Familial influences of anxiety in youngsters

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FAMILIAL INFLUENCES OF ANXIETY
IN YOUNGSTERS

by

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requirements for the degree of

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in

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ABSTRACT

This study sought to determine the degree to which various family factors correlate with child anxiety. Fifty-nine subjects, aged 12 through 18, completed the Revised Children's Manifest Anxiety Scale. Parents of these children completed the Family Environment Scale, the Locke-Wallace Martial Adjustment Test, and the State-Trait Anxiety Inventory for Adults. Results indicated that maternal level of anxiety was the only familial factor that was significantly correlated with child anxiety. There was a non-significant but noteworthy negative correlation between child anxiety and the "independence" subscale of the Family Environment Scale. Based on these findings, recommendations for prevention, assessment, and treatment are made. Limitations of this study and suggestions for future research are outlined.
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Introduction

The most prevalent psychological problem reported by children is anxiety (Dadds, 1992). As anxiety and anxiety disorders interfere with academic, interpersonal, and extracurricular achievement in childhood and adulthood, it is imperative that these disorders be diagnosed and treated as early as possible.

Anxiety is problematic at both clinical and subclinical levels. Subclinical levels of anxiety are often apparent in children who are tentative, avoidant, fearful, and unsure of themselves. Clinical levels of anxiety can lead to more severe social withdrawal and interference in functioning (De Rutter & Van Ijzendoorn, 1992). Anxiety must be assessed and managed at all levels, and proper precautions must be taken to prevent a decline in personal functioning. Assessment tools, treatment modalities, and preventative programs must be perfected if this goal is to be met.

To devise effective treatment modalities and preventative programs, researchers must determine which factors cause, maintain, and alleviate anxiety. This paper will review existing literature on familial influences of anxiety, as these have been identified as mechanisms of transmission (Silverman, Cerny, and Nelles, 1988). Knowledge regarding familial factors which correlate with and/or contribute to anxiety will allow clinicians, teachers, and parents to recognize warning signs and implement preventative programs before symptoms develop into full-blown disorders.
Review of the Literature

As stated earlier, anxiety problems are the most prevalent psychological difficulties reported by children (Dadds, 1992). It is surprising, therefore, that literature on the topic is relatively scarce. The paucity of literature pertaining to childhood anxiety disorders is largely due to the fact that childhood fears and anxieties are often considered a normal part of human development. Additional factors that contribute to the dearth of literature on this topic include the inconspicuous nature of internalizing disorders as well as the American Psychiatric Association’s vague representation of childhood anxiety in the Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association, 1994) prior to 1980. The DSM has made drastic changes in its representation of childhood anxiety from one edition to the next, which is likely to have increased confusion and reluctance to conduct research in this area.

What follows is an overview of the research pertaining to both genetic and environmental factors believed to influence an individual’s level of anxiety. Factors that will be discussed include genetic transmission and comorbidity, parental reinforcement of anxious behavior, modeling, internal working models of relationships, parenting style, parental affect, religion and dogmatism, early losses, traumatic events, and marital discord.

Genetic Influences on Anxiety Disorders

Twin and sibling studies

Twin and sibling studies with both monkeys and humans indicate
that genetic factors are somehow involved in the development of anxiety, phobic, and obsessive states (Inoye, 1965; Rose et al, 1981; Slater & Shields, 1969; Torgersen, 1979; Young, Fenton, & Lader, 1971). Such studies often indicate that a predisposition toward anxiety, rather than an anxiety disorder per se, is genetically transmitted.

Studies with monkey siblings have yielded evidence supporting the notion that genetic factors predispose organisms toward anxiety only when those organisms are faced with challenging tasks. For example, Suomi (1986) separated monkey siblings from their biological relatives at birth and placed them with "adoptive" families. At a later date, their responses to "challenging" situations were compared to their nonadopted biological relatives and adopted siblings. Results indicated greater similarity in cortisol levels and behavioral fear scores between genetically related siblings than between adopted siblings (Suomi, 1986). Though Suomi interpreted this as evidence for the genetic transmission of anxiety, Turner (1987) emphasized the fact that distinguishing characteristics between the monkeys did not emerge until they were placed under stress.

The role of stress in the emergence of anxious states was further confirmed by Kagan, Reznick, Clarke, Snidman, and Garcia-Coll (1984), who reported that anxious behaviors displayed by human infants were stable over a six year period, and appeared only under specific circumstances (i.e., challenge conditions). A study with test anxious children revealed similar findings (Beidel, 1988).
Torgersen (1983) studied 32 monozygotic and 53 dizygotic adult same-sexed twins with neurotic and borderline psychotic disorders. Concordance was significantly higher in monozygotic than dizygotic twins for all categories of anxiety disorder except generalized anxiety disorder. Though Torgersen interpreted these results as supporting the notion that most anxiety disorders are genetically transmitted, overall results of the study may be otherwise interpreted. For example, none of the monozygotic twins had the same disorder, which would be the case if true genetic transmission were occurring. In addition, there was higher concordance for generalized anxiety disorder among dizygotic than monozygotic twins. These findings suggest that a generalized predisposition for anxiety, rather than a specific anxiety disorder, is genetically transmitted.

Twin studies are among the most effective means of determining the relative influence of genetic factors in the etiology of psychiatric disorders. Unfortunately, such studies have yielded mixed, inconclusive, and unconvincing results. Alternative means of determining the role of genetics in the etiology of anxiety will therefore be discussed (e.g., family studies). While it is difficult to tease apart the relative influence of genetics and environment when relatives are not physically separated, such studies are useful nonetheless. The following is a review of the literature pertaining to the relatives of children with anxiety disorders and the offspring of adults with anxiety disorders.
Relatives of persons with anxiety disorders

A number of researchers have investigated the psychiatric histories of relatives of persons with anxiety disorders. The most astounding finding thus far has been the high comorbidity of panic disorder among relatives. For example, Noyes et al. (1978) noted an 18% morbidity risk for panic disorder in first-degree relatives. In addition, Crowe, Pauls, Slymen, and Noyes (1980) found that 41% of interviewed relatives of persons with panic disorder had panic disorder as well. This percentage was substantially higher than that among relatives of persons without panic disorder. Crowe, Noyes, Pauls, and Slymen (1983) compared the risk for anxiety disorder among first-degree relatives of persons with panic attacks with that of first-degree relatives of controls. Results showed these risks to be 25% and 2%, respectively. Finally, Harris et al. (1983) conducted a family study of agoraphobia, panic disorder, and nonanxious controls. These investigators determined the morbidity risk for all anxiety disorders to be 32% among first-degree relatives of persons with agoraphobia, 33% among relatives of persons with panic disorder, and 15% among relatives of controls. Although persons with panic disorder were shown to be at increased risk for the same disorder, the risk for relatives of persons with agoraphobia was not specific for agoraphobia but included panic disorder and other phobias as well.

A study conducted by Livingston, Nugent, Rader, and Smith (1985) suggests nonspecific transmission of a predisposition for internalizing
disorders. These investigators evaluated lifetime psychiatric illness in 127 relatives of 12 children with anxiety disorders and 11 children with depression. Seventy-two percent of these relatives received Family History RDC diagnoses, most commonly depression and alcoholism. Children with overanxious disorder, separation anxiety disorder, and major depressive episode were shown to have family histories in which affective illness and alcoholism were common and in which the other aforementioned disorders were less frequent. For example, very few relatives of the children with anxiety were diagnosed as having an anxiety disorder. This study suggests a similarity between the family histories of children with anxiety and children with depression, and provides additional evidence against the direct genetic transmission of anxiety disorders.

Studies of the offspring of persons with anxiety disorders

Several researchers have examined the prevalence of anxiety disorders in children of persons with these disorders. For example, Turner et al. (1987) compared children of parents with anxiety disorders with children of parents with dysthymia or no psychopathology. Children of parents with anxiety disorders were more than seven times as likely to have an anxiety disorder than offspring of normal controls, and twice as likely to have an anxiety disorder than offspring of dysthymic parents. In addition, offspring of anxious parents displayed significantly greater emotional distress, poorer social adjustment, and more frequent fears than offspring of normal controls. Though scores on the Fear Survey Schedule for
Children-Revised (FSSC-R) showed no significant differences across groups, the children of parents with anxiety disorders scored higher than any other group on a measure of state and trait anxiety (Silverman, Cerny, & Nelles, 1988).

Weissman et al. (1984) studied children of persons with various internalizing disorders. Results indicated that over one-third of children of persons with depression plus panic disorder had separation anxiety, and that the transmission of anxiety in children followed trends. For example, all anxiety disorders were more common in children of parents with depression and panic disorder, all phobias were most common in children of parents with depression and agoraphobia or panic disorder, and depression and anxiety disorder were most frequent in children of parents who had both disorders. However, children of parents with generalized anxiety disorder had only a slightly increased risk of having the disorder themselves.

Studies by Wheeler et al. (1948), Berg et al. (1974), and Sylvester, Hyde, and Reichler (1987) provide additional data regarding the offspring of persons with anxiety disorders. Wheeler et al. (1948) compared the prevalence of panic disorder among children of parents with or without panic disorder. Prevalence rates were 49% and 6%, respectively. Berg et al. (1974) found an increased risk of past school phobias (about 14%) in children of women with agoraphobia. Children were at greatest risk if the mother herself had school phobia as a child. Finally, Sylvester, Hyde, and Reichler (1987) determined that children from families with panic disorder
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or depression had significantly higher rates of anxiety disorders and major depression and poorer adjustment ratings than children of undiagnosed parents (Silverman, Cerney, & Nelles, 1988).

Although these results provide stronger evidence for familial transmission of anxiety disorders than do twin studies, they do not necessarily provide evidence for genetic transmission. Though twin studies involving comorbidity among separated twins indicate some genetic influence, it is difficult to determine the relative influence that genetics and family environment play in the transmission of anxiety. To date, we do not know whether these parents have transmitted genes that code for anxiety, or if they have simply modeled and/or reinforced anxious behaviors in their children.

Parents of children with anxiety disorders

One final area will be covered regarding the genetic/familial transmission of anxiety disorders before purely environmental influences are reviewed: parents of children with anxiety disorders. For example, Berg et al. (1974) evaluated maternal psychiatric illness by examining the hospital records of 100 adolescents with school phobia and 100 adolescents with other psychiatric diagnoses. One-fifth of the mothers in both groups had a history of some type of psychiatric disturbance. One-half of these displayed anxiety, depression, or a phobia. In addition, Gittelman-Klein (1975) determined the psychiatric histories of the parents of 42 children with school phobia and 42 children with hyperactivity via interview. No
differences were found between parents of children with school phobia and parents of children with hyperactivity with respect to major depression or phobias. However, parents of children with school phobia displayed a significantly higher rate of separation anxiety disorder (as children) than parents of children with hyperactivity.

Last, Hersen, Kazdin, Francis, and Grubb (1987) evaluated the lifetime psychiatric illness of mothers of 58 children with anxiety and 15 children with other psychiatric illness. Most (83%) mothers of children with separation anxiety and/or overanxious disorder had a lifetime history of an anxiety disorder. Over one-half (57%) of these mothers presented with an anxiety disorder at the time their children were seen for similar problems. Both of these rates differed significantly from those obtained for control subjects.

A final study by Last, Phillips, and Statfeld (1987) examined the prevalence of separation anxiety and overanxious disorder in mothers of children with separation anxiety disorder, overanxious disorder, and psychiatric illness other than anxiety or affective disorders. While mothers of children with overanxious disorder had an increased prevalence (42%) of overanxious disorder themselves as children, mothers of children with separation anxiety disorder did not show a higher rate of separation anxiety disorder than mothers of children with overanxious disorder or other psychiatric diagnoses.
Summary

Though it is difficult to make sense of the confusing and contradictory data presented in the aforementioned research studies, several important points have been made. First, some early twin studies suggest that genetic factors are somehow involved in the development of anxiety, phobic, and obsessive states. Second, recent twin studies suggest that a predisposition for anxiety, rather than an anxiety disorder per se, is genetically transmitted. Third, studies with monkey siblings suggest that a genetic predisposition toward anxiety surfaces only under the stress of challenging tasks. Similar results were found in studies with human infants and children with test anxiety. Fourth, though panic disorder appears to be transmitted with specificity, the same is not true for agoraphobia or generalized anxiety disorder. Fifth, children of parents with anxiety or depressive disorders are likely to develop specific (but different) anxiety or depressive disorders. Finally, a significant percentage of the mothers of children with anxiety disorders have or have had a psychological disturbance.

The only general conclusion that can be made with any certainty is that anxiety disorders are somewhat familial in nature. Research has made it evident that panic, phobia, and overanxious disorder are transmitted with the greatest levels of specificity; however, the relative influence of genetics and environment in the transmission of these and other disorders is unclear. For example, are genes for anxiety being transmitted? Or, are anxious
behaviors being modeled and reinforced? The following section will discuss potential environmental/familial influences that may culminate in anxiety disorders.

**Psychological Influences of Anxiety Disorders**

**Reinforcement theory**

According to behaviorists, parents determine what children learn by administering rewards and punishments that strengthen or eliminate desirable or undesirable behaviors, respectively (Macoby, 1992). From this premise, several researchers have suggested that children develop anxiety largely because their parents reinforce their anxious behaviors. For example, King, Hamilton, and Ollendick (1988) discussed family factors in the treatment of childhood fears, emphasizing the potential importance of operant variables. These authors suggest that parents reward anxious behavior by providing pleasurable stimuli (comfort, reassurance) and removing aversive stimuli (threat, chores, separation) contingent upon display of the behavior. Case studies have also identified the role of parents as modeling and reinforcing agents and have assigned successful treatment protocols accordingly (Dadds, Heard & Rapee, 1991, Heard, Dadds, & Conrad, 1992; King et al., 1988).

**Modeling**

Simple reinforcement theory has been criticized by social learning theorists because it does not account for the (1) emergence of novel responses during learning trials, and (2) performance of non-reinforced
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behaviors (i.e., those which are ignored or imitated; Bandura & Walters, 1963). These theorists suggest that social learning (modeling) can and does account for these types of behaviors. The effects of modeling have been clearly illustrated in the famous studies of aggression conducted by Bandura and colleagues (e.g., 1963), in which children reproduced models' aggressive and non-aggressive behaviors with inflatable dolls.

Though the aforementioned research was conducted using models unfamiliar to the children under study, Bandura has also elicited evidence in support of social learning between parent and child. In 1960, Bandura compared parental behaviors of aggressive and inhibited children, and found these behaviors to be impulsive and expressive, or inhibited, respectively. Similar findings were evident in parent-child dyads with respect to dependency (Sears, Macoby, and Levin (1957), attitudes about sex (Bandura, 1960), standards for achievement (McClelland, 1955; McClelland, Atkinson, Clark, and Lowell, 1953), and ability to delay gratification (Mischel, 1958, 1961). Several researchers believe that modeling plays a significant role in the etiology of anxiety disorders as well (e.g., Turner et al, 1987; Dadds, 1992).

Jones (1924) emphasized the fact that social imitation could be used as a method of reducing children's fears. For example, a parent may calmly approach a caged snake in a zoo and calmly discuss its skeletal system, nocturnal nature, and coloring. This behavior may normalize the experience of being close to a snake, while directing the child's focus away from his or
her fear. Sarason, Davidson, Lighthall, Waite, and Ruebush (1960) stated that parents who are anxious about being evaluated by others transmit this anxiety to their children. Children are likely to recognize and/or hear reports about their parents' evaluative anxiety, and internalize their parents' fears. In addition, Mineka, Davidson, Cook, and Kier (1984) conducted research with rhesus monkeys which indicated that fear was more likely to be conditioned in an observer when the level of disturbance exhibited by a fearful model increased. Similarly, King, Hamilton, and Ollendick (1988) observed the tendency of children to imitate fears and anxieties of their parents.

**Attachment theory**

Another factor believed to influence a child's level of anxiety is the type and degree of attachment that he or she has with caregivers. Research indicates that the nature of the attachment between a child and his or her parent may influence the level of anxiety the child experiences (Bowlby, 1973; DeRutter & Van Ijsendoorn, 1992). According to Bowlby (1969, 1973), the human infant is endowed with an "attachment behavioral system" that allows him or her to develop mental representations of relationships with caretakers. These working models contain expectations about the nature, security, and trustworthiness of relationships, and determine whether the child will be open and trusting, or apprehensive and wary, in approaching new, possibly intimate relationships (Sroufe & Fleener, 1986).

Ainsworth et al. (1978) demonstrated that caretakers who were less
than optimally responsive raised children with insufficient attachment models. They discovered that consistently unresponsive and inconsistently responsive caretaking leads to feelings of anxiety in the child and anxious internal working models of attachment. Three internal working models of attachment were proposed—secure, anxious-avoidant, and anxious-ambivalent. While parents of securely attached children tend to be consistently responsive to their children, parents of anxious-avoidant children tend to be consistently unresponsive and rejecting, and parents of anxious-ambivalent children tend to be inconsistently responsive. This suggests that inconsistent and/or rejecting parenting styles may create anxiety in children.

Research suggests that attachment status is transmitted intergenerationally and is stable throughout one’s childhood. Main and colleagues (1985) found a correlation of .76 (p < .001) between security of attachment to mother at age one year and security of attachment to mother at age six years. The correlation between security of attachment to the father at ages 18 months and six years was much lower (r = .30, p < .05). Studies showing that attachment status is transmitted intergenerationally have been conducted by Fonagy et al (1988), Grossmann et al. (1988), Main et al. (1985), and Van Ijzendoorn (1992). Secure, anxious-avoidant, and anxious-ambivalent attachment types in children were coined secure, dismissive, and preoccupied, respectively, in adults (Main et. al, 1985). Research indicates that a secure parent tends to have a child with a secure
attachment; a dismissive parent, an avoidant child; and a preoccupied parent, an ambivalent child (De Rutter & Van IJsendoorn, 1992). In addition, research has demonstrated that adolescents with anxious attachment styles appear more anxious than their peers. Kobak and Sceery (1988) compared peer ratings of anxiety between adolescents with various models of attachment and found that anxious-ambivalently attached adolescents were rated as more anxious by their peers than adolescents with secure or avoidant attachments.

Several researchers have proposed that attachment models play a key role in the etiology of specific anxiety disorders. Bowlby (1973) hypothesized that an anxious-ambivalent internal working model of attachment plays an important role in the etiology of childhood agoraphobia. He considers fear of leaving home (i.e., separation anxiety) to be the central symptom of this condition. Clinical research and case material yielded three patterns congruent with agoraphobia; one in which an anxious parent retained his or her child at home for companionship, another in which a child insisted on having his or her parent accompany him or her at all times, fearing that something dreadful might happen to the parent in the child's absence, and another in which the child remained at home to prevent something dreadful from happening to him or herself (De Rutter & Van IJsendoorn, 1992). It is important to recognize the familial influences in the genesis of these three patterns of behavior; an enmeshed family pattern and lack of independence is likely present in all cases. Bowlby considered
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intense ambivalence the main feature of parents of children with agoraphobia. According to Bowlby, parents of children fitting into these three patterns are overprotective, dominant, role-reversing, guilt-inducing and, in some cases, agoraphobic themselves. Bowlby contends that parental threats of abandonment, separation, and suicide are also antecedents to agoraphobia (De Rutter & Ijsendoorn, 1992).

De Rutter and Van Ijsendoorn (1992) agree with Bowlby's proposition that weak attachment predisposes children to agoraphobia as well as other psychological disorders. They concluded that persons with agoraphobia and persons with anxious ambivalent working models of attachment view their parents in a similar manner, i.e., highly unaffectionate, moderately overprotective, intrusive, and role-reversing. In addition, persons with agoraphobia reported their parents to be lacking in affectionate response, especially in times of emotional or physical need.

Attachment difficulties have been implicated in the etiology of other anxiety disorders as well. Huffington and Sevitt (1989) reported that indications of anxious attachment were noted in children with school phobia. Further research needs to be conducted to determine the extent to which anxious-ambivalent and/or anxious-avoidant attachment play a role in the etiology of anxiety disorders. Research is also needed to determine specific family variables that lead to anxious attachment and/or anxiety in general.
Parenting styles

Ineffective parenting style is another family variable implicated in the etiology of anxiety disorders. Although parenting styles in general have been well-researched, only a few authors have studied the effects of parenting styles on internalizing disorders. For example, Baumrind (1989) used observational methods to classify families into one of four types: (1) authoritative, in which parents were both firm and supportive, (2) directive, in which parents were firm and directive but relatively less supportive (also called authoritarian), (3) democratic, in which parents were supportive but not directive (also called indulgent), and (4) unengaged, in which parents were relatively low in support and firm control (also called neglectful). Baumrind's study showed authoritatively reared adolescents to be lowest in internalizing problems and adolescents raised in unengaged families to be most prone to internalizing and externalizing problem behavior.

Lamborn et al. (1991) replicated this study using self-report methods. In this study, adolescents who perceived their parents as being authoritative reported fewer psychological and somatic symptoms than those who perceived parents as neglectful. The reports of authoritatively reared adolescents did not differ significantly from adolescents who viewed their parents as authoritarian or indulgent. Although adolescents from authoritative, authoritarian, and indulgent homes scored significantly lower on measures of internalizing symptoms than adolescents from neglectful homes, no other significant differences were found between groups.
Reports of somatic symptoms followed this same pattern.

**The role of affect**

Negative parental affect is also believed to create discomfort and anxiety in children. Macoby (1992) maintains that emotions constitute the first language by which parents and children communicate with one another. Infants respond to their parents' facial expressions and tones of voice, and parents respond to the affective quality of their infants' arousal states (Macoby, 1992). When parent-child interactions are characterized by negative emotions or inconsistent or inappropriate response patterns, the child is likely to become anxious. Goodyer (1990) provided support for this proposal, arguing that anxiety and depression in children are related to high levels of emotional distress and lack of intimate social support from mothers. Similarly, Cummings' (1987) work on overheard quarrels between adults shows that young children react to adult anger with distressed facial expressions and inhibited play (Macoby, 1992).

Fauber and Forehand (1988) developed a structural equation model of the association between parental hostility and adolescent behavior problems (both internalizing and externalizing) based on data collected from the observation of mother-adolescent interactions and self-report inventories. A strong but unexplained association between hostility and internalizing problems was noted. In addition, Johnston and Pelham (1987) found that maternal ratings of child internalizing problems were significantly related to the mother's depressed mood and stress. Macoby (1992) argues
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that both parents and children acquire a set of expectations concerning the other's behavior, proposing that parents and children are more likely to react to expectations than to the other's actual moment-to-moment behavior. When expectations are jaded by negative affect, then anxiety and depression may result.

**Traumatic precipitating factors**

Anxiety in children is often precipitated by a traumatic event. A study by Torgersen and Philos (1986) demonstrated that severe loss in childhood may be an important factor in the development of generalized anxiety disorder. In addition, forty-six percent of the children with school phobia in Waldron et al.'s (1975) study had experienced one or more precipitating family situations during the year before their referral to the clinic (e.g., death of someone important to the child or parent, illness or injury of a family member, development of depression in a parent). Further research needs to be conducted to determine the extent to which traumatic childhood events contribute to the manifestation of anxiety.

**Marital difficulties**

Marital discord may also play a role in the development of childhood internalizing and externalizing behavior problems (Emery, 1982; O'Leary & Emery, 1982). Inconsistent results have emerged about the types of child behavior problems associated with various degrees/types of marital conflict and the differential effects of marital conflict on boys and girls (Emery, 1982; Emery & O'Leary, 1984; Emery, Weintraub, & Neale, 1982;
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Few researchers have examined the relationship between marital discord and internalizing behavior problems. Waldron et al.'s (1975) study of 70 children with neurosis found that nearly half the children's mothers felt neglected by their husbands, and that half of the children's fathers felt neglected by their wives. Nearly two-thirds of the couples evidenced more than minimal overt marital dissension, and more than three-fourths claimed to experience more than minimal lack of pleasure and satisfaction. Role functioning, maintenance of generation boundaries, adequacy of communication, and 31 other dimensions of family functioning were at least mildly impaired in 50-90% of families.

Dadds and Powell (1991) conducted a study to determine if aggression, anxiety, and/or immaturity correlated with interparental conflict and global marital adjustment among clinic and nonclinic boys and girls. Though none of the variables contributed significantly to the prediction of anxiety in girls, both marital adjustment and parenting problems significantly predicted anxiety for nonclinic boys. Marital adjustment contributed slightly more to this prediction than parenting problems. Dadds and Powell indicated that these findings were contrary to the prediction of several authors (e.g., Cummings, Iannotti, & Zahn-Waxler, 1985; Johnston, Gonzales & Campbell, 1987), who have argued that boys tend to react to marital discord with externalizing problems whereas girls tend to
react with internalizing problems (Dadds & Powell, 1991). Further
research needs to be conducted to investigate the differential effects of
marital discord on boys' and girls' level of anxiety, and to determine the
role of marital discord in the evolution of child anxiety in general.

Other parental difficulties

Parents of children with anxiety disorders often have personal and
parental difficulties other than those mentioned earlier. Waldron et al.'s
(1975) assessment of the parents of 70 children with neurosis indicated
substantial problems with dependency, hostility, and resentment toward
their own parents as well as others. The parents also evidenced markedly
ambivalent object relations and many self-doubts. Some parents were
described as being distant and unavailable. Only one father and no mothers
in a group of 110 parents were thought to be entirely healthy. In addition,
Dadds (1992) described the parents of anxious children as overprotective,
rejecting, and themselves socially anxious.

Summary

Psychological factors undoubtedly play a role in the etiology of
childhood anxiety disorders. Such factors include, but are not limited to,
parental reinforcement of anxious behavior, modeling, insufficient internal
working models of relationships, neglectful parenting styles, exposure to
negative affect, dogmatism, early losses and/or other traumatic events,
marital discord, and parental psychopathology. Though existing literature
on the environmental correlates of childhood anxiety is sparse, several
important points have been made. First, operant variables play a significant role in the development of childhood anxiety. Parents often reward anxious behavior by providing pleasurable stimuli (comfort and reassurance) and by removing aversive stimuli (threat, chores, separation) contingent upon its display. Second, children have a tendency to model parental behaviors, including parental fears and anxieties. Third, the type of attachment that a child has with his or her parents may influence the level of anxiety the child experiences. Fourth, type of attachment appears to be transmitted intergenerationally, and tends to be somewhat stable over the course of one's childhood. Fifth, evidence exists suggesting that attachment style plays a key role in the etiology of agoraphobia and school phobia.

Much has been learned via studies of persons with agoraphobia. Enmeshed family patterns, characterized by a lack of child/adolescent independence, are conducive to the development of agoraphobia. Similarly, parents of children who have agoraphobia are reported to be overprotective, dominant, role-reversing, guilt inducing, unaffectionate, and in some cases, agoraphobic themselves.

Children of parents with a neglectful parenting style tend to score higher on measures of internalizing symptoms and somatic difficulties than children of parents with alternative parenting styles. Furthermore, anxiety and depression in children are related to high levels of emotional distress and lack of intimate social support from their mothers. It has been found that adolescent internalizing problems are associated with hostility between
adolescents and their mothers, and that children, college students, and adults who had high scores on a measure of dogmatism also had high scores on a measure of anxiety.

Additional findings include the fact that severity of OCD pathology is positively correlated with religiosity and guilt, and that anxiety in children is often precipitated by a traumatic event. Regarding marital discord, inconsistent results have emerged regarding the types of child behavior problems associated with various degrees/types of marital conflict and the differential effects of marital conflict on boys and girls. Finally, it has been found that marital dissatisfaction is not uncommon among parents of children with anxiety.

The Present Study

Though the aforementioned findings are impressive, further research is required to provide insight into the many questions that remain unanswered in this area. Literature to date is incomplete and in many cases, contradictory. In addition, studies thus far are limited in that they have neglected to consider subclinical levels of anxiety. Failure to incorporate data derived from a subclinical population makes it impossible to determine whether or not the aforementioned findings exist on a continuum. This study is an attempt to clarify existing controversies, and to examine a subclinical population. Specifically, this study sought to determine the extent to which various family factors correlated with child anxiety in a nonclinical sample of school-aged children. Family factors under
consideration included levels of cohesion, expressiveness, conflict, independence, intellectual-cultural orientation, organization, active-recreational orientation, and control. Marital satisfaction and parental anxiety were also considered.

The following hypothesis were tested:

H1: *There is a positive linear correlation between child anxiety and maternal anxiety.*

Given the familial nature of anxiety disorders (e.g., Crowe, Pauls, Slymen, & Noyes, 1980; Noyes, Clancy, Crowe et al, 1978; Torgerson, 1983; Silverman, Cerney, & Nelles, 1988), the well supported theory that a “generalized predisposition for anxiety is genetically transmitted” (e.g., Turner, 1987), and the high rate of anxiety disorders in offspring of persons with such disorders, (e.g., Sylvester, Hyde, & Reichler, 1987; Turner et. al., 1987; Wheeler, et. al., 1948), it was assumed that the level of anxiety in children would correlate with that of their mother. The notion that anxiety can be modeled (e.g., Mineka et al., 1984) provides further support for such a hypothesis. This hypothesis was tested because it had not yet been examined in a nonclinical sample.

H2: *There is a positive linear correlation between child anxiety and paternal anxiety.*

This hypothesis follows the same rationale as H1.

H3: *There is a negative linear correlation between child anxiety and maternal level of marital satisfaction.*
This hypothesis is supported by Dadds and Powell (1991), who found a similar correlation between level of marital satisfaction and internalizing disorders in clinic and nonclinic boys. Waldron et al. (1975) provided further support for this hypothesis, suggesting that parents of children with anxiety disorders report low levels of marital satisfaction. This hypothesis was tested to address the discrepancies of past studies, as well as to determine the effect of marital conflict on anxiety level rather than internalizing disorders in general.

H4: There is a negative linear correlation between child anxiety and paternal level of marital satisfaction.

This hypothesis follows the same rationale as H3.

H5: There is a negative linear correlation between child anxiety and familial level of cohesion.

Much of the literature suggests that low levels of family cohesion may correspond with high levels of anxiety in children: (1) Beiderman et al. (1990) indicated that patients with agoraphobia view their parents as highly unaffectionate, (2) Silverman, Cerny, and Nelles (1988) indicated that children of parents with anxiety disorders view their families as having low levels of cohesion, and (3) Garrison et al., (1990) reported that a low level of family cohesion is the strongest predictor of childhood depression. This hypothesis was tested to determine its applicability in a non-clinical sample.

H6: There is a negative linear correlation between child anxiety and familial
level of expressiveness.

This hypothesis was tested because the relationship between expressiveness and anxiety had yet to be substantially investigated. Although Haddad (1985) determined that families of boys with anxiety disorders tended to be less expressive than families of "normal" boys, no such data exist for a nonclinical sample.

H7: There is a positive linear correlation between child anxiety and familial level of conflict.

Fauber and Forehand (1988) indicate a strong "direct but unexplained association" between hostility and internalizing problems. Waldron et al.'s assessment of the parents of 70 children with neurosis showed substantial problems with hostility and resentment, and children with depression (also an internalizing disorder) describe their families as being more conflictual (Kaslow, Deering, & Racusin, 1993). Families of children with depression are characterized by parent-child and marital conflict (Burbach & Borduin, 1986; Forehand et. al., 1988). This hypothesis was tested to determine if the same was true of families of children with anxiety.

H8: There is a negative linear correlation between child anxiety and the level of familial independence.

Evidence suggests that families of children with anxiety display low levels of independence. Specific references in the literature include the following: (1) children with separation anxiety and/or school phobia often
Anxiety

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come from enmeshed, overly dependent families (Kearney & Silverman, 1995; Waldron et al., 1975), (2) patients with agoraphobia view their parents as moderately overprotective and intrusive (Biederman et al., 1990), (3) parents of children with neuroses have problems with dependence (Waldron et al., 1975), and (4) children of parents with anxiety disorders maintain that their families do not foster independence (Silverman, Cerny, & Nelles, 1988). This hypothesis was tested to investigate the effects of independence (or lack thereof) on various subclinical levels of anxiety.

H9: There is a negative linear correlation between child anxiety and familial level of active-recreational and intellectual-cultural orientation.

Evidence suggests that children with internalizing disorders participate in fewer extra-curricular activities than non-anxious children. According to Kaslow, Rehm, Pollack and Siegel, (1988) and Stark, Humphrey, Crook, and Lewis (1990), children with depression describe their families as engaging in fewer social, recreational, intellectual, and cultural activities than children without depression. One might hypothesize that activity, recreation, and intellectual pursuits may help to alleviate anxiety in children, or that children who are extremely anxious do not participate in such activities due to fear of failure. Haddad (1985) found that families of boys with anxiety disorders tended to be less active in intellectual and recreational pursuits than families of "normal" boys. This hypothesis was tested to investigate the effects of active-recreational and intellectual-cultural orientation on various levels of anxiety.
H10: There is a positive linear correlation between child anxiety and familial level of organization.

Silverman, Cerny, and Nelles (1988) report that parents with anxiety disorders describe their families as being rigidly organized. This hypothesis was tested to supplement existing literature, and to investigate this proposal using a nonclinical sample of children.

H11: There is a positive linear correlation between child anxiety and familial level of control.

The literature suggests that increased anxiety levels in children may correspond with an increased level of parental control. Three specific references were made regarding the relationship between internalizing disorders and control: (1) persons with agoraphobia view their parents as being overprotective and intrusive (De Rutter & Van Ijsendoorn, 1992), (2) children of parents with anxiety disorders are more likely to be anxious themselves when their family environment is characterized by rigid organization and control (Silverman, Cerny, & Nelles, 1988), and (3) children with depression describe their families as being autocratic and controlling (Friedrich et al., 1988; Stark et al., 1990). This hypothesis was tested because past studies have focused exclusively on persons with clinical disorders.

Method

Subjects

Fifty-nine junior and senior high school students and their parents
Anxiety

participated in this study. Not all parents, however, completed all measures (See Table 2). The student subject pool consisted of 20 males and 39 females ranging in age from 12 to 18 years. Most of the children were Caucasian (95%), some were Hispanic (5%), and most (85%) were in dual parent households. Mean annual income was $36,934 (range, $1,100 to $100,000). Children were recruited from a public school system in Arizona. Both children and parents provided written consent before participating.

Instruments

The following child self-report measure was utilized:

Revised Children's Manifest Anxiety Scale (What I Think and Feel; RCMAS). The RCMAS (Reynolds & Richmond, 1978) is a 37-item, yes-no self-report measure of worry and oversensitivity, concentration, and physiological symptoms. The RCMAS has been found to be reliable (Reynolds & Paget, 1983) and valid (Reynolds & Richmond, 1978) for children and adolescents.

The following parent self-report measures were utilized:

State-Trait Anxiety Inventory (STAI). The STAI (Spielberger, Gorsuch, Lushene, Vagg, and Jacobs, 1983) is a 40-item measure of state and trait anxiety that measures (1) one's subjective feelings of tension, apprehension, worry, and nervousness at the time of questioning, and (2) one's general tendency to perceive stressful situations as dangerous or threatening. This measure was developed for use with high school and
Anxiety

college-aged populations.

*Locke-Wallace Marital Adjustment Test (LWMAT).* The LWMAT (Locke & Wallace, 1959) is a 15-item measure of marital quality. Items assess overall level of marital satisfaction, amount of agreement/disagreement between spouses, extent of spouses' shared activity and decision making, and degree of satisfaction over the decision to marry. The Locke-Wallace Marital Adjustment Test demonstrates excellent split-half reliability, is well validated, and is widely used.

*Family Environment Scale (FES).* The FES (Moos & Moos, 1986) is a 90-item true-false measure of social-environmental family characteristics including cohesion, expressiveness, conflict, independence, achievement orientation, intellectual-cultural orientation, moral-religious emphasis, organization, active-recreational orientation, and control. The aforementioned subscales are believed to assess three sets of dimensions: relationships, personal growth, and system maintenance. The FES has three forms, real (R), Ideal (I), and Expectations (E), which measure perceptions, conceptions, and expectations about the family, respectively. Only form R was used in this study. The FES has been found to be reliable and valid (Moos & Moos, 1986).

Normative values and standard deviations for each of the aforementioned measures are indicated in Table 1.
### Table 1

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revised Children's Manifest Anxiety Scale</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Children aged 12-19</td>
<td>10.62</td>
<td>5.80</td>
</tr>
<tr>
<td><strong>State-Trait Anxiety Inventory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Anxiety, Working Adults, Female</td>
<td>35.20</td>
<td>10.61</td>
</tr>
<tr>
<td>Trait Anxiety, Working Adults, Female</td>
<td>34.79</td>
<td>9.22</td>
</tr>
<tr>
<td>State Anxiety, Working Adults, Male</td>
<td>35.72</td>
<td>10.40</td>
</tr>
<tr>
<td>Trait Anxiety, Working Adults, Male</td>
<td>34.89</td>
<td>9.19</td>
</tr>
<tr>
<td><strong>Locke-Wallace Marital Adjustment Test</strong></td>
<td>100.00</td>
<td>15.00</td>
</tr>
<tr>
<td><strong>Family Environment Scale</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohesion</td>
<td>6.61</td>
<td>1.36</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>5.45</td>
<td>1.55</td>
</tr>
<tr>
<td>Conflict</td>
<td>3.31</td>
<td>1.85</td>
</tr>
<tr>
<td>Independence</td>
<td>6.61</td>
<td>1.19</td>
</tr>
<tr>
<td>Intellectual-Cultural Orientation</td>
<td>5.63</td>
<td>1.72</td>
</tr>
<tr>
<td>Active-Recreational Orientation</td>
<td>5.35</td>
<td>1.87</td>
</tr>
<tr>
<td>Organization</td>
<td>5.41</td>
<td>1.83</td>
</tr>
<tr>
<td>Control</td>
<td>4.34</td>
<td>1.81</td>
</tr>
</tbody>
</table>

**Procedure**

Approval for research with human subjects was granted by the Office of Research Administration on February 28 of 1994. Parent and student consent forms (Appendix A) were distributed to all children.
participating in the study. Consent forms were distributed, collected, and held by teachers until the date of the examination. On this date, an examiner and/or teacher entered the classroom, introduced him or herself to the class, and provided consenting children (those whose parents had consented as well) with a numbered copy of the Revised Children's Manifest Anxiety Scale (RCMAS). The examiner read instructions aloud and invited students to ask questions. After questions were answered, students were given ample time to complete the questionnaire. When questionnaires were collected, a parent packet with a number corresponding to the number on the child's questionnaire was provided. Students were instructed to bring packets home to their parents that evening, and were asked to return them to school within the next two days. Parent packets contained a list of instructions (Appendix B), a demographic cover sheet (Appendix B), two copies of the State-Trait Anxiety Inventory (STAI), two copies of the Locke-Wallace Marital Adjustment Test (LWMAT), and the Family Environment Scale (FES). Instructions requested that parents complete the LWMAT and the STAI independently, and that they complete the FES together, if possible. Students returned parent packets, which were collected by teachers and mailed to the researcher. Both parents and students were informed that all information provided would remain confidential.

Data Analysis

Means and standard deviations were computed for all measures
used in the study, and were visually compared with normative values. A
correlational analysis followed, in which children's scores on the Revised
Children's Manifest Anxiety Scale were correlated with the following
dependent measures: Mothers' scores on the Stait-Trait Anxiety Inventory,
fathers' scores on the Stait-Trait Anxiety Inventory, mothers' scores on the
Locke-Wallace Marital Adjustment Test, fathers' scores on the Locke-
Wallace Marital Adjustment Test, and the cohesion, expressiveness,
conflict, independence, intellectual-cultural orientation, active-recreational
orientation, organization, and control subscales of the Family Environment
Scale. Correlation coefficients were derived, and two-tailed tests for
significance were completed.

Results

Table 2 illustrates means and standard deviations for all measures
utilized in this study (RCMAS, STAI, LWMAT, and various subscales of
the FES). The number of persons completing each measure (n) is also
provided in this table. Since maternal and paternal sample sizes differed
greatly, maternal and paternal ranges on the STAI and the LWMAT are
provided in Table 3.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised Children's Manifest Anxiety Scale</td>
<td>12.90</td>
<td>7.04</td>
<td>59</td>
</tr>
<tr>
<td>State-Trait Anxiety Inventory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Anxiety, Maternal</td>
<td>37.87</td>
<td>13.80</td>
<td>55</td>
</tr>
<tr>
<td>Trait Anxiety, Maternal</td>
<td>39.23</td>
<td>10.98</td>
<td>55</td>
</tr>
<tr>
<td>State Anxiety, Paternal</td>
<td>39.00</td>
<td>13.22</td>
<td>32</td>
</tr>
<tr>
<td>Trait Anxiety, Paternal</td>
<td>39.73</td>
<td>11.92</td>
<td>32</td>
</tr>
<tr>
<td>Locke-Wallace Marital Adjustment Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal</td>
<td>103.90</td>
<td>30.05</td>
<td>46</td>
</tr>
<tr>
<td>Paternal</td>
<td>113.08</td>
<td>31.20</td>
<td>30</td>
</tr>
<tr>
<td>Family Environment Scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohesion</td>
<td>6.83</td>
<td>1.63</td>
<td>54</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>5.85</td>
<td>1.82</td>
<td>54</td>
</tr>
<tr>
<td>Conflict</td>
<td>2.96</td>
<td>2.23</td>
<td>54</td>
</tr>
<tr>
<td>Independence</td>
<td>6.21</td>
<td>1.52</td>
<td>54</td>
</tr>
<tr>
<td>Intellectual-Cultural Orientation</td>
<td>5.06</td>
<td>2.20</td>
<td>54</td>
</tr>
<tr>
<td>Active-Recreational Orientation</td>
<td>4.10</td>
<td>2.27</td>
<td>54</td>
</tr>
<tr>
<td>Organization</td>
<td>5.48</td>
<td>1.90</td>
<td>54</td>
</tr>
<tr>
<td>Control</td>
<td>5.23</td>
<td>2.16</td>
<td>54</td>
</tr>
</tbody>
</table>
Based on a visual analysis, the sample under study appears to have scored in a manner consistent with normative data (see Table 1 for comparison). Furthermore, it appears as though small paternal sample size did not restrict the range of scores, nor increase or decrease means on the STAI and LWMAT. As this sample appears to be representative of the general population (in terms of anxiety level, marital adjustment, and family environment), it is believed that the results of this study may be generalized to the population at large.

Correlational data, sample size, and two-tailed significance levels are provided in Table 4. Table 4 also provides information pertaining to the predicted versus actual direction of each correlation.
### Table 4

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Predicted direction</th>
<th>Correlation</th>
<th>p</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAI (mother)</td>
<td>+</td>
<td>.3399</td>
<td>.011</td>
<td>55</td>
</tr>
<tr>
<td>STAI (father)</td>
<td>+</td>
<td>.1603</td>
<td>.371</td>
<td>33</td>
</tr>
<tr>
<td>LWMAT (mother)</td>
<td>-</td>
<td>-.1247</td>
<td>.409</td>
<td>46</td>
</tr>
<tr>
<td>LWMAT (father)</td>
<td>-</td>
<td>-.1323</td>
<td>.486</td>
<td>30</td>
</tr>
<tr>
<td>Cohesion</td>
<td>-</td>
<td>-.1569</td>
<td>.257</td>
<td>54</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>-</td>
<td>-.0607</td>
<td>.663</td>
<td>54</td>
</tr>
<tr>
<td>Conflict</td>
<td>+</td>
<td>.0428</td>
<td>.759</td>
<td>54</td>
</tr>
<tr>
<td>Independence</td>
<td>-</td>
<td>-.2410</td>
<td>.079</td>
<td>54</td>
</tr>
<tr>
<td>Intellectual-cultural</td>
<td>-</td>
<td>-.0827</td>
<td>.552</td>
<td>54</td>
</tr>
<tr>
<td>Active-recreational</td>
<td>-</td>
<td>-.2029</td>
<td>.141</td>
<td>54</td>
</tr>
<tr>
<td>Organization</td>
<td>+</td>
<td>-.0358</td>
<td>.797</td>
<td>54</td>
</tr>
<tr>
<td>Control</td>
<td>+</td>
<td>.0168</td>
<td>.904</td>
<td>54</td>
</tr>
</tbody>
</table>

Results indicate that maternal level of anxiety is significantly correlated with child anxiety \( r = +.34, p = .01 \), and that the correlation between child anxiety and the "independence" subscale of the Family Environment Scale is almost significant \( r = -.24, p = .08 \). Although most correlations were not large enough to reach significance, all but one (organization) were correlated in the predicted direction.

### Discussion

This study was one of the first to examine familial influences of anxiety in a nonclinical sample of school-aged children. Correlational data
indicate a significant, positive, but relatively moderate correlation between child and maternal anxiety, and a non-significant but notable negative correlation between child anxiety and the "independence" subscale of the Family Environment Scale. Additional trends were noted, but not pronounced enough to merit discussion.

The aforementioned findings will be discussed in two distinct sections. Section A will consider the correlation between child and maternal anxiety, and section B will reflect upon the correlation between child anxiety and the "independence" subscale of the Family Environment Scale. Both sections will include recommendations for prevention, assessment, and treatment.

Section A

The correlation between child and maternal anxiety may be interpreted in a number of ways. Plausible explanations for this relationship include physiological as well as environmental mechanisms. Several of these mechanisms will be discussed in the sections which follow.

Physiological Mechanisms

One might initially postulate that the correlation between child and maternal anxiety is genetically grounded. Although this seems a reasonable hypothesis, a closer look at the results of this study deem a simple genetic explanation for this relationship inadequate. According to the laws of simple Mendelian genetics, mothers and fathers contribute equally to the genetic make-up of their children. Although there are exceptions to this rule
Anxiety (e.g., sex-linked traits), the results of this study do not support the idea that anxiety falls into this category. The moderate correlation between maternal and child anxiety, in conjunction with the insubstantial correlation between paternal and child anxiety, indicates that simple genetic transmission has not occurred in the sample at hand.

An alternative physiological explanation for this correlation involves fetal exposure to abnormal hormone levels. Women with anxiety are likely to have increased or decreased hormone levels which affect their unborn children. It is not unthinkable that hormonal variations such as these induce physiological changes which predispose children toward anxiety. Further research is warranted before this theory is considered seriously. In the meantime, environmental factors such as modeling and attachment will be emphasized here.

Environmental Mechanisms

Modeling

One might attempt to dismiss modeling as an attractive explanation for the correlation between child and maternal anxiety by arguing that paternal anxiety ought to be modeled and correlated as well. This seemingly reasonable argument is weakened, however, by the literature pertaining to the division of labor in families. Although one might expect that equal opportunity and the feminist movement have narrowed the gap between maternal and paternal time spent on childcare, this has not been the case. In fact, research indicates that the amount of time men spend on childcare does
not vary according to the employment status of their wives (Shelton, 1990). Despite the increased percentage of working women, mothers continue to shoulder 90% of the burden of responsibility for childcare (Lamb, 1987).

The additional time and parental responsibility shouldered by a child’s mother puts her in a position to serve as a more salient model. When a mother models anxious behaviors, fears, and phobias, it is likely that her child will imitate or internalize them (e.g., Dadds, 1992; King, Hamilton, & Ollendick, 1988; Turner et al, 1987). Similarly, a mother’s parental responsibilities put her in the position to serve as the "primary reinforcer." If mother has increased anxiety, she may be especially sympathetic toward her child’s anxious behavior, and provide comfort and reassurance contingent upon its display:

Attachment

An alternative environmental method by which maternal anxiety may have been transmitted is via attachment status. Research indicates that attachment status is transmitted intergenerationally (e.g., Fonagy et al., 1988; Grossmann et al., 1988; Main et al., 1985, and Van Ijsendoorn, 1992). This implies that, if grandmother and mother are securely attached, then mother and child are more likely to be securely attached. Because measures of attachment (such as the Parental Bonding Instrument) have been shown to discriminate between persons with and without anxiety (Randolf and Svenn, 1990), it follows that anxiety may be transmitted from one generation to the next via failure to form and maintain secure
attachments (see Figure 1). Further research is necessary to explore this possibility.

Figure 1

<table>
<thead>
<tr>
<th>HEALTHY FAMILY</th>
<th>UNHEALTHY FAMILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great-grandmother</td>
<td>Great-grandmother</td>
</tr>
<tr>
<td><em>securely attached</em></td>
<td><em>insecurely attached</em></td>
</tr>
<tr>
<td>Grandmother (non-anxious)</td>
<td>Grandmother (anxious)</td>
</tr>
<tr>
<td><em>securely attached</em></td>
<td><em>insecurely attached</em></td>
</tr>
<tr>
<td>Mother (non-anxious)</td>
<td>Mother (anxious)</td>
</tr>
<tr>
<td><em>securely attached</em></td>
<td><em>insecurely attached</em></td>
</tr>
<tr>
<td>Child (non-anxious)</td>
<td>Child (anxious)</td>
</tr>
</tbody>
</table>

All dyads are securely attached as measured by the PBI. This is not surprising as attachment status is transmitted intergenerationally. The PBI discriminates between persons with and without anxiety. As all members of this family are securely attached, it is likely that they are not anxious.

All dyads are insecurely attached as measured by the PBI. This is not surprising as attachment status is transmitted intergenerationally. The PBI discriminates between persons with and without anxiety. As all members of this family are insecurely attached, it is likely that they are anxious as well.
Prevention, assessment and treatment recommendations

Although the correlation between child and maternal anxiety barely reached statistical significance, the relationship between the two variables should not be overlooked. Based on the comorbidity between maternal and child anxiety found here and in several other studies, recommendations for prevention, assessment, and treatment are made.

Child adjustment is largely determined by parental attitudes and methods of child-rearing (e.g., Baumrind, 1989; Lamborn et al., 1991). It is therefore suggested that these attitudes and practices be considered in the prevention and treatment of child anxiety. It is recommended that parents receive education regarding their role as models and reinforcers, particularly when one or both parents suffer anxiety. In the event that parents are afflicted with clinical anxiety, it is recommended that they obtain individual therapy as early as possible. It is suggested that parental treatment protocols include specific procedures which will assist them in managing their anxiety in the presence of their children.

Parents who feel that they are poorly attached to their own caregivers may wish to enroll in a preventative program such as Steps Toward Effective, Enjoyable Parenting (STEEP; Erikson et al., 1993). Grounded in attachment theory, STEEP is believed to be particularly useful for parents who have insecure attachments with their own caregivers. Preliminary results indicate that this program decreases anxiety and depression in mothers at-risk for parenting problems (Erickson et. al.,
In the event that a child is referred for clinical anxiety, it is recommended that the primary caregiver be assessed as well. It is suggested that clinicians observe caregivers during treatment sessions and implement paper and pencil questionnaires such as the State-Trait Anxiety Inventory for Adult. Clinicians may wish to be vigilant for caregivers who model and/or reinforce anxious behavior before, during, and after treatment sessions. In the event that such practices are evident, it is suggested that the clinician help the parent model and reinforce alternative behaviors.

Section B

The nearly significant, negative correlation between child anxiety and the "independence" subscale of the Family Environment Scale suggests that child anxiety and parental overinvolvement may be somehow related. This hypothesis is supported by York and Kearney (1993), who indicate that families of children with school refusal behavior score significantly lower than normative values on the "independence" subscale of the FES. Kearney and Silverman (1995) attributed this finding to the fact that school refusal is often associated with separation anxiety and enmeshed family patterns.

As previous studies involving clinical populations have linked parental overinvolvement (e.g., Kearney & Silverman, 1995) with child anxiety, it seems reasonable to assume that this relationship may exist on a clinical/subclinical continuum. One can speculate that preventative strategies
targeting enmeshed family patterns might be useful for reducing the chances of raising children with high anxiety. Parents may enroll in preventative programs such as "Practical Parenting", or the "Prevention and Relationship Enhancement program" (PREP; Markman, Blumberg, & Stanley, 1993), which attempt to foster healthy parent-child and marital relationships, respectively.

It is recommended that families of children referred for anxiety be assessed for parental overinvolvement. When parental overinvolvement appears to be a problem, it is suggested that boundaries, power distribution, and family alliances be assessed and treated as appropriate. Marital and family therapy is recommended for families whose structure involves an inappropriate parent-child bond in combination with a weak marital alliance, as well as for families with an inappropriate power distribution (e.g., child makes the rules of the house). Marital and family therapy may increase the likelihood of positive parent-child interactions by increasing intimacy between parents, decreasing inappropriate parent-child enmeshment, and redistributing power in the family.

In light of the fact that the correlations obtained in this study were relatively small, the aforementioned recommendations are asserted with caution. Further research needs to be conducted to determine 1) why correlations did not reach expected significance, and 2) why subclinical and clinical data differed so greatly. To assist future researchers in their endeavors, limitations of the present study are presented as well as
recommendations for future research.

**Limitations**

Several limitations of this study deserve comment. First, the sample at hand was self-selected. Though 1600 consent forms were distributed, only 250 were returned. Only 59 of the 250 parent packets distributed were completed. The parents and children that comprised the final group of 59 seem to have displayed an unusual level of motivation and responsibility in completing and returning the necessary materials. It is likely that the self-selection involved in the acquisition of this sample had an effect on the overall results of the study. Second, this study was exploratory in nature, and must be interpreted as such. A large number of correlations (11) was computed on data collected from a relatively small sample (59), increasing the probability of Type I error. Third, it is likely that the results of this study were confounded by the relative proportion of males and females which participated. Nearly twice as many female students completed the CMAS, and the maternal to paternal ratio of completed LWMATs and STAIs was 1.53:1 and 1.72:1, respectively. It is possible that the increased number of females resulted in increased levels of mother/daughter modeling, hence an inflated correlation between maternal and child anxiety. Correlations between the anxiety levels of various parent/child dyads were computed to explore this confound, and to explore the possibility that daughters model their mothers' behavior, while sons model their fathers'. The following results were obtained:
Mother/daughter: $r = .41$ (p<.05, n=37), mother/son: $r = .31$ (p<.25, n=17),
father/daughter: $r = .35$ (p<.25, n=22), father/son: $r = .19$ (p>.25, n=10).

Further research is necessary to determine whether or not this is a stable confound, and to explore the possibilities that 1) sons are more likely to imitate their mothers than their fathers, and 2) daughters are more likely to imitate their fathers than sons.

**Recommendations for Future Study**

Several recommendations are made for future research. First, it is suggested that more sensitive measures, such as behavioral observation, be employed in the assessment of family variables. Second, it is recommended that a comparison be made between the families of children with clinical versus subclinical anxiety. A comparison using sensitive measures would allow researchers to determine qualitative as well as quantitative differences between the families of children with clinical versus subclinical and high versus low anxiety. It is possible that the hypothesis tested in this study failed to differentiate families of high and low anxious children because emphasis was placed on quantitative differences alone. Third, it is recommended that researchers recruit more males to participate in studies involving familial transmission of anxiety. Finally, it is recommended that researchers explore the role of attachment status, parental affect, and traumatic precipitating factors on child anxiety, as these factors were not considered here.
Summary

Results of this study suggest that maternal anxiety and, to a lesser extent, parental overinvolvement may be somehow related to child anxiety. Clinicians may wish to consider the implications that these results have for prevention, assessment, and treatment. Further research is necessary to determine whether qualitative as well as quantitative differences exist between the families of children with high versus low and clinical versus subclinical levels of anxiety. Future research may also consider factors such as differential degrees of modeling between various parent/child dyads, and the effects of parental affect and trauma on childhood anxiety.
Appendix A

Parent and Student Consent Forms
Dear Student:

We at the University of Nevada, Las Vegas are doing a study on nervousness and feelings of anxiety in children and adolescents. We are interested in having you answer some questions about your feelings in this area. We would like you to fill out a few forms which will ask you whether or not certain situations make you feel nervous or worried.

Although you may feel a little strange about answering some of these questions, no risks are expected. In fact, you may find out some interesting information about yourself. You do not have to participate in this study if you do not want to. If you decide to participate and then change your mind, you can stop and withdraw at any time.

Please talk with your parents about this study before you sign this form. Your parents will be asked to sign a form very much like this one. If you have any questions about what you have read or about what you will be asked to do, feel free to call Dr. Christopher Kearney at (702) 895-3305. You may also ask the person who comes to school to see you.

If you want to be a part of our study, please sign the line below and return this to your teacher as soon as you can. Thank you.

Print your name here

Date

Sign your name here

Christopher A. Kearney, Ph. D.
Associate professor, Psychology
University of Nevada, Las Vegas

Diane L. Wadiak
MA candidate, Psychology
University of Nevada, Las Vegas

College of Liberal Arts
Department of Psychology
4505 Maryland Parkway • Box 455030 • Las Vegas, Nevada 89154-5030
(702) 895-3305

UNLV
Dear Parent:

As part of a joint effort between your child's school and the Department of Psychology at the University of Nevada, Las Vegas, we are interested in having your child participate in a research study regarding childhood anxiety. Specifically, we are asking permission to have your child complete questionnaires pertaining to his or her level of fear and anxiety.

Should your child participate in this study, you and your child's teachers will be asked to complete questionnaires as well. The questionnaire administered to your child's teacher will pertain to your child's behavior. Questionnaires completed by yourself will pertain to your child's behavior and will elicit information regarding family functioning. Copies of all questionnaires are available for your viewing at the school office. All information obtained will be summarized into a large, anonymous data pool, and will be kept strictly confidential. Information provided by the child and the child's teacher will be available to the parents upon request. Results of and information pertaining to the study will also be made available to the parents upon request.

Your child was selected for this project based solely on age. No risks are anticipated, and we believe the process will greatly benefit those children at-risk for fear/anxiety and other problems. You are welcome, of course, to withdraw from the project at any time or refuse to participate without loss of any benefits. If you have any questions regarding this project, please contact Dr. Christopher Kearney at (702) 895-3305.

We are asking you to sign this letter and agree to have your child participate in this project. Your signature below indicates that you have read the information in this letter and consent to your child's participation in this study. PLEASE RETURN THIS FORM WITHIN 24 HOURS. Thank you for your consideration.

Child's name ______________________ Date _____________

Parent signature

Christopher A. Kearney, Ph.D.
Associate Professor, Psychology
University of Nevada, Las Vegas

Diane L. Wadiak
MA Candidate, Psychology
University of Nevada, Las Vegas

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Appendix B
Parent Questionnaires
December 2, 1994

Dear Parent:

The Department of Psychology at the University of Nevada, Las Vegas extends its gratitude and appreciation for your willingness to participate in our research study. We are confident that much will be learned via this study, and hope that you will take advantage of the services/information that will be made available to you. This memo contains general information regarding the questionnaires that you will be completing, and provides instructions as to how to obtain information about our study. Instructions for obtaining your child’s self-reported and/or teacher-reported level(s) of anxiety will also be provided.

Before any instructions are given, we wish to reiterate the fact that all data collected in this study will be summarized into a large, anonymous data pool, and will be kept strictly confidential. It is important that you recognize that school officials will not have access to any information that you provide. We hope that the confidential nature of this study will allow you to answer these questionnaires honestly and with minimal discomfort.

It is important that you realize that you are under no obligation to complete any of these questionnaires. These questionnaires contain very personal material; if you feel that the questionnaires are too intrusive, you may withdraw from the study without penalty. Although it is desirable that you complete all questionnaires, we encourage you to complete as many as you feel comfortable completing.

Please glance at the questionnaires at this time. There should be five questionnaires and a demographic cover sheet. All questionnaires have instructions. Please read and follow these instructions as carefully as possible. Additional instructions are as follows:

1) The Family Environment Scale:
There is one, double-sided copy of the Family Environment Scale. Although it is perfectly acceptable for one parent to complete this form, it is useful for both parents to fill it out together. Please indicate whether or not one or both parents completed the form. If only one parent completed the form, indicate whether it was the child’s mother/stepmother or father/stepfather. Notice that the Family Environment Scale has a separate answer form; please use this answer form to indicate your answers.

2) The STAI-P:
There are two, double-sided copies of the STAI-P. If two parents/stepparents are living in the home, please have both adults fill these out. Indicate “mother” or “father” on these forms. If only one parent is available, please have that parent fill out a form, indicating whether “mother” or “father” completed it.

3) The LWMAT:
There are two, double-sided copies of the LWMAT. If two, married parents/stepparents are living in the home, please have both parents fill these out, indicating “husband” or “wife” on these forms. If only one, married adult is available, have that adult fill out the form, again indicating “husband” or “wife.” If one, unmarried parent/stepparent or two, unmarried parents/stepparents reside in the home, disregard this form.

Do not put your name on any of these forms. When you have completed the questionnaires, place all six of them in the envelope provided. Enclose the demographic cover sheet as well. For your privacy, seal the envelope, then have your child return it to his or her teacher. Keep this memo for future reference.

Obtaining information: The following section outlines the procedures involved in obtaining information about A) Your child’s scores and B) The results of the research study:

A) Your child has completed several measures of anxiety. His or her teacher may have also completed a measure of your child’s behavior. You may obtain the results of these questionnaires by sending a stamped, self-addressed envelope to:
In order to obtain these results, you must:
1) Indicate that you wish to receive your child's scores.
2) Indicate the number written in red ink at the top of this memo.
3) Sign the sheet of paper indicating the two aforementioned pieces of information.

Scores will be available February first. Incomplete requests will be returned. Requests that do not contain a stamped, self-addressed envelope will not be answered.

B) The results of details regarding this study will be available in the summer of 1995. In order to obtain a copy of the results, send a stamped, self-addressed envelope to the name and address listed above. Indicate that you wish to receive the results of the research study.

Thank you for your time and cooperation. If you have additional questions or comments, feel free to call Diane Wadiak or Dr. Christopher Kearney at (702) 895-3305.
Demographic Cover sheet

1) Child's gender (Circle one)
   M     F

2) Child's age: __________

3) Child's Date of Birth
   Month: ________________________
   Date: ________________________
   Year: _________________

3) Child's race (Circle one)
   White
   African-American
   Hispanic
   Asian-American
   ____________ Other (Please specify)

4) Single or dual parent family? _________________________

5) Total family income: _________________________
Appendix C

Human Subjects Protocol Approval
TO: Diane L Wadiak
FROM: Dr. William Schulze, Director, Office of Research Administration
DATE: 28 February 1994
RE: Status of Human Subject Protocol entitled: "Relationship between Anxiety Sensitivity and Externalizing Behaviors"

This memorandum is official notification that the protocol for the project reference above has been approved. This approval is for a one year duration. At the end of the year, you must notify this office if the project will be continued.

If you have any questions or require any assistance, please give us a call.
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