G. M., & Fishbach, A. (2010). Shifting closeness: Interpersonal effects of personal goal progress. *Journal of Personality and Social Psychology*, *98*, 535-549. Retrieved from <http://www.apa.org/pubs/journals/psp/>
- Fitzsimons, G. M., & Shah, J. (2008). How goal instrumentality shapes relationship evaluations. *Journal of Personality and Social Psychology*, *95*, 319–337. doi:10.1037/0022-3514.95.2.319
- Fletcher, G. O., Simpson, J. A., Thomas, G., & Giles, L. (1999). Ideals in intimate relationships. *Journal of Personality and Social Psychology*, *76*, 72-89. doi:1037/0022-3514.76.1.72
- Fonagy, P., & Target, M. (1997). Attachment and reflective function: Their role in self-organization. *Development and Psychopathology*, *9*, 679–700. doi:10.1017/S0954579497001399
- Fox, N. A., & Card, J. A. (1999). Psychophysiological measures in the study of attachment. In J. Cassidy, P. R. Shaver, J. Cassidy, P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 226-245). New York, NY, US: Guilford Press.

- Fraley, R. C. (2002). Attachment stability from infancy to adulthood. Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and Social Psychology Review*, *6*, 123-151. doi:10.1207/S15327957PSPR0602_03
- Fraley, R. C. (2012). Information on the Experiences in Close Relationships-Revised (ECR-R) adult attachment questionnaire. Retrieved from <http://internal.psychology.illinois.edu/~rcfraley/measures/ecrr.htm>
- Fraley, R. C., Hudson, N. W., Heffernan, M. E., & Segal, N. (2015). Are adult attachment styles categorical or dimensional? A taxometric analysis of general and relationship-specific attachment orientations. *Journal of Personality and Social Psychology*, *109*, 354-368. doi:10.1037/pspp0000027
- Fraley, R. C., Niedenthal, P. M., Marks, M., Brumbaugh, C., & Vicary, A. (2006). Adult Attachment and the Perception of emotional expressions: Probing the hyperactivating strategies underlying anxious attachment. *Journal of Personality*, *74*, 1163-1190. doi:10.1111/j.1467-6494.2006.00406x
- Fraley, R. C., & Shaver, P. R. (1997). Adult attachment and the suppression of unwanted thoughts. *Journal of Personality and Social Psychology*, *73*, 1080-1091. Retrieved from <http://www.apa.org/pubs/journals/psp/>
- Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology*, *4*(2), 132-154. doi: 10.1037//1089-2680.4.2.132
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*, 350-365. doi: 10.1037//0022-3514.78.2.350
- Freud, S. (1962). *The ego and the id*. New York, NY: W W Norton & Co.
- Goldbart, S., & Wallin, D. (Eds.). (1997). *Mapping the terrain of the heart: Passion, tenderness, and the capacity to love*. Northvale, NJ: Jason Aronson.
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, *1*, 161-178. Retrieved from <http://asr.sagepub.com/>
- Harlow, H. F. (1958). The nature of love. *American Psychologist*, *13*, 673-685. doi:10.1037/h0047884
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and analysis: A regression-based approach*. New York, NY: The Guilford Press.
- Hazan, C., & Diamond, L. M. (2000). The place of attachment in human mating. *Review of General Psychology*, *4*, 186-204. doi:10.1037/1089-2680.4.2.186

- Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*, 511–524. doi:10.1037/0022-3514.52.3.511
- Hazan, C., & Zeifman, D. (1994). Sex and the psychological tether. In K. Bartholomew, D. Perlman, K. Bartholomew, D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 151-178). London, England: Jessica Kingsley Publishers.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York, NY: Wiley.
- Herbst, K. C., Gaertner, L., & Insko, C. A. (2003). My head says yes but my heart says no: Cognitive and affective attraction as a function of similarity to the ideal self. *Journal of Personality and Social Psychology*, *84*, 1206-1219. doi:10.1037/0022-3514.84.6.1206
- Homans, G. C. (1961). *Social behavior: Its elementary forms*. New York, NY: Harcourt, Brace, and World.
- Kellerman, J., Lewis, J., & Laird, J. D. (1989). Looking and loving: The effects of mutual gaze on feelings of romantic love. *Journal of Research in Personality*, *23*(2), 145-161. doi:10.1016/0092-6566(89)90020-2
- Kelley, H. H. (1979). *Personal relationships: Their structure and processes*. Hillsdale, NJ: Erlbaum.
- Kenrick, D. T., Groth, G. E., Trost, M. R., & Sadalla, E. K. (1993). Integrating evolutionary and social exchange perspectives on relationships: Effects of gender, self-appraisal, and involvement level on mate selection criteria. *Journal Of Personality And Social Psychology*, *64*(6), 951-969. doi:10.1037/0022-3514.64.6.951
- Kenrick, D. T. & Keefe, R. C. (1992). Age preferences in mates reflect sex differences in human reproductive strategies. *Behavioral and Brain Sciences*, *15*, 75-91. doi:10.1017/S0140525X00067595
- Kenrick, D. T., & Trost, M. R. (1989). A reproductive exchange model of heterosexual relationships: Putting proximate economics in ultimate perspective. In C. Hendrick, C. Hendrick (Eds.) , *Close relationships* (pp. 92-118). Thousand Oaks, CA, US: Sage Publications, Inc.
- Kirkpatrick, L. A., & Davis, K. E. (1994). Attachment style, gender, and relationship stability: A longitudinal analysis. *Journal of Personality and Social Psychology*, *66*(3), 502-512. doi:10.1037/0022-3514.66.3.502
- Kirkpatrick, L. A., & Ellis, B. J. (2004). An evolutionary-psychological approach to self-esteem: Multiple domains and multiple functions. In M. B. Brewer, M. Hewstone, M. B. Brewer, M. Hewstone (Eds.), *Self and social identity* (pp. 52-77). Malden: Blackwell Publishing.

- Langlois, J. H., Kalakanis, L., Rubenstein, A. J., Larson A., Hallam, M., & Smoot, M. (2000). Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychological Bulletin*, *126*, 390-423. doi:10.1037/0033-2909.126.3.390
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 32, pp. 1-62). San Diego, CA: Academic Press.
- Levinger, G., & Snoek, J. D. (1972). *Attraction in relationship: A new look at interpersonal attraction*. New York, NY: General Learning Press.
- Lewin, K. (1935). *A dynamic theory of personality*. New York, NY: McGraw-Hill.
- Lott, B. E., & Lott, A. J. (1961). Group cohesiveness, communication level, and conformity. *The Journal of Abnormal and Social Psychology*, *62*, 408-412. doi:10.1037/h0041109
- Lott, B. E., & Lott, A. J. (1974). The role of reward in the formulation of positive interpersonal attitudes. In T. L. Huston (Ed.), *Foundations of interpersonal attraction* (p. 171-192). New York, NY: Academic Press.
- Luo, S., & Zhang, G. (2009). What leads to romantic attraction: Similarity, reciprocity, security, or beauty? Evidence from a speed-dating study. *Journal of Personality*, *77*, 933-964. doi:10.1111/j.1467-6494.2009.00570.x
- Main, M., George, C., & Kaplan, N. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, *50*, 66-104. doi:10.2307/3333827
- Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, E. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 121-160). Chicago, IL: University of Chicago Press.
- Maner, J. K., Kenrick, D. T., Becker, D., Delton, A. W., Hofer, B., Wilbur, C. J., et al. (2003). Sexually selective cognition: Beauty captures the mind of the beholder. *Journal of Personality and Social Psychology*, *85*, 1107-1120. doi:10.1037/0022-3514.85.6.1107
- Maner, J. K., Gailliot, M. T., Rouby, D. A., & Miller, S. L. (2007). Can't take my eyes off you: Attentional adhesion to mates and rivals. *Journal of Personality and Social Psychology*, *93*, 389-401. doi:10.1037/0022-3514.93.3.389
- Maner, J. K., Rouby, D. A., & Gonzaga, G. C. (2008). Automatic inattention to attractive alternatives: The evolved psychology of relationship maintenance. *Evolution and Human Behavior*, *29*, 343-349. doi:10.1016/j.evolhumbehav.2008.04.003
- Maslow, A. (1971). *The farther reaches of human nature*. Oxford, England, Viking.
- McClintock, M. K., & Herdt, G. (1996). Rethinking puberty: The development of sexual

- attraction. *Current Directions in Psychological Science*, 5(6), 178-183.
doi:10.1111/1467-8721.ep11512422
- McClure, M. J., & Lydon, J. E. (2014). Anxiety doesn't become you: How attachment anxiety compromises relational opportunities. *Journal of Personality and Social Psychology*, 106(1), 89-111. doi:10.1037/a0034532
- McClure, M. J., Lydon, J. E., Baccus, J. R., & Baldwin, M. W. (2010). A signal detection analysis of chronic attachment anxiety at speed dating: Being unpopular is only the first part of the problem. *Personality And Social Psychology Bulletin*, 36, 1024-1036. doi:10.1177/0146167210374238
- McCroskey, J. C. & McCain, T. A. (1972). The measurement of interpersonal attraction. *Speech Monographs*, 41(3), 261-266. doi:10.1080/03637757409375845
- McCroskey, L. L., McCroskey, J. C., & Richmond, V. P. (2006). Analysis and improvement of the measurement of interpersonal attraction and homophily. *Communication Quarterly*, 54, 1-31. doi:10.1080/01463370500270322
- Meyer, B., & Pilkonis, P. A. (2005). An attachment model of personality disorders. In M. F. Lenzenweger, J. F. Clarkin, M. F. Lenzenweger, J. F. Clarkin (Eds.), *Major theories of personality disorder* (2nd ed.) (pp. 231-281). New York, NY: Guilford Press.
- Mikulincer, M., & Shaver, P. R. (2014). An attachment perspective on loneliness. In R. J. Coplan, J. C. Bowker, R. J. Coplan, J. C. Bowker (Eds.), *The handbook of solitude: Psychological perspectives on social isolation, social withdrawal, and being alone* (pp. 34-50). Wiley-Blackwell.
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: structure, dynamics, and change*. New York, NY: Guilford Press.
- Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion*, 27, 77-102. Retrieved from <http://link.springer.com/journal/11031>
- Mikulincer, M., Shaver, P. R., Sapir-Lavid, Y., & Avihou-Kanza, N. (2009). What's inside the minds of securely and insecurely attached people? The secure-base script and its associations with attachment-style dimensions. *Journal of Personality and Social Psychology*, 97, 615-633. doi:10.1037/a0015649
- Miller, R. S. (2012). *Intimate relationships* (6th ed.). New York, NY: McGraw-Hill.
- Molero, F., Shaver, P. R., Ferrer, E., Cuadrado, I., & Alonso-Arbiol, I. (2010). Attachment insecurities and interpersonal processes in Spanish couples: A dyadic approach. *Personal Relationships*, 18, 1-13. doi:10.1111/j.1475-6811.2010.01325.x

- Montoya, R. M. & Horton, R. S. (2004). On the importance of cognitive evaluation as a determinant of interpersonal attraction. *Journal of Personality and Social Psychology*, *86*, 696–712. doi:10.1037/0022-3514.86.5.696
- Montoya, R. M. & Horton, R. S. (2014). A two-dimensional model for the study of interpersonal attraction. *Personality and Social Psychology Review*, *18*(1), 59-86. doi:10.1177/1088868313501887
- Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, *25*, 889-922. doi:10.1177/0265407508096700
- Montoya, R. M., & Insko, C. A. (2008). Toward a more complete understanding of the reciprocity of liking effect. *European Journal of Social Psychology*, *38*, 477-498. doi:10.1002/ejsp.431
- Moreland, R. L., & Beach, S. R. (1992). Exposure effects in the classroom: The development of affinity among students. *Journal of Experimental Social Psychology*, *28*, 255-276. doi:10.1016/0022-1031(92)90055-O
- Newcomb, T. M. (1956). The prediction of interpersonal attraction. *American Psychologist*, *11*, 575-586. doi:10.1037/h0046141
- Newcomb, T. M. (1961). *The acquaintance process*. New York, NY: Holt, Rinehart, and Winston.
- Overall, N. C. & Sibley, C. G. (2008). Attachment and attraction toward romantic partners versus relevant alternatives within daily interactions. *Personality and Individual Differences*, *44*, 1126-1137. doi:10.1016/j.paid.2007.11.006
- Perse, E. M., & Rubin, R. B. (1989). Attribution in social and parasocial relationships. *Communication Research*, *16*, 59-77. doi:10.1177/009365089016001003
- Pfeifer, K. (1994). Laughter and pleasure. *Humor: International Journal of Humor Research*, *7*, 157-172. doi:10.1515/humr.1994.7.2.157
- Pietromonaco, P. R., & Carnelley, K. B. (1994). Gender and working models of attachment: Consequences for perceptions of self and romantic relationships. *Personal Relationships*, *1*, 63–82.
- Poulsen, F. O., Holman, T. B., Busby, D. M., & Carroll, J. S. (2013). Physical attraction, attachment styles, and dating development. *Journal of Social and Personal Relationships*, *30*(3), 301-319. doi:10.1177/0265407512456673
- Reader, N., & English, H. B. (1947). Personality factors in adolescent female friendships.

- Journal of Consulting Psychology*, 11, 212-220. doi:10.1037/h0059646
- Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science*, 9, 45–48. doi:10.1111/1467-9280.00008
- Reisenzein, R. (1983). The Schachter theory of emotion: Two decades later. *Psychological Bulletin*, 94, 239-264.
- Rogers, C. R. (1951). *Client-centered Therapy*. Boston, MA: Houghton Mifflin.
- Sanford, K. (1997). Two dimensions of adult attachment: Further validation. *Journal of Social and Personal Relationships*, 14, 133-143.
- Sarnoff, I., & Zimbardo, P. G. (1961). Anxiety, fear, and social isolation. *The Journal of Abnormal and Social Psychology*, 62, 356-363. doi:1037/h0046506
- Schachter, S. (1959). *The psychology of affiliation: Experimental studies of the sources of gregariousness*. Stanford, CA: Stanford University Press.
- Schachner, D. A., & Shaver, P. R. (2002). Attachment style and human mate poaching. *New Review of Social Psychology*, 1, 122–129. Retrieved from [https://risweb.st-andrews.ac.uk/portal/en/journals/new-review-of-social-psychology\(8d89c079-3ee4-4aec-a634-203fdaa1fc25\).html](https://risweb.st-andrews.ac.uk/portal/en/journals/new-review-of-social-psychology(8d89c079-3ee4-4aec-a634-203fdaa1fc25).html)
- Schachner, D. A., & Shaver, P. R. (2004). Attachment dimensions and sexual motives. *Personal Relationships*, 11, 179–195. doi:1350-412602
- Schmitt, D. P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., Austers, I., et al. (2003). Universal sex differences in the desire for sexual variety: Tests from 52 nations, 6 continents, and 13 islands. *Journal of Personality and Social Psychology*, 85, 85-104. doi:10.1037/0022-3514.85.1.85
- Schore, A. N. (1994). *Affect regulation and the origin of the self: The neurobiology of emotional development*. Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.
- Schore, A. N. (2000). Attachment and the regulation of the right brain. *Attachment & Human Development*, 2(1), 23-47. doi:10.1080/146167300361309
- Seeley, E. A., & Gardner, W. L. (2006). Succeeding at self-control through a focus on others: The roles of social practice and accountability in self-regulation. In K. D. Vohs & E. J. Finkel (Eds.), *Self and relationships: Connecting intrapersonal and interpersonal processes* (pp. 407–425). New York, NY: Guilford Press.
- Shaver, P. R., & Mikulincer, M. (2002). Attachment related psychodynamics. *Attachment and Human Development*, 4, 133-161. doi:10.1080/14616730210154171
- Sibley, C. G., Fischer, R., & Liu, J. H. (2005). Reliability and validity of the revised experiences

- in close relationships (ECR-R) self-report measure of adult romantic attachment. *Personality and Social Psychology Bulletin*, *31*, 1524-1536. doi:10.1177/0146167205276865
- Simpson, J. A., & Gangestad, S. W. (1992). Sociosexuality and romantic partner choice. *Journal of Personality*, *60*, 31-51. doi:10.1111/j.1467-6494.1992.tb00264.x
- Sonkin, D. J. (2005). Attachment theory and psychotherapy. *The California Therapist*, *17*(1), 68-77. Retrieved from <http://www.worldcat.org/title/california-therapist/oclc/12367141>
- Sowell, E. R., Thompson, P. M., Holmes, C. J., Jernigan, T. L., & Toga, A. W. (1999). In vivo evidence for post-adolescent brain maturation in frontal and striatal regions. *Nature Neuroscience*, *2*(10), 859-861, doi:10.1038/13154.
- Sperling, M. B., & Borgaro, S. (1995). Attachment anxiety and reciprocity as moderators of interpersonal attraction. *Psychological Reports*, *76*, 323-335.
- Sternberg, R. J. (1986). A triangular theory of love. *Psychological review*, *93*(2), 119-1935.
- Swami, V. (2015). *Attraction explained: The science of how we form relationships*. New York, NY: Routledge.
- Thorberg, F. A., & Lyvers, M. (2006). Attachment, fear of intimacy and differentiation of self among clients in substance disorder treatment facilities. *Addictive Behaviors*, *31*, 732-737. Retrieved from <https://www.journals.elsevier.com/addictive-behaviors>
- Thorndike, E. L. (1935). *The psychology, of wants, interests, and attitudes*. New York, NY: Appleton-Century-Crofts.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. G. Campbell (Ed.), *Sexual selection and the descent of man, 1871-1971* (pp. 136-179). Chicago, IL: Aldine.
- Troisi, A., Carola, V., & Gross, C. (2017). Genetic variation in the serotonin transporter gene influences adult attachment style. *Clinical Neuropsychiatry*, *14*(4), 241-246.
- Vonk, R. (2002). Self-serving interpretations of flattery: Why ingratiation works. *Journal of Personality and Social Psychology*, *82*, 515-526. doi:10.1037/0022-3514.82.4.515
- Vorauer, J. D., Cameron, J. J., Holmes, J. G., & Pearce, D. G. (2003). Invisible overtures: Fears of rejection and the signal amplification bias. *Journal of Personality and Social Psychology*, *84*, 793-812. doi:10.1037/0022-3514.84.4.793
- Wallin, D. J. (2007). *Attachment in psychotherapy*. New York, NY: The Guilford Press.
- Walster, E. (1965). The effect of self-esteem on romantic liking, *Journal Experimental Social Psychology*, *1*, 184-197. doi:10.1016/0022-1031(65)90045-4

- Walster, E., Aronson, V., Abrahams, D., & Rottmann, L. (1966). Importance of physical attractiveness in dating behavior. *Journal of Personality and Social Psychology*, *4*, 508–516. doi:10.1037/h0021188
- Walster, E., Walster, G. W., Piliavin, J., & Schmidt, L. (1973). “Playing hard to get”: Understanding an elusive phenomenon. *Journal of Personality and Social Psychology*, *26*, 113–121. doi:10.1037/h0034234
- White, G. L., Fishbein, S., & Rutsein, J. (1981). Passionate love and the misattribution of arousal. *Journal of Personality and Social Psychology*, *41*, 56–62. doi:10.1037/0022-3514.41.1.56
- Williams, L. E., & Bargh, J. A. (2008). Experiencing physical warmth promotes interpersonal warmth. *Science*, *322*, 606-607. doi:10.1126/science.1162548
- Wilson, E. O. (1975). *Sociobiology: The new synthesis*. Cambridge, MA: Harvard University Press.
- Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York, NY: Wiley.
- Young, A. M., & Acitelli, L. K. (1998). The role of attachment style and relationship status of the perceiver in the perceptions of romantic partner. *Journal of Social and Personal Relationships*, *15*(2), 161-173.
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, *9*, 1–27. doi:10.1037/h0025848
- Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, *35*(2), 151-175. doi:10.1037/0003-066X.39.2.117