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Attachment and Bonding: Correlations between Relationship and Anxiety among Adult College Students

Ellen Witter Armbruster

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**ATTACHMENT AND BONDING:
CORRELATIONS BETWEEN RELATIONSHIP AND
ANXIETY AMONG ADULT COLLEGE STUDENTS**

BY

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B.A., Biology and Spanish, University of Colorado, 1980
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DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Doctor of Philosophy
Counselor Education**

The University of New Mexico
Albuquerque, New Mexico

May, 2008

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ABSTRACT

This study investigated the relationships between adult attachment style, memories of early bonding experiences, and five different types of anxiety. The participants were 201 undergraduate psychology students, whose attachment styles, early bonding memories, and tendency toward the five anxiety types were measured through the use of self-report instruments. Analyses were performed to address the three research questions: 1) What is the relationship between attachment style and quality of early interactions with caregivers?; 2) What is the relationship between tendency toward specific types of anxiety and attachment style?; and 3) What is the relationship between tendency toward specific types of anxiety and quality of early interactions with caregivers?

Significant correlations were found between early bonding memories and secure, preoccupied, and fearful attachment styles, but not between early bonding memories and dismissing attachment style. Secure attachment style was negatively correlated with

every type of anxiety, whereas preoccupied and fearful attachment styles were positively correlated with every type of anxiety. Dismissing attachment style, however, was not correlated with any type of anxiety. Significant correlations also were evident between early bonding memories and two anxiety types (post-trauma and social).

Several interpretations of the finding that dismissing attachment style is not correlated with early bonding memories or with any type of anxiety were considered. Individuals with a dismissing attachment style may have failed to report their unpleasant childhood memories and anxiety symptoms. The lack of correlation may indicate an avoidance of awareness, rather than an absence of symptoms and childhood memories. There also is the potential that a dismissing attachment style is genetically linked, and therefore shows no correlation with the early environment or with anxiety.

Three treatment considerations were suggested based on the results of this study. First, it was advised that clinicians keep in mind the possible impact of both genetics and environment on the development and maintenance of anxiety. It also was recommended that knowledge of client attachment style be utilized to refine therapeutic techniques. Lastly, it was proposed that an understanding of early environment and attachment may allow for individualization of treatment through the use of combined modalities.

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CHAPTER ONE

INTRODUCTION

Attachment theory affords anxiety researchers an opportunity to consider the significance of early infant-caregiver relationships in the etiology of anxiety disorders. The ideas of John Bowlby (1988), which integrate ethology, evolution, and biology into his conceptualization of psychodynamic theory, also offer the chance to look at the impact that interpersonal mechanisms may have on developing neurophysiology in children. While the desire for scientific frugality may lean investigators away from striving to comprehend the interconnectedness of environmental and inherited tendencies in anxiety development, a fuller appreciation of the intricacy of their relatedness is likely to lead to more efficacious treatments as well as improved understanding of anxiety disorders.

The simplicity of Bowlby's (1988) thinking is striking in that the primacy of the early parent-child bond is so widely accepted as critical to the survival and healthy development of human beings. Bowlby was able to integrate this time-honored notion into his knowledge of scientific facts and meaning with a remarkable degree of sensitivity and ease. Flowing, as his theory did, from psychoanalysis and object relations, perhaps the time was right for an interpersonal means of understanding healthy as well as pathological development. Nevertheless, despite the compactness of his philosophy, Bowlby's thoughts revolutionized the analytic world by removing dysfunction from the center of the individual and placing it in the space between interacting humans.

Bowlby's (1988) work gives us the opportunity to view specific diagnoses as relational disorders rather than as unique to the individual to whom the label was given. Anxiety disorders are a particularly fitting place to focus investigation of this genre since understanding the meaning and function of anxiety is at the center of attachment theory. The study of conditions considered to be largely genetically determined, such as panic disorder and obsessive-compulsive disorder, may hold special appeal in the quest to understand the connections between inherited predisposition and environmental influence. As genetic research uncovers specific factors which incline certain individuals toward the development of particular anxiety disorders, questions as to why some people develop the disorders and others do not will arise and need to be answered.

Understanding may well come through investigation into the family, including early child-caregiver relationships. While attachment studies with animals cannot be presumed to forecast exact human responses, they may be predictive of similarities, and should be considered significant enough to warrant carefully constructed research into the development and etiology of anxiety disorders in humans. Ethical constraints mandate that investigation with human participants be scrupulously designed to avoid harming those involved. As science provides increased knowledge about neurobiological changes that occur as a result of disrupted early attachment, it may be considered unethical to disregard the impact of the family on the development of an anxiety disorder.

The principle of parsimony is ingrained in the scientific method, and the consideration of environmental influence in anxiety disorders previously thought of as solely inherited maladies may seem to undermine this standard and add undue complexity. It is easier to correct a brain structure problem with medication than it is to

unearth the messy complications of systemic family dysfunction. However, if researchers and therapists neglect to address that which is interpersonal in the development of anxiety, along with that which is physiological, we hinder progress in understanding the connections between nature and nurture. We also provide a disservice to the population of individuals diagnosed with an anxiety disorder by failing to recognize and communicate information that potentially is critical for successful treatment.

Overview of Chapter

The chapter begins with a review of the basic elements of attachment and bonding. Subsequent to this description, several theories of anxiety development are mentioned briefly, and the purpose of the study is stated. Finally, the research questions are discussed conceptually, and definitions and key concepts are clarified.

Attachment and Bonding

Early bonding experiences between a child and caregiver are generally believed to be significant to healthy growth and movement toward emotional maturity. When these experiences are less than optimal, the development of anxiety may impair the relational capacity of the individual. Attachment theory is a useful lens from which to view anxiety and anxiety disorders, and also provides a means of bridging the gap between physiological and environmental antecedents. John Bowlby (1988), British psychoanalyst and founder of attachment theory, believed that the attachment system, with its focus on the interpersonal aspect of the early infant-caregiver relationship, was an evolutionary adaptation intended to ensure survival for the child. Noting that an infant's well-being depends upon the caregiver's ability to provide nurturance, protection, and empathy, Bowlby postulated that the crying, clinging, and reaching behaviors seen in children from

the beginning are a means of achieving proximity to a trusted attachment figure. When a child's needs are sufficiently and consistently fulfilled by the attachment figure, the caregiver becomes a secure base for the child who then turns to that person for care when he or she feels anxious. Children whose parents respond consistently and with attunement develop an internal working model of relationships in which needs are met. Conversely, children whose parents are inconsistent in their responses develop an internal working model in which others cannot be relied upon for help in times of anxiety (Bowlby).

Ainsworth, Blechar, Waters, and Wall (1978) extended Bowlby's work in their studies with the Strange Situation. This unique experimental protocol requires that a mother and her infant be left alone in an unfamiliar room with toys for a short period, after which the mother must leave and a stranger enters the room. This scenario is repeated several times while researchers observe the infant's behavior and responses to the separations and reunions with the mother. As a result of the Strange Situation experiments, Ainsworth et al. classified infant behavior in three ways: 1) secure infants cried when their mothers left, but were quickly consolable when their mothers returned; 2) insecure ambivalent infants cried loudly and desperately when their mothers left, and were inconsolable when their mothers returned; and 3) insecure avoidant infants were only slightly interested when their mothers left the room, and when their mothers returned did not raise their arms to be picked up.

Whereas most infants can be classified as secure, ambivalent, or avoidant during the Strange Situation, there is a subgroup whose behaviors are too conflicted and inconsistent to allow placement in any of these categories. Main (1996) noted that infants who have been mistreated sometimes exhibit behavior such as crawling toward their

mothers when their mothers enter the room, then turning and moving away from their mothers before reaching them. Main referred to this new category of infant attachment as insecure-disorganized-disoriented, and explained that these children may have been frightened by the behaviors of their primary caregiver. Children who are frightened by their attachment figure experience a behavioral paradox in that they simultaneously desire to flee from the person who is frightening them and run to that individual for comfort and soothing. Since both actions cannot be accomplished at the same time, these children develop a disorganized system of behavior adaptation (Main).

Anxiety

Anxiety has been conceptualized in a variety of ways. In Freud's original view, anxiety hysteria was believed to encompass conversion symptoms and phobias, whereas anxiety neurosis was considered to be comprised of severe anxiety states and panic attacks (Glick, 1995). Freud (1894, 1895) believed that the former diagnosis resulted from unpleasant emotions that were linked to unacceptable sexual memories, and that the latter disorder occurred when the sexual drive was unfulfilled. Freud (1926) eventually reformulated his anxiety theory to incorporate his ideas of the id, ego, and superego, as well as concepts such as the unconscious, the defense mechanisms, and the Oedipus complex. He saw anxiety as a signal of danger, and paid particular attention to castration anxiety, which he believed initiates the formation of the superego (1926).

Object relations theorists moved the understanding of anxiety toward a more relational focus (Glick, 1995). Klein (1964), for example, believed that anxiety resulted when there was danger in one's relationship with the internal maternal object and that it signaled the destruction of parts of one's internal world. For other object relations

theorists, such as Fairbairn, Winnicott, and Guntrip, the concept of self became more significant as they distanced themselves from Freud's structured view of the psyche (Glick). The degree of anxiety experienced by an individual was believed to reflect how well the self was functioning, and the meaning of danger in a child's life depended upon his or her perception of the maternal object as gratifying or as depriving (Glick). Self-psychologists such as Kohut (1971) believed that healthy narcissism resulted when the relationship with one's early caregivers was successfully internalized and that anxiety occurred as a consequence of the real failures of these 'self objects'. Kernberg (1976) focused on the relationship between the primitive self, object representations, and aggression. He felt that anxiety resulted from the interaction between constitutional features manifested by the individual and accidental environmental influences.

Contemporary classical conditioning may also be useful in understanding anxiety, and involves external learning rather than intrapersonal experience (Dadds, Davey, & Field, 2001). In contrast to classical conditioning, it acknowledges that the strength of the association between conditioned and unconditioned stimuli may be influenced by factors other than contiguous pairings of both types of stimuli. For example, an individual's evaluation of the unconditioned stimulus may impact his or her conditioned response. Families provide an important context for learning about threat, and may thus, through specific mechanisms such as social learning and attachment processes, be instrumental in the development of anxiety (Dadds et al.). The degree of anxiety experienced by an individual reflects the degree of anxiety within the family, and an individual's anxiety is not independent of the anxiety of other family members (Dadds et al.).

Operant conditioning also may be viewed as a major mechanism involved in the development and maintenance of childhood anxiety disorders (Ollendick, Vasey, & King, 2001). Operant behaviors are those which occur spontaneously and operate on the environment to create a consequence, and operant factors may lead to the onset of anxiety disorders (Ollendick et al.). For example, fearful verbalizations by significant others may reinforce aspects of anxiety that are operants (Ollendick et al.). Non-anxious parents may increase their children's anxiety by limiting exposure to challenging situations that would allow the development of mastery over fear (Ollendick et al.).

The development of anxiety in children may be significantly influenced by family processes (Dadds & Roth, 2001). Since anxiety disorders run in families, the impact of both environmental and genetic factors must be explored to achieve a more thorough understanding. The concept of behavioral inhibition, a temperamental trait which has been linked to the development of anxiety, and can be measured through physiological correlates, is helpful in this regard (Dadds & Roth). According to Dadds and Roth (2001), research has shown that behavioral inhibition in toddlers was predicted by the interaction between mother-child attachment and behavioral measures. Children who had insecure-anxious attachments and were physiologically distressed by novel stimuli were most likely to show high levels of behavioral inhibition.

Research has pointed to a correlation between maternal control and anxiety (Rapee, 1997). Overprotection may lead a child to believe that the level of danger in the environment is higher than it really is and keep the child from learning how to cope effectively (Rapee). Control in the early environment also is important and individuals who have early experience with events that are outside of their control may later perceive

even controllable events as uncontrollable (Chorpita, 2001). According to Parker (1983), parental overprotection, in combination with low parental care, may be significant in the later development of anxiety for individuals who experience both of these conditions in their families.

Genetic epidemiology unites the study of genetics with the study of the distribution and determinants of diseases (Merikangas, 2000). As a new field, genetic epidemiology promises to shed light on the interplay between environmental and inherited factors in the etiology of anxiety disorders (Merikangas). This may be particularly important since research indicates that the expression of genetic vulnerabilities possibly is mediated by aspects of the environment. Individuals who have genetic vulnerabilities are most sensitive to a difficult home situation, but caregiver-child relationships may be even more important than generic family settings in impacting psychiatric diagnoses (Kendler, 1995).

Purpose of the Study

The study is designed to assist in unraveling the interconnections that may exist between early attachment experiences and the later development of anxiety and anxiety disorders. It is intended to be a contribution to the larger work of understanding anxiety development within a context of environmental and genetic influences. Enlarging the picture of how anxiety is initiated and maintained by considering both nature and nurture will encourage a more complete view of the process by which anxiety disorders come into being. Since anxiety disorders often run in families, it is especially relevant to conduct investigations into the role that family environment plays in anxiety development. In this way, we may begin to discern the distinct contributions of

inheritance and milieu, which in turn will allow for enhanced, and possibly even individualized, treatment of anxiety disorders.

Research Questions

The study described here will utilize several different self-report measures to examine the relationships between adult attachment style, memories of early bonding experiences, and five types of anxiety presented in the text revision of the 4th edition of the Diagnostic and Statistical Manual of the American Psychiatric Association (*DSM-IV-TR*; American Psychiatric Association, 2000). Tendency toward each type of anxiety will be considered first in light of reported attachment style, and second with regard to reported memories of early bonding experiences. Correlations between reported attachment style and reported bonding experiences will be examined, as well.

Definitions and Key Concepts

Anxiety

The concept of anxiety differs from one theoretical tradition to another. While psychodynamic theories understand anxiety to occur as a result of a threat to the self or to others, classical conditioning views anxiety as a conditioned response to unconditioned stimuli. Familial processes are also significant in the development of anxiety, and concerns such as high parental control and insecure attachment may interact with temperament to influence anxiety level.

Attachment System

The attachment system is genetically motivated, and serves as a survival mechanism for a child. Specific behaviors such as crying and reaching increase proximity

to caregivers, thereby enhancing the likelihood of survival. The attachment system is triggered in relation to an attachment figure.

Attachment Theory

Attachment theory explains the presence of attachment behavior in children and in all humans, as well as the specific attachments that individuals make to others.

Caregiver Attunement

Caregiver attunement is important to the fulfillment of children's needs. Children whose parents respond accurately to requests for care and comfort learn that the world is safe and others will be there for them when they are in need.

Exploratory System

The exploratory system is interdependent with the attachment system. Children need to explore their environment, and may do so without distress when a caregiver is functioning as a secure base to which they can return for comfort and care.

Generalized Anxiety Disorder

Generalized anxiety disorder (GAD) includes anxiety and worry that are excessive and difficult to control (*DSM-IV-TR*, 2000). Symptoms may include restlessness, being easily fatigued, difficulty concentrating, irritability, muscle tension, and sleep disturbance. The symptoms associated with generalized anxiety disorder, as in the case of all *DSM-IV-TR* diagnoses, result in clinically significant distress and impair social, occupational, or academic functioning.

Genetic Epidemiology

Genetic epidemiology is a field of study that strives to combine epidemiology, which examines the distribution of diseases, with genetics. Genetic epidemiology bridges

the gap between the two areas, and focuses on risk factors and etiology of familial diseases.

Internal Working Model

Children whose caregivers respond accurately to their requests for care and nurture develop an internal working model of relationships in which needs are met. Those who have parents not attuned to their needs develop an internal working model of relationships in which others cannot be relied upon.

Obsessive Compulsive Disorder

Obsessive compulsive disorder (OCD) includes obsessions, compulsions, or both (*DSM-IV-TR*, 2000). Obsessions include recurrent and persistent thoughts, impulses, or images that are experienced as intrusive and are not just excessive worries about real problems. An individual with OCD attempts to ignore, suppress, or neutralize the thoughts, impulses, or images, while understanding that the obsessions are a product of his or her own mind. Compulsions include repetitive behaviors or mental acts that the person with OCD feels he or she must perform in response to an obsession, and which are aimed at preventing or reducing the distress associated with the obsession. A person with OCD recognizes that the obsessions or compulsions are excessive or unreasonable, but spends more than one hour per day performing them.

Panic Disorder

Panic disorder (PD) may occur with or without agoraphobia and consists of recurrent and unexpected panic attacks (*DSM-IV-TR*, 2000). A panic attack includes a period of severe fear and discomfort and may comprise symptoms such as palpitations, sweating, trembling, shortness of breath, feeling of choking, chest pain, nausea, dizziness,

de-realization or de-personalization, fear of losing control, fear of dying, numbness, chills, or hot flushes. Agoraphobia involves anxiety about being in settings where escape might be difficult, or where a panic attack might occur unexpectedly.

Posttraumatic Stress Disorder

Posttraumatic stress disorder (PTSD) occurs when an individual experiences a life-threatening event and responds with intense fear, helplessness, or horror (*DSM-IV-TR*, 2000). The traumatizing incident may be re-experienced in several ways, including recurrent recollections of images, thoughts, or perceptions, recurrent dreams, feeling and acting as though the episode were being relived, distress when exposed to cues that are reminders of the incident, or physiological reactivity. Avoidance of situations that recall the traumatic event is common, as are symptoms such as difficulty remembering parts of what happened, feelings of detachment, and sleep disruption.

Proximity Seeking Behavior

Children, when they experience anxiety, seek closeness to an attachment figure, hoping to find safety, protection, and security.

Secure Base

Caregivers may function as a secure base for children, providing physical and emotional nourishment as well as comfort and reassurance during times of distress.

Social Anxiety Disorder

Social anxiety disorder (SAD) involves fear of social or performance situations and possible accompanying scrutiny (*DSM-IV-TR*, 2000). An individual with SAD feels afraid that he or she will behave in ways that may cause humiliation or embarrassment. The anxiety provoked by social interaction or performance may result in a panic attack.

SAD sufferers realize their fear is excessive, but often avoid circumstances that might bring on discomfort.

Unsolvable Fear

Unsolvable fear refers to a situation in which a child is frightened regularly by a caregiver. When children are frightened by an attachment figure, they desire simultaneously to run to that person for comfort and to run away from the frightening behavior. Unsolvable fear may increase the risk for later psychopathology.

Conclusion

The approach to understanding anxiety has experienced an enormous transformation since the era in which Freud conceptualized this construct as a repression of unacceptable sexual memories or as the result of an unfulfilled sexual drive. In more recent years, developmental research has looked at family interactions and especially at caregiver-child relationships as influencing the development of anxiety, essentially shifting the focus of environmental aspects of etiology from an intrapersonal to an interpersonal mechanism. The new field of genetic epidemiology promises to illuminate the question of anxiety's etiology by addressing both genetic and environmental influences. Much research remains to be done to resolve the quandary, but presently it seems certain that deeper understanding will lie in the integration of many factors and their complex interactions, as well as in the study of the commonality and uniqueness of individual developmental pathways. The current study is a step toward this goal.

CHAPTER TWO

LITERATURE REVIEW

Overview of Chapter

The chapter begins with a discussion of several theories of anxiety, including psychodynamic theories, classical and operant conditioning, and the importance of the family environment, especially the caregiver-child relationship. This is followed by a description of the new field of genetic epidemiology and of current research that promises to increase our understanding of anxiety by integrating the roles of both genes and environment. In the final section of the chapter, an explanation of attachment theory and a review of the literature that links insecure attachment to psychopathology [in general] and anxiety will be presented. This study is designed to illuminate these associations by enhancing our knowledge of the relationship between anxiety and attachment, and to encourage alleviation of suffering through the development of more comprehensive treatment of anxiety disorders.

Theories of Anxiety

The conceptualization of anxiety differs according to theoretical tradition. Psychodynamic theory postulates that the essential problem presented by the anxiety construct is threat to self or others. Those who study anxiety, or work with individuals who experience unbearable levels of this primal and significant feeling, must remain aware of the nature and actual or figurative location of the perceived danger in order to enhance understanding of deeper causes and meaning (Glick, 1995).

Anxiety has been found to run in families, and knowledge of family processes may be essential to understanding its etiology. Research that considers temperament, behavioral inhibition, conditioning, and the role of family interaction helps to highlight the degree to which the development of anxiety is influenced by the surroundings in which an individual is raised. However, as the body of information regarding the development of anxiety grows, it is becoming clear that anxiety development is influenced by more than one factor. Research in genetic epidemiology is helping to fill in gaps in knowledge about the origins and development of anxiety by factoring in genetic as well as environmental influences.

Psychodynamic Theories

According to Freud's (1894, 1895) original conceptualization, anxiety hysteria consisted of conversion symptoms and phobias. Freud believed that this syndrome had a psychological etiology and was a response to repressed feelings about unacceptable sexual memories. The syndrome of anxiety neurosis, on the other hand, comprised severe anxiety states and panic attacks (Freud). Freud believed that, in this case, the etiology was somatic and the sexual drive was unfulfilled.

In Freud's (1894, 1895) reformulation of his anxiety theory, he defined the id, ego, and superego, the unconscious nature of neurosis, defense mechanisms, and the meaning of the Oedipus complex. He also broadened his perception of anxiety to include its roles as a danger signal and as the initiator of the defensive response. Freud believed that anxiety begins as a defensive response, while its role as a signal is the ego's most important tool for monitoring the inner and outer worlds for danger. Castration anxiety, one form of signal anxiety, was pivotal in Freud's (1926) conceptualization, and was seen

as initiating the formation of the superego, as well as bringing into play the constructs of guilt, conscience, morality, civilization, and neurosis. Exploring childhood oedipal feelings, and indeed, excavating all signal anxiety, were presumed to lead the way to freedom from neurosis (Freud).

Freud was not particularly interested in pre-oedipal experience or the significance of the mother-child relationship (Glick, 1995). However, Rank's (1929) theory that neurotic anxiety resulted from birth trauma and original physical separation from the mother initiated movement toward an increasingly relational focus for understanding the etiology of anxiety. Klein defined anxiety as a result of "danger generated in the relationship with the internal maternal object" (Glick, p. 6). Like Freud (1926) in his second theory of anxiety, Klein (1964) believed that anxiety is an organizer and was linked to inherent drive (although she believed the drive is more aggressive than libidinal). However, unlike Freud, Klein was uninterested in conflicts between the id, ego, and superego, focusing instead on anxiety as a signal of possible damage to one's inner world.

Other object relations theorists, including Fairbairn, Winnicott, and Guntrip, followed Klein's lead in the departure from Freud's mechanistic and structured way of viewing the psyche (Glick, 1995). Anxiety was viewed by these theorists as a reflection of how well the self was functioning, and the development of the self was seen as inextricably linked to the relationship between an infant and the maternal object caring for him or her (Glick). They believed that the meaning danger took on in the life of a developing child was predicated upon his or her perceptions of the maternal object as gratifying or as depriving (Glick). While Klein (1964) felt that these perceptions were

based upon instinctual fantasies, Fairbairn, Winnicott, and others thought that incidents of maternal deprivation and lack of nurture and protection had actually occurred in the lives of anxious individuals (Glick).

Self-psychologists such as Kohut (1971) continued to focus on the self as vulnerable to experiences of disorganization and fragmentation and viewed anxiety as a signal of danger to the self. Kohut believed that successfully internalizing the relationship with one's early caregivers resulted in a healthy narcissism of the self; on the other hand, he thought that seriously troubled internalized relationships increase an individual's risk of falling apart. In his view, pathological narcissism and anxiety resulted from the real failures of self objects, and were subsequently expressed in sexual and aggressive ways. Kernberg's (1976) system of understanding development and anxiety incorporated object relations theory with Freudian ego psychology. He emphasized the relationship between the primitive self, object representations, and aggression. Kernberg believed that anxiety, in addition to being a signal that guided treatment, was a result of the interplay between an individual's constitutional features and significant accidental influences.

Classical and Operant Conditioning

Classical conditioning was understood by early behaviorists as a process that involves external learning rather than intrapersonal experience (Dadds, Davey, & Field, 2001). An individual's prior learning experience was believed to be the explanation for the effects of a stimulus on that individual. In other words, the strength of conditioning was thought to be based on the number of contiguous pairings of the conditioned stimulus and the unconditioned stimulus (Dadds et al.). Dadds et al. noted that classical conditioning has not usually been understood within a developmental framework, and

suggested a focus on contemporary models of classical conditioning, which emphasize human (rather than animal) learning and cognition within an interpersonal context.

Contemporary classical conditioning acknowledges that factors other than contiguous pairings of the conditioned and unconditioned stimuli (including verbally and culturally communicated information) may impact the strength of their association (Dadds et al., 2001). In addition, contemporary classical conditioning posits that an individual's conditioned response may be influenced by his or her evaluation of the unconditioned stimulus, and that several processes come into play in this evaluation (Dadds et al.). Specifically, factors that may impact an individual's evaluation and increase the strength of the association between a conditioned stimulus and an unconditioned stimulus include being told about the relationship between the stimuli, holding pre-existing beliefs about the association between the stimuli, and having prior fear or anxiety of a conditioned stimulus.

There are four consistent characteristics of anxiety that have been observed throughout development: 1) different forms of anxiety come and go at different points in development with predictable regularity (for example, specific fears usually appear at an early age, whereas generalized anxiety tends to occur during late childhood or early adolescence); 2) the nature of anxiety and the phase of life during which it appears to impact the mechanisms associated with the development of that anxiety (for example, late childhood fears like animal phobia may result from modeling, whereas adulthood fears like claustrophobia may be associated with direct conditioning experiences); 3) individuals experience differences in their vulnerability to anxiety, and those differences change across the lifespan and across situations (for example, all ages show

gender differences in specific phobias, whereas gender differences for generalized anxiety appear after adolescence); and 4) problematic anxiety develops in an interpersonal context (for example, individuals learn about threat as they are exposed to the behavior of other people) (Dadds et al., 2001).

Families provide a particularly important context in which interpersonal learning about threat and safety may occur, and the specific mechanisms most cited to explain this phenomenon are: 1) social learning, in which children learn about fear and courage by imitating, gathering information, and having certain behaviors reinforced; and 2) attachment processes in which confidence for exploration is undermined by insecure attachments to caregivers (Dadds et al., 2001). Dadds et al. pointed out that contemporary classical conditioning provides additional explanations about the development of anxiety. First, contemporary classical conditioning focuses on unconditioned stimulus evaluation, and emphasizes the impact of threat and safety in the environment. For example, the degree of fear and anxiety experienced by an individual reflects the degree of fear and anxiety that exists within the family. Second, the anxiety reported by an individual is not independent of the anxiety of other family members; there is a reciprocal information exchange between family members about emotions like anxiety. Dadds et al. also noted that more interpersonal learning takes place when the relationship between the individuals involved is considered close. Therefore, learning about anxiety stimuli will differ across the years depending upon the types and strengths of intimate relationships (Dadds et al.).

According to Ollendick, Vasey, and King (2001), operant conditioning is the major mechanism through which childhood anxiety disorders are developed and

maintained. They explained that “the operant conditioning model emphasizes the active role the organism plays in obtaining rewards or avoiding punishments for itself” (p. 232). Although respondent behaviors are elicited by specific stimuli and the organism plays a passive role (for example, salivation in response to food in the mouth), operant behaviors are emitted spontaneously by the organism, the organism plays an active role, and the behavior operates on the environment to create a consequence (for example, pressing a lever to obtain food).

An operant behavior may be either contingency-governed or rule-governed (Ollendick et al., 2001). There are two kinds of contingency stimuli that influence change in operant responses. One is the reinforcer, which increases the probability of the response occurring in the future, and the second is the punisher, which decreases the likelihood of the response occurring in the future (Ollendick et al.). Punishers can be divided into two categories: punishment, in which an aversive stimulus is presented, and response cost, or penalty, in which the positive stimulus is removed.

The onset of anxiety disorders may occur through several pathways: direct aversive conditioning as explained by classical conditioning; modeling or imitating fearful or phobic behavior on the part of parents, siblings, or friends; transmission of information as in conveyance of distress through conversation; and operant factors (Ollendick et al., 2001). Aspects of anxiety that are operants may be reinforced by verbalizations by significant others about fear, the inability to cope, and the belief that the situation is uncontrollable (Ollendick et al.). Children whose parents reinforce their anxiety in this way may not develop adaptive responses to aversive stimuli. Operant conditioning posits that fearful experiences provide an opportunity to learn emotion

regulation strategies and coping responses, and contribute to mastery of fear and anxiety. Although parental anxiety is not a necessary precursor to children's anxiety, even non-anxious parents may increase their children's anxiety by limiting their exposure to situations in which the anxious children might gain mastery over their fear. These processes of operant conditioning allow parental responses to shape and be shaped by their children's anxiety.

Operant conditioning also fosters the maintenance and intensification of anxiety (Ollendick et al., 2001). One way in which this may occur is through the removal of the aversive stimulus. For example, individuals who engage in avoidance behavior when an aversive situation is encountered prevent extinction of the anxiety. Another means by which anxiety may be maintained and intensified through operant conditioning is the lack of opportunity, incurred as a consequence of avoidant behavior, to participate in important developmental contexts. Children for whom anxiety interferes with the development of social skills and academic performance have an increased risk of failure when threatened. Ollendick et al. noted that parental behaviors are significant in the maintenance and intensification of children's anxiety. They described the reciprocal influence between anxious children and their parents as a "complex dance of shifting contingencies and consequences with each shaping the other in ways that may increase or decrease the child's anxiety in the future" (p. 239).

Familial Influences on Anxiety

Family processes may have an impact on the development of anxiety in children; threat and avoidance, high parental control, and lack of secure attachment interact with temperament to influence the degree of risk (Dadds & Roth, 2001). As Dadds and Roth

noted, anxiety disorders have been observed to run in families. However, since many different factors come into play in the development of anxiety problems, the impact of environmental and genetic factors are sometimes considered together. This interactive approach has led to two concepts critical to understanding familial influence in the development of anxiety: multifinality and equifinality. Multifinality refers to the arrival at different endpoints from the same starting point. For example, although depression in mothers may predict psychopathology in children, not all children of depressed mothers develop psychopathology. Equifinality refers to the arrival at the same endpoint through different pathways. For example, one individual may develop a phobia as a result of a traumatic experience and another may develop the same phobia as a result of modeling a family member.

Behavioral inhibition in toddlers, which refers to the degree of approach and interaction versus avoidance and distress in response to novel stimuli, can be measured through physiological correlates. It is one temperamental trait that was shown by Biederman, et al. (1993) to be linked to later development of debilitating anxiety. However, in a 1993 study assessing attachment styles and behavioral and physiological responses to stimuli, Fox and Calkins discovered that temperament alone does not account for the development of behavioral inhibition. Instead, they found that the interaction between mother-child attachments and behavioral measures predicted behavioral inhibition in toddlers. Children who were most behaviorally and physiologically distressed by novel stimuli, and who also had insecure-anxious attachments, were most vulnerable to high levels of behavioral inhibition (Fox & Calkins).

Early studies of maternal expressed emotion (EE), a measure of criticism and or over-involvement, indicated a possible connection between maternal criticism and behavioral inhibition in children (Dadds & Roth, 2001). In a 1997 study by Hirschfeld, Biederman, Brody, Faraone, and Rosenbaum, maternal criticism was predicted by the interaction between maternal anxiety disorder and behavioral inhibition in children. However, no relationship was found between maternal criticism and behavioral inhibition in children when mothers did not have anxiety disorders. These results suggest reciprocity between maternal anxiety and child behavioral inhibition, since anxious parents may react more angrily to their child. They may also underestimate their own and their child's coping ability.

Behavioral inhibition appears to be genetically influenced and has physiological components which overlap those commonly associated with anxiety (Fyer, 1995). Fyer suggested the possible existence of "genetically determined variations in the threshold for excitability of neural pathways in the amygdala and the sympathetic nervous system" (p. 7) between behaviorally inhibited and behaviorally uninhibited children. She also reported that research findings support a link between behavioral inhibition and clinical anxiety disorders. For example, in 1991, Biederman, et al. showed that lifetime diagnosis of phobias or multiple anxiety disorders was more common in behaviorally inhibited than in behaviorally uninhibited children.

Findings from a study by Rapee (1997) indicated a correlation between maternal control and anxiety, suggesting that overprotection by the mother may lead the child to believe that the risk of danger is higher than, in actuality, it is. A mother may also keep the child from discovering effective means of coping and from looking at the world in a

realistic way (Dadds & Roth, 2001). Over-controlling behavior in parents has been shown to be associated with anxiety in children in several studies: 1) Solyom, Silberfeld, and Solyom (1976) found that mothers of individuals with agoraphobia had higher scores on measures of maternal control than did mothers of individuals without agoraphobia; 2) Krohne and Hock (1991) showed that mothers of anxious girls were more restrictive than mothers of non-anxious girls during mutual participation in a problem-solving task; and 3) Dumas, LaFreniere, and Serketich (1995) found that parent-child interactions in anxious dyads had high levels of parental control and averseness.

Diminished control has been shown to impact negative emotion (Chorpita, 2001). Several studies have indicated that when individuals have early experiences with uncontrollable events, they may later develop a tendency to perceive controllable situations as uncontrollable, thus increasing negative emotion (Chorpita). An individual who experiences diminished control during early development may subsequently be more likely to predict punishing or frustrating outcomes, possibly encouraging self-perpetuating negative emotions. Although later experience has the potential to modify early experience with diminished control, Chorpita stated that early experiences may be most influential in the formation of maladaptive perceptions.

Parental overprotection has been defined as “the degree to which parents limit and constrain the behavior of the child, particularly in threatening or novel environments” (Chorpita, 2001, p. 126). Parental overprotection may result in the failure of the child to develop successful ways of coping with and resolving threatening or novel events (Chorpita). A study by Ehiobuche (1988) indicated that this type of parenting style may be related to later anxiety. However, Parker (1983) postulated that anxious outcomes may

be dependent on more than parental overprotection. He suggested that overprotection, in combination with low parental care, may have the most significant influence on later development of anxiety.

The Parental Bonding Instrument (PBI), a self-report measure developed in 1979 by Parker, Tupling, and Brown, assesses degree of parental care and overprotection. Investigations with individuals with anxiety disorders indicated that anxious participants as compared to control groups recollect their parents as being significantly overprotective and low in care (Chorpita, 2001). Turgeon, O'Connor, Marchand, and Freeston (2002) compared recollections of parental care and overprotection through the use of the PBI and the EMBU (Own Memories of Parental Rearing Experiences in Childhood). Participants in their study were out-patients with obsessive-compulsive disorder (OCD), out-patients with panic disorder with agoraphobia (PDA) and non-anxious controls. They found that anxious participants recollected a higher degree of overprotection in their parents, and concluded that overprotection may be a risk factor for the development of anxiety disorders.

Although anxiety seems to run in families, the specific means by which transmission occurs are unclear. Since both genetic and environmental influences are likely to be important, addressing factors such as parenting behavior, which may respond to treatment, is critical (Ginsburg & Schlossberg, 2002). Ginsburg and Schlossberg acknowledged the significance of the reciprocal nature of the child-parent relationship in the development of anxiety. They suggested that parents whose parenting behavior is 'anxiety-enhancing' may, either as a result of their own anxiety or of their children's

temperament, fail to help in their children's cognitive, social, and emotional development.

In their 2002 meta-analysis, Ginsburg and Schlossberg examined 20 studies in which parenting or family relationships had been measured. Some of the children in the study had been diagnosed with an anxiety disorder, and families were grouped into nine different categories. The categories were: over-control, overprotection, modeling anxious and avoidant behavior, negative beliefs and expectations about child, emotional warmth and positivity, rejection and criticism, conflict, family environment, and parenting styles. Results were as follows: two studies found higher parental control associated with higher levels of anxiety in children, and one found support for psychological control, but not for behavioral control; two studies found higher levels of overprotection to be correlated with higher child anxiety; four studies found that the modeling of anxious or avoidant behavior by parents was associated with increased anxiety disorders in their children; one study suggested that mothers of children with anxiety may expect their children to be less able to cope, and, as a result, help maintain the children's anxiety and avoidance; two of five studies found parental warmth to be associated with less anxiety in children; four studies found increased rejection and criticism by parents to be correlated with more anxiety in children; two of five studies found that family conflict was associated with increased anxiety in children; five of ten studies found a correlation between the family environment (for example, overall functioning, enmeshment, cohesion, adaptability, religious and moral values, problem solving, family sociability, locus of control, family structure) and child anxiety; and two studies suggested that an authoritative and

democratic parenting style was correlated with less anxiety in children (Ginsburg & Schlossberg).

Genetic Epidemiology

Epidemiology is “the study of the distribution and determinants of diseases in human populations” (Merikangas, 2000, p. 282); studies in this field focus on illnesses in groups of people and on the distribution of those illnesses. Epidemiology and genetics have in the past shared few common interests (epidemiologists often have neglected participant characteristics other than demographics and geneticists have disregarded environmental factors). The two disciplines have two mutual aspirations in that both hope to unravel the etiology of complicated human disorders and to predict the prevalence rates in families (Merikangas). Genetic epidemiology (the study of risk factors and etiology of familial diseases) bridges the gap between the two areas and offers promise that complex diseases, including psychiatric disorders, may some day be understood and kept in check. The union of epidemiology and genetics is especially important when one considers research data suggesting that environmental factors may either increase or decrease the chance that genetic and or physiological vulnerabilities will be expressed (Merikangas).

The identification of gene-environment interactions may be considered as the specific intention of research design in genetic epidemiology (Merikangas, 2002). Merikangas distinguished this new field from both genetics and epidemiology in three ways: “1) it focuses on population-based research; 2) it has a goal of detecting the joint effects of genes and environment; and 3) it incorporates the underlying biology of disease into conceptual models” (p. 7). Thus, to understand the dual impact of genetic and

environmental influences requires research to look at all possible connections between genotype and phenotype.

From a developmental perspective, two questions are of particular value for research in genetic epidemiology: 1) Does the relative importance of genetic vs. environmental risk factors change across the lifespan? and 2) Do the same genetic and environmental risk factors have an impact on risk throughout life? (Kendler, 1995). Individuals who are genetically predisposed to psychiatric disorders may be more sensitive to the troubling impact of a difficult home environment than are those whose genetic risk is low (Kendler). However, Kendler stated that studies indicate the importance of families for mental health does not lie in their generic format; rather, the significance of family impact on psychiatric diagnosis can be found within individual parent-child relationships.

There are three major types of studies used in researching the significance of genetic factors in the etiology of disease: family studies, twin studies, and adoption studies (Merikangas, 2000). Family studies identify people with a particular psychiatric disorder (the proband) and then look at how frequently that disorder is present in the relatives of those individuals. Examining diseases within families is advantageous because it is assumed that the factors causing the disease are homogeneous, which would not be true when different families are compared. Twin studies look at similarities between monozygotic twins, who share the same genotype, and dizygotic twins, who share about fifty percent of their genes. If a disease has a genetic etiology, then both members of a monozygotic twin pair will be more likely to have the disease than will dizygotic twins. The concordance of disease expression in monozygotic and dizygotic co-

twins may provide information about the degree to which a disease is impacted by genetics or by the environment. However, as Merikangas noted, it is important to keep in mind there may be confounds between genes and shared environment. While family and twin studies examine disease across different levels of genetics in an environment that is presumed to be relatively constant, adoption studies look at genetic similarities within different environments. Adoption studies are viewed as particularly useful in identifying genetic factors because the amount of familial aggregation that is explained by shared environments can be reduced.

Merikangas (2002) concluded that as more family, twin, and adoption studies are done, it is becoming evident that whether an individual expresses a particular disease phenotype depends upon the presence of susceptibility genes which result in disease only when particular environmental or physiological factors are present. It may be that the majority of psychiatric illness is a consequence of complex genetic and environmental interaction. According to Merikangas, not only does the environment modify how genes are expressed, but particular environmental factors may actually change the genotype. Family, twin, and adoption studies are attempting to illuminate the process by which this occurs.

Relationship of Genetic Epidemiology to Anxiety Disorders

To consider the importance of genes and environment in the etiology of panic disorder (PD), generalized anxiety disorder (GAD), phobias, and obsessive-compulsive disorder (OCD), Hettema, Neale, and Kendler (2001) conducted a meta-analysis utilizing data from family and twin studies. They performed MEDLINE searches to identify studies that met their inclusion criteria. Results of the meta-analysis indicated that all of

these anxiety disorders had significant familial aggregation, and that non-shared environmental experience was significant as well. The authors concluded that discovering which environmental factors increase the risk of anxiety disorder in susceptible individuals is highly important.

All five family studies of panic disorder identified by Hettema et al. (2001) were found to support familial aggregation of this anxiety disorder: a significant correlation was found between PD in the participants and PD in their first-degree relatives. Three twin studies found that common family environment was not significant in the etiology of panic disorder among participants. Two family studies that investigated GAD were found to support familial aggregation of this diagnosis. Two twin studies indicated that 31.6 % of the variance in risk for the disorder could be attributed to genetic factors in both males and females, and that the same genes increased the risk of generalized anxiety disorder in both genders. Common family environment was found to play an uncertain role in the development of GAD.

Hettema et al. (2001) identified four family studies that investigated phobias, all of which supported familial aggregation and familial risk for phobic disorders. One twin study suggested that genetics largely account for this familial aggregation. Four family studies of OCD, when examined together, showed significant association between OCD in participants and OCD in their first-degree relatives. No twin studies of OCD met the inclusion criteria for their research. Overall, the authors of the meta-analysis concluded that most of the familial risk in the disorders studied is genetic and that heritability of anxiety disorder is approximately 30% to 40%, leaving most of the variance to be explained by individual environmental factors.

Stein, Jang, and Livesley (1999) conducted a twin study ($N = 337$) to investigate the heritability of anxiety sensitivity. They defined anxiety sensitivity as a fear of the sensations that accompany anxiety and the belief that these sensations may be harmful. They explained that some people are at increased risk of responding to anxiety symptoms as though they are dangerous in themselves. The participants in the study were from an urban population. There were 179 monozygotic twin pairs, 45 of whom were brothers, and 134 of whom were sisters, and 158 dizygotic twin pairs, 28 of whom were brothers, 94 of whom were sisters, and 36 of whom were brother-sister pairs. The twins completed the Anxiety Sensitivity Index, a 16-item self-report questionnaire that asks participants to assess on a 5-point scale their beliefs about the consequences of their anxiety symptoms. Results indicated that genetic and non-shared environmental effects provided the best fit to the total Anxiety Sensitivity Index score (a score of 25 or higher is usually associated with a clinical condition). The authors concluded that anxiety sensitivity is strongly heritable, and that it accounts for almost half of the variance in total anxiety sensitivity scores. They also concluded that high scores on the Anxiety Sensitivity Index and sub-clinical scores reflect common genetic origins.

In a study with men and women whose symptoms met the criteria for GAD, Hettema, Prescott, and Kendler (2001) assessed whether genetic or environmental effects have similar significance in the etiology of the disorder. They also investigated whether genetic or shared environmental risk factors are the same for men and women. The participants were also volunteers in two other interrelated studies and had been contacted through the Virginia Twin Registry. The researchers interviewed 3100 same sex and male-female pairs of twins by telephone to determine the lifetime history of GAD. They

then used biometrical twin modeling in their analyses to determine the degree of genetic and environmental contribution to the risk for GAD. The results indicated that family aggregation for GAD was modest, with a heritability of about 15% to 20%; no gender-specific effects were found. The authors concluded that genetic factors accounted for the similarity between relatives, and that male and female participants shared 100% of the genes for GAD.

Kendler, Myers, Prescott, and Neale (2001) examined a population of male twins to study individual differences in the risk of developing a phobia. The participants were 1198 male-male twin pairs, 707 of whom were monozygotic and 491 of whom were dizygotic. Personal interviews were used to examine lifetime history of agoraphobia and social, animal, situational, and blood-injury phobias. The results indicated aggregation within the twin pairs for each type of phobia, with analysis showing a heritability of 25% to 37%. The analysis suggested the presence of a common genetic factor, genetic factors which pertain to each type of phobia, and a common environmental factor. The authors concluded that genetic factors have a moderate impact in the etiology of phobias, and that agoraphobia and social phobia are probably impacted by family environment.

In a 2000 study, Skre, Onstad, Torgersen, Lygren, and Kringlen investigated genetic and environmental influences in risk for common phobic fear. The participants were 61 same-sex twin pairs; 23 were monozygotic and 38 were dizygotic. One twin had received treatment for an anxiety, mood, or substance use disorder at some previous time. Every twin was assessed for a history of a mental disorder. Of the 61 twins who had previously received treatment for an anxiety, mood, or substance use disorder, 66% had a history of anxiety disorder, 79% had a history of mood disorder, and 54% had a history of

psychoactive substance use disorder. Of the co-twins, 75% had a lifetime history of mental disorder; 52% had a history of anxiety disorder, 54% had a history of mood disorder, and 11% had a history of psychoactive substance use disorder. Common phobic fear was assessed by means of a self-report questionnaire which was filled out by all twins. Results indicated a heritability of 47% for common small animal phobia and social fear, a heritability of 30% for agoraphobia, and a heritability of 0% for fear of nature phenomena and situational fear. The authors concluded that there may be different etiologies for different types of common phobic fears, and that the lack of heritability for fear of nature and situational fear support classical learning theories of how fear develops. In addition, they suggested that their results support an integrated 3-factor model of fear acquisition: heritable, situational conditioning, and cognitive.

Kendler, Karkowski, and Prescott (1999) examined reliability and heritability of fears and phobias, hoping to discover whether the findings from prior twin studies, based on a single lifetime assessment, were reliable. They utilized telephone interviews on two separate occasions, eight years apart, to assess 1708 individual female twins for a lifetime history of five fears and phobias. Agoraphobia, social phobia, situational phobia, animal phobia, and blood-injury phobia were examined, and the test-retest reliability of scores for 192 twins obtained one month apart was assessed. The researchers then used a measurement model to estimate the degree of influence of genetic and environmental risk for phobia. They found that the short-term reliability of the phobia findings examined was modest at 46%, and participant recall of fears and researcher assessment of those fears as phobias were not statistically reliable. Results also indicated heritability indices of 43% for any phobia, 67% for agoraphobia, 47% for animal phobia, 59% for blood-

injury phobia, 46% for situational phobia, and 51% for social phobia. The authors concluded that there was a considerable lack of reliability in assessment of lifetime fears and phobias by personal interview. They also concluded that fears and phobias are moderately heritable, that experiences specific to the individual are important in the development of phobias, and that family environment is not significant. Kendler et al. noted that their results were inconsistent with social learning theory and classical conditioning.

Attachment Theory

Attachment theory provides a novel lens for the conceptualization of the development of anxiety and anxiety disorders in that it is, at the same time, deceptively simple and exquisitely complex. Unlike other ways of understanding developmental psychopathology, attachment theory, with roots in psychoanalysis, biology, and evolution, allows for the possibility of unifying diverse thinking about the etiology of specific psychiatric diagnoses. For example, the view of conditions such as panic disorder and obsessive-compulsive disorder, which are considered to be highly heritable, may be potentially expanded through the addition of the attachment perspective, possibly leading to enhanced clinical intervention and treatment for individuals diagnosed in this way.

The preeminence of the parent-child bond in all of mammalian life underscores the significance of attachment theory in understanding both healthy and problematic development. John Bowlby (1988), with an interest in ethology and evolution, veered from the object relations tradition to place stronger emphasis on the interpersonal aspect of the early infant-caregiver relationship, rather than focusing primarily on intra-psychic

development. Bowlby believed that the attachment system, as he called it, was an evolutionary adaptation to insure the child's survival.

An infant's well-being depends upon the presence of a caregiver who is able to provide sufficient emotional and physical nurturing, protection, and empathy. According to Bowlby (1988), a child responds from the beginning in a way that elicits these caregiving behaviors from his or her parents. Crying, clinging, reaching, following, etc. are seen as means of achieving proximity to a trusted attachment figure who will soothe emotional pain or care for physical need or injury. In healthy circumstances, the caregiver becomes a secure base to which the child can always turn when anxiety becomes too great to handle alone.

As an infant becomes a toddler, locomotion allows for greater distance from parents, and the child's natural desire to explore the world is activated (Bowlby, 1988). When the distance becomes too great, or when the child is hungry or injured, he or she will return to the secure base of the caregiver to be calmed, reassured, and nurtured. Having been sufficiently soothed and nourished, the child will then return to exploration, aware always of the distance between him or herself and the primary caregiver. As the child grows and seeks increased space between himself or herself and the secure base, negotiation with the caregiver about appropriate distances becomes part of the attachment-exploration process.

Bowlby (1988) stressed the importance of caregiver attunement to the needs of the child. Children whose parents respond consistently in reasonably accurate ways to their requests for care and nurture learn that the world is a safe place and others will be there for them when help is needed. That is to say, they develop an internal working

model of relationships in which needs are met and fears are soothed. On the other hand, children whose parents are not attuned to their needs, nor responsive to their attachment behaviors, develop an internal working model of relationships in which others cannot be relied on for help. When this is the case, anxiety must be tackled in alternate ways.

In a unique study called the Strange Situation, Ainsworth et al. (1978) extended Bowlby's conceptualization of attachment theory to provide empirical support for secure and insecure attachment in children. In the Strange Situation, reproduced many times and across cultures, an infant and his or her mother are left alone in an unfamiliar room with toys. After a short period of play, the mother is asked to leave and a stranger enters the room and stays for a few minutes. Combinations of this scenario are repeated as researchers watch and code the infant's behaviors during the separations and reunions with the mother.

Observations during the Strange Situation led Ainsworth et al. (1978) to classify infant attachment in three ways. Secure infants were those whose attachment system was activated when their mothers left the room: the children followed their mothers, called after their mothers, and cried. When their mothers returned and picked up their infants, calming and reassuring them, the children were quickly soothed and were able to return to play. Other infants were classified as insecure in one of two ways, ambivalent or avoidant. Ambivalent infants were those whose attachment systems were intensely activated when their mothers left the room. The infants were observed to run after their mothers and to cry loudly and desperately when their mothers left. Upon their mothers' return, the infants were hard to console and found it difficult to return to play. Sometimes they reacted angrily to their mothers, kicking or hitting them as they attempted to provide

reassurance. On the other hand, infants that were classified as avoidant were only slightly interested when their mothers left the room. They sometimes followed with their eyes as their mothers moved toward the door, but did not cry or run after them. When their mothers returned, the avoidant infants did not raise their arms to be picked up. They sometimes avoided eye contact and ignored their mothers for a few minutes before re-engaging in play with them.

Ainsworth et al. (1978) also observed mothers [from the Strange Situation study] in their homes as they interacted with their infants. They found the mothers of infants classified as secure to be sensitive and consistent in their responses to their children's needs and attachment behavior. These children felt safe knowing their mothers would care for them, protect them, and be there for reassurance when needed. The mothers of ambivalent infants were, conversely, inconsistent in attending to their children's requests for attention. These mothers were at times warm and nurturing and at other times dismissing or unaware of the children's needs. The children of these mothers learned to intensify attachment behaviors during anxiety-provoking situations as a means of assuring their mothers' eventual attuned responsiveness. The mothers of avoidant infants also dismissed the attachment behaviors of their children, but unlike the mothers of the ambivalent children, they were consistent in their dismissive attitudes. The children of these mothers diminished attachment behavior as a result of their unrecognized and unaddressed needs.

Relationship of Attachment to Unresolved Trauma and Loss

Although most children can be classified as secure, ambivalent, or avoidant, there is a subgroup whose behaviors are sufficiently conflicted and inconsistent as to disallow

placement in any of these categories. These infants, who have often been mistreated, may be seen to crawl toward the mother when she re-enters the room, but then turn and move in the other direction before reaching her; they may fall to their hands and knees and rock back and forth or they may reach their arms in the air and freeze in that position (Main, 1996). Eventually a fourth category of infant attachment was added to the prior classification system to accommodate an expanded understanding of the early infant-caregiver relationship. Mary Main, in her *Overview of the field of attachment* (1996), refers to this new category as insecure-disorganized-disoriented.

According to Main (1996), whereas secure infants are able to respond flexibly in their relationships with caregivers, ambivalent and avoidant infants have developed ways of interacting that are somewhat rigid, but nevertheless organized. Disorganized infants, on the other hand, are not fluid or consistent in their behavioral strategies. While ambivalent and avoidant infants may have parents who are insensitive to their needs, these caregivers are not directly frightening to their children. When children are frightened by the behaviors of their primary attachment figure, they are thrown into a behavioral paradox in that the attachment system and the desire to flee from what is causing the fear are triggered at the same time (Main). Since a child cannot simultaneously go to the attachment figure for comfort and run away, an organized system of behavior adaptation is not developed, and infant attachment behavior becomes disorganized.

Main and Hesse (1990) pointed out the association between losing a parent through death, and infant disorganization. In a study they conducted, only 8% of the parents of infants who were secure, ambivalent, or avoidant had experienced a loss such

as the early death of a parent, whereas 39% of the parents of disorganized infants had experienced a loss of this nature. Ainsworth & Eichberg (1991), however, noted that it is the lack of resolution of a loss, rather than the loss itself, that seems to result in infant disorganization in the children of parents who have experienced the early loss of a caregiver through death.

The term unsolvable fear describes the situation in which a child is regularly and significantly frightened by a caregiver (Cassidy & Mohr, 2001). Cassidy and Mohr suggested that disorganized infant attachment is a result of specific types of interactions with caregivers and that children raised in frightening and traumatic environments are likely to develop a less coherent attachment style. Although physical, sexual, and emotional trauma in families may contribute to the development of a disorganized attachment style, there are other means by which caregivers may elicit fear. For example, parents who are frightened themselves may frighten their children through particular facial expressions or other unusual behaviors.

Main and Hesse (1990) suggested that parents who have unresolved issues of loss or trauma from the past may respond to memories of those events by displaying frightened behavior or by acting in ways that are frightening to their children. Cassidy and Mohr (2001) also noted that frightened caregiver behavior may be explained by unresolved trauma. Parents with histories of unresolved trauma may unknowingly exhibit behavior that results in infant fear. Examples of these kinds of caregiver behaviors include freezing, sudden invasions of the infant's personal space, panic when there is no threat, fear of the infant, submission to the infant, sexually suggestive behavior, and stiff movements. Awareness of attachment dynamics specific to unresolved caregiver trauma

enhances understanding of a possible mechanism for intergenerational trauma transmission. This concept seems particularly important when one considers the possibility that a disorganized attachment status in infants may result either through the direct experience of trauma, or through vicarious experience as observed in frightened caregiver behaviors.

The Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996) provides some evidence for a connection between unresolved caregiver trauma and infant disorganized attachment (Cassidy & Mohr, 2001). The AAI involves an extensive interview in which participants answer detailed questions about their attachment histories (George, Kaplan, & Main). The topics addressed in the interview include memories of feeling nurtured, of being sick or upset, of separations and losses, and of participants' relationships with their primary caregivers (George, Kaplan, & Main). Hesse (1999) noted the particular importance of the AAI section which examines loss through death of significant others. Respondents to the AAI who describe such an incident of loss are asked about their reactions to what happened, how their feelings have changed over time, and how the incident may have impacted their personalities as adults. Evaluation of the AAI interviews, rather than looking at the specific relationships and events that are discussed, examines the way in which participants tell the story of their past and relational upbringing (George, Kaplan, & Main).

Adult respondents to the AAI are classified in one of four ways depending upon the linguistic and syntactical nature of their answers (Cassidy & Mohr, 2001). An individual who is secure-autonomous values his or her relationships with attachment figures and is able to reflect upon them with objectivity. Memories of attachment-related

events are easily accessible, and can be relayed with coherency and congruency. A child of a secure-autonomous parent is usually found to be secure with that parent. An adult who is classified as preoccupied constantly worries about the attachment relationships in his or her life and is usually unable to discuss these relationships in a coherent or objective manner. A child of a preoccupied parent is usually classified as ambivalent with that particular caregiver. Unlike a preoccupied adult, an adult who is classified as dismissing via the AAI tends to minimize the importance of his or her attachment relationships. He or she is unable to give coherent accounts of attachment-related childhood events because memories are often vague or absent, and when he or she can produce specific details, his or her perspective of attachment relationships is inconsistent with those details. A child of a dismissing parent tends to be classified as avoidant with that parent.

Adults who are classified as unresolved on the AAI are likely to have experienced childhood trauma from which they have not fully recovered (Cassidy & Mohr, 2001). Cassidy and Mohr noted that these individuals may be given an underlying classification of secure, preoccupied, or dismissing, if a reliance on a particular attachment style is observed in addition to the unresolved status. Unresolved parents often have children classified as disorganized, and the AAI narratives of these adults reflect responses similar to those seen in disorganized infants during the Strange Situation. For example, dissociation and incoherence are often present in both cases (Cassidy & Mohr). Adults who respond articulately when asked about non-trauma related events may be unable to maintain their coherence when the subjects of loss and abuse are discussed. For example,

there may be lapses in the monitoring of reason (lack of reality testing) or lapses in the monitoring of discourse (irregularities in the narrative style) (Cassidy & Mohr).

According to Cassidy and Mohr (2001), lapses in the monitoring of reasoning “may indicate intrusions of incompatible belief systems”, whereas lapses in the monitoring of discourse “suggest a shift into a state involving considerable absorption and diminished awareness of the interview situation” (p. 281). Lapses in the monitoring of reasoning may take several different forms, including the belief that someone who has died is still alive. The AAI participant may think he or she is responsible for the person’s death even when there are no indications that this is true, or the participant may believe he or she and the deceased are the same individual. There also may be psychological confusion, belief that the person who is dead is manipulating the AAI participant, or disorientation with regard to time or space. Cassidy and Mohr also stated that lapses in the monitoring of discourse may take several forms that include attention to detail, a shift in the style or rhythm of discourse, unfinished sentences, or prolonged silences.

These lapses in the monitoring of reason or discourse may help to explain the connection between unresolved status of parents on the AAI and disorganized behavior in their children (Cassidy & Mohr, 2001). Parents who have histories of unresolved trauma as indicated by these lapses may respond to triggers which they unconsciously associate with a traumatic experience, and, as previously discussed, then act in frightened or frightening ways toward their children (Cassidy & Mohr). It is important to note that the child may be the trigger for these dissociated or frightening parental behaviors.

According to Cassidy and Mohr, research indicates that the relationship between parents categorized as unresolved and children categorized as disorganized is strongest when

parents have an underlying insecure classification. Parents who are unresolved with respect to trauma, but have a secure underlying classification, are less likely to behave in frightened or frightening ways than are those with an insecure underlying classification.

Infant disorganization may be influenced by factors other than parental attachment trauma (Cassidy & Mohr, 2001). Cassidy and Mohr noted that frightened or frightening behavior on the part of the caregiver may be only one aspect of a broader pattern of responding inappropriately to children. For example, parents of disorganized children are more likely to shift between periods of withdrawal and hostile intrusiveness. Cassidy and Mohr further suggested that another possible precursor of child disorganization is trauma to the parent's caregiving system, as when a child has a serious medical condition and parents must cope with the resulting grief and loss. Finally, factors other than parental caregiving, including genetics and aspects of the prenatal environment, are considered as potential causes of disorganization in children. Children who are inherently physiologically more sensitive to frightened or frightening caregiver behavior may be more at risk for disorganized attachment in the presence of parents with unresolved trauma (Cassidy & Mohr).

Relationship of Attachment to Psychopathology

Attachment theory sheds light on psychopathology as well as on healthy development (Sroufe, Carlson, Levy, & Egeland, 2003). As Sroufe et al. (2003) pointed out, although early experience may not be not directly responsible for later psychopathology, it is related in a systemic way, and many factors may come together to influence outcome. Later experience is impacted by early experience, but the ramifications of early experiences are also transformed by what happens over time.

Context is crucial, and an individual's particular circumstances may provide the comfort and support necessary for increasing growth and maturity, or move one toward the development of psychopathology. Psychopathology may be seen as resulting from "a successive series of adaptations" (Sroufe et al., p. 45) that are set in motion by early insecure attachment and maintained by later deviation from life conditions that support positive functioning.

Thus attachment theory may be helpful in understanding how an individual's particular physiology and environment interact to lead to the development of psychopathology. As previously discussed, infants with a heightened inborn sensitivity may be at increased risk for disorganized attachment if their parents exhibit frightened or frightening behaviors toward them. Although the behaviors of children with disorganized attachment seem more problematic than the behaviors of children with organized styles of attachment, disorganized behavior in itself cannot be considered psychopathological; research, however, does suggest that disorganized attachment is a risk factor for psychopathology (Cassidy & Mohr, 2001).

Adults who have experienced unsolvable fear (attachment to a caregiver who frightened or harmed them) are also at risk for psychopathology, and may have difficulty handling troubling situations later in life (Cassidy & Mohr, 2001). Recent research indicates that human beings need to have experiences in which their fear is solvable so that the brain may develop in a way that leads to the ability to regulate anxiety and create organized reactions during frightening and uncomfortable circumstances (Cassidy & Mohr). Adults with histories of unresolved trauma may feel ineffective at dealing with life's challenges. They may have difficulty soothing themselves when they are anxious,

and as a result of the competing approach/avoidance impulses experienced when a caregiver's behavior is frightening, they may have less capacity than others to learn from experience and to develop more mature ways of coping with adversity as they grow older (Cassidy & Mohr).

Dozier, Stovall, and Albus (1999) discussed the predictive value of loss in the development of several different kinds of psychopathology, including depression, anxiety, and antisocial personality disorder. Losing one's mother early in life is most likely to be linked to depression, while the threat of loss (rather than permanent loss) is more often associated with anxiety. Loss which results when parents are separated from their children, or desert them, or when divorce occurs, is most associated with antisocial personality disorder. With regard to depression and anxiety disorders, the degree of vulnerability or resilience a child exhibits in response to loss seems to be linked to prior and subsequent experiences with caregivers (Brown & Harris, 1993). While nurturing relationships with caregivers appear to protect a child from the effects of loss, neglectful caregiving after a loss may result in later development of depression and anxiety (Harris, Brown, & Bifulco 1986).

Cassidy and Mohr (2001) noted that attachment research indicates a risk for increased psychopathology when trauma remains unresolved. They discussed one study in which 19% of non-clinical adolescent and adult participants were classified as having an unresolved attachment status, whereas 40% of clinical adolescent and adult participants were classified in this way. They also reported that other research shows unresolved attachment to be disproportionately represented among people who have been diagnosed with psychiatric disorders. This connection may be more significant for some

disorders than for others. For example, these authors noted that in psychotic disorders, thought disorganization, rather than a lack of trauma resolution, may underlie an unresolved AAI classification for some individuals who are not actually unresolved.

Research also indicates a relationship between unresolved attachment and anxiety disorders. According to Cassidy and Mohr (2001), when a child is severely mistreated, the likelihood of later development of particular types of psychopathology depends upon whether there has been an attachment figure to foster the child's ability to self-reflect. Children who have this type of relationship in their lives are able to 'mentalize', that is, they have the capacity to think about the traumatic events they have experienced in regard to the resulting personal impact. Although these children may later develop depression or anxiety disorders, they will not encounter the interpersonal disorganization and lack of self-reflection seen in some personality disorders (Cassidy & Mohr).

Relationship of Attachment to Anxiety Disorders

Chorpita and Barlow (1998) discussed the role of control in an individual's early environment as an influencing factor in the development of anxiety. They pointed out that when one does not feel influential in the events and outcomes of life, this lack of a sense of control is associated with increased anxiety expression. However, the development of psychological vulnerability to anxiety may be impacted by whether one has control over positive as well as aversive events. This is significant because of these authors' suggestion that most or nearly all aspects of raising a child influence the individual's particular vulnerability, and hence the possible development of anxiety. Thus individual vulnerability may include the interplay of both psychological and biological factors, and ultimately, be characterized by the chronic perception of events as being outside of one's

control. According to Chorpita and Barlow, the perception of how much control a person has may be more significant than how much threat is actually present in a situation. In other words, psychological factors may either mediate or exacerbate stress-related physiological changes.

An understanding of attachment processes may serve as a theoretical bridge between the lack of a sense of control in childhood and the subsequent development of anxiety (Chorpita & Barlow, 1998). Since the characteristics of a family influence a child's sense of control, and a secure attachment includes a feeling of prediction and control of one's surroundings, it seems natural to integrate study on the role of control in the early environment with an understanding of parent-child bonds. The significance of attachment theory is underscored by research that shows increased cortisol production, commonly found when anxiety is elevated, in children with avoidant or ambivalent attachment styles (Chorpita & Barlow). This provides evidence that the nature of the family and the relationships therein may serve either as inhibitors or as escalators of anxiety development in children.

Anxiety disorders, including agoraphobia and post-traumatic stress disorder (PTSD), have been conceptualized as cases of insecure attachment (Sable, 1994, 1995). PTSD may involve intensified anxiety and a feeling of numbness, as well as a sense of re-experiencing the trauma through intrusive memories or dreams, and, according to Sable (1995), is an exaggeration of the natural human tendency to ensure protection and preserve survival. She noted the emotional numbing that accompanies PTSD is an attempt to avoid overwhelming feelings. Intrusive memories and dreams are actually intensified attachment behaviors which are evoked in response to separation or loss

(Sable). Individuals exposed to disruptive situations may develop trauma symptoms that endure for many years, but it is as yet uncertain why one person develops PTSD and another exposed to the same trauma does not. Therefore, attachment theory may provide a framework for understanding the means by which early relationships either predispose or fortify an individual against traumatic experiences.

Sable (1994) also viewed agoraphobia as a case of anxious attachment. A condition that occurs most frequently in women, agoraphobia is characterized by fears of traveling alone to places that are unfamiliar or far away. Individuals with this diagnosis often experience separation anxiety and clinging behavior due to fear that an attachment figure will not be available when needed. Separation anxiety is a natural and adaptive response to being apart from trusted attachment figures, but as Sable noted, painful experiences within the family (for example, separation, loss, rejection, threat of abandonment, abuse, or neglect) may cause an intensified reaction. According to her, people with agoraphobia have had real life experiences that have eroded their sense of trust that attachment figures will be available when needed. As a result, they have difficulty tolerating ordinary separation from the people upon whom they rely. In addition, those with agoraphobia have often dissociated the memories of painful family history, and therefore are unaware of the connection between their intense anxiety and their experience of separation or loss. For example, individuals with agoraphobia frequently have histories of parentification in which the roles between themselves and a parent, usually the mother, were reversed. Often the world was portrayed by the caregiver as a dangerous place that was best avoided (Sable).

Panic disorder (PD), often an antecedent to agoraphobia, has been perceived as a biochemical abnormality of the nervous system. Shear (1996), while not denying the possibility of genetic determinants, pointed out the significance of the context in which this disorder is developed, and noted that twin studies of women show only a modest heritability factor. She suggested that attachment theory might offer a complementary way of understanding the manner in which interpersonal aspects of an individual's environment contribute to the development of PD. It does not seem implausible that the regulation of biological function through attachment objects observed in animals also may be applicable to human attachment processes. This possibility has the potential to enhance an etiological understanding of PD and to broaden neurobiological perspectives as well (Shear).

Shear (1996) pointed out Bowlby's belief that dysfunctional family interaction patterns are the precursor for anxious attachment that leads to agoraphobia. Rather than perceiving fear to be abnormal when it results from situations that are not immediately likely to cause harm or damage, Bowlby thought that normal fear may exist not just in the presence of danger, but in the absence of safety as well. He felt that fear is instinctual and that instincts are inherently responsive to the environment of the individual (Shear). When fear is triggered, instinct dictates a move to increased distance from the object of fear and to decreased distance from a safe object, or attachment figure (Shear). According to Shear, susceptibility to fear can be genetically or environmentally determined, and factors such as physical disabilities or exposure to frightening situations may increase a sense of threat.

Since individuals with agoraphobia experience heightened fear and anxiety when away from familiar people and places and this fear is reduced when a trusted attachment figure is nearby, anxious attachment may be seen as the underlying basis of agoraphobia (Shear, 1996). As previously stated, Bowlby believed that a close examination of the families of origin of people with agoraphobia would reveal problematic interactions, and named four possible dysfunctional patterns: 1) a controlling parent who keeps his or her child close and may also have agoraphobia; 2) violent or quarrelsome parental behavior which results in a child who is afraid to leave home because something bad might happen to the parent; 3) the child is told he or she will be thrown out of the family due to bad behavior and fears something terrible might happen while away; and 4) an overprotective parent keeps the child at home for fear something bad might happen if the child leaves (Shear).

The importance of family history in understanding anxiety in people with agoraphobia is frequently obscured by these individuals and their families (Shear, 1996). There are several possible explanations for this: 1) fear of being alone is often experienced as shameful, so it is easier to attribute anxiety to something other than separation from an attachment figure; 2) family members who have threatened to abandon the person with agoraphobia may feel guilty and fear criticism by others; 3) sometimes there are family pacts against telling the truth; and or 4) if the individual with agoraphobia has experienced unsolvable fear as previously described in this chapter, he or she may have coped with this difficulty by denying the negative memories and accepting a positive version of events (Shear). Consequently, it is easy for clinicians or researchers to miss the intricate family interaction patterns that contribute to the

development of panic and agoraphobia, and instead, unwittingly add to a perhaps already hazy understanding of specific intra-familial dysfunction (Shear).

Shear (1996) noted other research indicating that changes in neurotransmitters, which impact the development and expression of anxiety, may result from disturbance in early attachment relationships. For example, she reported that non-human primates raised by peers have lower levels of neurotransmitters and more exaggerated attachment behaviors than animals raised by their mothers. They also are more likely to respond to separation with despair. Other primate research with Bonnet macaques raised in a variable foraging demand paradigm indicated neuroendocrine and neurotransmitter abnormalities suggesting that attachment disturbance may be processed as a life-threatening experience and thus influence developing infant neurology (Shear).

People who have been diagnosed with panic disorder report a higher degree of childhood adversity and more problematic interactions with parents than do non-anxious controls (Shear, 1996). The Parental Bonding Instrument (PBI), as described by Chorpita and Barlow (1998), was developed as a means of assessing the relationship between the behavior of parents and the development of anxiety in their children. It is used to rate the degree of maternal and paternal care and protection in families. Parents are viewed as overprotective when they control their children's environment in order to keep them from difficult experiences, thus limiting the children's range of behavior and ability to cope. Parental care is defined by the degree of attunement to a child's needs, and parents who are low on this scale in the PBI may have taught their children that their actions do not impact the environment.

According to Chorpita and Barlow (1998), individuals may be at increased risk of developing anxiety when they have experienced a lack of control in both of the areas assessed by the PBI: 1) the ability to encounter and learn from adversity; and 2) the knowledge that their needs will be noticed and met. In other words, when the parental style is one of affectionless control (overprotective and lacking in attunement), the ways in which a child may impact his or her environment are blocked, and the child may be more likely to eventually develop symptoms of anxiety. When individuals with panic disorder or generalized anxiety disorder and matched controls were administered the PBI, results indicated an association between the condition of affectionless control by parents during childhood and clinical anxiety (Chorpita & Barlow). Research reported by Shear (1996) examined the PBI scores of people with either panic disorder or obsessive-compulsive disorder and found that affectionless control was the most common perception of their parents' style of caregiving. In addition, individuals whose mothers had the highest overprotection scores experienced the earliest onset of anxiety disorders.

Other studies have utilized the PBI to investigate the relationship between early bonding memories and anxiety disorders. Parker (1979) sent the PBI to 50 people with agoraphobia and 73 with social phobia. Sixty-six percent of these individuals completed and returned the questionnaire, including 40 with agoraphobia and 41 with social phobia. A control group was drawn from two general medical practices, and 132 of the questionnaires that were sent out were answered and returned. When the entire group of phobic individuals was compared with the control group, mothers were rated as less caring ($t = 4.39, p < .001$) and more overprotective ($t = 2.06, p < .05$). Fathers also were rated as less caring ($t = 3.38, p < .001$) and more overprotective ($t = 1.98, p < .05$).

However, when the agoraphobia and social phobia groups were considered separately, people with agoraphobia were distinct from the control group only in that they reported their mothers to be less caring. People with social phobia reported both their mothers and their fathers to be less caring and more overprotective than did individuals in the control group.

Silove, Parker, Hadzi-Pavlovic, Manicavasagar, and Blaszczynski (1991) used the PBI to study the parental representations of people with panic disorder and people with generalized anxiety disorder. Participants in the study were 80 outpatients in an anxiety management program for individuals with generalized anxiety disorder or panic disorder, and a control group that was matched for age and sex. When the whole group of individuals with anxiety disorders was compared to the control group, the people with an anxiety disorder reported lower parental care and greater parental overprotection than did the controls. When individuals with panic disorder were compared to the control group they reported only higher maternal overprotection. The individuals with generalized anxiety disorder reported their mothers and their fathers to be lower on the care scale and higher on the protection scale than did the control group. When people with panic disorder were compared to people with generalized anxiety disorder, there were no significant differences. The researchers concluded that, while the development of generalized anxiety disorder may be related to unfavorable parental behavior, maternal overprotection may be a response to early signs of anxiety in participants with panic disorder.

Cavedo and Parker (1994) studied the relationship between scores on the PBI and obsessiveness. Participants in the study were 344 students in introductory psychology

classes who completed two measures of obsessionality and the PBI. Anxiety, depression, and neuroticism were controlled for through the use of three different measures.

Participants who scored higher on obsessionality on both measures also scored their parents higher on the PBI protection scale. Female respondents reported higher protection scores for both parents, whereas male respondents reported higher protection scores only for their fathers. After controlling for depression, higher obsessionality in female participants was related to higher maternal care, and higher obsessionality in male participants was related to lower paternal care.

Mancini, D'Olimpio, Prunetti, Didonna and Del Genio (2000) also utilized the PBI to investigate the link between early bonding memories and obsessive-compulsive behaviors in a non-clinical population. The participants, who were 170 individuals recruited from three different geographic locations in Italy, completed the PBI and measures of obsessive-compulsive symptoms, anxiety, and depression. High scores on the anxiety and depression inventories were correlated with low care and high protection. However, the researchers did not find a significant correlation between obsessive-compulsive behaviors and parental care and protection. They concluded that, whereas low parental care may represent a risk for emotional suffering in adulthood, it does not predict a specific psychiatric disorder.

Myhr, Sookman, and Pinard (2004) studied attachment and early bonding memories in 36 individuals with OCD, in 16 with depression, and in 26 controls. All the participants completed the PBI and a measure of attachment. When compared to the control group, the participants with OCD or depression reported greater attachment insecurity. Individuals with depression reported lower maternal care than individuals with

OCD. PBI results for people with OCD did not differ significantly from PBI results for the control group. The researchers noted that, while the clinical groups had higher levels of attachment insecurity than the control group, there was not a clear correlation between attachment and early bonding memories. They suggested two potential reasons for this finding: 1) the PBI may not measure relational elements necessary for adult attachment security; or 2) the responses may reflect a bias based on attachment security or specific diagnosis.

Conclusion

Anxiety has been conceptualized in a variety of ways throughout the history of psychotherapy. Freud believed anxiety originates as a defensive response and functions as a signal which helps the ego to monitor danger in one's inner and outer worlds. Klein agreed with Freud that anxiety is tied to innate drive, but diverged from the id, ego, and superego concept to include in her theory a description of anxiety as a fear that important parts of one's inner world may be destroyed. The work of other object relations theorists, such as Fairbairn, Winnicott, and Guntrip, aimed increasing focus toward the concept of self, and postulated that anxiety often occurs as a result of maternal deprivation and a lack of nurture. Kohut also directed attention to the self, and believed anxiety results from the real failures of self objects. Kernberg thought anxiety activates when an individual's constitutional features are combined in particular ways with significant accidental influences.

Contemporary classical conditioning has been utilized to understand anxiety, particularly within a family context. The degree of anxiety experienced by a family member is seen as a reflection of the overall anxiety present within the family, and

reciprocal information exchanges about anxiety that occur between family members are viewed as significant. Interpersonal learning about anxiety stimuli is believed to vary across time as interpersonal relationships within the family change. Operant conditioning also may be seen as a major mechanism through which anxiety is developed and maintained, and as a model stresses the role of the individual in obtaining rewards or avoiding punishments. Anxiety is believed to occur as a result of aversive conditioning, modeling, transmission of distress, and operant factors.

Family processes are an important consideration in the development of anxiety, and anxiety disorders often run in families. Therefore, looking at both environmental and genetic aspects may enhance the understanding of how anxiety is created and maintained. Behavioral inhibition, for example, is a temperamental trait related to the subsequent development of anxiety, and is also impacted by caregiver-child interactions. It seems especially important to acknowledge the influence of parenting behavior on anxiety development, since changes in the way a caregiver interrelates with a child may be possible through treatment interventions.

Genetic epidemiology offers a means of understanding the complexities of anxiety disorders, which may lead to enhanced methods of treatment. This new field attempts to unravel the interactions between genes and environment, and focuses on the connections between genotype and phenotype. Family studies, twin studies, and adoption studies are augmenting current knowledge about the intertwining of biology and upbringing, and promise to increase knowledge of how these complicated phenomena influence the development of anxiety.

Attachment theory provides a useful lens for conceptualizing the environmental aspect of anxiety development, and helps clarify the understanding of some anxiety conditions considered to be largely inherited. For example, anxiety disorders have been viewed as states of insecure attachment. The symptoms of post-traumatic stress disorder are exaggerated attempts to attain protection and ensure survival. The separation anxiety and clinging behavior often associated with agoraphobia is a result of experiences with periodically unavailable attachment figures.

Since the foundations of anxiety certainly have roots in both genetic and environmental factors, it is important to keep in mind this broad spectrum of influence when planning research that strives to enlighten our comprehension of anxiety development. Attachment theory, with its biological as well as psychoanalytical underpinnings, is an ideal means of bridging these diverse ways of looking at a universal human emotion, which at times expands to become overwhelming and disruptive to daily functioning.

This study was designed to enhance our knowledge of anxiety development by examining the tendency of undergraduate psychology students toward each of the five major types of anxiety in the context of past bonding experiences and current attachment style. The research questions were intended to explore the relationships between different types of anxiety and attachment and between different types of anxiety and remembered bonding experiences. The relationship between attachment and remembered bonding experiences was examined as well. The knowledge gained augments our understanding of the etiology of anxiety from an environmental perspective and may prove useful for enhancing treatment in clinical settings.

Research Questions

The study utilized several different self-report measures to examine the relationships between adult attachment style, memories of early bonding experiences, and five types of anxiety presented in the *DSM-IV-TR* (2000). Tendency toward each type of anxiety was considered first in light of reported attachment style, and second with regard to reported memories of early bonding experiences. Correlations between reported attachment style and reported bonding experiences were examined, as well.

The specific research questions are as follows:

Research Question #1

What is the relationship between attachment style and quality of early interactions with caregivers?

Research Question #1.A

What is the relationship between secure attachment style and quality of early interactions with caregivers?

Research Question #1.B

What is the relationship between insecure attachment style (dismissing, fearful, preoccupied) and quality of early interactions with caregivers?

Research Question #2

What is the relationship between tendency toward specific types of anxiety and attachment style?

Research Question #2.A

What is the relationship between tendency toward obsessive-compulsive symptoms and attachment style?

Research Question #2.B

What is the relationship between tendency toward panic symptoms and attachment style?

Research Question #2.C

What is the relationship between tendency toward generalized anxiety symptoms and attachment style?

Research Question #2.D

What is the relationship between tendency toward post-trauma symptoms and attachment style?

Research Question #2.E

What is the relationship between tendency toward social anxiety symptoms and attachment style?

Research Question #3

What is the relationship between tendency toward specific types of anxiety and quality of early interactions with caregivers?

Research Question #3.A

What is the relationship between tendency toward obsessive-compulsive symptoms and quality of early interactions with caregivers?

Research Question #3.B

What is the relationship between tendency toward panic symptoms and quality of early interactions with caregivers?

Research Question #3.C

What is the relationship between tendency toward generalized anxiety symptoms and quality of early interactions with caregivers?

Research Question #3.D

What is the relationship between tendency toward post-trauma symptoms and quality of early interactions with caregivers?

Research Question #3.E

What is the relationship between tendency toward social anxiety symptoms and quality of early interactions with caregivers?

CHAPTER THREE

METHODOLOGY

Overview of Chapter

The chapter presents participant characteristics and recruitment strategies, as well as data collection procedures. In addition, the variables and measures that were used in the study are highlighted and the research hypotheses are revealed. Finally, methods for data processing and analysis are described, and limitations inherent to the study and its design are stated.

Participant Characteristics

Participants for this study were originally 200 undergraduate psychology students. Their participation was an optional part of their psychology course requirement, and each participant was required to read, understand, and sign an informed consent form. To be eligible for inclusion in the study, each individual was required to be 18 years of age or older and enrolled as a student in an undergraduate psychology class at the University of New Mexico. One student who was 17 years old was added, at her request, after the Institutional Review Board was consulted and parental consent and assent forms were developed. This addition increased the total number of participants to 201. A brief researcher-developed demographic questionnaire provided data regarding age, sex, race and ethnicity, education level, number of siblings, birth order, and marital status. The age of the participants ranged from 17 to 50 years, with a mean of 19.86 ($SD = 3.78$), and the total number of children living in the participants' childhood households ranged from 1 to

8, with a mean of 2.76 ($SD = 1.39$). Table 1 reveals information on frequency distributions for the other demographics.

Table 1

Frequency Distributions

| Characteristics | Frequency | Percent |
|----------------------------|-----------|---------|
| Gender | | |
| Female | 152 | 75.6 |
| Male | 48 | 23.9 |
| Missing | 1 | .5 |
| Total | $N = 201$ | 100 |
| Race or Ethnicity | | |
| African American | 6 | 3.0 |
| Asian | 4 | 2.0 |
| Native American | 4 | 2.0 |
| Pacific Islander | 1 | .5 |
| Caucasian | 100 | 49.8 |
| Latino/Hispanic | 74 | 36.8 |
| Other | 12 | 6.0 |
| Total | $N = 201$ | 100 |
| Birth Order | | |
| Oldest Child | 66 | 32.8 |
| Second Child | 34 | 16.9 |
| Third Child | 8 | 4.0 |
| Fourth Child | 3 | 1.5 |
| Youngest Child | 64 | 31.8 |
| Only Child | 21 | 10.4 |
| Other | 5 | 2.5 |
| Total | $N = 201$ | 100 |
| Relationship Status | | |
| Married | 8 | 4.0 |
| Live-in Relationship | 26 | 12.9 |
| Single | 135 | 67.2 |
| Boyfriend or Girlfriend | 26 | 12.9 |
| Other | 6 | 3.0 |
| Total | $N = 201$ | 100 |

Utilizing an undergraduate sample as participants in this study had advantages and disadvantages. Undergraduate courses in psychology are often large, and frequently include participation in a research project as a potential means of fulfilling the completion requirements. Consequently, the task of finding willing study participants was made simpler by the high numbers of students looking to be part of a research project. Another possible advantage is the potential uniformity of the sample; since all participants were undergraduate psychology students, it is possible that some confounding factors were mitigated.

A disadvantage of studying this sample involves this possible uniformity; since this was not a clinical sample there was the potential for a lack of variation among the participants in the levels of anxiety reported on the five anxiety assessment self-reports that were used. This could mean that correlations between anxiety level, attachment style, and perceptions of parental bonding during childhood that would be evident in a more anxious population, were missed in this study. Another potential disadvantage is the possibility that some of these individuals were primarily interested in completing their course requirement, and neglected to give sufficient attention to the questionnaires they were asked to fill out. Consideration of one's degree of anxiety and recollection of one's early childhood experiences with caregivers require thought, focus, and commitment to accuracy; individuals who rushed through the process may have caused a skewing of the results and the conclusions.

Recruitment Strategies

Following approval by the UNM Institutional Review Board for protection of individuals participating in research, undergraduate psychology students were recruited

through a web-based recruitment system. A description of the study was posted online alongside several other study descriptions. Psychology students were able to access the website, read the various study descriptions and choose to participate in the study that most appealed to them. Dates and times during which data collection would take place for this study were posted on the website, and the participants signed up online for the test period that was convenient for them.

Data Collection Procedures

In order to accommodate the large number of participants needed for this study, the principal investigator (PI), and each of two upper-level undergraduate psychology students who received psychology research credit for their help, scheduled approximately two data collection periods per week throughout most of the fall semester. The test periods were one and one-half hours in length so that sufficient time was available for review of the informed consent and thoughtful response to the questionnaires. A maximum of 25 participants were allowed to sign up for each test period. The test periods were scheduled on different days of the week and at varying times to ensure the participants' needs were met. Data collection took place in several different rooms in the psychology building on the University of New Mexico campus.

As the participants arrived at the testing rooms on the appointed days and times, the researcher or a research assistant handed them two copies of the informed consent form and invited them to sit down. Participants were asked to read through the informed consent form. When all participants who signed up for the specified test period were present, or ten minutes after the stated start time, whichever came first, the researcher or an assistant began the data collection with a verbal clarification of informed consent. The

informed consent form included a brief explanation of the study and described the potential risks and benefits of participating. In addition, it stated that participation was voluntary and that the individual could decide to leave the test period at any time. It was explained, however, that credit for fulfilling a course requirement by optional participation in a research project would only be given if the questionnaires were completed. The PI or assistants completed the explanation of informed consent by asking whether the participants had any questions.

As part of informed consent, the potential risks and benefits of participating in the study were made clear. Risks included the possibility that answering questions regarding one's childhood could bring up difficult feelings or even stimulate troubling memories. In addition, there was the potential for heightened anxiety among participants, particularly for those with histories of trauma or difficult childhoods. Potential benefits of participating in the study included enhanced self-awareness and thoughtfulness about one's past and how that may connect to present-day anxious feelings. Participants were provided with referrals to counseling centers before beginning the questionnaires so that, if difficult feelings arose, or a desire to explore the past surfaced, resources were readily available.

When informed consent was fully explained, participants were asked to sign one of the consent forms they had been given and told they could keep the second copy for their records. The PI or assistants collected the signed consent forms. Packets with copies of each of the questionnaires and the demographic survey were handed out and participants were asked to consider each question thoughtfully and to answer as completely as possible. Participants were given as much time as needed and when

finished returned the questionnaire packets. Most participants were able to complete the questionnaires in less than one hour.

Variables, Measures, and Instrumentation

The variables investigated in this study were adult attachment, parental bonding, and anxiety. To explore adult attachment, the Relationship Scales Questionnaire (Griffin & Bartholomew, 1994) was used. To examine parental bonding, the Parental Bonding Instrument (Parker, Tupling, & Brown, 1979) was employed. Several different self-report measures were utilized to look at five different types of anxiety. To assess tendency toward obsessive-compulsive behavior, the Obsessive-Compulsive Inventory-Revised (Foa, et al., 2002) was used. To assess tendency toward panic, the Panic Disorder Severity Scale-Self Report (Houck, Spiegel, Shear, & Rucci, 2002) was used. To assess tendency toward worry and generalized anxiety, the Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990) was used. To assess tendency toward post-trauma symptoms, the PTSD Checklist-Civilian Version (Weathers, Litz, Herman, Huska, & Keane, 1993) was used. To assess tendency toward social anxiety, the Social Interaction Anxiety Scale (Mattick & Clarke, 1998) was used.

Adult Attachment

Relationship Scales Questionnaire

The Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994) consists of 30 items that include information from Hazan's and Shaver's (1987) typological descriptions of secure, avoidant, and ambivalent attachment, from Bartholomew's and Horowitz's (1991) four-category Relationship Questionnaire, and from Collins' and Read's (1990) Adult Attachment Scale. The RSQ asks participants to

rate, on a scale from 1 to 5, how well each item fits their perception of the style they use in their close relationships (Griffin & Bartholomew). Individuals are scored on each of four attachment patterns: secure, fearful, preoccupied, and dismissing. The RSQ also provides scores on the two dimensions, model of self and model of others, that form the basis for the four attachment patterns.

The Griffin and Bartholomew (1994) model is based on a prototype approach, which allows for categorization of individuals as indicated by the complex patterns that define them, while acknowledging that every individual is not an equally good representative of the group. This manner of measurement is particularly useful in attachment research since most adults, as a result of factors such as genetic predisposition, life experience, and relationship-specific influences, do not correspond perfectly to a specific attachment pattern. According to Griffin and Bartholomew, most adults, over time and across situations, exhibit behaviors characteristic of two or more attachment patterns. Assessment of attachment via a prototype approach, such as the RSQ, permits examination of an individual's fit within specific categories, as well as how much that fit varies as time passes.

The four-category model of adult attachment patterns grew out of a series of interviews questioning young adults about their close relationships (Bartholomew, 1993). While conducting these interviews, Bartholomew became aware that it was important to take into account participants' perceptions of themselves, as well as their expectations of others. In keeping with this observation, she defined four prototypic attachment patterns in terms of positivity of models of self and positivity of models of others. The positivity of self model reflects the degree to which there is an internalized sense of self-worth that

is independent of external validation. The positivity of others model indicates how available and supportive others are expected to be.

The attachment patterns defined by the four-category model are fearful, dismissing, preoccupied and secure (Bartholomew, 1993). In contrast to previous models of attachment, the four-category model includes two patterns (rather than one pattern) reflecting difficulty in becoming intimate with others: fearful and dismissing. The fearful style of attachment may be described by a wish for closeness that remains unfulfilled due to fears of rejection. The dismissing style is typified by denial that intimacy with others is needed or desired. According to Bartholomew, the fearful style reflects a negative view of self (undeserving of the love and support of others), as well as a negative view of others, whereas the dismissing style reflects a positive view of self (minimizing the awareness of needs or distress) and a negative view of others. Individuals who have a preoccupied style of attachment have a negative view of self, but see others in a positive light; they look to their intimate relationships for fulfillment and validation. Those with secure styles of attachment view both self and others in a positive way, and are able to achieve autonomy as well as closeness in their relationships.

To validate the four-category model of attachment, Bartholomew and Horowitz (1991) administered a semi-structured interview to introductory psychology students and their close friends, asking for descriptions of friendships, romantic partnerships, and feelings about how important it is to have close relationships. Inclusion requirements for the study called for participant pairs to be same-sex, non-romantic close friends. Based on the audio-taped interviews, three raters scored the participants on four nine-point scales corresponding to each of the four attachment prototypes. The reliabilities of these

ratings ranged from .87 to .95. The scores for each category were averaged and the highest of these averages was taken to be the attachment pattern that best fit the particular participant. The researchers concluded that the use of a semi-structured interview is a reliable way to assess which attachment category most accurately describes each participant.

In a second study, Bartholomew and Horowitz (1991) examined whether it was possible to extend the four-category model of attachment to relationships within families of origin. Participants were again drawn from introductory psychology classes. The first half of the hour-long interview requested information about participants' familial representations, and the second half resembled the interview used in the first study. Participants' responses were rated by four independent raters and participants were placed in one of the four attachment pattern categories. Each participant was scored separately for the family attachment and peer attachment sections of the interview. The family attachment ratings ranged in their reliabilities from .75 to .86, and the peer attachment ratings ranged in their reliabilities from .74 to .88. The researchers concluded that the four-category attachment model can be extended to family attachment relationships, and that family attachment is correlated with peer attachment.

To score the RSQ, means of the items that represent each category are calculated for each of the four attachment patterns (Griffin & Bartholomew, 1994). The preoccupied and fearful patterns are represented by four items each, while the dismissing and secure patterns are represented by five items each. Griffin and Bartholomew acknowledged the variable and often low internal consistencies of the RSQ, but stated this is not a result of either the low number of items for each prototype score or of a psychometric fault.

Rather, they affirmed that internal consistencies are low for the RSQ because the self-model and the other-model (two orthogonal dimensions) are combined in the questionnaire.

Convergent validity is apparent for the attachment pattern scores of the RSQ (Griffin & Bartholomew, 1994). Griffin and Bartholomew noted that all correlations between corresponding patterns (i.e., interview secure and self-report secure) and all correlations between opposing patterns (i.e., interview secure and self-report fearful) were above .2, whereas there were no correlations between adjacent patterns (i.e., secure and dismissing) above .17. Griffin and Bartholomew pointed out that the fairly small size of the convergent correlations shows that measurement by the interview method and by the self-report method are not the same. When they analyzed the dimensional level (self-model and other-model), they found the convergent validities to be higher. The RSQ assessment of the self-model correlated at .37 with the interview assessment of the self-model, and the RSQ assessment of the other-model correlated at .48 with the interview assessment of the other-model.

Parental Bonding

Parental Bonding Instrument

The Parental Bonding Instrument (PBI) developed by Parker, Tupling, and Brown (1979) was used to assess the participants' reports of their parents' bonding behaviors and attitudes. Based on research by themselves and others, Parker et al. determined that the parental contribution to bonding may be influenced by two source variables: a care dimension and a dimension of psychological control over the child. To define these two principal dimensions, the authors developed self-report questionnaire items regarding

parental behaviors and attitudes of care, affection, sensitivity, cooperation, accessibility, indifference, strictness, punitiveness, rejection, interference, control, overprotection, and encouragement of autonomy and independence.

Parker et al. (1979) included 65 medical students, 43 psychiatric nurses, 13 technical college students, and 29 parents of children at a local school in their study to test items for inclusion in the PBI. Seventy-nine participants were female and 71 were male; they ranged in age from 17 to 40 years and the mean age was 25. Questionnaires were completed for 150 mothers and 148 fathers. Two interviewers (Parker and Tupling) met with each participant to discuss the participant's emotional relationship with each parent and whether each parent had let the participant "do their own thing" (p. 3) as a child. The two interviewers, acting as raters, independently assessed the interview content and assigned scores from one to five for the degree of care and overprotection exhibited by each parent. Through factor analysis, the 48 original items were reduced to 25 items in the final scale, including 12 care items and 13 overprotection items. A scale from 0 (very unlike the parent) to 3 (very like the parent) for each item was instituted so that the maximum score for the 12 items in the care scale would be 36, and the maximum score for the 13 items in the overprotection scale would be 39.

Test-retest reliability was assessed by asking 17 members of the sample to complete the PBI on two separate occasions three weeks apart; the Pearson correlation coefficient for the care scale was .761 and the Pearson correlation coefficient for the overprotection scale was .628 (Parker et al., 1979). Concurrent validity was assessed by correlating the raters' scores for care and overprotection during the original interviews with the scores obtained through completion of the PBI; Pearson correlation coefficients

for the care measures were .772 for one rater and .778 for the other rater and the Pearson correlation coefficient for the overprotection measures were .478 for one rater and .505 for the other rater. The results of the study indicated that the participants experienced their mothers as more caring and more overprotective than their fathers, and that the participants' gender did not influence their perception of whether the parents were caring or overprotective.

Parker et al. (1979) suggested that the scales may be used separately or collectively, and stated that when used together, they allow the examination of five types of bonding: 1) average (defined statistically); 2) high care-low overprotection (optimal bonding); 3) low care-low overprotection (absent or weak bonding); 4) high care-high overprotection (affectionate constraint); and 5) low care-high overprotection (affectionless control). The authors noted that the PBI might be useful in looking at the conditions of optimal parental bonding, and in considering the influence that distorted parental bonding has on the psychological and social functioning of offspring.

Wilhelm, Niven, Parker, and Hadzi-Pavlovic (2005) examined the stability of the PBI in a non-clinical sample over a period of twenty years. Beginning in 1978, they studied 114 women and 56 men with a mean age of 23 years, with follow-ups at five-year intervals. At each follow-up, participants completed questionnaires looking at their physical and mental health. In addition to these self-report assessments, participants were asked to complete the PBI at three of the four follow-ups, in 1983, 1988, and 1998. Changes in PBI scores over time were investigated in relation to gender, major depression diagnosis, and life event variables. Scores for neuroticism and state depression were considered as well. Repeated-measures ANOVA was used to assess the stability of

PBI scores over the 20-year period and results indicated there were no differences over time on the variables examined. The authors concluded the PBI is stable over time and neither mood nor life experiences have much effect on how scores are reported.

Anxiety

Obsessive-Compulsive Inventory-Revised

The Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002) was used to assess tendency toward obsessive-compulsive behavior. The OCI-R is based on the Obsessive-Compulsive Inventory, which contains 42 self-report items, rated on two 5-point scales assessing symptom frequency and symptom distress resulting from the checking, washing, obsessing, mental neutralizing, ordering, hoarding, and doubting behaviors often associated with obsessive-compulsive disorder (OCD). The Obsessive-Compulsive Inventory has been shown to have good internal consistency, test-retest reliability, and discriminant validity between diagnostic groups (Foa, Kozak, and Salkovskis, 1998).

Foa et al. (2002) examined the frequency and distress scales of the Obsessive-Compulsive Inventory through statistical analyses which indicated redundancy in the scales. They found through further analytical examination that the distress scale had greater discriminative power and chose to use it to develop the OCI-R. To reduce the number of items in each subscale measuring specific OCD behaviors, the researchers conducted a factor analysis. They eliminated items that loaded on more than one factor and selected for each subscale items with the highest loading on the corresponding subscale. In this way, three items were chosen for each subscale to comprise the first version of the OCI-R. The researchers performed further factor analyses on this version

of the assessment, which indicated the presence of six factors, rather than seven as previously believed. These six factors are washing, checking, ordering, obsessing, hoarding, and neutralizing. The final version of the OCI-R contains 18 items rated on a 5-point scale.

In their examinations of the psychometric properties of the OCI-R, Foa et al. (2002) determined that the OCI-R is similar in this regard to the original Obsessive-Compulsive Inventory. Participants in their study included individuals with OCD, individuals with other anxiety disorders, and non-anxious controls. Several interview and self-report measures of OCD were administered, along with two measures of depressive symptoms. Internal consistency was shown to be stable; for example, four of the six subscale coefficients were higher than .72. The correlations between subscales ranged from .31 to .57, which shows they are associated but not repetitive, and the correlations between the subscales and total score ranged from .63 to .80, which shows that the subscales all measure OCD symptoms. Test-retest reliability ranged from .74 to .91 for individuals with OCD, and from .57 to .87 for non-anxious controls. The correlation coefficient for the total scores of the Obsessive-Compulsive Inventory and the OCI-R was .98.

Hajcak, Huppert, Simons, and Foa (2004) examined the psychometric properties of the OCI-R in a non-clinical student sample in two different studies. In the first study, 395 undergraduate students completed the OCI-R. One month later, 94 of these participants repeated the questionnaire, allowing the researchers to examine test-retest reliability. A different OCD assessment was used to investigate convergent validity. In the second study, 221 students completed several measures of OCD, worry, and

depression, and both convergent and divergent validity of the OCI-R were examined. Through statistical analyses, the researchers determined that test-retest reliability for the OCI-R is adequate (Pearson's $r = .70$), internal consistency is high (Cronbach's alpha = .88), convergent validity is moderate to excellent (.56), and divergent validity is good (.39, .42).

Panic Disorder Severity Scale-Self Report

The Panic Disorder Severity Scale-Self Report (PDSS-SR; Houck, Spiegel, Shear, & Rucci, 2002) was used to assess tendency toward panic. The original Panic Disorder Severity Scale (Shear et al., 1997) is an interview process which assesses various aspects of panic disorder, including frequency, distress caused, anticipatory anxiety, agoraphobia, avoidance, and daily impairment. The PDSS-SR was developed to provide a means of assessment in the absence of a trained interviewer (Houck et al., 2002).

Like the original Panic Disorder Severity Scale, the PDSS-SR consists of seven items which are rated on a 5-point scale (Houck et al., 2002). The PDSS-SR was modified to a self-report version by adapting the questions to a form that allowed respondents to answer autonomously. To investigate the reliability of this instrument, Houck et al. recruited 108 psychiatric outpatients who completed the PDSS-SR as part of their participation in three different studies. The sample included 71 participants with panic disorder. The remainder either had no diagnosis (6) or had been diagnosed with depression (18), obsessive-compulsive disorder (10), or bipolar disorder (2).

In addition to completing the PDSS-SR, participants were administered the original Panic Disorder Severity Scale (Houck et al, 2002). Approximately half of the participants completed the interview first and half completed the self-report first. Twenty-

five of the participants completed the two measures on consecutive days, while 67 participants completed them before and after cognitive behavioral treatment. The intraclass correlation coefficient, which was used to assess test-retest reliability, was .81 for the self-report and interview versions of the measure. This same coefficient was found to be .83 between days 1 and 2 for the self-report instrument and .81 between days 1 and 2 for the interview. Cronbach's alpha was used to look at internal consistency, and was found to be .917 for the self-report and .923 for the interview. Item analysis yielded weighted Kappa estimates that indicated good agreement between the two versions of the scale on all items except for Question 2, for which the weighted Kappa was .40. All the rest of the questions fell between .51 and .75. The mean decreases in total scores for the two scales were not shown to be different when pre- and post-treatment findings were compared. The researchers concluded that the PDSS-SR is reliable, has good internal consistency, and is sensitive to change.

Shear et al. (2001) examined the reliability and validity of the original Panic Disorder Severity Scale. Participants included 104 psychiatric outpatients who had been diagnosed with at least one anxiety or mood disorder. Fifty-four had current panic disorder. In addition to being administered the interview, participants completed several self-report questionnaires to assess levels of anxiety, depression, and social adjustment. All of the assessment means were repeated for each participant, 3 to 17 days after the initial completion. Test-retest reliability was shown to be satisfactory, with a Pearson correlation coefficient of .71. Internal consistency was high, as indicated by a Cronbach's alpha of .88 on the first assessment day. Pearson's *r* indicated significant correlation with other self-report instruments which include panic-type symptoms (.54, .67, .54).

Discriminant validity was found to be good, as well, with total scores higher on the Panic Disorder Severity Scale interview for participants who had panic disorder than for those who did not (12.4 +/- 5.4, 6.1 +/- 6.0, t -test = -5.5, df = 102, p < .001).

Penn State Worry Questionnaire

The Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) was used to assess tendency toward worry and generalized anxiety. The PSWQ has been used extensively to study frequency, intensity, and uncontrollability of worry, and has been employed by both clinicians and researchers (Startup & Erickson, 2006). It was created as a means of examining the following: 1) *typical* tendency toward worry; 2) *excessiveness* of worry; and 3) tendency toward worry *in general* (Molina & Borkovec, 1994). These three conditions are consistent with the diagnostic requirements for Generalized Anxiety Disorder (GAD) as outlined in the *DSM-IV-TR* (2000), including worry that lasts for at least six months, is excessive, and focuses on a number of different areas.

The PSWQ was derived from an initial pool of 161 items drawn from several sources, including clinical and research experience with GAD, diary entries by GAD patients, a cognitive/somatic anxiety inventory, and theoretical perspectives about worry (Meyer et al., 1990). The original 161 items were administered to 337 introductory psychology students, who were asked to rate the items on a five-point scale, ranging from 'not at all typical of me' to 'very typical of me'. Factor analysis resulted in the 16-item version of the PSWQ, including five items that must be reverse-scored. The PSWQ has been found to possess high internal consistency and good test-retest reliability [$r(45)$ =

.92, $p < .001$] in clinical as well as in non-clinical samples, with alpha coefficients ranging from .88 to .95 for both groups (Meyer et al.).

PTSD Checklist-Civilian Version

The PTSD Checklist-Civilian Version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993) was used to assess tendency toward post-trauma symptoms. The PCL-C is a 17-item checklist developed to coincide with several of the diagnostic criteria for post-traumatic stress disorder (PTSD). Individuals answering the questionnaire were asked to rate on a scale of 1 to 5 the degree to which they have been bothered in the last month by the problem described in each item. The wording of the PCL may be changed according to the population to whom it is administered: to describe stressful civilian life experiences (PCL-C); to describe the impact of a specific event (PCL-S); or to describe reactions to military experiences (PCL-M) (Norris & Hamblen, 2003).

Weathers et al. (1993) studied Vietnam veterans in their original research on the psychometric properties of the PCL. In addition to the PCL-M (which was completed twice, several days apart), participants completed several additional self-report assessments of PTSD and other psychopathology, and were interviewed to determine whether PTSD was present. The alpha coefficient for the total scale was .97, indicating high internal consistency, and the alpha coefficients for the subscales ranged from .92 to .93. Test-retest reliability was .96 over a period of 2 to 3 days. Convergent validity with other measures of PTSD ranged from .46 to .93.

Blanchard, Jones-Alexander, Buckley, and Forneris (1996) also examined the psychometric properties of the PCL. They administered the PCL to 40 adult participants who had been victims of either a motor vehicle accident or a sexual assault. In addition,

participants were required to go through a two to four hour interview (Clinician-Administered PTSD Scale; Blake et al., 1990). The correlation between the PCL and the interview was .929. Depending upon the cutoff score for the PCL, coefficients for diagnostic efficiency were .825 and .900. The authors concluded that the PCL is a valuable screening tool for PTSD.

In another study looking at the psychometric properties of the PCL, Ruggiero, Del Ben, Scotti, and Rabalais (2003) administered the PCL and several other self-report measures for PTSD, depression, and general anxiety to 392 college student participants. To examine test-retest reliability, several of these measures were administered a second time to 90 of the participants who returned one hour, one week or two weeks later. Coefficients for inter-item correlation on the PCL ranged from .22 to .69. Coefficients for item-total correlation ranged from .40 to .74. Strong internal consistency was indicated by alpha coefficients of .94, .85, .85, and .87 for total scores, and for re-experiencing, avoidance, and hyper-arousal subscale scores. A coefficient of .75 indicated convergent validity between total scores on the PCL and scores on two other measures of PTSD. Correlation coefficients assessing test-retest reliability were .92 for those participants who returned within an hour to retake the PCL, .88 for those who came back a week later, and .68 for those who returned in two weeks.

Social Interaction Anxiety Scale

The Social Interaction Anxiety Scale (SIAS; Mattick and Clarke, 1998) was used to assess tendency toward social anxiety. The SIAS is a 20-item self-report scale designed to assess general fears of social interaction with both friends and strangers. To develop the SIAS and examine its psychometric properties, Mattick and Clarke studied

five participant groups, including 482 undergraduate introductory psychology students, 315 individuals from the community, 243 individuals with social phobia, 13 individuals with agoraphobia with panic attacks, and 16 individuals with simple phobia. The participants were instructed to complete the SIAS, indicating on a 5-point scale the degree to which each item was characteristic of them. An item-analysis process was implemented to reduce the original 38 items to 19. High internal consistency of the SIAS was indicated by an alpha coefficient of .94 for the total sample population. The alpha coefficient for test-retest reliability was .92 at both 4 weeks (range 3-5 weeks) and 12 weeks (range 11-13 weeks). The researchers also found, through the use of planned ANOVAs, that the SIAS seems to discriminate between clinical groups and also between individuals who have social phobia and those who do not. They noted that the scale may be useful in research as well as in clinical practice.

Osman, Gutierrez, Barrios, Kopper, and Chiros (1998) also examined the psychometric properties of the SIAS through two different studies. Participants in their first study were 200 undergraduate students in introductory psychology classes who received class credit for their participation. Internal consistency reliability was found to be good, as indicated by an alpha coefficient of .90. The range for corrected item-total correlations extended from .20 to .82. One of the goals of the researchers' second study was to look at gender differences for the total scale and for individual items. The sample population included 138 undergraduate men and 272 undergraduate women. An ANOVA indicated no significant difference in the total SIAS scores between men and women. A MANOVA was carried out to look at gender differences at the level of individual items, and the Hotelling's T did not indicate a significant gender effect.

Peters (2000) examined the discriminant validity of three different measures of social anxiety, including the SIAS, the Social Phobia Scale (Mattick & Clarke, 1998), and the Social Phobia and Anxiety Inventory (Turner, Beidel, Dancu, & Stanley, 1989). Participants were 117 patients who had been diagnosed with social phobia or with panic disorder with or without agoraphobia. Before receiving treatment all the patients completed each of the three self-report measures. Statistical analysis showed the construct validity of the assessments to be significantly correlated. A MANOVA was utilized to compare the social phobia and panic disorder groups for each of the three self-report assessments. Results indicated that all the measures can distinguish between individuals with social phobia and individuals with panic disorder. Peters implemented a logistic regression to examine whether any of the measures were able to distinguish social phobia from panic disorder better than the others. She found that the Social Phobia and Anxiety Inventory distinguished social phobia from agoraphobia more effectively than either the SIAS or the Social Phobia Scale. Peters noted that this does not indicate a lack of validity for the SIAS and the Social Phobia Scale. She also stated that the discriminant validity of all the assessments is especially striking considering the high co-morbidity between social phobia and panic disorder.

Research Hypotheses

Hypothesis #1

Attachment style, as indicated by the Relationship Scales Questionnaire, will be correlated with quality of early interactions with caregivers, as indicated by the Parental Bonding Instrument.

Hypothesis #1.A

Secure attachment style, as indicated by the Relationship Scales Questionnaire, will be positively correlated with the care dimension, and negatively correlated with the overprotection dimension, of the Parental Bonding Instrument.

Hypothesis #1.B

Insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Hypothesis #2

Tendency toward specific types of anxiety will be correlated with attachment style, as indicated by the Relationship Scales Questionnaire.

Hypothesis #2.A

Tendency toward obsessive-compulsive symptoms, as determined by the Obsessive Compulsive Inventory-Revised, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Hypothesis #2.B

Tendency toward panic symptoms, as determined by the Panic Disorder Severity Scale-Self Report, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Hypothesis #2.C

Tendency toward generalized anxiety symptoms, as determined by the Penn State Worry Questionnaire, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Hypothesis #2.D

Tendency toward post-trauma symptoms, as determined by the PTSD Checklist-Civilian Version, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Hypothesis #2.E

Tendency toward social anxiety symptoms, as determined by the Social Interaction Anxiety Scale, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Hypothesis #3

Tendency toward specific types of anxiety will be correlated with quality of early interactions with caregivers, as indicated by the Parental Bonding Instrument.

Hypothesis #3.A

Tendency toward obsessive-compulsive symptoms, as determined by the Obsessive Compulsive Inventory-Revised, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Hypothesis #3.B

Tendency toward panic symptoms, as determined by the Panic Disorder Severity Scale-Self Report, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Hypothesis #3.C

Tendency toward generalized anxiety symptoms, as determined by the Penn State Worry Questionnaire, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Hypothesis #3.D

Tendency toward post-trauma symptoms, as determined by the PTSD Checklist-Civilian Version, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Hypothesis #3.E

Tendency toward social anxiety symptoms, as determined by the Social Interaction Anxiety Scale, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Data Processing and Analyses

To begin the data analyses, the researcher tabulated by hand the data for each scale for every questionnaire. The entry of the tabulated data into a computer program (Statistical Package for the Social Sciences; SPSS) was shared by the PI and the research assistants. The PI or research assistants checked each entry to assure that accurate

numbers had been entered. In addition, the responses to each individual item on 25% of the questionnaires were entered into SPSS. This 25% of the questionnaires was randomly selected by the SPSS program, and the data was entered without imposing any type of data manipulation ahead of time. Questions that needed to be reverse-scored were entered in their original form, and SPSS was used to change the reverse-scored items to their proper form. Scale subscores were calculated and reliability coefficients were computed for each scale.

The data analysis continued with the calculation of Pearson's r for the relationships between adult attachment and early bonding experiences, between adult attachment and tendency toward each of the five major types of anxiety, and between early bonding experiences and each of the five major types of anxiety. These correlations were disattenuated.

Limitations

Perhaps the greatest limitation of this study was the potentially restricted variation in anxiety states of the participants in the sample population. Since all participants were students in undergraduate psychology classes, it may be reasonable to assume that it was a fairly high-functioning group of people. Whereas anxiety is a universal human phenomenon, and the expectation was that some differences would be observable within this population, there was the potentiality that the ranges apparent within any particular anxiety category would be minimal. To study the concepts of interest in this project in more depth, it would be advisable to design an experiment utilizing clinical groups of individuals who have been diagnosed with each of the five anxiety disorders considered here, and to compare these groups with a group of non-anxious controls.

Another drawback of this study was the exclusive use of self-report instruments to assess both attachment and memories of early bonding experiences. Since each participant was the sole informant of his or her attachment style and of his or her early bonding experiences, correlations between these two variables were less meaningful than if another way of assessing one of the variables had been used. A potentially highly valuable instrument for inclusion in a future study in this area is the Adult Attachment Interview (George, Kaplan, & Main, 1996), which assesses an individual's attachment state of mind via the unconscious linguistic process that is revealed in the interview, rather than via the content of the interview. Due to the high cost of coding the interviews and the lengthy process involved in the coding, the use of the Adult Attachment Interview in a dissertation project was not feasible.

CHAPTER FOUR

RESULTS

Overview of Chapter

The chapter presents the results obtained through implementation of the methodological procedure outlined in the previous chapter. First, the reliability of the scores gathered in the data collection process is discussed, and the checking of the scoring procedures explained. Next, variation of responses, scoring of the instruments, significance level and magnitude of correlations are noted. Finally, statistical data that provides support for or against the research hypotheses is presented.

Reliability of Scores

Reliability coefficients were calculated for each of the instruments utilized, including the subscales of the Parental Bonding Instrument, the Relationship Scales Questionnaire, and the Obsessive-Compulsive Inventory-Revised. Cronbach's alpha for the instruments ranged from .420 for the secure subscale of the Relationship Scales Questionnaire to .938 for the Penn State Worry Questionnaire (see Tables 2 and 3). Due to the low reliability for several of the scales, all observed correlations were disattenuated using the following equation (Osborne, 2003):

$$r^*_{12} = \frac{r_{12}}{\sqrt{r_{11}r_{22}}}$$

The reliability coefficients are represented by r_{11} and r_{22} , while r_{12} is the observed correlation and r^*_{12} is the disattenuated correlation. Disattenuated correlations are listed in parentheses below the observed correlations in Tables 2 and 3.

Although the disattenuation process has been utilized for many years, there have been some concerns with regard to this technique (Charles, 2005). For example, disattenuated correlations greater than 1.00 may sometimes be obtained, as is evident in two of the reported disattenuated correlations for this study. According to Charles, one possible explanation for this result is that reliability coefficients are often underestimated, decreasing the denominator of the disattenuation equation and inflating the disattenuation correlation coefficient. Zimmerman (2007) emphasized the importance of the interaction of reliability and correlated errors. He noted that the correlation between errors must be nearly zero and reliability must be high in order for the disattenuation correction to be accurate.

Checking of Scores

Scores for each instrument and the corresponding subscales were originally tabulated by hand. The results of these tabulations (mean scores for each questionnaire) were entered into SPSS. In order to examine the accuracy of the tabulations, a secondary scoring procedure was utilized. Twenty-five percent of the 201 questionnaire packets were randomly selected by the SPSS computer program. Each item response for each of these questionnaires was entered into SPSS, which was then programmed to calculate the mean score(s) for each questionnaire. Using computer technology, the scores of the randomly selected questionnaires were compared with the scores of the corresponding hand-tabulated questionnaires. Twelve of the scales and subscales demonstrated an

agreement of at least 95% between the hand-scored and computer-scored results, while only five demonstrated agreement below 95%. The lowest percent agreement was 81.7%.

Variation of Responses

The participants' responses to the items in the questionnaires varied widely except in one instance, in which a potential restriction of range was evidenced. With regard to panic symptoms as measured by the Panic Disorder Severity Scale-Self Report (PDSS-SR), most participants reported that they either did not have panic attacks, or had mild or moderate panic attacks (the 5-point PDSS-SR scale allows responses varying from no panic attacks during the last week to an extreme number of panic attacks). It is possible that, in a population of individuals reporting a higher rate of severe or extreme panic attacks, the correlations between panic symptoms, early bonding memories, and attachment style may be impacted. That is to say that a restriction of range, such as the one observed here, could suppress these correlations. One possible conceptual reason for the small range of responses with regard to panic symptoms is that individuals who have severe or extreme panic attacks may not be well enough to attend college and participate in studies such as this one.

Scoring of Instruments

Participants in this study responded to a series of seven questionnaires (in addition to a demographic survey). Scoring for three of the questionnaires involved the use of subcategories. The Parental Bonding Instrument (PBI) was scored on two dimensions: care and overprotection. The Relationship Scales Questionnaire (RSQ) was scored on four dimensions: secure, dismissing, fearful, and preoccupied. The Obsessive-Compulsive Inventory-Revised (OCI-R) yielded a total score as well as scores for six subcategories:

hoarding, checking, ordering, neutralizing, washing, and obsessing. Each of the other instruments utilized yielded a single score. The Parental Bonding Instrument was scored on a 4-point scale, while all the other questionnaires were scored on a 5-point scale. Instrument and subscale response means, and corresponding standard deviations, are listed in Tables 2 and 3.

Significance Level and Magnitude of Correlations

In order to confirm or disconfirm the research hypotheses stated in Chapter 3 and attempt to answer the research questions posed in Chapter 2, it was necessary to perform a large number of correlations. When many different variables are correlated with each other, the risk of a Type I Error (finding an effect when in reality there is none) increases. In order to reduce the risk of a Type I Error in this study, a more stringent alpha level was adopted: only correlations that were significant at $p < .01$ were considered, while correlations significant at $p < .05$ were disregarded. All correlation coefficients are presented in Tables 2 and 3.

Another reason for adopting the more stringent alpha level is the large number of participants in this study, which could yield small correlation coefficients that are, nevertheless, statistically significant. In order to further remediate this potential problem, the magnitudes of the correlations were considered in addition to their statistical significance. Correlation coefficients of 0 to .3 were considered to be of small magnitude, whereas correlation coefficients of .4 to .7 were considered to be of moderate magnitude, and correlation coefficients of .8 or greater were considered to be of high magnitude.

Table 2
Means, Standard Deviations, Reliability and Correlation Coefficients (Disattenuated Correlation Coefficients in Parentheses)

| | MN | SD | RL | PBI (C) | PBI (OP) | RSQ (S) | RSQ (D) | RSQ (F) | RSQ (P) | OCI-R (Total) | PDSS-SR | PSWQ | PCL-C | SIAS |
|---------------|-------|------|------|--------------------|--------------------|---------------------|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|------|
| PBI (C) | 2.55 | .51 | .892 | | | | | | | | | | | |
| PBI (OP) | .99 | .56 | .776 | -.368** (-.422) | | | | | | | | | | |
| RSQ (S) | 2.31 | .68 | .420 | .322** (.526) | -.183** (-.321) | | | | | | | | | |
| RSQ (D) | 2.20 | .64 | .566 | .045 (.063) | .019 (.029) | -.198** (-.406) | | | | | | | | |
| RSQ (F) | 1.78 | .87 | .507 | -.245** (-.364) | .312** (.497) | -.597** (-1.294) | .359** (.670) | | | | | | | |
| RSQ (P) | 1.89 | .79 | .568 | -.187** (-.263) | .242** (.364) | -.223** (-.457) | -.316** (-.557) | .278** (.518) | | | | | | |
| OCI-R (Total) | .85 | .61 | .869 | -.100 (-.114) | .106 (.129) | -.388** (-.642) | .111 (.158) | .309** (.466) | .246** (.350) | | | | | |
| PDSS-SR | .43 | .50 | .820 | -.071 (-.083) | .087 (.109) | -.274** (-.467) | .063 (.092) | .320** (.496) | .309** (.453) | .551** (.653) | | | | |
| PSWQ | 2.22 | .93 | .938 | -.095 (-.104) | .176 (.206) | -.356** (-.567) | -.005 (-.069) | .321** (.466) | .291** (.399) | .476** (.527) | .508** (.579) | | | |
| PCL-C | 1.13 | .799 | .918 | -.250** (-.276) | .186** (.220) | -.386** (-.622) | .155 (.213) | .441** (.646) | .285** (.395) | .526** (.589) | .539** (.621) | .483** (.521) | | |
| SIAS | 1.199 | .77 | .929 | -.289** (-.317) | .187** (.220) | -.503** (-.805) | -.012 (-.017) | .337** (.491) | .413** (.569) | .371** (.413) | .376** (.431) | .424** (.454) | .466** (.505) | |

**Correlation is significant at $p < .01$

NOTES: MN = Mean; SD = Standard Deviation; RL = Reliability; PBI = Parental Bonding Instrument; C = Care; OP = Overprotection; RSQ = Relationship Scales Questionnaire; S = Secure; D = Dismissing; F = Fearful; P = Preoccupied; OCI-R = Obsessive-Compulsive Inventory-Revised; PDSS-SR = Panic Disorder Severity Scale-Self Report; PSWQ = Penn State Worry Questionnaire; PCL-C = PTSD Checklist-Civilian Version; SIAS = Social Interaction Anxiety Scale

Table 3
Obsessive-Compulsive Subtypes: Means, Standard Deviations, Reliability and Correlation Coefficients (Disattenuated Correlation Coefficients in Parentheses)

| | MN | SD | RL | PBI (C) | PBI (OP) | RSQ (S) | RSQ (D) | RSQ (F) | RSQ (P) | OCI-R (Total) | PDSS-SR | PSWQ | PCL-C | SIAS |
|--------------------|------|------|-----|------------------|------------------|--------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
| OCI-R Hoarding | 1.22 | .999 | .65 | -.092 (-.121) | .136 (.191) | -.260** (-.496) | -.043 (-.071) | .172 (.299) | .293** (.481) | .537** (.713) | .288** (.394) | .353** (.451) | .355** (.459) | .357** (.458) |
| OCI-R Checking | .82 | .83 | .73 | .004 (.005) | .017 (.023) | -.278** (-.504) | .086 (.094) | .208** (.343) | .112 (.175) | .748** (.942) | .395** (.506) | .396** (.480) | .344** (.422) | .317** (.386) |
| OCI-R Ordering | 1.14 | 1.05 | .88 | .088 (.099) | -.006 (-.007) | -.231** (-.380) | .183** (.259) | .208** (.311) | .087 (.123) | .707** (.808) | .344** (.404) | .232** (.255) | .340** (.378) | .149 (.165) |
| OCI-R Neutralizing | .48 | .77 | .55 | -.125 (-.179) | .164 (.251) | -.253** (-.527) | .063 (.113) | .181 (.343) | .066 (.118) | .747** (1.081) | .346** (.516) | .282** (.393) | .359** (.506) | .159 (.223) |
| OCI-R Washing | .51 | .67 | .66 | -.051 (-.066) | .066 (.092) | -.193** (-.366) | .089 (.145) | .142 (.245) | .081 (.132) | .613** (.808) | .371** (.503) | .244** (.309) | .266** (.341) | .088 (.112) |
| OCI-R Obsessing | .93 | .96 | .79 | -.148 (-.176) | .145 (.185) | -.351** (-.608) | .075 (.112) | .329** (.519) | .290** (.432) | .741** (.892) | .501** (.621) | .410** (.475) | .444** (.520) | .367** (.427) |

**Correlation is significant at $p < .01$

NOTES: MN = Mean; SD = Standard Deviation; RL = Reliability; PBI = Parental Bonding Instrument; C = Care; OP = Overprotection; RSQ = Relationship Scales Questionnaire; S = Secure; D = Dismissing; F = Fearful; P = Preoccupied; OCI-R = Obsessive-Compulsive Inventory-Revised; PDSS-SR = Panic Disorder Severity Scale-Self Report; PSWQ = Penn State Worry Questionnaire; PCL-C = PTSD Checklist-Civilian Version; SIAS = Social Interaction Anxiety Scale

Tests of Hypotheses

Hypothesis #1

Attachment style, as indicated by the Relationship Scales Questionnaire, will be correlated with quality of early interactions with caregivers, as indicated by the Parental Bonding Instrument.

Hypothesis #1.A

Secure attachment style, as indicated by the Relationship Scales Questionnaire, will be positively correlated with the care dimension, and negatively correlated with the overprotection dimension, of the Parental Bonding Instrument.

This hypothesis was supported in both cases at the $p < .01$ level. The magnitudes of each observed correlation were small, while the magnitude of the disattenuated secure-care correlation was moderate.

Hypothesis #1.B

Insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

This hypothesis was supported at the $p < .01$ level in the case of fearful and preoccupied attachment styles and disconfirmed in the case of a dismissing attachment style. Again, the magnitudes of these correlation coefficients were small, except in the case of the disattenuated fearful-overprotection correlation, which reached the moderate range.

Hypothesis #2

Tendency toward specific types of anxiety will be correlated with attachment style, as indicated by the Relationship Scales Questionnaire.

Hypothesis #2.A

Tendency toward obsessive-compulsive symptoms, as determined by the Obsessive-Compulsive Inventory-Revised, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

The total score (OC total) for obsessive-compulsive symptoms and the scores for each of the obsessive-compulsive subtypes were negatively correlated ($p < .01$) with secure attachment style. This supports the first part of Hypothesis 2.A. With regard to the observed correlation coefficients, each is of small magnitude. However, when the values were disattenuated, the correlations for OC total-secure, hoarding-secure, checking-secure, neutralizing-secure, and obsessing-secure evidenced a moderate degree of magnitude.

The OC total was positively correlated ($p < .01$) with preoccupied and fearful attachment styles, further supporting Hypothesis 2.A. However, there was no significant correlation between total obsessive-compulsive symptoms and dismissing attachment style, disconfirming the section of Hypothesis 2.A which suggests a positive correlation between these variables. There was, however, a positive correlation ($p < .01$) between one obsessive-compulsive subtype (ordering) and dismissing attachment style. There also was a positive correlation ($p < .01$) between preoccupied attachment style and both the hoarding and the obsessing subtypes. In addition, there was a positive correlation ($p <$

.01) between fearful attachment style and the checking and obsessing subtypes. The magnitudes of all observed correlations were small, with the fearful-OC total and fearful-obsessing correlation coefficients falling at the high end of the range. However, when the correlations were disattenuated, the OC total-fearful, hoarding-preoccupied, obsessing-preoccupied and obsessing-fearful values reached moderate magnitudes.

Hypothesis #2.B

Tendency toward panic symptoms, as determined by the Panic Disorder Severity Scale-Self Report, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Although the magnitude of the observed correlation coefficient was small, panic symptoms were negatively correlated ($p < .01$) with secure attachment style, supporting the first part of Hypothesis 2.B. The magnitude was moderate for the disattenuated correlation coefficient for panic-secure. There was no significant correlation between panic symptoms and dismissing attachment style, which fails to support the part of Hypothesis 2.B predicting this correlation. However, there was a positive correlation ($p < .01$) between panic symptoms and both preoccupied attachment style and fearful attachment style. The disattenuated values for each of these correlations reached moderate magnitudes.

Hypothesis #2.C

Tendency toward generalized anxiety symptoms, as determined by the Penn State Worry Questionnaire, will be negatively correlated with secure attachment style, and

positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Generalized anxiety symptoms were negatively correlated ($p < .01$) with secure attachment, with a moderate magnitude for the disattenuated correlation coefficient. This finding supports the first part of Hypothesis 2.C. Generalized anxiety symptoms were positively correlated ($p < .01$) with fearful and preoccupied attachment styles, supporting further aspects of Hypothesis 2.C. However, generalized anxiety symptoms were not significantly correlated with dismissing attachment style, a finding which fails to support the prediction.

Hypothesis #2.D

Tendency toward post-trauma symptoms, as determined by the PTSD Checklist-Civilian Version, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Post-trauma symptoms were negatively correlated ($p < .01$) with secure attachment style, as predicted in Hypothesis 2.D. Post-trauma symptoms were positively correlated ($p < .01$) with both fearful and preoccupied attachment styles, also as predicted in the hypothesis. There was no significant correlation between post-trauma symptoms and dismissing attachment style. The post-trauma-fearful correlation coefficient was of a moderate magnitude for both the observed and the disattenuated coefficients. The post-trauma-secure correlation was of moderate magnitude after the disattenuation.

Hypothesis #2.E

Tendency toward social anxiety symptoms, as determined by the Social Interaction Anxiety Scale, will be negatively correlated with secure attachment style, and positively correlated with insecure attachment style (dismissing, fearful, preoccupied), as indicated by the Relationship Scales Questionnaire.

Symptoms of social anxiety were negatively correlated ($p < .01$) with secure attachment style, which supports the first part of Hypothesis 2.E. The disattenuated correlation coefficient is of high magnitude. Social anxiety symptoms were positively correlated ($p < .01$) with both fearful and preoccupied attachment styles. The social anxiety-preoccupied correlation coefficient was of a moderate magnitude. The disattenuated correlation for social anxiety-fearful was also of a moderate magnitude. These findings further support Hypothesis 2.E. There was no significant correlation between social anxiety symptoms and dismissing attachment style, a finding which does not support the latter part of the hypothesis.

Hypothesis #3

Tendency toward specific types of anxiety will be correlated with quality of early interactions with caregivers, as indicated by the Parental Bonding Instrument.

Hypothesis #3.A

Tendency toward obsessive-compulsive symptoms, as determined by the Obsessive-Compulsive Inventory-Revised, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

There was no significant correlation between the total score for obsessive-compulsive symptoms (OC total) and the care dimension of the Parental Bonding Instrument, a finding which does not support Hypothesis 2.A. There also was no significant correlation between OC total and the overprotection dimension, another result which fails to support the hypothesis. In addition, none of the OCI-R subscales was significantly correlated at an alpha level of $p < .01$ with either the care dimension or the overprotection dimension of the PBI.

Hypothesis #3.B

Tendency toward panic symptoms, as determined by the Panic Disorder Severity Scale-Self Report, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Panic symptoms were not significantly correlated with either the care dimension or the overprotection dimension of the Parental Bonding Instrument, a result unresponsive of Hypothesis 3.B.

Hypothesis #3.C

Tendency toward generalized anxiety symptoms, as determined by the Penn State Worry Questionnaire, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Generalized anxiety symptoms were not significantly correlated at an alpha level of $p < .01$ with either the care dimension or the overprotection dimension of the Parental Bonding Instrument. Therefore, Hypothesis 3.C was not supported.

Hypothesis #3.D

Tendency toward post-trauma symptoms, as determined by the PTSD Checklist-Civilian Version, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Post-trauma symptoms were negatively correlated ($p < .01$) with the care dimension and positively correlated ($p < .01$) with the overprotection dimension of the Parental Bonding Instrument, as predicted in Hypothesis 3.D. In each case, the magnitude of the correlation was small.

Hypothesis #3.E

Tendency toward social anxiety symptoms, as determined by the Social Interaction Anxiety Scale, will be negatively correlated with the care dimension, and positively correlated with the overprotection dimension of the Parental Bonding Instrument.

Social anxiety symptoms were negatively correlated ($p < .01$) with the care dimension and positively correlated ($p < .01$) with the overprotection dimension of the Parental Bonding Instrument, a finding which supports Hypothesis 3.E. The magnitudes of the correlations were small.

Conclusion

In this chapter, the reliability of scores and disattenuation of the correlation coefficients were explained, and the checking practices and response variation were noted. The scoring of the instruments and the restriction of range evident in the scores for the Panic Disorder Severity Scale-Self Report were discussed, and the choice of significance level and consideration of magnitude were explained. Finally, the

correlations obtained through analyses of the data collected were revealed and shown to either support or to fail to support the hypotheses.

CHAPTER FIVE

DISCUSSION

Overview of Chapter

The chapter begins with an interpretation of the correlation results described in the previous chapter, followed by the implications of these conclusions for the conceptualization and treatment of anxiety and anxiety disorders. Finally, limitations that became apparent during the implementation of the study are mentioned, and suggestions for further research are presented.

Interpretation of Significant Findings

The data gathered in the current study yielded a high number of significant correlations, many of which lend support to the proposed hypotheses. This section of the chapter considers the meaning of the correlations and how they contribute to answering each of the research questions.

Research Question #1

What is the relationship between attachment style and quality of early interactions with caregivers?

The finding that secure attachment is positively correlated with care and negatively correlated with overprotection seems intuitively reasonable. Since secure attachment results from an early environment that provides for the physical and emotional needs of an infant (Bowlby, 1988), it is logical that high care and low overprotection during childhood would result in a preference for a secure style in adult

intimate relationships. The development of secure attachment during childhood is mediated by the attachment figure who serves as a secure base (Bowlby). In order to develop a secure attachment, children need to fulfill their curiosities by exploring further and further away from the trusted caregiver, knowing always that the caregiver will be there for them when they return to be reassured, comforted, and nurtured (Bowlby). Low scores for care or high scores for overprotection would run counter to this concept.

Two of the insecure attachment styles, fearful and preoccupied, were negatively correlated with care and positively correlated with overprotection, another finding which is intuitively logical. However, there was no correlation between the third type of insecure attachment, dismissing, and the care and protection scales. Since insecure attachment is considered to result from an environment that does not support the optimal development of a child (Bowlby, 1988), it is interesting that only two of the insecure attachment preferences are correlated with less-than-optimal caregiving (lower care scores and higher overprotection scores).

A possible interpretation of this finding may be that individuals with a dismissing style of attachment failed to report less-than-optimal caregiving. For example, Bartholomew (1993) suggested that dismissing attachment is characterized by a denial of the need for close relationships. Perhaps participants with dismissing attachment styles did not report less-than-optimal caregiving because they did not feel close to their caregivers and therefore were not aware of their caregivers' deficits. In addition, George, Kaplan, and Main (1996) explained that individuals with a dismissing attachment state of mind often idealize their caregivers. It seems possible that the lack of correlation between

dismissing attachment style and early bonding memories could be related to a 'dismissal' of unpleasant memories.

Research Question #2

What is the relationship between tendency toward specific types of anxiety and attachment style?

The total score for obsessive-compulsive symptoms was negatively correlated with secure attachment style and positively correlated with fearful and preoccupied attachment styles. There was no correlation between obsessive-compulsive symptoms and dismissing attachment style. This is an interesting finding in that anxiety symptoms, including obsessive-compulsive symptoms, are sometimes considered to have a genetic component (Hettema, Neale, & Kendler, 2001). If genetics fully accounted for this type of anxiety symptom, one would expect that there would be no correlation with any attachment style, given that attachment style is environmentally mediated. Since three of the attachment styles did have a significant correlation with obsessive-compulsive symptoms, we can assume that environment does play some role, perhaps in conjunction with genetics, in the development of obsessive-compulsive symptoms.

In considering why there was no correlation between dismissing attachment style and obsessive-compulsive symptoms, it is helpful to refer again to George, Kaplan, and Main (1996). They explained that a dismissing attachment state of mind is associated with the idealization of caregivers and a lack of childhood memory. Perhaps the fact that dismissing attachment style did not correlate with obsessive-compulsive symptoms, whereas the other types of insecure attachment styles did correlate with this type of anxiety, indicates a 'forgetting' or 'dismissing' of symptoms, rather than an absence.

All obsessive-compulsive subtypes were negatively correlated with secure attachment style. This finding suggests that environment plays a role in the development of obsessive-compulsive symptoms. The checking, ordering, and obsessing subtypes were positively correlated with fearful attachment style. The hoarding and obsessing subtypes were positively correlated with preoccupied attachment style, and the ordering subtype was positively correlated with dismissing attachment style. It is noteworthy that there were more correlations between the obsessive-compulsive subtypes and fearful attachment than between the obsessive-compulsive subtypes and the other types of insecure attachment. The fearful attachment style described by Bartholomew (1993) indicates a negative view of both self and others. It is possible that this result points to a tendency where individuals with obsessive-compulsive symptoms have a negative, or fearful, view of themselves and others.

Panic symptoms were negatively correlated with secure attachment style, suggesting that early environment and attachment play a role in the later development of this type of anxiety. Since panic symptoms, like obsessive-compulsive symptoms are sometimes believed to have a genetic component (Hettema, Neale, & Kendler, 2001), it is important to acknowledge the significance of both nature and nurture to a more complete understanding of this type of anxiety. Panic symptoms were positively correlated with both fearful and preoccupied attachment styles, a result that supports the corresponding hypothesis, and suggests that early environment is important in the development of panic.

Interestingly, dismissing attachment again showed no correlation with anxiety symptoms, in this case panic. It is possible that the dismissing attachment style itself is genetically linked and therefore shows little correlation with the different types of

anxiety. Another interpretation might be that individuals with this preference are able to avoid conscious awareness of their own symptoms. George, Kaplan, and Main (1996) noted that dismissing attachment state of mind is associated with a lack of childhood memories. Perhaps study participants with dismissing attachment styles were able to 'forget' current symptoms, as well.

Generalized anxiety symptoms were negatively correlated with secure attachment style, suggesting that early environment and attachment may have an impact on the development of this type of anxiety. While both fearful and preoccupied attachment styles were positively correlated with generalized anxiety symptoms, dismissing attachment again showed no correlation. Likewise, social anxiety symptoms were negatively correlated with secure attachment and positively correlated with both fearful and preoccupied attachment styles. Dismissing attachment style was not correlated with social anxiety symptoms. Again, the pattern that emerged from the data indicates that secure, fearful, and preoccupied attachment styles are related to the presence or absence of anxiety, while the interaction between dismissing attachment style and anxiety development is less clear.

Post-trauma symptoms were negatively correlated with secure attachment and positively correlated with fearful and preoccupied attachment, granting still more credibility to an environmental role in the development of some types of anxiety. Dismissing attachment style, however, was not correlated with post-trauma symptoms at the $p < .01$ level. Individuals who have post-trauma symptoms resulting from early childhood trauma can become accustomed to these symptoms and accept them without conscience awareness of their presence. Perhaps the lack of correlation between

dismissing attachment style and post-trauma symptoms can be explained by this potential unawareness.

It may be that post-trauma symptoms should be considered differently than other types of anxiety since anxiety-inducing trauma may occur at any time in an individual's life. It was impossible to tell from the questionnaire used to measure post-trauma symptoms whether the trauma symptoms being reported were related to past or present trauma. The presence or absence of early childhood trauma within the family is likely to impact the attachment process. Additionally, individuals who experienced a secure childhood environment would possibly be 'inoculated' against some of the repercussions of a traumatic experience later in life. Individuals who did not experience a secure childhood environment may be more susceptible to post-trauma symptoms if trauma occurs later in life.

Research Question #3

What is the relationship between tendency toward specific types of anxiety and quality of early interactions with caregivers?

Overall, there was less correlation between memories of early bonding (both care and overprotection) and different types of anxiety than there was between attachment style and anxiety. The care dimension was not correlated with total obsessive-compulsive symptoms, panic symptoms, or generalized anxiety symptoms. However, care was negatively correlated with both post-trauma symptoms and social anxiety symptoms at an alpha level of $p < .01$. Likewise, the overprotection dimension was not correlated at the $p < .01$ level with total obsessive-compulsive symptoms, panic symptoms, or generalized

anxiety symptoms, but was positively correlated with post-trauma symptoms and social anxiety symptoms at $p < .01$.

These are interesting findings, especially given the large number of correlations seen between anxiety and attachment style. If one assumes that anxiety development is rooted to some degree in the early environment, it logically follows that care would be negatively correlated with anxiety and overprotection would be positively correlated with anxiety. This was the case for both post-trauma and social anxiety symptoms, but not for obsessive-compulsive, panic, or generalized anxiety symptoms. When considering possible reasons that some types of anxiety appear to be related to early caregiver relationships and others do not, it will be helpful to reflect on the specific sample of participants.

The mean participant age in this study was 19.85 years. It is reasonable to presume that many of these individuals were in their first year or two of living away from their families for the first time. It seems possible that circumstances such as these might provoke anxiety about meeting and developing relationships with new people (i.e. social anxiety) or even result in post-trauma symptoms. It is not clear why the other anxiety types are not correlated with care or overprotection, since it seems logical that all anxiety symptoms might increase in potentially anxiety-provoking situations. A possible explanation could be that the development of obsessive-compulsive, panic, and generalized anxiety symptoms may be less dependent upon early environment than is the development of post-trauma and social anxiety symptoms. This is to say that obsessive-compulsive, panic, and generalized anxiety symptoms may be more linked to genetics than are post-trauma or social anxiety symptoms. Obsessive-compulsive disorder, panic

disorder, and generalized anxiety disorder have been shown to have significant familial aggregation (Hettema, Neale, & Kendler, 2001).

In attempting to understand the data, another potential explanation for the lack of correlation between early bonding memories and obsessive-compulsive, panic, and generalized anxiety symptoms comes to mind. It is possible that people with obsessive-compulsive, panic, or generalized anxiety symptoms remembered fewer adverse early bonding experiences as a means of self-soothing during a difficult time. Even though these individuals did not report enough positive experiences to result in a positive care correlation or a negative overprotection correlation, they may have been attempting to calm (or neutralize) their anxiety by remembering their early experiences in a more favorable light.

Implications for Understanding and Treating Anxiety

Anxiety is a widespread concern that impacts people from all cultures and walks of life. Investigations into its origins and development may reveal findings that ultimately will enhance and broaden the array of available treatments, and thus improve quality of life for many individuals. The results of this study suggest several considerations for understanding anxiety more completely and for translating this deepened comprehension into more effective treatment options for individuals who seek positive therapeutic outcomes.

Treatment Consideration #1: Environment, Genetics, and Medication

Secure attachment was negatively correlated with all types of anxiety examined in this study. Although this seems intuitive, it is an important result because it suggests that there is an environmental component in anxiety development. If anxiety were solely a

result of genetic influences, there would be no correlation between attachment style, an environmentally mediated phenomenon, and the presence or absence of anxiety. It seems logical also, that if secure attachment is negatively correlated with all types of anxiety, then those same anxiety types would be positively correlated with insecure attachment. Interestingly, this is true only in the case of two types of insecure attachment, fearful and preoccupied, but not true in the case of dismissing attachment. This information can be used to provide better treatment of anxiety by addressing clinical concerns through the lens of client attachment style.

It bears saying that pharmacological treatments for anxiety are important and have provided relief for many sufferers. Still, in this era of managed care, it is perhaps overly convenient to prescribe medications that change brain chemistry as a means of improving quality of life. A practice like this might be justified in the presence of conditions that are biologically innate to the individual, that is to say, in the case of disorders that are a result of genetic inheritance. However, if the development of anxiety has roots in both environment and genetics, then it is imperative that both be considered in its treatment. Not to do so risks either failing to correct an inborn brain chemistry problem when one exists or dismissing a significant intra-familial difficulty that may be causing damage to anxious clients.

Since science has not yet completely unraveled the genetics of anxiety or the intricacies of familial environment, it is impossible to sort out thoroughly the contributions of either in the development of anxiety. It is possible that a deeper understanding of how our genes influence our thoughts and feelings will be forthcoming in the future, if research pinpoints important connections. In the meantime, attachment

theory and attachment research provide a way of conceptualizing and treating anxiety conditions that appear to have origins within the family. As a stabilizing agent, medications can complement treatment when anxiety is the presenting problem.

Treatment Consideration #2: Attachment Style

Fearful Attachment: Trust and Rapport

In this study, fearful and preoccupied attachment styles were positively correlated with every type of anxiety. According to Bartholomew (1993), individuals with a fearful style have a negative view of themselves and others. They would like to have close relationships, but often do not because of their fear of rejection (Bartholomew). In treating anxious clients with this attachment style, it is helpful to remember that trust may develop slowly in the therapeutic relationship, since therapists will likely be viewed in a negative light. These clients may need time to develop an attachment to their therapists, and to use them as a secure base from which to explore the world in a new, less anxious, way. Even for adult clients, a remediation of insecure attachment relationships from childhood can manifest within the therapeutic setting, resulting in a decrease of anxiety. Fearful clients have negative views of themselves (Bartholomew), and will require accurate reflection of their personal qualities and actions in the world. This will be a delicate task for therapists, as fearful clients attempt to trust the perceptions of a new 'attachment figure', and tolerate 'constructive criticism' as well as favorable feedback. Anxiety may wax and wane as clients reach out to trust their therapists and the world, now seen alternately through both old and new lenses.

Preoccupied Attachment: Emotion Regulation

Individuals with a preoccupied attachment style have a positive view of others and a negative view of self, and hope to find fulfillment and validation within their close relationships (Bartholomew, 1993). Preoccupied clients who come to therapy for anxiety conditions may be afraid their therapists also will see them in a negative way, and end up ‘abandoning’ them. These clients may have difficulty managing their emotional responses (Pistole, 1989). Understanding the preoccupied attachment style will help therapists respond to clients with empathic listening, rather than becoming frustrated by emotional behavior (Pistole). Not to maintain this professional stance would be a therapeutic ‘abandonment’, and risks increasing the anxiety clients are attempting to alleviate through the therapeutic process.

Dismissing Attachment: Client Self-Awareness

As is evident in the current study, people with a dismissing attachment style either have less anxiety than those with other types of insecure attachment, or they fail to report their anxiety. If these individuals are failing to report their anxiety, it seems likely that this is a result of a lack of awareness of their anxiety rather than an intentional deception. According to Bartholomew (1993), those with dismissing attachment styles have a positive view of self and a negative view of others, and deny a desire or need for closeness or intimacy. Therapists who work with clients with dismissing attachment styles should understand that the clients will be mistrustful and see them in a negative light. Therapists will have to confront their clients’ dismissal of important relationships (including the therapeutic relationship) and the denial of emotions like anxiety (Pistole, 1989). The process of gaining trust and helping clients develop a conscious awareness of

their anxiety may be a lengthy one. Therapists also will need to provide an emotionally safe environment (a secure base) for their clients, even when clients behave in angry ways (Pistole). To do otherwise could be damaging to clients and increase, rather than relieve, anxiety.

Whereas fearful and preoccupied attachment styles were negatively correlated with the care dimension and positively correlated with the overprotection dimension of the Parental Bonding Instrument, a dismissing attachment style showed no correlation with early bonding memories in this study. As discussed earlier, this finding may suggest that individuals with dismissing attachment styles ‘dismiss’ or deny unpleasant memories from childhood. In this regard, clients with a dismissing attachment style require a great deal of therapeutic skill. Bringing to consciousness anxiety that has been hidden is a formidable task for therapists, but worth the effort, not only for clients, but for those who are close to them. As anxious clients with a dismissing attachment style begin to see their therapists in a more positive light and develop awareness of their own feeling states, establishing intimate relationships will be possible. In addition, dismissing clients who begin to tolerate their anxiety will be less likely to project that anxiety onto others, a process that is often harmful to relationships and impedes intimacy.

Secure Attachment: Acute versus Chronic Symptoms

Individuals with secure attachment styles have a positive view of themselves and of others, and value both autonomy and closeness in relationships (Bartholomew, 1993). As is apparent in the current study, secure attachment and anxiety are negatively correlated. Participants who reported secure attachment reported less anxiety than those who reported fearful or preoccupied attachment. When individuals with secure

attachment experience anxiety, it may be due to recent trauma, rather than to long-term pathology. It is important to understand this so that clients with secure attachment are not kept in therapy longer than necessary or subjected to attempts to unearth early difficulties that do not exist. Secure clients, who see others in a positive light (Bartholomew), will expect their therapists to be there for them emotionally and to provide appropriate therapeutic care. The therapists' task in this case is to help their clients traverse their current obstacles and regain effectual functioning (Pistole, 1989).

Treatment Consideration #3: Individualization of Treatment

The negative correlation between the care dimension of early bonding memories and post-trauma and social anxiety symptoms, and the positive correlation between the overprotection dimension and these same types of anxiety may have relevance for individualizing anxiety treatment. If obsessive-compulsive, panic, and generalized anxiety symptoms, which did not correlate with early bonding memories, have fewer roots in family environment, then the use of medications to control these conditions could be particularly appropriate in conjunction with therapeutic involvement. There may be an as yet undiscovered mechanism in which genes and environment interact to result in specific types of anxiety. Treatment may be made more efficacious by combining therapy and medication in an effort to address all possible etiologies.

Post-trauma and social anxiety symptoms, however, are correlated with memories of early bonding. This correlation may indicate a relationship between these types of anxiety and the early environment that does not exist for the other types of anxiety. As mentioned previously, post-trauma and social anxiety symptoms may be more prevalent among individuals living away from their families of origin for the first time. It is

possible that these individuals will seek therapy for their symptoms. Understanding that post-trauma and social anxiety symptoms can be related to a less-than-optimal early environment, triggered by the uncertainties of being away from home, could result in treatment that is more appropriate to their situations. Whereas medication could be appropriate for some individuals contending with these circumstances, it may in many instances be therapeutic to approach the treatment from an attachment perspective.

Limitations in Data Collection

In addition to the anticipated limitations described in Chapter 3, two other potentially restricting factors became evident during the course of tabulating the data. First, several of the questionnaires administered incorporated reverse-scored items. During the initial hand-tabulation of the questionnaires, it became apparent that some participants probably did not read the reverse-scored items carefully and consequently, rated the items in a manner opposite to what most likely was intended. This potential limitation was most perceptible when the majority of the normally-scored items on a particular questionnaire were rated at one end of the scale and the reverse-scored items were all rated at the other end of the scale.

A second potential limitation in the data collection procedures involves the formatting of the Relationship Scales Questionnaire and the Parental Bonding Instrument. These instruments were too long to be completely presented on one page, so each was presented in a two-page format. In neither case did the second page include the rating anchors (i.e. a little like me, moderately like me, very much like me) above the rating columns. Observation during the initial hand-tabulation revealed that this may have been confusing to participants, who may not have remembered which anchor referred to which

score after turning to the second page. Since participant responses on the first page did not always seem consistent with responses on the second page, it is possible that some individuals did not remember the anchors when they turned to the second page. Future studies using these questionnaires should take this concern into account and include anchor descriptions on all pages with rating columns.

Suggestions for Future Study

Anxiety is an emotion that impacts most human beings at some point in the course of their lives. For a proportion of these individuals, anxiety becomes severe enough to interfere with relationships and daily living, and to warrant treatment. For this reason, ongoing investigations into the origins and maintenance of anxiety are important to the emotional evolution and well-being of humanity. It seems likely that both environmental and genetic contributions will ultimately be found as factors in the puzzle of why some people develop particular types of anxiety while others remain relatively free of this potentially debilitating emotion. Deeper understanding of anxiety development will require inquiry into the contributions of both nature and nurture, and each area of research is equally important.

An initial direction for continued investigation is the replication of this study with clinical samples. Although there were many positive reasons to use undergraduate psychology student participants, one drawback was the lesser degree of anxiety present among these individuals. While many study participants did report high anxiety levels, it is likely that a sample of individuals previously diagnosed with anxiety disorders would report much more anxiety. This is important because higher levels of reported anxiety might reveal a greater degree of magnitude in the correlations, or even change the nature

of the correlations. Since individuals with clinical levels of anxiety are most likely to benefit from research that supports specific anxiety treatment techniques, it is logical to focus study on that group.

In investigating anxiety and attachment in a clinical population, it may be useful to include a control group of non-anxious individuals as a comparison. In addition to administering the questionnaires to the control group, it would be informative to give the assessments to individuals diagnosed with specific anxiety disorders, rather than to one large sample of anxious individuals. Depending upon the availability of individuals diagnosed with specific anxiety disorders, it may be most efficient to study one or two types of anxiety at a time. In this way, research may be focused on differences evidenced between the attachment style and bonding memories of individuals with specific anxiety disorders and the attachment style and bonding memories of individuals who have not been diagnosed clinically. It will be useful eventually, to study each of the anxiety disorders in ongoing research of this sort.

The dismissing attachment style also merits future study. Unlike the other forms of insecure attachment, dismissing attachment was not correlated with early bonding memories or with anxiety (other than one positive correlation with the obsessive-compulsive ordering subtype). Since it is intuitively reasonable to expect that all the insecure attachment styles would be positively correlated with anxiety and with unpleasant bonding memories, further research is warranted to ferret out the intricacies of why this expectation was not apparent in the current investigation.

Since all the assessment tools utilized in this research were self-report measures, the correlations observed may be less meaningful than had it been possible to incorporate

a different type of measure. For example, the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996) provides a method for assessing attachment state of mind through unconscious processes. In the AAI, attachment state of mind is determined by the manner in which participants answer the interview questions, rather than by the content of the interview itself. A study using a method such as the AAI to assess attachment through unconscious processes may provide an enhanced understanding of the dismissing paradigm.

Another area in which research must focus, and a necessary precursor to understanding anxiety more completely, is the relationship between the early environment and genetics, and how each contributes to anxiety development. Although many correlations between anxiety, attachment style, and bonding memories were found in this study, the lack of correlation in some instances may provide clues to the link between nature and nurture. For example, it is possible that the lack of correlation between dismissing attachment style and all types of anxiety, or between dismissing attachment style and early bonding memories may be a result of either environment or genetics.

People with a dismissing attachment style may have learned to dismiss important relationships as an adaptation to a difficult early environment (Bartholomew, 1993). Indeed, this is the explanation that attachment theory provides. However, it also is feasible that people with a dismissing attachment style are genetically predisposed to experience a lower level of the physiological reactivity that is often present alongside anxiety. Perhaps these individuals do not report significant levels of unpleasant early bonding memories because they do not experience unpleasantness in the same way as do

people with secure, fearful, or preoccupied attachment styles. In unraveling the connections between environment and genetics in the development of anxiety, it may be necessary to consider nature and nurture together, as two sides of one coin, with the potential to interact and influence each other.

Study of attachment and anxiety also should be extended to anxious multicultural samples. It is conceivable that there are differences in anxiety development and in the ways that individuals from different cultural backgrounds experience anxiety. For example, individuals may leave their countries and cultures of origin to relocate to the United States. Change of this magnitude, which is likely to be stressful and anxiety provoking under the best of circumstances, may even be traumatic when conditions are less than ideal. Although there are many factors which probably come into play to impact the ease with which immigrants adapt to new environments, it will be informative to understand the role of attachment and early bonding relationships. Attachment research with this population ultimately may provide information to support individuals, families, and children who transition from their original culture into a new one.

Conclusion

This chapter presented possible explanations for the significant findings that resulted from the data analyses. The relevance of these findings for conceptualizing anxiety and working with anxious individuals was explored, resulting in several treatment considerations. In addition, two limitations which became evident during the data collection were mentioned, and potential directions for the future study of attachment and anxiety were suggested.

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APPENDICES

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APPENDIX A

CONSENT TO PARTICIPATE IN RESEARCH

○ **INTRODUCTION**

You are invited to participate in a research study conducted by Ellen Armbruster, M.A., from the Counselor Education Program in the Division of Individual, Family, and Community Education at the University of New Mexico. The results of this study will contribute to the completion of a dissertation. You were identified as a possible volunteer in the study because you are an undergraduate Psychology student at UNM.

○ **PURPOSE OF THE STUDY**

This study is designed to assess the relationships between the five major types of anxiety, adult attachment style, and parental bonding. The research is intended to augment our understanding of the role played by family processes in the development of anxiety disorders, with the goal of improving treatment options.

○ **PROCEDURES AND ACTIVITIES**

You will be asked to complete a demographic questionnaire and several self-report measures regarding anxiety, attachment, and memories of early bonding experiences. These questionnaires are designed to assess your level of different types of anxiety, to evaluate your present style of being in close relationships, and to examine your early memories of relationships with caregivers. You will be asked to rate your responses on 4- or 5-point scales. Some examples of items you will be asked to rate on a scale of 4 or 5 are:

I find it difficult to depend on other people.

My primary caregiver spoke to me in a warm and friendly voice.

I have saved up so many things that they get in the way.

If you had any panic attacks during the past week, how distressing were they while they were happening?

If I don't have enough time to do everything, I don't worry about it.

In the past month, how much have you been bothered by repeated, disturbing memories, thoughts, or images of a stressful experience from the past?

I get nervous if I have to speak with someone in authority (teacher, boss).

Please consider the questions carefully and answer as thoughtfully and completely as possible. There are 8 questionnaires in all and each one will take approximately 5 to 10 minutes to complete. The total amount of time you spend participating in this study will be approximately 1.5 hours. In exchange for your participation in this study, you will receive 2 credits toward completion of your undergraduate Psychology class.

- **POTENTIAL RISKS AND DISCOMFORTS**

You may experience feelings of discomfort during the process of completing the questionnaires. As you reflect upon current anxiety and your early experiences with caregivers, previously unrecalled memories may surface and result in mild upset. This upset could include feelings of sadness, fear, anxiety, anger, or any other type of feeling, whether or not you have had this feeling previously. It is possible that this may occur during your participation in the research or some time after you have finished participating. If you do experience difficult feelings during or subsequent to participation in this study, it is recommended that you contact a mental health agency. Mental health organizations available on the UNM campus are:

Agora Crisis Center
1716 Las Lomas
Albuquerque, NM 87131
(505) 277-3013
(24-hr hotline most of the time; appointments available 9-5 M-F)

Counseling and Therapy Services
UNM Student Health Center
1 University of New Mexico
MSC06 3870
Albuquerque, NM 87131
(505) 277-4537

- **POTENTIAL BENEFITS TO PARTICIPANTS AND OR SOCIETY**

It is not expected that you will benefit directly from your participation in this research. However, for some individuals, reflection on early experience may enhance self-knowledge and encourage personal growth. The potential benefit to society includes the possibility of generating knowledge that will lead to increased understanding of anxiety development and improvement of treatment options for individuals diagnosed with anxiety disorders.

- **CONFIDENTIALITY**

Any information obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. All data will be identified by number only. During data processing, all data collected during this study will remain either in the direct possession of the researcher or in a locked filing cabinet. When data processing has been completed, the data will be stored in a locked filing cabinet for no more than five years, at which time the data will be shredded.

○ **PARTICIPATION AND WITHDRAWAL**

You can choose whether to participate in this study or not. If you volunteer to participate, you may withdraw at any time without penalty or loss of benefits to which you might otherwise be entitled (other than forfeiting the two credits). In order to receive the two credit incentive, you must complete all questionnaires. However, you may refuse to answer any questions you do not want to answer and still remain in the study.

○ **IDENTIFICATION OF INVESTIGATORS AND REVIEW BOARD**

If you have any questions or concerns about the research, please feel free to contact:

Ellen Armbruster, M.A.
1 Ladera Place
Santa Fe, NM 87508
(505) 466-1991

David Olguin, Ph.D.
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1717 Roma NE, Room 205
Albuquerque, NM 87131
(505) 277-2257
(866) 844-9018

○ **SIGNATURE OF RESEARCH PARTICIPANT**

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been provided a copy of this form.

Name of Participant (Please Print)

Signature of Participant

Date

○ **SIGNATURE OF THE INVESTIGATOR**

In my judgment, the participant is voluntarily and knowingly providing informed consent and possesses the legal capacity to give informed consent to participate in this research study.

Name of Investigator (Please Print)

Signature of Investigator

Date

APPENDIX B

PARENTAL CONSENT TO PARTICIPATE IN RESEARCH

○ **INTRODUCTION**

Your child is invited to participate in a research study conducted by Ellen Armbruster, M.A., from the Counselor Education Program in the Division of Individual, Family, and Community Education at the University of New Mexico. The results of this study will contribute to the completion of a dissertation. Your child was identified as a possible volunteer in the study because she/he is an undergraduate Psychology student at UNM.

○ **PURPOSE OF THE STUDY**

This study is designed to assess the relationships between the five major types of anxiety, adult attachment style, and parental bonding. The research is intended to augment our understanding of the role played by family processes in the development of anxiety disorders, with the goal of improving treatment options.

○ **PROCEDURES AND ACTIVITIES**

Your child will be asked to complete a demographic questionnaire and several self-report measures regarding anxiety, attachment, and memories of early bonding experiences. These questionnaires are designed to assess your child's level of different types of anxiety, to evaluate your child's present style of being in close relationships, and to examine your child's early memories of relationships with caregivers. Your child will be asked to rate his/her responses on 4- or 5-point scales. Some examples of items your child will be asked to rate on a scale of 4 or 5 are:

I find it difficult to depend on other people.

My primary caregiver spoke to me in a warm and friendly voice.

I have saved up so many things that they get in the way.

If you had any panic attacks during the past week, how distressing were they while they were happening?

If I don't have enough time to do everything, I don't worry about it.

In the past month, how much have you been bothered by repeated, disturbing memories, thoughts, or images of a stressful experience from the past?

I get nervous if I have to speak with someone in authority (teacher, boss).

Your child will be asked to consider the questions carefully and answer as thoughtfully and completely as possible. There are 8 questionnaires in all and each one will take approximately 5 to 10 minutes to complete. The total amount of time your child spends participating in this study will be approximately 1.5 hours. In exchange for your child's participation in this study, she/he will receive 2 credits toward completion of his/her undergraduate Psychology class.

- **POTENTIAL RISKS AND DISCOMFORTS**

Your child may experience feelings of discomfort during the process of completing the questionnaires. As your child reflects upon current anxiety and his/her early experiences with caregivers, previously unrecalled memories may surface and result in mild upset. This upset could include feelings of sadness, fear, anxiety, anger, or any other type of feeling, whether or not your child has had this feeling previously. It is possible that this may occur during your child's participation in the research or some time after your child has finished participating. If your child does experience difficult feelings during or subsequent to participation in this study, it is recommended that your child contact a mental health agency. Mental health organizations available on the UNM campus are:

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- **POTENTIAL BENEFITS TO PARTICIPANTS AND OR SOCIETY**

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- **CONFIDENTIALITY**

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○ **PARTICIPATION AND WITHDRAWAL**

Your child can choose whether to participate in this study or not. If your child volunteers to participate, he/she may withdraw at any time without penalty or loss of benefits to which she/he might otherwise be entitled (other than forfeiting the two credits). In order to receive the two credit incentive, your child must complete all questionnaires. However, your child may refuse to answer any questions he/she does not want to answer and still remain in the study.

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If you or your child have any questions or concerns about the research, please feel free to contact:

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(505) 277-2257
(866) 844-9018

○ **SIGNATURE OF RESEARCH PARTICIPANT**

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to allow my child to participate in this study. I have been provided a copy of this form.

Name of Participant (Please Print)

Signature of Participant's Parent

Date

○ **SIGNATURE OF THE INVESTIGATOR**

In my judgment, the participant is voluntarily and knowingly providing informed consent and possesses the legal capacity to give informed consent to participate in this research study.

Name of Investigator (Please Print)

Signature of Investigator

Date

APPENDIX C

ASSENT TO PARTICIPATE IN RESEARCH

○ **INTRODUCTION**

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Name of Participant (Please Print)

Signature of Participant

Date

○ **SIGNATURE OF THE INVESTIGATOR**

In my judgment, the participant is voluntarily and knowingly providing informed consent and possesses the legal capacity to give informed consent to participate in this research study.

Name of Investigator (Please Print)

Signature of Investigator

Date

APPENDIX D**DEMOGRAPHIC INFORMATION QUESTIONNAIRE**

Please provide the following information:

Age (write in):

Sex (write in):

Race/Ethnicity (circle one):

African American Asian Native American Pacific Islander
Caucasian Latino/Hispanic

If none of the above describes you, list race/ethnicity here:

Number of siblings who lived in childhood household, including self (write in):

Birth order (circle one):

Oldest Child 2nd Child 3rd Child 4th Child Youngest Child
Only Child

If none of the above describes you, list birth order here:

Highest level of education completed (circle one):

High School Some College Bachelor's Master's Ph.D.
GED

If none of the above describes you, list education level here:

Marital/Partner status (circle one):

Married Live-in Relationship Divorced Single Widowed

If none of the above describes you, list partner status here:

APPENDIX E

RELATIONSHIP SCALES QUESTIONNAIRE

Please read each of the following statements and rate the extent to which you believe each statement best describes your feelings about close relationships.

| What is the extent to which each of the following statements describes your feelings about close relationships? | Not at all like me | | Somewhat like me | | Very much like me |
|---|--------------------|---|------------------|---|-------------------|
| 1. I find it difficult to depend on other people. | 0 | 1 | 2 | 3 | 4 |
| 2. It is very important to me to feel independent. | 0 | 1 | 2 | 3 | 4 |
| 3. I find it easy to get emotionally close to others. | 0 | 1 | 2 | 3 | 4 |
| 4. I want to merge completely with another person. | 0 | 1 | 2 | 3 | 4 |
| 5. I worry that I will be hurt if I allow myself to become too close to others. | 0 | 1 | 2 | 3 | 4 |
| 6. I am comfortable without close emotional relationships. | 0 | 1 | 2 | 3 | 4 |
| 7. I am not sure that I can always depend on others to be there when I need them. | 0 | 1 | 2 | 3 | 4 |
| 8. I want to be completely emotionally intimate with others. | 0 | 1 | 2 | 3 | 4 |
| 9. I worry about being alone. | 0 | 1 | 2 | 3 | 4 |
| 10. I am comfortable depending on other people. | 0 | 1 | 2 | 3 | 4 |
| 11. I often worry that romantic partners don't really love me. | 0 | 1 | 2 | 3 | 4 |
| 12. I find it difficult to trust others completely. | 0 | 1 | 2 | 3 | 4 |
| 13. I worry about others getting too close to me. | 0 | 1 | 2 | 3 | 4 |
| 14. I want emotionally close relationships. | 0 | 1 | 2 | 3 | 4 |
| 15. I am comfortable having other people depend on me. | 0 | 1 | 2 | 3 | 4 |
| 16. I worry that others don't value me as much as I value them. | 0 | 1 | 2 | 3 | 4 |

| | | | | | |
|---|---|---|---|---|---|
| 17. People are never there when you need them. | 0 | 1 | 2 | 3 | 4 |
| 18. My desire to merge completely sometimes scares people away. | 0 | 1 | 2 | 3 | 4 |
| 19. It is very important to me to feel self-sufficient. | 0 | 1 | 2 | 3 | 4 |
| 20. I am nervous when anyone gets too close to me. | 0 | 1 | 2 | 3 | 4 |
| 21. I often worry that romantic partners won't want to stay with me. | 0 | 1 | 2 | 3 | 4 |
| 22. I prefer not to have other people depend on me. | 0 | 1 | 2 | 3 | 4 |
| 23. I worry about being abandoned. | 0 | 1 | 2 | 3 | 4 |
| 24. I am uncomfortable being close to others. | 0 | 1 | 2 | 3 | 4 |
| 25. I find that others are reluctant to get as close as I would like. | 0 | 1 | 2 | 3 | 4 |
| 26. I prefer not to depend on others. | 0 | 1 | 2 | 3 | 4 |
| 27. I know that others will be there when I need them. | 0 | 1 | 2 | 3 | 4 |
| 28. I worry about having others not accept me. | 0 | 1 | 2 | 3 | 4 |
| 29. Romantic partners often want me to be closer than I feel comfortable being. | 0 | 1 | 2 | 3 | 4 |
| 30. I find it relatively easy to get close to others. | 0 | 1 | 2 | 3 | 4 |

APPENDIX F

PARENTAL BONDING INSTRUMENT

This questionnaire lists various attitudes and behaviors of primary caregivers. As you remember your **PRIMARY CAREGIVER** in your first 16 years, please circle the number which best describes that person.

| As you remember your primary caregiver in your first 16 years, please read the following statements and circle the number which best describes that person. | Very unlike | Moderately unlike | Moderately like | Very like |
|---|-------------|-------------------|-----------------|-----------|
| MY PRIMARY CAREGIVER: | | | | |
| 1. Spoke to me in a warm and friendly voice. | 0 | 1 | 2 | 3 |
| 2. Did not help me as much as I needed. | 0 | 1 | 2 | 3 |
| 3. Let me do those things I liked doing. | 0 | 1 | 2 | 3 |
| 4. Seemed emotionally cold to me. | 0 | 1 | 2 | 3 |
| 5. Appeared to understand my problems and worries. | 0 | 1 | 2 | 3 |
| 6. Was affectionate to me. | 0 | 1 | 2 | 3 |
| 7. Liked me to make my own decisions. | 0 | 1 | 2 | 3 |
| 8. Did not want me to grow up. | 0 | 1 | 2 | 3 |
| 9. Tried to control everything I did. | 0 | 1 | 2 | 3 |
| 10. Invaded my privacy. | 0 | 1 | 2 | 3 |
| 11. Enjoyed talking things over with me. | 0 | 1 | 2 | 3 |
| 12. Frequently smiled at me. | 0 | 1 | 2 | 3 |
| 13. Tended to baby me. | 0 | 1 | 2 | 3 |
| 14. Did not seem to understand what I needed or wanted. | 0 | 1 | 2 | 3 |
| 15. Let me decide things for myself. | 0 | 1 | 2 | 3 |
| 16. Made me feel I wasn't wanted. | 0 | 1 | 2 | 3 |

| | | | | |
|---|---|---|---|---|
| 17. Could make me feel better when I was upset. | 0 | 1 | 2 | 3 |
| 18. Did not talk with me very much. | 0 | 1 | 2 | 3 |
| 19. Tried to make me feel dependent on him or her. | 0 | 1 | 2 | 3 |
| 20. Felt I could not look after myself unless he or she was around. | 0 | 1 | 2 | 3 |
| 21. Gave me as much freedom as I wanted. | 0 | 1 | 2 | 3 |
| 22. Let me go out as often as I wanted. | 0 | 1 | 2 | 3 |
| 23. Was overprotective of me. | 0 | 1 | 2 | 3 |
| 24. Did not praise me. | 0 | 1 | 2 | 3 |
| 25. Let me dress in any way I pleased. | 0 | 1 | 2 | 3 |

APPENDIX G

OBSESSIVE COMPULSIVE INVENTORY-REVISED

The following statements refer to experiences that many people have in their everyday lives. Circle the number that best describes **HOW MUCH** that experience has **DISTRESSED** or **BOTHERED** you during the **PAST MONTH**.

| How much has each of the following experiences distressed or bothered you during the past month? | Not at all | A little | Moderately | A lot | Extremely |
|---|------------|----------|------------|-------|-----------|
| 1. I have saved up so many things that they get in the way. | 0 | 1 | 2 | 3 | 4 |
| 2. I check things more often than necessary. | 0 | 1 | 2 | 3 | 4 |
| 3. I get upset if objects are not arranged properly. | 0 | 1 | 2 | 3 | 4 |
| 4. I feel compelled to count while I am doing things. | 0 | 1 | 2 | 3 | 4 |
| 5. I find it difficult to touch an object when I know it has been touched by strangers or certain people. | 0 | 1 | 2 | 3 | 4 |
| 6. I find it difficult to control my own thoughts. | 0 | 1 | 2 | 3 | 4 |
| 7. I collect things I don't need. | 0 | 1 | 2 | 3 | 4 |
| 8. I repeatedly check doors, windows, drawers, etc. | 0 | 1 | 2 | 3 | 4 |
| 9. I get upset if others change the way I have arranged things. | 0 | 1 | 2 | 3 | 4 |
| 10. I feel I have to repeat certain numbers. | 0 | 1 | 2 | 3 | 4 |
| 11. I sometimes have to wash or clean myself simply because I feel contaminated. | 0 | 1 | 2 | 3 | 4 |
| 12. I am upset by unpleasant thoughts that come into my mind against my will. | 0 | 1 | 2 | 3 | 4 |
| 13. I avoid throwing things away because I am afraid I might need them later. | 0 | 1 | 2 | 3 | 4 |
| 14. I repeatedly check gas and water taps and light switches after turning them off. | 0 | 1 | 2 | 3 | 4 |
| 15. I need things to be arranged in a particular order. | 0 | 1 | 2 | 3 | 4 |
| 16. I feel there are good and bad numbers. | 0 | 1 | 2 | 3 | 4 |
| 17. I wash my hands more often and longer than necessary. | 0 | 1 | 2 | 3 | 4 |
| 18. I frequently get nasty thoughts and have difficulty in getting rid of them. | 0 | 1 | 2 | 3 | 4 |

APPENDIX H

PANIC DISORDER SEVERITY SCALE-SELF REPORT

Several of the following questions refer to panic attacks and limited symptom attacks. For this questionnaire, a panic attack is defined as a sudden rush of fear or discomfort accompanied by at least 4 of the symptoms listed below. In order to qualify as a sudden rush, the symptoms must peak within 10 minutes. Episodes like panic attacks but having fewer than 4 of the listed symptoms are called limited symptom attacks. Here are the symptoms to count:

- Rapid or pounding heartbeat
- Sweating
- Trembling or shaking
- Breathlessness
- Feeling of choking
- Chest pain or discomfort
- Nausea
- Dizziness or faintness
- Feelings of unreality
- Numbness or tingling
- Chills or hot flashes
- Fear of losing control or going crazy
- Fear of dying

For each of the following questions, please circle the number of the answer that best describes your experience during the past week.

1. How many panic and limited symptom attacks did you have during the past week?

- 0 – No panic or limited symptom episodes.
- 1 – Mild: no full panic attacks and no more than 1 limited symptom attack per day.
- 2 – Moderate: 1 or 2 full panic attacks and or multiple limited symptom attacks per day.
- 3 – Severe: more than 2 full attacks but not more than 1 per day on average.
- 4 – Extreme: full panic attacks occurred more than once a day, more days than not.

2. If you had any panic attacks during the past week, how distressing (uncomfortable, frightening) were they while they were happening? (If you had more than one, give an average rating. If you didn't have any panic attacks but did have limited symptom attacks, answer for the limited symptom attacks.)

- 0 – Not at all distressing, or no panic or limited symptom attacks during the past week.
- 1 – Mildly distressing (not too intense).
- 2 – Moderately distressing (intense, but still manageable).
- 3 – Severely distressing (very intense).
- 4 – Extremely distressing (extreme distress during all attacks).

3. During the past week, how much have you worried or felt anxious about when your next panic attack would occur, or about fears related to the attacks (for example, that they could mean you have physical or mental health problems or could cause you social embarrassment)?

- 0 – Not at all.
- 1 – Occasionally or only mildly.
- 2 – Frequently or moderately.
- 3 – Very often or to a very disturbing degree.
- 4 – Nearly constantly and to a disabling extent.

4. During the past week, were there any places or situations (e.g., public transportation, movie theaters, crowds, bridges, tunnels, shopping malls, being alone) you avoided, or felt afraid of (uncomfortable in, wanted to avoid or leave), because of fear of having a panic attack? Are there any other situations that you would have avoided or been afraid of if they had come up during the week, for the same reason? If yes to either question, please rate your level of fear and avoidance this past week.

- 0 – None: no fear or avoidance.
- 1 – Mild: occasional fear and or avoidance, but I could usually confront or endure the situation. There was little or no modification of my lifestyle due to this.
- 2 – Moderate: noticeable fear and or avoidance, but still manageable. I avoided some situations but I could confront them with a companion. There was some modification of my lifestyle because of this, but my overall functioning was not impaired.
- 3 – Severe: extensive avoidance. Substantial modification of my life style was required to accommodate the avoidance, making it difficult to manage usual activities.
- 4 – Extreme: pervasive disabling fear and or avoidance. Extensive modification in my lifestyle was required, such that important tasks were not performed.

5. During the past week, were there any activities (e.g., physical exertion, sexual relations, taking a hot shower or bath, drinking coffee, watching an exciting or scary movie) that you avoided, or felt afraid of (uncomfortable doing, wanted to avoid or stop), because they caused physical sensations like those you feel during panic attacks or that you were afraid might trigger a panic attack? Are there any other activities that you would have avoided or been afraid of if they had come up during the week, for that reason? If yes to either question, please rate your level of fear and avoidance of those activities this past week.

- 0 – No fear or avoidance of situations or activities because of distressing physical sensations.
- 1 – Mild: occasional fear and or avoidance, but usually I could confront or endure with little distress activities that cause physical sensations. There was little modification of my lifestyle due to this.
- 2 – Moderate: noticeable avoidance, but still manageable. There was definite, but limited, modification of my lifestyle, such that my overall functioning was not impaired.
- 3 – Severe: extensive avoidance. There was substantial modification of my lifestyle or interference in my functioning.
- 4 – Extreme: pervasive and disabling avoidance. There was extensive modification in my lifestyle due to this, such that important tasks or activities were not performed.

6. During the past week, how much did the above symptoms altogether (panic and limited symptom attacks, worry about attacks, and fear of situations and activities because of attacks), interfere with your ability to work or carry out your responsibilities at home? (If your work or home responsibilities were less than usual this past week, answer how you think you would have done if the responsibilities had been usual.)

- 0 – No interference with work or home responsibilities.
- 1 – Slight interference with work or home responsibilities, but I could do nearly everything I could if I didn't have these problems.
- 2 – Significant interference with work or home responsibilities, but I still could manage to do the things I needed to do.
- 3 – Substantial impairment in work or home responsibilities, but I still could manage to do the things I needed to do.
- 4 – Extreme, incapacitating impairment, such that I was essentially unable to manage any work or home responsibilities.

7. During the past week, how much did panic and limited symptom attacks, worry about attacks, and fear of situations and activities because of attacks, interfere with your social life? (If you didn't have many opportunities to socialize this past week, answer how you think you would have done if you did have opportunities.)

- 0 – No interference.
- 1 – Slight interference with social activities, but I could do nearly everything I could if I didn't have these problems.
- 2 – Significant interference with social activities, but I could manage to do most things if I made the effort.
- 3 – Substantial impairment in social activities; there are many social things I couldn't do because of these problems.
- 4 – Extreme, incapacitating impairment, such that there was hardly anything social I could do.

APPENDIX I

PENN STATE WORRY QUESTIONNAIRE

Please circle the number that best describes how typical or characteristic each item is of you.

| How typical or characteristic of you is each of the following items? | Not at all typical | 1 | Somewhat typical | 3 | Very typical |
|---|--------------------|---|------------------|---|--------------|
| 1. If I don't have enough time to do everything I don't worry about it. | 0 | 1 | 2 | 3 | 4 |
| 2. My worries overwhelm me. | 0 | 1 | 2 | 3 | 4 |
| 3. I don't tend to worry about things. | 0 | 1 | 2 | 3 | 4 |
| 4. Many situations make me worry. | 0 | 1 | 2 | 3 | 4 |
| 5. I know I shouldn't worry about things, but I just can't help it. | 0 | 1 | 2 | 3 | 4 |
| 6. When I am under pressure I worry a lot. | 0 | 1 | 2 | 3 | 4 |
| 7. I am always worrying about something. | 0 | 1 | 2 | 3 | 4 |
| 8. I find it easy to dismiss worrisome thoughts. | 0 | 1 | 2 | 3 | 4 |
| 9. As soon as I finish one task, I start to worry about everything else I have to do. | 0 | 1 | 2 | 3 | 4 |
| 10. I never worry about anything. | 0 | 1 | 2 | 3 | 4 |
| 11. When there is nothing more I can do about a concern, I don't worry about it any more. | 0 | 1 | 2 | 3 | 4 |
| 12. I've been a worrier all my life. | 0 | 1 | 2 | 3 | 4 |
| 13. I notice that I have been worrying about things. | 0 | 1 | 2 | 3 | 4 |
| 14. Once I start worrying, I can't stop. | 0 | 1 | 2 | 3 | 4 |
| 15. I worry all the time. | 0 | 1 | 2 | 3 | 4 |
| 16. I worry about projects until they are all done. | 0 | 1 | 2 | 3 | 4 |

APPENDIX J

PTSD CHECKLIST-CIVILIAN VERSION

Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, and mark the box that indicates how much you have been bothered by that problem **in the past month**.

| How much has each of the following problems bothered you in the past month? | Not at all | A little bit | Moderately | Quite a bit | Extremely |
|---|-------------------|---------------------|-------------------|--------------------|------------------|
| 1. Repeated, disturbing memories, thoughts, or images of a stressful experience from the past? | 0 | 1 | 2 | 3 | 4 |
| 2. Repeated, disturbing dreams of a stressful experience from the past? | 0 | 1 | 2 | 3 | 4 |
| 3. Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)? | 0 | 1 | 2 | 3 | 4 |
| 4. Feeling very upset when something reminded you of a stressful experience from the past? | 0 | 1 | 2 | 3 | 4 |
| 5. Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience from the past? | 0 | 1 | 2 | 3 | 4 |
| 6. Avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it? | 0 | 1 | 2 | 3 | 4 |
| 7. Avoiding activities or situations because they reminded you of a stressful experience from the past? | 0 | 1 | 2 | 3 | 4 |
| 8. Trouble remembering important parts of a stressful experience from the past? | 0 | 1 | 2 | 3 | 4 |
| 9. Loss of interest in activities that you used to enjoy? | 0 | 1 | 2 | 3 | 4 |
| 10. Feeling distant or cut off from other people? | 0 | 1 | 2 | 3 | 4 |
| 11. Feeling emotionally numb or being unable to have loving feelings for those close to you? | 0 | 1 | 2 | 3 | 4 |
| 12. Feeling as if your future will somehow be cut short? | 0 | 1 | 2 | 3 | 4 |
| 13. Trouble falling or staying asleep? | 0 | 1 | 2 | 3 | 4 |
| 14. Feeling irritable or having angry outbursts? | 0 | 1 | 2 | 3 | 4 |
| 15. Having difficulty concentrating? | 0 | 1 | 2 | 3 | 4 |
| 16. Being "super-alert" or watchful or on guard? | 0 | 1 | 2 | 3 | 4 |
| 17. Feeling jumpy or easily startled? | 0 | 1 | 2 | 3 | 4 |

APPENDIX K

SOCIAL INTERACTION ANXIETY SCALE

For each question, please circle a number to indicate the degree to which you feel the statement is characteristic or true of you.

| How characteristic or true of you is each of the following statements? | Not at all | Slightly | Moderately | Very | Extremely |
|--|------------|----------|------------|------|-----------|
| 1. I get nervous if I have to speak with someone in authority (teacher, boss) | 0 | 1 | 2 | 3 | 4 |
| 2. I have difficulty making eye-contact with others. | 0 | 1 | 2 | 3 | 4 |
| 3. I become tense if I have to talk about myself or my feelings. | 0 | 1 | 2 | 3 | 4 |
| 4. I find it difficult mixing comfortably with the people I work with. | 0 | 1 | 2 | 3 | 4 |
| 5. I find it easy to make friends of my own age. | 0 | 1 | 2 | 3 | 4 |
| 6. I tense-up if I meet an acquaintance in the street. | 0 | 1 | 2 | 3 | 4 |
| 7. When mixing socially, I feel uncomfortable. | 0 | 1 | 2 | 3 | 4 |
| 8. I feel tense if I am alone with just one person. | 0 | 1 | 2 | 3 | 4 |
| 9. I am at ease meeting people at parties, etc. | 0 | 1 | 2 | 3 | 4 |
| 10. I have difficulty talking with other people. | 0 | 1 | 2 | 3 | 4 |
| 11. I find it easy to think of things to talk about. | 0 | 1 | 2 | 3 | 4 |
| 12. I worry about expressing myself in case I appear awkward. | 0 | 1 | 2 | 3 | 4 |
| 13. I find it difficult to disagree with another's point of view. | 0 | 1 | 2 | 3 | 4 |
| 14. I have difficulty talking to attractive persons of the opposite sex. | 0 | 1 | 2 | 3 | 4 |
| 15. I find myself worrying that I won't know what to say in social situations. | 0 | 1 | 2 | 3 | 4 |
| 16. I am nervous mixing with people I don't know well. | 0 | 1 | 2 | 3 | 4 |
| 17. I feel I'll say something embarrassing when talking. | 0 | 1 | 2 | 3 | 4 |
| 18. When mixing in a group, I find myself worrying I will be ignored. | 0 | 1 | 2 | 3 | 4 |
| 19. I am tense mixing in a group. | 0 | 1 | 2 | 3 | 4 |
| 20. I am unsure whether to greet someone I know only slightly. | 0 | 1 | 2 | 3 | 4 |