

**THE RELATIONSHIP BETWEEN FAMILY ENVIRONMENT AND
INTERNALIZING AND EXTERNALIZING CHILDHOOD BEHAVIOR PROBLEMS**

by

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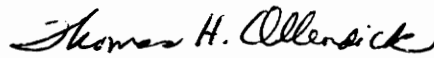
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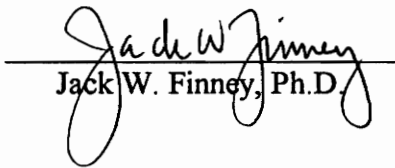
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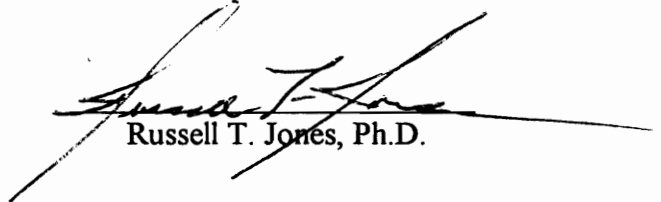
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(ABSTRACT)

In spite of the high prevalence of internalizing and externalizing disorders in children, little research has been conducted to directly assess risk factors associated with the development of these disorders. Among other influences, it has been suggested that the expression of childhood psychopathology may be related to family socialization practices. This study uses Olson's circumplex model of marital and family systems to test the relationship between family environment and the internalizing and externalizing domains of childhood psychopathology. It was hypothesized that children with internalizing behavior problems come from families that are high in cohesion (i.e., enmeshed) and low in flexibility (i.e., rigid and structured). Furthermore, it was predicted that these families are low in level of expressed conflict and have poor communication levels within the family. Families of children with externalizing behavior problems, on the other hand, were hypothesized to be low in cohesion (i.e., disengaged), and to be either high or low in flexibility (i.e., rigid or chaotic). They were predicted to openly express high levels of conflict within the family, but generally have poor communication skills.

These hypotheses were tested using Achenbach's Child Behavior Checklist to assign children between the ages of 7 and 11 to internalizing ($n = 9$) and externalizing ($n = 10$) groups and using an objective observational measure and several self-report measures to evaluate the families along the dimensions of the circumplex model. Results failed to confirm these hypotheses, however, they were suggestive of a link between family environment and nature and severity of childhood behavior problems.

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Introduction

Child psychopathology is commonly broken down into two primary domains or categories: internalizing disorders and externalizing disorders (Windle & Windle, 1993). Mood disorders and anxiety disorders are typically considered to be internalizing problems, while attention deficit hyperactivity disorder, conduct disorder, and oppositional-defiant disorder are grouped into the externalizing category. Considerable research related to the presentation of these disorders in children has been conducted over the years.

Specifically, gender and age differences have been found which show that boys are more likely to exhibit externalizing behavior problems, whereas girls are more likely to show internalizing problems. This trend, however, changes somewhat as children move from childhood into adolescence. Externalizing behaviors occur with great frequency in boys during the childhood years (Offord, Boyle, Szatmari, Rae-Grant, Links, Cadman, Byles, Crawford, Blum, Byrne, Thomas, & Woodward, 1987). In adolescence, although boys continue to exhibit higher levels of disruptive behaviors, girls begin to display externalizing behaviors in addition to the internalizing patterns that characterize their behavior in earlier childhood; however, girls are less likely than boys to engage in physically aggressive behaviors (McGee, Feehan, Williams, Partridge, Silva, & Kelly, 1990; Offord et al., 1987). With regard to internalizing disorders, some findings indicate that equal numbers of boys and girls suffer emotional symptoms during the childhood years (Offord et al., 1987), whereas others suggest that girls are more likely to exhibit

internalizing symptoms (Kashani & Orvaschel, 1990). By adolescence, however, girls report significantly higher rates of internalizing disorders (Offord et al., 1987).

Disorders of childhood have been shown to have prevalence rates that range from one to nine percent for internalizing disorders, and one to fifteen percent for externalizing disorders (Beitchman, Inglis, & Schachter, 1992a, 1992b). Both groups have comorbidity rates that range from 25% to 50% (McGee et al., 1990). The prognosis for children manifesting comorbid disturbance may be much worse than for those presenting with single disorders (Windle & Windle, 1993). For example, one longitudinal study of 1,172 children suggested a trend for children with multiple disorders to have a worse outcome four years later than children manifesting a single disorder (Offord, Boyle, Racine, Fleming, Cadman, Blum, Byrne, Links, Lipman, MacMillan, Grant, Sanford, Szatmari, Thomas, & Woodward, 1992). In addition, McGee et al. (1990) reported that multiple disorders and primarily externalizing disorders were related to poorer social competence.

Research has clearly shown that internalizing and externalizing behavior patterns are predictive of later psychological dysfunction, but the predictive validity of internalizing disorders has not been studied as intensively (Windle & Windle, 1993). In a three year longitudinal study, parent ratings of externalizing behavior problems showed higher stability than parent ratings of internalizing behavior problems (McConaughy, Stanger, & Achenbach, 1992; Stanger, McConaughy, & Achenbach, 1992). Offord et al. (1992) reported that conduct disorder showed the greatest stability of the childhood behavior disorders over time. In addition, research has shown that attention problems appear to be a risk factor of further attention problems as well as delinquent behavior (Stanger et al.,

1992). With regard to internalizing behavior problems in particular, the existing literature suggests that socially avoidant behavior patterns are relatively stable and that avoidance and social withdrawal may protect against the development of certain externalizing behaviors. However, it should also be noted that they also may contribute to the development of further internalizing problems (Windle & Windle, 1993).

Family Environment as a Correlate of Childhood Psychopathology

In spite of the high prevalence of internalizing and externalizing disorders, little systematic research has been conducted to directly assess risk factors associated with the development of these disorders. Among other influences, it has been suggested that the expression of childhood psychopathology may be related to family socialization practices (Smets & Hartup, 1988). While research has shown relationships between adult psychopathology and retrospective recollections of childhood family environment, little research has been conducted to test this notion directly with children, particularly younger, school-aged children.

Some exceptions do exist, however. For example, one group of researchers (Cowan, Cohn, Cowan, & Pearson, 1996) tested several models that included parents' attachment histories in the prediction of childhood psychopathology. They found that fathers' attachment histories predicted more variance in children's externalizing behavior (69%, in contrast to 39% for mothers' attachment histories), whereas mothers' attachment histories predicted more variance in children's internalizing behavior (60%, in contrast to 41% for fathers' attachment histories). Other researchers have found a negative relationship between family conflict and adolescent psychological adjustment, and a

positive relationship between adjustment and family cohesion and expressiveness (Kurdek & Sinclair, 1988).

With regards to specific externalizing disorders, some researchers have explored family variables as risk factors for delinquency and conduct disorder, particularly in adolescence. In a follow-up to the Newcastle Thousand Family Study, Kolvin, Miller, Fleeting, and Kolvin (1988) found a strong relationship between delinquency in late childhood and beyond and the mother's poor care of the child during the early years of life. These mothers failed to provide guidance, direction, and supervision, which gave rise to an atmosphere of family stress and general disorganization. Other research has shown that children with conduct disorder tend to be lower in family cohesion and active-recreational orientation but higher in conflict than both anxious and normal children (Haddad, Barocas, & Hollenbeck, 1991). Robins (1991) reported similar conclusions in a review of the literature on childhood conduct disorder. He indicated that families of children with conduct disorder are characterized by parental discord and neglect, erratic and severe discipline, and large families. In a meta-analysis of studies on the relation of family factors to juvenile conduct problems and delinquency, Loeber and Stouthamer-Loeber (1986) found that socialization variables, such as lack of parental supervision, parental rejection, and parent-child involvement, are all strong predictors of juvenile conduct problems and delinquency.

With regards to aggressive behavior, Sines (1987) found that parental rejection of and aggression toward the child are significantly related to aggressive behaviors among children. Other researchers have linked parenting disagreement with aggression in both

boys and girls (Dadds & Powell, 1991). In a developmental model of antisocial behavior in childhood and adolescence, Reid and Patterson (1989) argue that irritable, ineffective discipline and poor parental monitoring are the most proximal determinants of the early development and maintenance of antisocial behavior. Fowler (1980) also noted a trend for early behavioral displays of aggression to be associated with a less cohesive family structure. Although the literature in this area seems to support the link between family variables and aggression and conduct problems, it should be noted that some research exists which disputes this idea. For example, one study found that family bonding and management practices appeared to contribute little to the development of serious delinquency and substance use in aggressive boys (O'Donnell, Hawkins, & Abbott, 1995).

Researchers have also noted poor family functioning in children with attention-deficit and hyperactivity problems. Lewis-Abney (1993) studied children with Attention-Deficit Disorder and found that families of these children reported poorer functioning, particularly for families of older children with the disorder and families where the child displayed high levels of impulsivity and hyperactivity. Sines (1987) also concluded that socially undesirable family characteristics, including parental rejection, parental aggression, marital conflict, and instability or change, are positively related to hyperactivity. Research by Barkley and colleagues indicates that children with Attention-Deficit/Hyperactivity Disorder alone and with comorbid Oppositional Defiant Disorder have more topics on which there is conflict with their parents and have more angry conflicts at home than do control children (Barkley, Anastopoulos, Guevremont, & Fletcher, 1992). Although the direction of the relationship between family dysfunction and attention-deficit and

hyperactivity problems has not been established, it has been speculated that children with these problems elicit negative reactions from their parents and other family members and thus the existence of these disorders may contribute to overall family dysfunction (Barkley et al., 1992; Lewis-Abney, 1993; & Sines, 1987).

Much less research has been focused on the relationship between family variables and internalizing behavior problems. Koestner, Zuroff, and Powers (1991) found that restrictive and rejecting parenting at age five leads to self-criticism at age 12. These authors hypothesized that children who meet with strict demands coupled with rejection from their parents at age 5 are likely to begin to evaluate and reinforce themselves in a similarly strict and nonaccepting manner. A relationship has also been found between the focus and affective quality of maternal interaction and children's subsequent depression and school behavior (Burge & Hammen, 1991). Similarly, Barrera and Garrison-Jones (1992) found that depression in adolescence was negatively related to family and paternal support. Interestingly, these authors found that conduct disorder and anxiety were not uniquely related to these family relationship factors. Other research has shown that parental overprotection and adolescent depression are positively related (McFarlane, Bellissimo, & Norman, 1995). Dadds, Sanders, Morrison, and Rebgetz (1992) noted that high levels of depression in children are associated with low levels of conflict and anger in family members. They found some evidence that depressed children may be exposed to parental aversiveness but that they do not reciprocate this level of aversiveness themselves. Furthermore, they speculated that childhood depression may somehow have a limiting effect on the expression of aggression in families. In addition, Sines (1987) noted

that parent rejection of and aggression toward depressed children are reported in clinical studies of depressed children, but that these correlates are found only among boys.

Other researchers have found sex differences in the prediction of anxiety by marital adjustment and parenting disagreement. For example, in one study, this relationship was found only in boys (Dadds & Powell, 1991). Research has also shown that there are several variables that have been found to be positively related to somatic complaints in children. Among these are overprotective or domineering parents, family conflict or discord, and family pressure for achievement (Sines, 1987). Fowler (1980) found that shyness and anxiety are associated with less structural organization and control in the family.

Although inconclusive at best, these findings concerning the relationship of family socialization practices to childhood psychopathology suggest the utility of a family systems approach to understanding the development of these disorders. It should be noted that none of these studies tested a particular family systems model, however.

The Contribution of Family Systems Models

The circumplex model of marital and family systems, as developed by Olson (1993a), examines family functioning along three dimensions: cohesion, flexibility, and communication. Family cohesion is defined as the emotional bonding that family members have toward one another. The four levels of cohesion, from lowest to highest, are disengaged, separated, connected, and enmeshed. According to this model, optimal family functioning takes place at the central, "balanced" levels of cohesion (separated and connected). In families that fall in these balanced ranges, individuals are able to

experience both independence from, and connection to, their families. Time is spent together as well as apart from the family, with some shared activities and joint decision making.

The two unbalanced levels of cohesion (disengaged or enmeshed) are generally viewed as problematic, however. In enmeshed families, there is thought to be too much consensus within the family and too little independence among individual family members. There is an extreme amount of emotional closeness and loyalty and individuals are highly dependent on one another and overly-reactive to each other. There is a lack of personal separateness and little private space. The energy of the individuals in the family stays focused within the family, with few outside individual friends or interests.

In disengaged families, on the other hand, family members behave independently from each other with limited attachment and commitment to the family. There is said to be extreme emotional separateness and independence with little involvement among family members. Separate time, space, and interests predominate, and members are unable to turn to one another for support or problem solving.

The second dimension of the circumplex model is family flexibility (formerly called family adaptability), defined as the amount of change in family leadership, role relationships, and relationship rules. The four levels of family flexibility, from lowest to highest, are rigid, structured, flexible, and chaotic. As with cohesion, the central, balanced levels (structured and flexible) are more conducive to family functioning, with the unbalanced levels (rigid and chaotic) being the most problematic. Families need both stability and change, and structured and flexible families are thought to have a democratic

approach to decision making and leadership. Roles are shared and rules change when necessary with open negotiations that include the children.

In unbalanced, rigid families, however, there tends to be only one, highly controlling individual in charge. Most decisions are imposed by the leader with little negotiation involving other family members. The roles are strictly defined and the rules do not change. At the other extreme, chaotic families have limited, erratic leadership. Decisions are impulsive, and roles are unclear and often shift from one individual to another.

The family communication dimension of the circumplex model, the third dimension, is a facilitating dimension that allows families to move and change on the cohesion and flexibility dimensions. Family communication is measured with regard to listening and speaking skills, self-disclosure, clarity, and respect and regard for other family members. Families that fall in the balanced ranges of cohesion and flexibility tend to have good communication, with poor communication found in the unbalanced families.

According to the model, all families can be rated on the cohesion and flexibility dimensions and categorized into one of 16 different family types. Olson (1993a) provides a Family Map (see Appendix A) to describe the different types of families. On the Family Map, there are four balanced categories in which the families fall in the balanced range on both the cohesion and flexibility dimensions. There are also four unbalanced types of families in which the family falls in the unbalanced ranges on both dimensions. These unbalanced types of families are chaotically disengaged, chaotically enmeshed, rigidly disengaged, and rigidly enmeshed.

A central hypothesis of the circumplex model is that balanced families will function more adequately than unbalanced families. A variety of studies have supported this notion. Using Olson's self-report measures, the Family Adaptability and Cohesion Evaluation Scales (FACES I, II, & III), researchers have found that the circumplex model differentiates normal, nonclinical families from families of adolescent runaways (Bell, 1983), schizophrenics, neurotics, individuals seeking therapy (Clarke, 1984), juvenile offenders (Rodick, Henggeler, & Hanson, 1986), and sex offenders (Carnes, 1987). In all of these studies, the normal families tend to reside in the balanced categories, while the problem families tend to fall in the unbalanced categories.

The circumplex model does not offer specific predictions about which, if any, of the unbalanced categories are most likely to contain families with a particular problem, such as an anxiety disorder or disruptive behavior disorder. Other models have proven useful in generating hypotheses in this regard, however. Teyber (1988) contrasted three different parenting styles: authoritative, authoritarian, and permissive. Authoritative parents possess a wide range of parenting skills that allows them to combine firm discipline with nurturant child care. Although authoritative parents set and enforce limits, they also communicate with their children and give reasons and explanations for the rules they set. In contrast, authoritarian parents are firm disciplinarians who provide clear rules and consistently enforced consequences for rule violations. They hold high expectations for their children to behave in a responsible and mature manner, and children are expected to be competent and contributing family members. Authoritarian parents differ from authoritative parents in that they do not give their children reasons and explanations for

the rules they set, they simply expect their children to obey. In addition, they do not provide their children with much warmth or affection. Finally, permissive parents are lax disciplinarians. Their children do not know what behaviors are expected of them and they do not know what consequences will occur if they violate parental norms. When they do set rules, they do not consistently enforce them. As a result, children of permissive parents learn that they do not have to obey. In contrast to authoritarian parents, permissive parents are often expressive, loving, and communicative with their children.

These three different parenting styles are hypothesized to have different long-term outcomes for children raised in these environments (Teyber, 1988). The authoritative parenting style produces the most healthy, well-adjusted children. These children are most often independent, self-controlled, successful with peers, and have a generally positive, happy mood. In contrast, because authoritarian parents provide too little nurturance and affection, too much of the child's own initiative and positive self-regard is forsaken in order to secure parental approval. These children are obedient but they are also anxious and insecure, complying with their parents out of fear. They become harsh, critical and demanding toward themselves, just as their parents have been toward them. It is believed that many of these children will seek therapy as adults for problems with guilt, depression, unassertiveness, anxiety, and low self-esteem. In contrast to children of authoritarian parents, offspring of permissive parents are more likely to develop acting-out or externalizing problems and they are less likely to seek therapy as adults. This is due to the fact that they have learned that they can avoid the consequences of their own behavior by manipulating others. These children are more likely to be dependent, immature,

demanding, and unhappy. As adults they will tend to be impulsive and to avoid taking responsibility for their own behavior, developing disorders such as alcohol and substance abuse.

In yet another model, the Beavers systems model (Beavers & Hampson, 1993), families are rated along a competence dimension and categorized as either centripetal or centrifugal. Centripetal family members are said to look for satisfaction within the family and are less trustful of outsiders, while centrifugal family members seek gratification from outside the family unit and often trust the outside world more than the family unit. The categories of centripetal and centrifugal correspond roughly to the enmeshed and disengaged categories of the cohesion dimension of the circumplex model, respectively.

According to the Beavers model, centripetal (enmeshed) families promote internalizing and repression as means of dealing with family problems. When psychological problems occur within centripetal families, it is usually in the form of anxiety, depression, or somatoform disorders. Centrifugal (disengaged) families, on the other hand, deal with distress by using frontal assaults, blame, and manipulation. Psychological difficulties within these families are usually manifested in externalizing behaviors such as vandalism, sexual precocity, substance abuse, and conduct disorders.

Using their own family systems approach with psychosomatic families, Minuchin, Rosman, and Baker (1978) observed a recurring pattern in these families where the family process is generally characterized by enmeshment, overprotectiveness, rigidity, and lack of conflict resolution. In such families, the threshold for conflict is very low and it is avoided at all costs. The result is that problems are left unresolved or their existence is denied

altogether. Rather than confronting problems, family members are enmeshed and suppress their emotions. Moreover, they are rigid in their approach to resolving problems.

On the other hand, Reiss (1971) developed a theory which included what he called interpersonal distance-sensitive families in which individuals strive for independence from the family. He noted that these families demonstrate open conflict between family members and that families of delinquents often fall into this category.

Based on these findings and others, it seems that the factors that distinguish enmeshed from disengaged families may serve to predispose family members to react to problems in different ways. Enmeshed families that emphasize love and affection and strive to minimize conflict may inadvertently teach a child to react to stressors by suppressing and internalizing emotion in an effort not to upset the family system. Disengaged families, on the other hand, deal with problems in an open, confrontational style as each family member strives to assert his or her independence. In such families, a child's distress may be manifested in externalizing, acting-out behavior.

Several studies have examined the roles of cohesion and flexibility using Olson's self-report instruments, the Family Adaptability and Cohesion Evaluation Scales (FACES II & III), to determine the relationship of family functioning with specific behavior problems of childhood, although these studies were not testing directional hypotheses. With regard to internalizing behaviors, Summerville, Kaslow, Abbate, and Cronan (1994) found that African-American adolescents who attempted suicide and reported a high number of depressive symptoms rated their families with significantly lower levels of cohesion (i.e., more disengaged) than individuals with lower levels of depressive

symptoms. Research on young adolescents with Obsessive-Compulsive Disorder (OCD) has shown an inverse association between cohesion as rated by the adolescent and OCD which suggests that decreased cohesion (i.e., disengagement) in the family may be associated with an increased prevalence of OCD (Valleni-Basile, Garrison, Jackson, Waller, McKeown, Addy, & Cuffe, 1995). Both of these studies question the systems theory notion that family enmeshment somehow predisposes a child to have internalizing behavior problems. Rather, both studies show that internalizing problems, as reported in diagnoses of depression and OCD, are associated with disengagement styles, at least as reported by the adolescent.

With regard to externalizing behaviors, Lewis (1992) found that families with children with Attention-Deficit Hyperactivity Disorder, with and without hyperactivity and aggression, did not differ significantly from normal families. Differences were found, however, when the experimental group was broken down into children with attention-deficit problems only and children with attention-deficit problems in addition to hyperactivity and aggression. The latter group was found to have more unbalanced (i.e., dysfunctional) levels of family functioning as rated by children's parents. Other researchers have found that adolescent substance abusers and their parents tend to rate their families as falling into the disengaged category of the cohesion dimension, but their ratings do not differ from non-problem families on overall indicators of flexibility (Volk, Edwards, Lewis, & Sprenkle, 1989). Interestingly, the results of this research showed that drug abusing adolescents view their families as more rigid and their mothers view their families as more chaotic than do members of non-problem families.

Very few studies have used Olson's model to contrast groups of children classified more broadly as internalizing and externalizing. As indicated above, family systems theory seems to generate hypotheses about differences in family functioning between these two groups. Yet the literature provides little empirical support for these ideas. One study that did examine these variables was conducted on a sample of children adjusting to their parents' recent divorce (Johnson, 1982). A linear relationship was found between children's adjustment and family cohesion as rated by the parents, with more behavior problems being found in families with greater cohesion (i.e., enmeshed). This relationship between behavior problems and cohesion was greater for children with internalizing behavior problems (8.4% of explained variance) than children with external problems (3.3% of explained variance). Although a significant relationship between children's behavior problems and flexibility (i.e., chaotic, rigid) was not found, the circumplex model was supported in general because the families who scored in the unbalanced range of cohesion and flexibility tended to have a higher proportion of children with behavior problems.

Smets and Hartup (1988) also tested the relationship between family systems and child symptomatology using the circumplex model with families who were referred for outpatient treatment. The families were assigned to two groups, one group in which the child identified for treatment scored in the clinical range for internalizing behavior problems on Achenbach and Edelbrock's (1983) Child Behavior Checklist, and another group in which the identified child scored in the clinical range for externalizing behavior problems. Family environment was measured by parental self-report using Olson's Family

Adaptability and Cohesion Evaluation Scale II (Olson, McCubbin, Barnes, Larson, Muxen, & Wilson, 1982). Their data showed that family cohesion and flexibility were not related to symptom clusters identified as internalizing and externalizing. The proposed study will also test this relationship, but in contrast to the Smets and Hartup (1988) study which used a self-report measure only, the proposed study will use clinician ratings based on behavioral observations, as well as self-report ratings, in the hope that a more objective measure of family functioning will better assess whether or not a relationship exists between family functioning and children's expressions of psychopathology.

Hypotheses

Hypothesis 1: Families of children with internalizing behavior problems will score high on the cohesion dimension of the circumplex model (they will fall in the enmeshed category), while families of children with externalizing behavior problems will score low on the cohesion dimension (they will fall in the disengaged category).

Hypothesis 2: Families of children with internalizing behavior problems will score low on the flexibility dimension of the circumplex model (they will fall in the rigid category), while families of children with externalizing behavior problems will fall in both of the unbalanced categories of the flexibility dimension (they will fall in either the rigid or chaotic categories).

Hypothesis 3: Families of children with internalizing behavior problems will score low on a measure of conflict within the family (Family Environment Scale), while families of externalizing children will score high on the measure of conflict.

Hypothesis 4: Consistent with the overall hypotheses of the circumplex model, families of children with either internalizing or externalizing behavior problems will score in the low communication category on the communication dimension of the circumplex model.

Hypothesis 5: For families of children with internalizing behavior problems, level of cohesion will be negatively correlated with amount of conflict and communication within the family, but level of flexibility will be positively correlated with conflict and communication. For families of children with externalizing behavior problems, levels of cohesion will be negatively correlated with conflict but positively correlated with

communication; moreover, the distance of the families from the center of the scale on the flexibility dimension (i.e., either rigid or chaotic direction) will be positively correlated with amount of conflict but negatively correlated with level of communication.

Method

Subjects

The sample consisted of 19 children referred to an outpatient psychological clinic for assessment or treatment and their primary caregiving parents. The children ranged in age from 7 to 11 years (internalizing $M = 9.0$, $SD = 1.23$; externalizing $M = 8.7$, $SD = 1.06$). For the purposes of this study, the children were divided into two groups on the basis of whether they met criteria for internalizing ($n = 9$, 7 boys, 2 girls) or externalizing ($n = 10$, 4 boys, 6 girls) disorders (see below). All of the children were White with the exception of two girls in the externalizing group who were of Puerto Rican and Native American backgrounds, respectively. Children were included in the study in the order that they sought services from the psychology clinic. The primary caregiving parents consisted of the biological mothers of the children with the exception of one adoptive mother, one biological father, and one biological grandmother.

Instruments

Anxiety Disorders Interview Schedule for DSM-IV - Child and Parent Versions (ADIS-IV-C/P; Silverman, Albano, & Barlow, 1994; Appendix B). The ADIS-IV-C and ADIS-IV-P are semi-structured clinical interviews designed to assess children between 6 and 17 years of age. The schedules are organized diagnostically to permit differential diagnoses among the following problem behaviors: school refusal behavior, separation anxiety disorder, avoidant disorder, social phobia, simple phobia, panic disorder, panic disorder with agoraphobia, agoraphobia without history of panic disorder, overanxious disorder, generalized anxiety disorder, obsessive compulsive disorder, post traumatic

stress disorder, dysthymia, major depression, attention deficit hyperactivity disorder, oppositional disorder, conduct disorder, sleep terror disorder, and enuresis, with screening questions for substance abuse and schizophrenia. The ADIS-IV-C and ADIS-IV-P each take approximately 1 to 1 1/2 hours to administer. After both the ADIS-IV-C and ADIS-IV-P have been administered, the interviewer derives separate diagnoses from each interview and then a composite diagnosis is made based upon the overlap between and the severity of the parent and child diagnoses. Studies on the reliability and validity of the ADIS-IV-C/P have not yet been conducted, but the previous versions of the measures, the Anxiety Disorders Interview Schedule for Children - Child and Parent Versions (ADIS-C/P; Silverman & Nelles, 1988), were shown to possess adequate clinician agreement. Using a test-retest paradigm with a two week interval, Silverman and Eisen (1992) found a kappa of .75 for agreement between the composite DSM-III-R diagnoses from the first and second administrations.

Child Behavior Checklist (CBCL; Achenbach, 1991; Appendix C). The CBCL is a questionnaire measure that assesses both total symptoms manifested by the child and constellations of internalizing and externalizing behaviors. The CBCL lists 118 problem behaviors which the respondent indicates as either "not true", "sometimes true", or "often true" of the child. A total behavior problem score is derived by summing the ratings of each item and transforming the sum into *T* scores. In addition to the total score, scores for total internalizing and total externalizing behaviors and eight other subscales can be determined in a similar fashion. Test -retest reliability over a one week interval has been

demonstrated with a kappa of .99 for the competence scales and .95 for the problem scales (Achenbach, 1991).

Clinical Rating Scale for the Circumplex Model of Marital and Family Systems (CRS; Olson, 1993b; Appendix D). The CRS allows clinicians to classify families into the circumplex model dimensions based on observations made during a clinical interview or interaction task. In addition to global ratings of cohesion, flexibility, and communication, there are subscale items for each dimension. The cohesion subscale items are emotional bonding, family involvement, marital relationship, parent-child relationship, internal boundaries, and external boundaries. The subscales for the flexibility dimension are leadership, discipline, negotiation, roles, and rules. The communication subscales are listener's skills (empathy and attentive listening), speaker's skills (speaking for self and speaking for others), self-disclosure, clarity, continuity/tracking, and respect and regard. The cohesion and flexibility scales and subscales are rated on an 8-point rating scale with four clearly defined anchor points to represent the four levels of cohesion (disengaged, separated, connected, and enmeshed) and flexibility (rigid, structured, flexible, and chaotic). The communication dimension, which has a 6-point scale, ranges from low to high levels of communication. Interrater agreement has been demonstrated to be 95% for the cohesion dimension, 91% for the flexibility dimension, and 97% for the communication dimension (Olson, 1993b).

Family Adaptability and Cohesion Evaluation Scale III (FACES III; Olson, Portner, & Lavee, 1985; Appendix E). FACES III is a 20-item self-report scale designed to measure perceived and ideal descriptions of a marital or family system. The respondent

is asked to read each statement and rate how frequently the described behavior occurs in his/her family on a scale that ranges from 1 (almost never) to 5 (almost always). The responses are then summed to arrive at ratings of the family along the cohesion and flexibility dimensions of the circumplex model. The discrepancy in ratings on the perceived and ideal versions of the FACES III provides a measure of family satisfaction which indicates how satisfied individuals are with their current family system regardless of their family type. FACES III has been shown to have fair internal consistency with an overall alpha of .68 for the total instrument, .77 for cohesion, and .62 for flexibility. Test-retest data are not available for FACES III but for an earlier version of the instrument, FACES II, there was a four to five week test-retest correlation of .83 for cohesion and .80 for flexibility (Olson, Portner, & Lavee, 1985).

The FACES III can be scored linearly using the Distance from Center (DFC) score. The DFC indicates the distance of an individual's cohesion and flexibility score from the center of the circumplex model. The DFC is limited in that it does not indicate the direction of the score from the center of the circumplex model, but it enables the researcher to have a score that can be used for correlational analysis.

Modified Family Adaptability and Cohesion Evaluation Scale (Modified FACES; Appendix F). The Modified FACES is an experimental adaptation of Olson et al.'s FACES III designed specifically for this study. The Modified FACES consists of 20 items similar to the items on the FACES III but the items on the Modified FACES are designed to assess the functioning of the dyadic relationship between the primary caregiving parent and the child rather than the entire family. Items were adapted from the FACES III as

closely as possible to protect the validity of the scale. For example, the FACES III item “Family members ask each other for help” was changed to “My child and I ask each other for help” on the Modified FACES. Because the Modified FACES is an experimental measure, the psychometric properties of the scale have not been measured.

Family Environment Scale (FES; Moos & Moos, 1981; Appendix G). The FES is a self-report scale that measures social-environmental characteristics of families. Respondents are required to indicate whether each of 90 statements about families is true for their family. The FES is comprised of ten subscales that assess three underlying domains: The relationship dimensions, the personal growth dimensions, and the systems maintenance dimensions. The relationship dimensions are measured by cohesion, expressiveness, and conflict subscales. The personal growth, or goal orientation, dimensions are measured by the independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, and moral-religious emphasis subscales. Finally, the system-maintenance dimensions are measured by the organization and control subscales. Internal consistencies (Chronbach’s Alpha) for the ten subscales range from .61 to .78. Test-retest reliabilities with an eight week interval were found to range between .68 and .86 for the ten subscales (Moos & Moos, 1981). Only the 9-item conflict subscale was used to test hypotheses in this study.

Modified Family Environment Scale - Conflict (Modified FES - Conflict; Appendix H). The Modified FES - Conflict is an experimental adaptation of the conflict subscale of Moos and Moos’ FES designed specifically for this study. The Modified FES - Conflict consists of nine true/false items similar to the items on the conflict subscale of

the FES but the items on the Modified FES - Conflict are designed to assess conflict within the dyadic relationship between the primary caregiving parent and the child rather than within the entire family. Items were adapted from the FES as closely as possible to protect the validity of the scale. For example, the FES item “We fight a lot in our family” was changed to “My child and I fight a lot” on the Modified FES - Conflict. Because the Modified FES - Conflict is an experimental measure, the psychometric properties of the scale have not been determined.

Locke-Wallace Marital Adjustment Test (LWMAT; Locke & Wallace, 1959; Appendix I). The LWMAT is a 15-item measure of marital adjustment, defined as the accommodation of partners to each other at any given time. Scores of 100 or less are considered to be indicative of maladjustment in the marital relationship. Good internal consistency for the LWMAT was demonstrated using the Spearman-Brown formula (correlation of .90; Locke & Wallace, 1959).

Four Factor Index of Social Status (Hollingshead, 1975). This measure allows for the determination of socioeconomic status on the basis of maternal and paternal education and occupation. The indicators were assessed as part of the administration of the ADIS-IV-P, and an index of social status was calculated based on the formula provided by Hollingshead (1975).

It should be noted that the psychometric properties of the above measures were not computed for this study due to the small sample size. Therefore, the reliability and validity of these measures for use with this particular sample are unknown. Ideally, estimates of inter-item consistency and test-retest reliability would be necessary to ensure

the utility of the above measures in general and the experimental measures (Modified FACES & Modified FES - Conflict) in particular.

Procedure

Subjects were recruited from the waiting list for services at the Child Study Center, the Child Assessment Clinic, and from the surrounding community of Montgomery County, Virginia (see Appendix J for subject recruitment letter). They were chosen based on an informal screening procedure with either a clinician who was familiar with their case or with the parents of the children themselves. Any child who was described as exhibiting potential internalizing or externalizing behaviors was assessed using the CBCL filled out by the primary caregiving parent. If they received scores in either the clinical or borderline ranges on either the internalizing or externalizing scales (i.e., a T-score of 60 or higher), they were included in the study. If they received T-scores of 60 or higher on both the internalizing and externalizing scales, they were included only if their score on one of the scales was at least one standard deviation (10 points) above their score on the other scale. Informed consent was acquired for all parents and children included in the study (see Appendices K and L for consent forms)

The child and primary caregiving parent were evaluated over the course of two separate sessions. During the first session, the ADIS-IV-C and ADIS-IV-P were administered to the child and the child's primary caregiving parent by trained graduate and undergraduate clinicians to obtain DSM-IV diagnoses for the child. Diagnoses are composited from the child and parent interviews by rating the severity of diagnoses reported by each informant. If one or the other informant reports a diagnosis of clinical

severity, or if both informants report the same diagnosis of subclinical severity, then the child receives the diagnosis. Parents were given copies of the FACES-III, Modified FACES, FES, Modified FES - Conflict, and LWMAT (if they were married or cohabiting) to complete in the clinic or at home and return to the experimenter during the second session. Because only one parent and one child from each family participated in the study, the nature of the dyadic relationship between the parent and child was of interest in addition to the functioning of the family as a whole. Thus, the Modified FACES and Modified FES - Conflict were designed to assess the functioning of the dyad. During the second session, the child and parent engaged in an interaction task (described below), and received feedback on the results of their assessment.

All of the families in the study engaged in an interaction task, modeled after one used by Thomas and Olson (1993; Olson, 1987). The task is designed to generate interactions pertaining to all subscale items of the three dimensions of the CRS. Task instructions were provided orally by audio tape to ensure consistency across subjects; the entire task took approximately 35 minutes for each subject. During the interaction task, the child and primary caregiving parent were asked to complete two action-oriented tasks and to discuss five topics together as described below. The proper order and verbal instructions for the task are provided in Appendix M.

The first action-oriented task is based on the Kvebaek Family Sculpture Technique (Cromwell, Fournier, & Kvebaek, 1981) and requires arranging family members on a 30 inch by 30 inch checkerboard divided into a 10 inch by 10 inch square grid. The family is presented with a set of small figures depicting family members and is asked to take turns

placing them on the board so as to represent their view of the relationship structure of the family. The family is then asked to reach agreement on how they perceive the family actually to be.

The second action-oriented task is the Family Quandary Task for which the family is given a piece of paper with a 10 inch circle drawn on it, four cups, and three butter knives. They are asked to figure out how they can place three cups on the circle and balance the fourth cup on top of the knives using the three cups as a support base for the knives.

They were also asked to discuss five topics. The first required them to come to a joint decision as to how they would spend \$100 if it were unexpectedly given to them. The second topic of discussion was a description of what a typical weekday evening is like for the family. They were asked to begin their descriptions with the preparation of food at dinnertime and to end at bedtime. In addition, family members were asked to describe one thing they would like to change about their typical evening. The third discussion item was whether the family spends too much or too little time together. The fourth discussion task was to consider how the family would change if different members had to be absent for a month. The final discussion task focused on the strengths in the family.

The interaction task was videotaped and later coded by trained undergraduate research assistants who were blind to the child's diagnostic category (internalizing or externalizing). The undergraduates rated the family along the subscales of the CRS and assigned global scores for cohesion (range = 1-8), flexibility (range = 1-8), and communication (range = 1-6). The global scores were used to determine where the family

was located on each dimension. Three undergraduate research assistants viewed an average of 10 tapes each, with two raters viewing half of the tapes each, and the third rater viewing half of the tapes viewed by each of the other raters so that a measure of interrater reliability could be obtained. A total of 11 tapes were watched by two raters to determine interrater agreement.

The undergraduate research assistants were trained in a number of group training sessions in which the circumplex model was presented and its associated dimensions were discussed. Special attention was given to providing examples of observable behaviors that represented each dimension. The research assistants also watched videotapes of graduate students portraying families that represented the unbalanced categories of the circumplex model. The videotapes were discussed until agreement was reached as to how the family should fall on the dimensions on the circumplex model and the subscales of the CRS.

Results

Sample Characteristics

T-tests were used to test for differences between the two groups on symptom clusters as measured by the CBCL. On the internalizing scale of the CBCL, the internalizing group received a higher mean score ($\underline{M} = 72.22$, $\underline{SD} = 7.58$) than the externalizing group ($\underline{M} = 53.10$, $\underline{SD} = 9.09$). A t-test proved these groups to be significantly different on this variable, $t(17) = 4.95$, $p < .001$. Means on the externalizing scale of the CBCL were higher for the externalizing group ($\underline{M} = 71.2$, $\underline{SD} = 6.89$) than the internalizing group ($\underline{M} = 58.0$, $\underline{SD} = 9.23$), and this difference was also shown to be significant, $t(17) = -3.56$, $p = .002$. These results indicate that the two groups represent two relatively distinct patterns of symptom clustering.

Descriptive statistics were computed on both the internalizing and externalizing groups to determine if age, sex, social status (as determined by the Hollingshead Index), marital status of parents, number of children in the family, and birth order differed for each group. Results are shown in Figures 1 through 6. A t-test was used to determine whether the two groups differed on age of the subjects; no differences were found (internalizing $\underline{M} = 9.0$, $\underline{SD} = 1.23$; externalizing $\underline{M} = 8.7$, $\underline{SD} = 1.06$; $t(17) = .57$, $p = .57$). Chi-square analyses were computed to examine group differences on sex, social status (collapsed into 2 categories: high and low), and marital status of parents (collapsed into 2 categories: intact and broken). The results indicated that the two groups differed, albeit not significantly, on sex of the children, $\chi^2(1, N = 19) = 2.77$, $p = .10$. Seventy seven percent of the internalizing group was male, while only 40% of the externalizing group was male.

The two groups were more evenly matched on social status, $\chi^2 (1, N = 19) = 1.27, p = .26$, and marital status of parents, $\chi^2 (1, N = 19) = .46, p = .50$. In addition, the two groups did not differ significantly on number of children in the family ($t (17) = .03, p = .98$) or birth order of the child, $\chi^2 (1, N = 19) = .54, p = .46$.

The LWMAT was used to determine the presence of marital maladjustment for those subjects with two parent families. A frequency table showed that 46% of married parents received a raw score of less than 100, indicating marital maladjustment. Figure 7 shows the distribution of the two groups on this measure. A t-test between the two groups indicated that the internalizing and externalizing groups were evenly matched on this variable ($t (11) = .13, p = .902$) with the mean scores being 104.67 ($SD = 20.36$) and 103.00 ($SD = 26.30$) for the internalizing and externalizing groups, respectively.

DSM-IV diagnoses were obtained for each subject using the ADIS-IV-C/P and frequency of each diagnosis is shown in Table 1. For the internalizing group, seven of the nine subjects received a diagnosis and one third (33.3%) of the subjects received more than one diagnosis. For the externalizing group only one subject did not receive a diagnosis and 50% of the subjects received comorbid diagnoses. As can be seen in Table 1, three of the internalizing subjects received a diagnosis of an externalizing disorder only (ADHD or ODD), and two more subjects received a comorbid diagnosis of an externalizing disorder (ADHD) in addition to an internalizing disorder. For the externalizing group, only two subjects received a comorbid diagnosis of an internalizing disorder (Specific Phobia) in addition to an externalizing disorder. This indicates that the

internalizing group may have suffered from more heterogeneous symptoms than the externalizing group.

Reliability

To assess interrater reliability for decisions made on the CRS, kappa coefficients were computed. Because CRS ratings were made on a scale that ranged from 1 to 8 for the cohesion and flexibility dimensions and 1 to 6 for the communication dimension, these ratings were collapsed into four categories to represent the families' placements on the four levels of the cohesion and flexibility dimensions and the three levels of the communication dimension of Olson's circumplex model. The kappa coefficients were computed using these categorical ratings and were found to be .49 for the cohesion dimension, .69 for the flexibility dimension, and .50 for the communication dimension (see Table 2).

In addition, the original scale ratings (i.e., 1 to 8 for cohesion and flexibility, 1 to 6 for communication) were used to determine percent of agreement within one scale point for each dimension. Agreement within one point was found to be 72.8% for cohesion, 100% for flexibility, and 81.9% for communication, as shown in Table 2. These results can be compared with those found by Thomas and Olson (1993) who reported 94.8%, 91.1%, and 97.4% agreement within one scale point for cohesion, flexibility, and communication, respectively. Because agreement was found on fewer tapes than desirable, a mean rating based on the original scale scores was derived for those tapes that were rated by two raters. This rating was used for all correlational analyses. For

categorical analyses, the mean rating was broken down into the four categories of cohesion and flexibility described in the circumplex model.

Relations Among Measures

Pearson r correlation coefficients were computed to determine the relationship between ratings of cohesion, flexibility, and conflict on the FACES and FES and ratings of those dimensions on the modified versions of these questionnaires (Modified FACES & Modified FES). The results are shown in Table 3. As can be seen, the original and modified questionnaires were positively correlated with one another, however, this correlation was significant for the FACES questionnaires only. The degree of these correlations, although high, was still modest enough to suggest that the modified versions of the questionnaires, particularly the Modified FES - Conflict, may indeed be tapping a different aspect of family functioning than the original versions. In addition, correlation coefficients were computed between the observational and self-report measures of cohesion and flexibility (CRS and FACES). Although these two measures are designed to measure the same constructs, the results indicate that they are not significantly related ($r = -.26$, $p = .30$ for CRS and FACES cohesion scales; $r = .04$, $p = .88$ for CRS and FACES flexibility scales).

Hypotheses 1: Relation of Group to Cohesion

To test the hypothesis that families of children with internalizing behavior problems would score high on the cohesion dimension of the circumplex model, while families of children with externalizing behavior problems would score low on the cohesion dimension, a chi-square test was performed on the category of family cohesion (as determined by the

CRS) and group. The results indicated that the two groups did not differ on this dimension, $\chi^2 (1, N = 19) = .54, p = .46$. As is indicated in Figure 8, all of the subjects fell into the balanced categories for the cohesion dimension as measured by the CRS. A chi-square test was also performed on the category of family cohesion (as determined by the self-report instruments, FACES and Modified FACES) and group to explore these relations further. Again, the results indicated that the two groups did not differ on this dimension when either the FACES, $\chi^2 (3, N = 18) = 1.64, p = .65$, or Modified FACES, $\chi^2 (3, N = 18) = .00, p = 1.00$, was used (see Figures 9 and 10, respectively).

Although the above analyses failed to support the hypothesis, Pearson r correlation coefficients were computed to further explore the relationship between T-scores on the Internalizing and Externalizing scales of the CBCL and cohesion as measured by the CRS (using the 1 to 8 scale), FACES, and Modified FACES for the sample as a whole, and for the internalizing and externalizing groups separately. Results are shown in Table 4. A significant positive correlation was found between internalizing score and cohesion as measured by the Modified FACES for the internalizing group only ($r = .81, p = .008$). Though not significant, moderate correlations were found that indicate there may also be a positive relationship between internalizing score and CRS cohesion rating for all subjects ($r = .34, p = .15$) and for the externalizing subjects only ($r = .51, p = .13$), a positive relationship between internalizing score and FACES cohesion rating for the internalizing subjects only ($r = .49, p = .18$), a negative relationship between externalizing score and Modified FACES cohesion rating for the internalizing subjects only ($r = .50, p = .17$), and

a negative relationship between externalizing score and CRS cohesion rating for the externalizing subjects only ($r = -.56, p = .095$).

Hypothesis 2: Relation of Group to Flexibility

To test the hypothesis that families of children with internalizing behavior problems will score low on the flexibility dimension of the circumplex model, while families of children with externalizing behavior problems will fall in both of the unbalanced categories of the flexibility dimension, a chi-square test was performed on the category of family cohesion (as measured by the CRS) and group. The results indicated that the two groups did not differ on this dimension, $\chi^2 (2, N = 19) = 1.23, p = .54$. As is indicated in Figure 11, only one family was categorized as unbalanced (i.e., chaotic) on this dimension as measured by the CRS. Similar results were found when the FACES, $\chi^2 (3, N = 18) = .34, p = .95$, and the Modified FACES, $\chi^2 (3, N = 18) = .34, p = .95$, were used as measures of flexibility (see Figures 12 and 13, respectively).

Again, as with Hypothesis 1, Pearson r correlation coefficients were computed to further explore the relationship between the T-scores on the Internalizing and Externalizing scales of the CBCL and flexibility as measured by the CRS (using the 1 to 8 scale), FACES, and Modified FACES for the sample as a whole, and for the internalizing and externalizing groups separately. Results are shown in Table 5. Internalizing score and flexibility as determined by the CRS were significantly negatively related when the entire sample was examined ($r = -.47, p = .04$), and when the externalizing group only was examined ($r = -.93, p < .001$). This suggests that for all subjects and for the externalizing

subjects in particular, children with higher internalizing scores tended to come from families with lower levels of flexibility (i.e., more rigid). In contrast, although not significant, the relationship between externalizing score and family flexibility appeared to be negative when the CRS was used a measure of flexibility for the internalizing group only ($r = -.63$, $p = .07$), however, it appeared to be positive when the FACES was used as the measure of flexibility for all subjects ($r = .42$, $p = .08$), and for the externalizing group only ($r = .62$, $p = .07$).

Hypothesis 3: Relation of Group to Conflict

To test the hypothesis that families of children with internalizing behavior problems will score low on a measure of conflict within the family, while families of children with externalizing behavior problems will score high on a measure of conflict, a t-test for independence of the two groups on the conflict subscale of both the FES and Modified FES - Conflict was conducted. The results showed that means for the internalizing group were lower than means for the externalizing group using both the FES (internalizing $M = 50.89$, $SD = 10.87$; externalizing $M = 58.11$, $SD = 10.72$) and Modified FES - Conflict (internalizing $M = 44.89$, $SD = 13.27$; externalizing $M = 54.11$, $SD = 15.96$). These differences were not significant for either the FES, $t(16) = -1.42$, $p = .18$, or the Modified FES - Conflict, $t(16) = -1.33$, $p = .20$.

Hypothesis 4: Communication Level

To test the hypothesis that children of both groups will score in the low communication category of the communication dimension of the circumplex model, frequencies were obtained for the scores of the two groups along this dimension. Results

are shown in Figure 14 and indicate that only one subject (5.3% of the sample) received a score in the low communication category, while 68.4% of the subjects fell into the moderate and 26.3% of the subjects fell into the high communication category. This is in contrast to results reported by Thomas and Olson (1993) who studied 25 families with adolescent children with emotional and behavioral problems and found that 44% of the families fell into the low communication range, 56% fell into the moderate communication range, and no families fell into the high communication range. The results from the current study more closely resemble Thomas and Olson's normal control group of 60 families in which only 9% of the families fell in the low communication group, with 57% and 34% falling in the moderate and high communication categories, respectively.

To test for independence between the internalizing and externalizing groups on the communication dimension, a t-test was conducted (using the 1 to 6 rating scale of the communication dimension). The results revealed no differences between the mean scores for the internalizing ($M = 4.00$, $SD = .66$) and externalizing ($M = 4.05$, $SD = 1.01$) groups, $t(17) = -.13$, $p = .90$.

Hypothesis 5: Relation of Cohesion and Flexibility to Conflict and Communication

To test the hypothesis that for families of children with internalizing behavior problems, level of cohesion would be negatively correlated with amount of conflict and communication within the family, Pearson r correlation coefficients were computed using the CRS (1 to 8 scale), FACES, and Modified FACES as measures of cohesion, the FES and Modified FES - Conflict as measures of conflict, and the CRS (1 to 6 scale) as a measure of communication within the family. In addition, because the CRS is designed to

measure cohesion as a circumplex and not a linear dimension, a distance from center (DFC) score was computed from the cohesion dimension of the CRS (using the 1 to 8 scale) by taking the absolute value of each family's score subtracted from 4.5 (the center of the scale). The results are shown in Table 6. Although none of the correlations were significant, the elevated correlation between cohesion and conflict, as measured by the Modified FACES and Modified FES, suggests a positive relationship between those two variables for the internalizing group ($r = .48, p = .20$). The elevated correlation between the DFC score on the cohesion dimension of the CRS and communication, suggests a negative relationship between these two variables ($r = -.55, p = .13$).

Correlation coefficients were also used to test the hypothesis that level of flexibility would be positively correlated with conflict and communication for families of children with internalizing behavior problems. The CRS (1 to 8 scale), FACES, and Modified FACES were used as measures of flexibility, the FES and Modified FES - Conflict were used as measures of conflict, and the CRS (1 to 6 scale) was used as a measure of communication within the family. Again, because the CRS is designed to measure flexibility as a circumplex and not a linear dimension, a distance from center (DFC) score was computed from the flexibility dimension of the CRS (using the 1 to 8 scale) by taking the absolute value of each family's score subtracted from 4.5 (the center of the scale). The results shown in Table 7 reveal no significant correlations, however, they suggest a negative relationship between flexibility as measured by the CRS and conflict as measured by the Modified FES - Conflict ($r = -.56, p = .12$), and a negative relationship between the DFC score and communication ($r = -.57, p = .11$) for the internalizing group.

To test the hypothesis that levels of cohesion would be negatively correlated with conflict but positively correlated with communication for families of children with externalizing behavior problems, correlation coefficients were computed using the CRS (1 to 8 scale), FACES, Modified FACES, and DFC score as measures of cohesion, the FES and Modified FES - Conflict as measures of conflict, and the CRS (1 to 6 scale) as a measure of communication within the family. The results are shown in Table 8 and they reveal a significant positive correlation between cohesion as measured by the FACES and conflict as measured by the FES for the externalizing group ($r = .74, p = .02$). Though not significant, positive correlations were found between cohesion as measured by the FACES and conflict as measured by the Modified FES - Conflict ($r = .55, p = .12$), and cohesion as measured by the CRS and FACES and communication ($r = .62, p = .055$; $r = .48, p = .19$; respectively). In addition, negative correlations were found between the DFC score and conflict as measured by the FES ($r = -.55, p = .12$) and Modified FES - Conflict ($r = -.55, p = .13$).

Correlation coefficients were also used to test the hypothesis that for families of children with externalizing behavior problems, the distance of the families from the center of the scale on the flexibility dimension would be positively correlated with amount of conflict but negatively correlated with level of communication. Correlation coefficients were computed using the CRS (1 to 8 scale), FACES, and Modified FACES, and DFC as measures of flexibility. The FES and Modified FES - Conflict were used as measures of conflict, and the CRS (1 to 6 scale) was used as a measure of family communication. The results are shown in Table 9. There were significant negative correlations between the

DFC score and conflict as measured by the FES ($r = -.82, p = .007$) and communication ($r = -.78, p = .008$). In addition, there was a significant negative correlation between flexibility as measured by the CRS and communication ($r = -.68, p = .03$). Though not significant, there was a negative correlation between flexibility as measured by the CRS and conflict as measured by the FES ($r = -.52, p = .16$), and a positive correlation between flexibility as measured by the Modified FACES and conflict as measured by the FES ($r = .50, p = .17$).

Discussion

Methodological Flaws and Limitations

In general, the data from this study failed to confirm the hypotheses that were set forth. Specifically, no differences were found between families of children with internalizing behavior problems and families of children with externalizing behavior problems on measures of family environment. Although previous studies have found links between family relationship variables and childhood psychopathology, the nature and direction of the association between these variables has differed from study to study. This study can be distinguished from previous studies because it used the CRS as an objective measure of family functioning and it compared two groups of children with distinct symptom patterns. Although the results of this study did not support the hypotheses, a number of limitations in this study prevent the abandonment of the hypotheses in the absence of further study.

First, given the small sample size and method of subject recruitment, the possibility of sample bias must be considered. The subjects in this study were not chosen randomly from the population of children with emotional and behavioral problems as a whole, rather they were self- or clinician-referred and were accepted into the study if they met the inclusion criteria of age and severity of symptoms as indicated by the CBCL. Evidence of possible sample bias can be found in the distribution of gender across the two groups of subjects. The internalizing group was made up of more males ($n = 7$) than females ($n = 2$), while the externalizing group was made up of more females ($n = 6$) than males ($n = 4$; see Figure 2). This contradicts other findings that indicate a higher prevalence of internalizing

behavior problems in girls and externalizing behavior problems in boys (McGee et al., 1990; Offord et al., 1987), and suggests that the sample used in this study may not be representative of the overall population of children with psychological problems. In addition, only two of the subjects used in this study were from minority racial and ethnic backgrounds, which further prevents generalizability to a larger, more diverse population.

Another problem regarding the sample in this study is the severity of the children's problems. It is possible that borderline and clinical ratings on the CBCL do not adequately differentiate these children from the norm and do not reflect true clinical levels of psychopathology. In fact, three of the 19 children included in the study did not warrant a clinical diagnosis on the ADIS-IV-C/P, and only four of the children in the internalizing group were diagnosed with an internalizing disorder. Two of these children received comorbid diagnoses of Attention-Deficit/Hyperactivity Disorder in addition to their diagnoses of internalizing disorders, and three of the children in the internalizing group were diagnosed with externalizing disorders in the absence of an internalizing disorder. In contrast, the externalizing group may better represent true externalizing psychopathology, as only one externalizing subject did not receive a diagnosis and the remainder were diagnosed with an externalizing disorder. Two of these subjects received comorbid diagnoses of Specific Phobia and one child received a comorbid diagnosis of Adjustment Disorder (see Table 1). In addition, ratings on the CBCL have been shown to differ across informants (Offord, Boyle, & Racine, 1989), and thus the use of information from only one rater to assign children to groups may increase the likelihood that children in this study do not represent significant manifestations of childhood behavior problems.

Similarly, ratings on the FES and FACES have been shown to differ across informants (Moos & Moos, 1981; Olson et al., 1985). Therefore, the ratings of the primary caregiving parent on these measures may not accurately reflect the family's true level of functioning or the opinions of all family members. It is possible that it is the child's perception of family environment, and not the parent's, that is critical in the relationship between family environment and child psychopathology. In addition to the inherent reporter bias, ratings derived from the parent's report on the Modified FACES - Conflict and Modified FES must be further called into question because of the experimental nature of, and lack of psychometric data for, these measures.

Although the results from the self-report measures of family functioning must be interpreted cautiously, they did not appear to provide support for the hypotheses. The distribution of the families on the cohesion and flexibility dimensions of the FACES and Modified FACES tended to reflect the hypotheses of the circumplex model, with a number of families falling into the unbalanced categories on the cohesion and flexibility dimensions (as can be seen in Figures 9, 10, 12, and 13). The unbalanced families tended to fall into the upper categories (enmeshed and chaotic) rather than the lower categories (disengaged and rigid), however. If these dimensions are interpreted linearly, this would suggest that most of these families are more highly functioning. Olson himself has suggested that the FACES provides more support for cohesion and flexibility as linear dimensions (with high scores representing healthy family functioning and low scores representing dysfunction) rather than curvilinear ones (with midrange scores representing healthy family functioning and extreme scores representing dysfunction; Gorall & Olson, 1995). Thus, the results

from the self-report instruments suggest that these families may be functioning in a healthy manner.

In addition, the CRS provided further evidence that the families were functioning in a balanced manner, however, the results from the CRS must be interpreted conservatively as well given the fact that the three raters involved in this project achieved only moderate agreement on their ratings of the families. They all underwent a thorough training program together until they demonstrated understanding of the circumplex model and achieved satisfactory agreement on videotapes of fictional and real families. In addition, the CRS rating form provides explicit indicators of family functioning in the various categories of each dimension. However, most of the parent-child dyads behaved in a favorable manner, as will be further discussed below. It is possible that the raters differed in their ability to discern subtle examples of dysfunctional behavior. In addition, the interaction task took approximately 35 minutes for each family and because the behavior of the subjects at times seemed nonsignificant, the possibility that some of the raters had difficulty attending sufficiently throughout the duration of the task and the project in general must be considered.

Another limitation of the behavioral observations in this study is the fact that only one parent and one child from each family participated in the task. It should be noted that the CRS was developed to measure the functioning of the entire family as a system, and therefore observation of the family as a whole is most desirable when rating families using this instrument. The use of only one parent and one child in this study was designed to control for differences that would inevitably arise if some families had a number of

members present but others had only a limited number of participants because of conflicting schedules, lack of interest, and small family size. However, this prevented the raters from seeing the full range of interactions that take place within a family. It seems likely that valuable information is lost when no data is available that concerns interactions between siblings, marital partners, and the child and the secondary caregiving parent. In fact, other research has demonstrated that fathers and mothers may predispose their children to experience emotional and behavioral disturbance in different ways (Cowan et al., 1996). In addition, it may be more difficult for families to maintain a favorable image when numerous members are present together.

Finally, the utility of the family interaction task for providing a sample of family behavior patterns should be considered. The task was identical to the one used by Thomas and Olson (1993) in a study of 182 families in which the CRS was normed with clinical and normal groups of families with an adolescent child. Thomas and Olson concluded that the task and subsequent ratings on the CRS discriminated between the groups of families. Specifically, they reported that clinical families were rated in the unbalanced categories of cohesion and flexibility significantly more than the control families, as predicted by the circumplex model. The current study failed to replicate these findings. In fact, only one family in the current study was placed in an unbalanced category on either the cohesion or flexibility dimension (see Figures 8 and 11). As discussed above, the results from the current study may have been flawed for other reasons, and therefore the utility of the interaction task and CRS cannot adequately be judged. However, it seems possible that the raters in this study were reluctant to rate

families as more dysfunctional, although after watching the families during the task it seems more reasonable to suggest that the families generally did not give many overt or covert signs of extreme behavior. In fact, most of the parent-child dyads seemed to strive to present themselves favorably during the task. Thus, their behavior during the task may not represent their behavior at home or in other less evaluative settings. This interpretation is consistent with the findings of Dadds and Sanders (1992) in a study that compared home based observation of free parent-child interaction with a clinic based observation of a structured mother-child problem solving discussion. They reported that these two types of observation yielded very different data about child and parent behavior, and they reported virtually no concordance in behavior between the two settings. The fact that the ratings that the families received on the CRS and the self-report measures of family cohesion and flexibility were not related further questions the utility of the interaction task and CRS as sensitive measures of these dimensions.

The Relationship of Symptom Clusters to Family Environment

In spite of the limitations of this study and the lack of overall support for the hypotheses, some interesting findings emerged from the analyses. First, exploratory correlational analyses revealed some support for the hypotheses that children with internalizing behavior problems tend to score higher on measures of cohesion, while children with externalizing behavior problems tend to score lower on measures of cohesion. Specifically, a significant positive correlation was found between the internalizing scale score of the CBCL and cohesion within the parent-child relationship (as measured by the Modified FACES) for the internalizing group only. The correlation

between CBCL internalizing scale score and overall family cohesion (as measured by the FACES) was nonsignificant, though clearly in the positive direction, for the internalizing group. Likewise, a nonsignificant positive correlation was found between CBCL internalizing scale score and cohesion (as measured by the CRS) for the externalizing group only. In addition, there was a nonsignificant, though clearly negative, correlation between CBCL externalizing scale score and family cohesion (as measured by the CRS) for the externalizing group. Finally, a positive correlation between CBCL externalizing score and cohesion within the parent-child relationship was found for the internalizing group. These findings suggest that as number and severity of symptoms increase for the two groups, so does the level of family dysfunction. Furthermore, family dysfunction appears to increase in the direction predicted by the hypotheses for the two groups. That is, families high in cohesion may predispose children to internalize their problems in an effort not to disrupt the harmony of the family. In contrast, families low in cohesion provide no such incentive for children to maintain the family harmony. The relationship between symptom patterns and family cohesion may work in the other direction too. For example, externalizing symptoms in children may disrupt the family enough that they are forced to become more disengaged from one another.

Similarly, exploratory analyses provided some support for the notion that children in the internalizing and externalizing groups would differ on levels of flexibility. Significant negative correlations were found between CBCL internalizing scale score and family flexibility (as measured by the CRS) for the sample as a whole and for the externalizing group only. Positive, though not significant, correlations between CBCL externalizing

scale score and family flexibility (as measured by the FACES) were found for the sample as a whole and for the externalizing group only. In contrast, a correlation computed for the internalizing group only found that the relationship between the CBCL externalizing scale score and flexibility (as measured by the CRS) was negative. These findings suggest that for the sample as a whole and for the externalizing subjects in particular, the greater the degree of internalizing symptoms, the lower the flexibility of the family (i.e., rigid, as predicted by the hypotheses), and the higher the degree of externalizing symptoms, the higher the flexibility of the family (i.e., chaotic). It seems possible that children in families that lack structure have more opportunities to engage in acting out behavior and face fewer consequences for their behavior than children in more rigid families, who may have less opportunity for expression of emotion and more consequences for aversive behavior. Thus, more chaotic families may somehow predispose children to manifest emotional disturbances in an externalizing fashion, while more rigid families predispose children to internalize their problems. Alternatively, it may be the behavior of the child that has altered the patterns of the family. Families of children who manifest more externalizing behavior may find it difficult to maintain structure in the face of the child's constant disruptions and consequently over time may become more chaotic.

In addition, as predicted by the hypotheses, the families of children with externalizing behavior problems had higher mean levels of conflict than families of children in the internalizing group. The differences between these groups were not statistically significant, however. The mean conflict score for the internalizing group was equivalent to that found in a normative study of 1125 normal families from all areas of the country

(Moos & Moos, 1981). This suggests that families of children with internalizing behavior problems did not differ from normal families on level of conflict, but that families of children with externalizing disorders may display higher levels of conflict. Perhaps the disruptive nature of a child's externalizing symptoms creates more situations within the family in which there is conflict, or, as hypothesized in this study, higher conflict within the family predisposes a child to act out (i.e., externalize) rather than internalize their problems. It is also interesting to note that for both groups, conflict scores were slightly lower for the parent-child dyad (as measured by the Modified FES - Conflict) than for the family as a whole (as measured by the FES).

Some interesting relationships between conflict and family cohesion and flexibility were found using correlational analyses. Specifically, both significant and nonsignificant positive correlations indicated a trend of increased conflict being associated with increased cohesion for families in both groups. In addition, for families in the externalizing group, nonsignificant correlations suggested that as families became more unbalanced in either direction on the cohesion scale of the CRS, level of conflict became lower. This contradicts what was predicted in the hypotheses, as it was reasoned that disengagement would be associated with higher conflict than enmeshment. Other nonsignificant correlations suggested that level of conflict increased with decreased flexibility (as measured by the CRS) for both groups. Perhaps in a family setting characterized by more rigid roles and rules, parents and children tend to conflict with each other because of the high level of enforcement of structured family patterns. In contrast, the relationship between conflict and flexibility was in the opposite direction when the Modified FACES

was used as the measure of flexibility for the externalizing group, which suggests that as the parent-child relationship becomes more chaotic, there is an increase in level of conflict within the family.

With regards to family communication, the findings did not support the hypothesis that the families in both groups would be rated as displaying low levels of communication, as only one family received a score in the low communication category. The findings did support the hypotheses of the circumplex model in general, however, which predict higher communication for families in the balanced categories of cohesion and flexibility, and lower communication for families in the unbalanced categories of cohesion and flexibility. Because the families in this study were rated as balanced with regard to cohesion and flexibility (on the CRS), one would expect them to also receive higher communication ratings. In addition, for the internalizing group, there were negative, though nonsignificant, correlations between the distance of the families from the center of the scale on the cohesion and flexibility dimensions of the CRS and communication. For the externalizing group, the correlation between the distance of the families from the center of the flexibility scale of the CRS was also negative and was found to be statistically significant. This suggests that families with lower communication levels tended to be more unbalanced on the cohesion and flexibility dimensions of the circumplex model. For the externalizing group, a nonsignificant positive correlation was found between level of cohesion and communication within the family, indicating a tendency for communication level to increase with higher family cohesion. Finally, there was a significant negative correlation between flexibility as measured by the CRS and communication for the

externalizing group only, which suggests that as level of flexibility within the families of children with predominantly externalizing symptoms increases, level of communication within the family decreases. Perhaps the disruptive nature of externalizing symptoms in the family makes it harder for families to communicate in the absence of a certain degree of structure. These findings regarding family communication should be interpreted with great caution, however, as they were all based on measures of family functioning derived from the CRS. As discussed above, the CRS may not reflect true levels of functioning within the family.

Implications for Treatment

Although the results of this study are limited and provide only suggestive evidence of the relationship between child behavior problems and family functioning, previous research in this area has provided more conclusive evidence that such a relationship exists for many families. Therefore, it seems clear that the assessment of children with behavior problems should include an evaluation of family environment and dynamics to determine whether these factors are at play for a given family presenting with a disordered child. When this is the case, family focused interventions are indicated in the treatment of these problems. If it is a dysfunctional family that has caused or maintained disordered behavior in a child, then that child is unlikely to make great improvements in the absence of change within the family. Conversely, it seems equally probable that it is the child's problematic behavior that has disrupted family functioning and therefore the family may require intervention to reestablish healthy family functioning in addition to treatment of the child alone.

The idea that families should be assessed and treated as a unit is not new. In fact, it is the premise that family systems theory is based on. Family therapy does not represent a homogenous domain, however, and in the past many behavioral family interventions were primarily child-focused and involved training parents to more effectively manage their child's behavior with contingency-based reinforcement. The current trend in behavioral family intervention is to focus the intervention to include broader issues such as lack of social support and marital distress in addition to parent management training (Prinz, 1992). The research presented here provides limited evidence for the notion that broader family issues are present in families of disordered children and that the severity of family problems may increase with the severity of the disorder. It has been suggested that a comprehensive, broad based approach to family problems is necessary for behavior change to be maintained and generalized across settings (Lutzker, 1992). More research is needed in this area to better establish what components of family-based treatment are most effective in the improvement of child psychological functioning.

Conclusion

The results of this study provide limited support for the already established link between childhood psychopathology and family environment. They also suggest that different symptom clusters may be related to family environment in different ways. No conclusions or generalizations can be made about the exact nature of this relationship, however, given the mostly nonsignificant findings and methodological limitations. In addition, the direction of the relationship cannot be predicted based on the results of this study. It is unclear as to whether family environment influences symptom presentation or

whether symptom presentation affects family environment. In accordance with theories of developmental psychopathology, it seems most likely that the relationship is complex and bi-directional. In sum, the findings presented here seem to raise many more questions than they answer. Further research using a variety of methodologies is needed to confirm the trends detected here. In particular, longitudinal studies are necessary to begin to determine the direction of the relationship between child psychopathology and family socialization practices, and the utility of family-based strategies in the prevention and intervention of child behavior problems.

References

- Achenbach, T. M. (1991). Manual for the CBCL\ 4-18 and 1991 profile. Burlington: University of Vermont, Department of Psychiatry.
- Achenbach, T. M., & Edelbrock, C. (1983). Manual for the Child Behavior Checklist. Burlington: University of Vermont.
- Barkley, R. A., Anastopoulos, A. D., Guevremont, D. C., & Fletcher, K. E. (1992). Adolescents with attention deficit hyperactivity disorder: Mother-adolescent interactions, family beliefs and conflicts, and maternal psychopathology. Journal of Abnormal Child Psychology, 20, 263-288.
- Barrera, M., & Garrison-Jones, C. (1992). Family and peer social support as specific correlates of adolescent depressive symptoms. Journal of Abnormal Child Psychology, 20, 1-16.
- Beavers, W. R., & Hampson, R. B. (1993). Measuring family competence: The Beavers systems model. In F. Walsh (Ed.), Normal family processes (2nd ed., pp. 73-103). New York: Guilford.
- Beitchman, J. H., Inglis, A., & Schachter, D. (1992a). Child psychiatry and early intervention: II. The internalizing disorders. Canadian Journal of Psychiatry, 37, 234-239.
- Beitchman, J. H., Inglis, A., & Schachter, D. (1992b). Child psychiatry and early intervention: IV. The externalizing disorders. Canadian Journal of Psychiatry, 37, 245-249.

- Bell, R. (1983). Parent-adolescent interaction. Unpublished doctoral dissertation, University of Minnesota, St. Paul, MN.
- Burge, D. & Hammen, C. (1991). Maternal communication: Predictors of outcome at follow-up in a sample of children at high and low risk for depression. Journal of Abnormal Psychology, 100, 174-180.
- Carnes, P. (1987). Counseling sexual abusers. Minneapolis, MN: Compcare Publications.
- Clarke, J. P. (1984). The family types of schizophrenics, neurotics, & "normals". Unpublished doctoral dissertation, University of Minnesota, St. Paul, MN.
- Cowan, P. A., Cohn, D. A., Cowan, C. P., & Pearson, J. L. (1996). Parents' attachment histories and children's externalizing and internalizing behaviors: Exploring family systems models of linkage. Journal of Consulting and Clinical Psychology, 64, 53-63.
- Cromwell, R. E., Fournier, D. G., & Kvebaek, D. J. (1981). The Kvebaek Family Structure Technique: A diagnostic and research tool in family therapy. Jonesboro, TN: Pilgrimage.
- Dadds, M. R., & Powell, M. B. (1991). The relationship of interparental conflict and global marital adjustment to aggression, anxiety, and immaturity in aggressive and nonclinic children. Journal of Abnormal Child Psychology, 19, 553-567.
- Dadds, M. R., & Sanders, M. R. (1992). Family interaction and child psychopathology: A comparison of two observation strategies. Journal of Child and Family Studies, 1, 371-391.

- Dadds, M. R., Sanders, M. R., Morrison, M., & Rebgetz, M. (1992). Childhood depression and conduct disorder: II. An analysis of family interaction patterns in the home. Journal of Abnormal Psychology, 101, 505-513.
- Fowler, P. C. (1980). Family environment and early behavioral development: A structural analysis of dependencies. Psychological Reports, 47, 611-617.
- Gorall, D. M., & Olson, D. H. (1995). Circumplex model of marital and family systems: Integrating ethnic diversity and other social systems. In R. H. Mikesell, D. Lusterman, & S. H. McDaniel (Eds.), Integrating family therapy: Handbook of family psychology and systems theory (pp. 217-233). Washington, DC: American Psychological Association.
- Haddad, J. D., Barocas, R., & Hollenbeck, A. R. (1991). Family organization and parent attitudes of children with conduct disorder. Journal of Clinical Child Psychology, 20, 152-161.
- Hollingshead, A. B. (1975). Four factor index of social status. New Haven, CT: Yale University.
- Johnson, B. (1982). Children coping with divorce: A test of the circumplex model of family functioning. Unpublished doctoral dissertation, Virginia Polytechnic Institute and State University.
- Kashani, J. H., & Orvaschel, H. (1990). A community study of anxiety in children and adolescents. American Journal of Psychiatry, 147, 313-318.

- Koestner, R., Zuroff, D. C., & Powers, T. A. (1991). Family origins of adolescent self-criticism and its continuity into adulthood. Journal of Abnormal Psychology, 100, 191-197.
- Kolvin, I., Miller, F. J. W., Fleeting, M., & Kolvin, P. A. (1988). Social and parenting factors affecting criminal-offence rates: Findings from the Newcastle Thousand Family Study (1947-1980). British Journal of Psychiatry, 152, 80-90.
- Kurdek, L. A., & Sinclair, R. J. (1988). Adjustment of young adolescents in two-parent nuclear, stepfather, and mother-custody families. Journal of Consulting and Clinical Psychology, 56, 91-96.
- Lewis, K. (1992). Family functioning as perceived by parents of boys with attention deficit disorder. Issues in Mental Health Nursing, 13, 369-386.
- Lewis-Abney, K. L. (1993). Correlates of family functioning when a child has attention deficit disorder. Issues in Comprehensive Pediatric Nursing, 16, 175-190.
- Locke, H. J., & Wallace, K. M. (1959). Short marital adjustment and prediction tests: Their reliability and validity. Marriage and Family Living, 21, 251-255.
- Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of juvenile conduct problems and delinquency. In M. Tonry & N. Morris (Eds.), Crime and justice: An annual review of research: Vol. 7 (pp. 29-149). Chicago: University of Chicago.
- Lutzker, J. R. (1992). Developmental disabilities and child abuse and neglect: The ecobehavioural imperative. Behaviour Change, 9, 149-156.

- McConaughy, S. H., Stanger, C., & Achenbach, T. M. (1992). Three-year course of behavioral/emotional problems in a national sample of 4- to 16-year-olds: I. Agreement among informants. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 932-940.
- McFarlane, A. H., Bellissimo, A., & Norman, G. R. (1995). Family structure, family functioning and adolescent well-being: The transcendent influence of parental style. Journal of Child Psychology and Psychiatry, 36, 847-864.
- McGee, R., Feehan, M., Williams, S., Partridge, F., Silva, P. A., & Kelly, J. (1990). DSM-III disorders in a large sample of adolescents. Journal of the American Academy of Child and Adolescent Psychiatry, 29, 611-619.
- Minuchin, S., Rosman, B. L., & Baker, L. (1978). Psychosomatic families. Cambridge: Harvard University Press.
- Moos, R. H., & Moos, B. S. (1981). Family Environment Scale. Palo Alto, CA: Consulting Psychologists Press.
- O'Donnell, J., Hawkins, J. D., & Abbott, R. D. (1995). Predicting serious delinquency and substance use among aggressive boys. Journal of Consulting and Clinical Psychology, 63, 529-537.
- Offord, D. R., Boyle, M. H., & Racine, Y. (1989). Ontario Child Health Study: Correlates of disorder. Journal of the American Academy of Child and Adolescent Psychiatry, 28, 856-860.

- Offord, D. R., Boyle, M. H., Racine, Y. A., Fleming, J. E., Cadman, D. T., Blum, H. M., Byrne, C., Links, P. S., Lipman, E. L., MacMillan, H. L., Grant, N. I. R., Sanford, M. N., Szatmari, P., Thomas, H., & Woodward, C. A. (1992). Outcome, prognosis, and risk in a longitudinal follow-up study. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 916-923.
- Offord, D. R., Boyle, M. H., Szatmari, P., Rae-Grant, N. I., Links, P. S., Cadman, D. T., Byles, J. A., Crawford, J. W., Blum, H. M., Byrne, C., Thomas, H., Woodward, C. A. (1987). Ontario Child Health Study: II. Six month prevalence of disorder and rates of service utilization. Archives of General Psychiatry, 44, 832-836.
- Olson, D. H. (1987). Family interaction tasks: Audiotaped instructions. Unpublished manuscript, University of Minnesota, Department of Family Social Science, St. Paul.
- Olson, D. H. (1993a). Circumplex model of marital and family systems: Assessing family functioning. In F. Walsh (Ed.), Normal family processes (2nd ed., pp. 104-137). New York: Guilford.
- Olson, D. H. (1993b). Clinical Rating Scale (CRS) for the circumplex model of marital and family systems. St. Paul: University of Minnesota, Department of Family Social Science.
- Olson, D. H., McCubbin, H., Barnes, H., Larson, A., Muxen, M., & Wilson, M. (1982). Family inventories. Unpublished manuscript, University of Minnesota, Department of Family Social Science, St. Paul.
- Olson, D. H., Portner, J., & Lavee, Y. (1985). FACES III. St. Paul: University of Minnesota, Department of Family Social Science.

- Prinz, R. J. (1992). Overview of behavioural family interventions with children: Achievements, limitations, and challenges. Behaviour Change, 9, 120-125.
- Reid, J. B., & Patterson, G. R. (1989). The development of antisocial behaviour patterns in childhood and adolescence. European Journal of Personality, 3, 107-119.
- Reiss, D. (1971). Varieties of consensual experience. Family Process, 10, 1-35.
- Robins, L. N. (1991). Conduct disorder. Journal of Child Psychology and Psychiatry, 32, 193-212.
- Rodick, J. D., Henggeler, S. W., & Hanson, C. L. (1986). An evaluation of Family Adaptability and Cohesion Evaluation Scales (FACES) and the circumplex model. Journal of Abnormal Child Psychology, 14, 77-87.
- Silverman, W. K., Albano, A. M., & Barlow, D. H. (1994). The Anxiety Disorders Interview Schedule for DSM-IV - Child and Parent Versions (ADIS-IV-C/P). Albany, NY: Graywind Publications.
- Silverman, W. K., & Eisen, A. R. (1992). Age differences in the reliability of parent and child reports of child anxious symptomatology using a structured interview. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 117-124.
- Silverman W. K., & Nelles, W. B. (1988). The Anxiety Disorders Interview Schedule for Children. Journal of the American Academy of Child and Adolescent Psychiatry, 27, 772-778.
- Sines, J. O. (1987). Influence of the home and family environment on childhood dysfunction. In B. B. Lahey & A. E. Kazdin (Eds.), Advances in clinical child psychology: Vol. 10 (pp. 1-54). New York: Plenum.

- Smets, A. C., & Hartup, W. W. (1988). Systems and symptoms: Family cohesion/adaptability and childhood behavior problems. Journal of Abnormal Child Psychology, 16, 233-246.
- Stanger, C., McConaughy, S. H., & Achenbach, T. M. (1992). Three-year course of behavioral/emotional problems in a national sample of 4- to 16-year-olds: II. Predictors of syndromes. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 941-950.
- Summerville, M. B., Kaslow, N. J., Abbate, M. F., & Cronan, S. (1994). Psychopathology, family functioning, and cognitive style in urban adolescents with suicide attempts. Journal of Abnormal Child Psychology, 22, 221-235.
- Teyber, E. (1988). Interpersonal process in psychotherapy. Chicago: Dorsey Press.
- Thomas, V. & Olson, D. H. (1993). Problem families and the circumplex model: Observational assessment using the Clinical Rating Scale (CRS). Journal of Marital and Family Therapy, 19, 159-175.
- Valleni-Basile, L. A., Garrison, C. Z., Jackson, K. L., Waller, J. L., McKeown, R. E., Addy, C. L., & Cuffe, S. P. (1995). Family and psychosocial predictors of obsessive compulsive disorder in a community sample of young adolescents. Journal of Child and Family Studies, 4, 193-206.
- Volk, R. J., Edwards, D. W., Lewis, R. A., & Sprenkle, D. H. (1989). Family systems of adolescent substance abusers. Family Relations, 38, 266-272.

Windle, M., & Windle, R. C. (1993). The continuity of behavioral expression among disinhibited and inhibited childhood subtypes. Clinical Psychology Review, 13, 741-761.

Table 1

Frequency of DSM-IV Diagnoses by Subject and Group

Subject	DSM-IV Diagnoses									
	Internalizing					Externalizing			Other	
	PTSD	SAD	Dysthymia	GAD	Specific Phobia	ADHD	ODD	Conduct Disorder	Adjustment Disorder	No Diagnosis
Internalizing										
S ₁				x		x				
S ₂		x								
S ₃		x	x	x						
S ₄							x			
S ₅						x				
S ₆										x
S ₇	x				x	x				
S ₈										x
S ₉						x				
Total	1	2	1	2	1	4	1	0	0	2
Externalizing										
S ₁₀						x	x			
S ₁₁							x			
S ₁₂							x			
S ₁₃						x	x		x	
S ₁₄										x
S ₁₅					x	x	x			
S ₁₆						x		x		
S ₁₇						x				
S ₁₈							x			
S ₁₉					x	x				
Total	0	0	0	0	2	6	6	1	1	1
Total	1	2	1	2	3	10	7	1	1	3

Table 2

Interrater Agreement for CRS

<u>Dimension</u>	<u>Kappa^a</u>	<u>Percent^b</u>
Cohesion	.49	72.8%
Flexibility	.69	100%
Communication	.50	81.9%

^aKappa coefficients derived from raters' placement of subject categorically for each dimension (i.e., for cohesion there are four categories: disengaged, separated, connected, enmeshed).

^bPercent agreement is percentage of subjects for whom raters agree within one scale point on CRS before it is collapsed into categories (i.e., cohesion and flexibility scales range from 1 to 8, communication scale ranges from 1 to 6).

Table 3

Correlations Between Original and Modified Forms of FACES and FES

Measure	Modified FACES		Modified FES
	Cohesion	Flexibility	Conflict
FACES			
Cohesion	.48**	--	--
Flexibility	--	.64****	--
FES			
Conflict	--	--	.39

** $p < .05$

**** $p < .005$

Table 4

Correlations Between T-score on Internalizing and Externalizing Subscales of CBCL and Cohesion as Measured by the CRS, FACES, and Modified FACES

CBCL	Cohesion		
	CRS	FACES	Modified FACES
All Subjects			
Internalizing T-score	.34	.02	.30
Externalizing T-score	-.26	.40	.25
Internalizing Group Only			
Internalizing T-score	.29	.49	.81***
Externalizing T-score	-.01	.37	.50
Externalizing Group Only			
Internalizing T-score	.51	.19	.05
Externalizing T-score	-.55*	.31	.26

Note. CRS cohesion scores range from 1 (disengaged) to 8 (enmeshed). FACES and Modified FACES cohesion scores range from 10 (disengaged) to 50 (enmeshed). CBCL Internalizing and Externalizing scale T-scores increase with number and severity of behavior problems. The significance level used was not adjusted to correct for the number of comparisons being made, however, it should be noted that the number of comparisons in this table increases the probability that one or more comparisons will be statistically significant. A more conservative significance level, such as one derived from the Bonferroni procedure, would correct for this problem.

* $p < .10$

*** $p < .01$

Table 5

Correlations Between T-score on Internalizing and Externalizing Subscales of CBCL and Flexibility as Measured by the CRS, FACES, and Modified FACES

CBCL	Flexibility		
	CRS	FACES	Modified FACES
All Subjects			
Internalizing T-score	-.47**	-.14	.21
Externalizing T-score	-.19	.42*	.20
Internalizing Group Only			
Internalizing T-score	-.14	-.08	.21
Externalizing T-score	-.63*	.23	.14
Externalizing Group Only			
Internalizing T-score	-.93*****	-.01	.41
Externalizing T-score	-.08	.62*	.38

Note. CRS flexibility scores range from 1 (rigid) to 8 (chaotic). FACES and Modified FACES flexibility scores range from 10 (rigid) to 50 (chaotic). CBCL Internalizing and Externalizing scale T-scores increase with number and severity of behavior problems. The significance level used was not adjusted to correct for the number of comparisons being made, however, it should be noted that the number of comparisons in this table increases the probability that one or more comparisons will be statistically significant. A more conservative significance level, such as one derived from the Bonferroni procedure, would correct for this problem.

* $p < .10$

** $p < .05$

***** $p < .001$

Table 6

Correlations Between Cohesion and Conflict and Communication for Internalizing Group

Measures	Cohesion			
	CRS	CRS DFC	FACES	Modified FACES
Conflict				
FES	-.20	.23	-.29	-.27
Modified FES - Conflict	-.05	-.19	-.07	.48
Communication				
CRS	.35	-.55	-.10	.16

Note. CRS cohesion scores range from 1 (disengaged) to 8 (enmeshed). The CRS DFC score represents the distance of the family from the center of the scale (balanced) and its value increases as the family becomes more unbalanced on the cohesion dimension. FACES and Modified FACES cohesion scores range from 10 (disengaged) to 50 (enmeshed). FES conflict and Modified FES - Conflict scores range from 32 (low conflict) to 81 (high conflict). CRS communication scores range from 1 (low communication) to 6 (high communication). The significance level used was not adjusted to correct for the number of comparisons being made, however, it should be noted that the number of comparisons in this table increases the probability that one or more comparisons will be statistically significant. A more conservative significance level, such as one derived from the Bonferroni procedure, would correct for this problem.

Table 7

Correlations Between Flexibility and Conflict and Communication for Internalizing Group

Measures	Flexibility			
	CRS	CRS DFC	FACES	Modified FACES
Conflict				
FES	-.19	.08	.19	-.01
Modified FES - Conflict	-.56	.38	-.19	.00
Communication				
CRS	.29	-.57	-.34	.02

Note. CRS flexibility scores range from 1 (rigid) to 8 (chaotic). The CRS DFC score represents the distance of the family from the center of the scale (balanced) and its value increases as the family becomes more unbalanced on the flexibility dimension. FACES and Modified FACES flexibility scores range from 10 (rigid) to 50 (chaotic). FES conflict and Modified FES - Conflict scores range from 32 (low conflict) to 81 (high conflict). CRS communication scores range from 1 (low communication) to 6 (high communication). The significance level used was not adjusted to correct for the number of comparisons being made, however, it should be noted that the number of comparisons in this table increases the probability that one or more comparisons will be statistically significant. A more conservative significance level, such as one derived from the Bonferroni procedure, would correct for this problem.

Table 8

Correlations Between Cohesion and Conflict and Communication for Externalizing Group

Measures	Cohesion			
	CRS	CRS DFC	FACES	Modified FACES
Conflict				
FES	.30	-.55	.74**	.41
Modified FES - Conflict	-.30	-.55	.55	.13
Communication				
CRS	.62*	-.35	.48	.28

Note. CRS cohesion scores range from 1 (disengaged) to 8 (enmeshed). The CRS DFC score represents the distance of the family from the center of the scale (balanced) and its value increases as the family becomes more unbalanced on the cohesion dimension. FACES and Modified FACES cohesion scores range from 10 (disengaged) to 50 (enmeshed). FES conflict and Modified FES - Conflict scores range from 32 (low conflict) to 81 (high conflict). CRS communication scores range from 1 (low communication) to 6 (high communication). The significance level used was not adjusted to correct for the number of comparisons being made, however, it should be noted that the number of comparisons in this table increases the probability that one or more comparisons will be statistically significant. A more conservative significance level, such as one derived from the Bonferroni procedure, would correct for this problem.

* $p < .10$

** $p < .05$

Table 9

Correlations Between Flexibility and Conflict and Communication for Externalizing Group

Measures	Flexibility			
	CRS	CRS DFC	FACES	Modified FACES
Conflict				
FES	-.52	-.82***	.24	.50
Modified FES - Conflict	-.19	-.26	.19	.27
Communication				
CRS	-.68**	-.78***	.16	.39

Note. CRS flexibility scores range from 1 (rigid) to 8 (chaotic). The CRS DFC score represents the distance of the family from the center of the scale (balanced) and its value increases as the family becomes more unbalanced on the flexibility dimension. FACES and Modified FACES flexibility scores range from 10 (rigid) to 50 (chaotic). FES conflict and Modified FES - Conflict scores range from 32 (low conflict) to 81 (high conflict). CRS communication scores range from 1 (low communication) to 6 (high communication). The significance level used was not adjusted to correct for the number of comparisons being made, however, it should be noted that the number of comparisons in this table increases the probability that one or more comparisons will be statistically significant. A more conservative significance level, such as one derived from the Bonferroni procedure, would correct for this problem.

** $p < .05$

*** $p < .01$

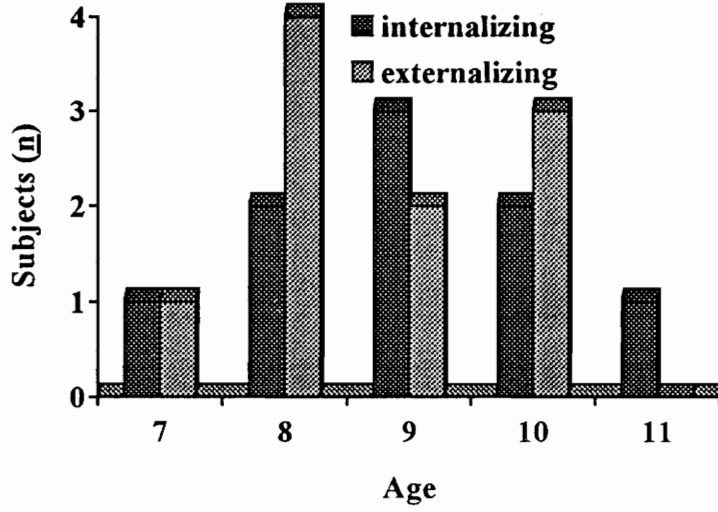


Figure 1. Distribution of ages for internalizing ($n = 9$) and externalizing ($n = 10$) subjects.

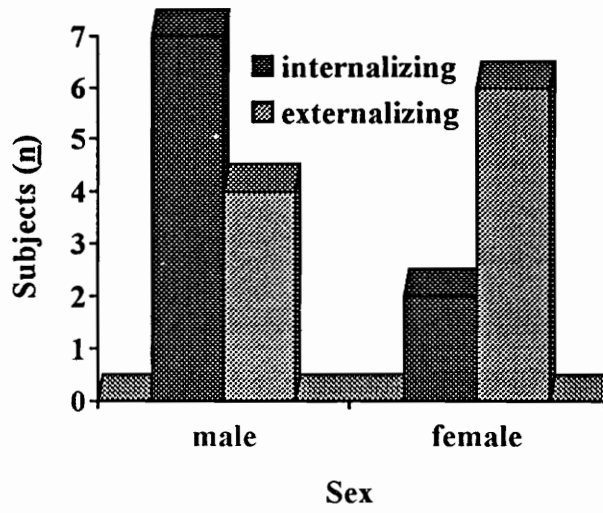


Figure 2. Distribution of sex for internalizing ($n = 9$) and externalizing ($n = 10$) subjects.

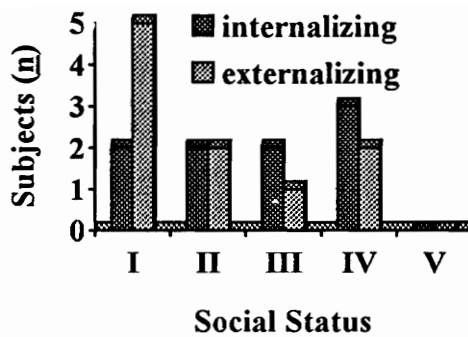


Figure 3a. Distribution of social status as determined by the Hollingshead Index for internalizing ($n = 9$) and externalizing ($n = 10$) subjects. Hollingshead (1975) groups social status into five categories, ranging from I (highest) to V (lowest).

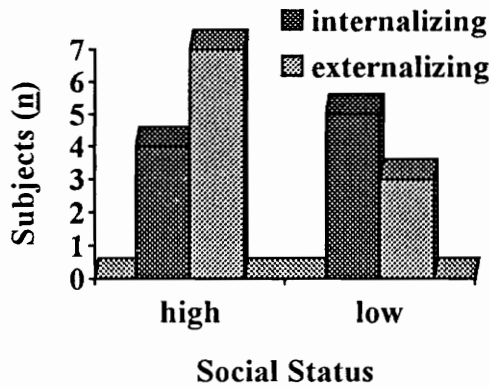


Figure 3b. Distribution of social status as determined by the Hollingshead Index for internalizing ($n = 9$) and externalizing ($n = 10$) subjects. Social status was collapsed into two categories, high (Hollingshead categories I & II) and low (Hollingshead categories III & IV) for the purpose of performing chi-square analyses.

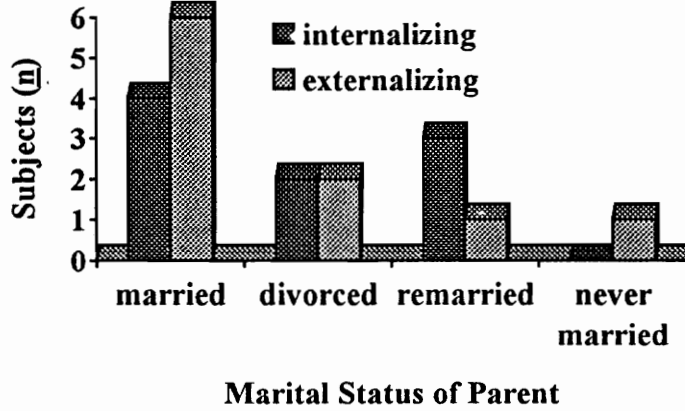


Figure 4a. Distribution of marital status of parent for internalizing ($n = 9$) and externalizing ($n = 10$) subjects.

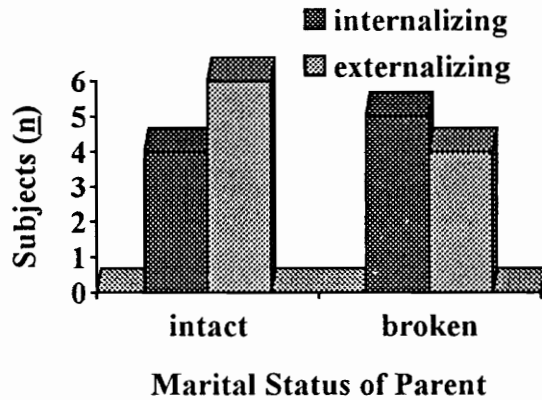


Figure 4b. Distribution of marital status of parent for internalizing ($n = 9$) and externalizing ($n = 10$) subjects. Marital status was broken down into two categories, intact (parents married) and broken (parents divorced, remarried, or never married), for the purpose of chi-square analyses.

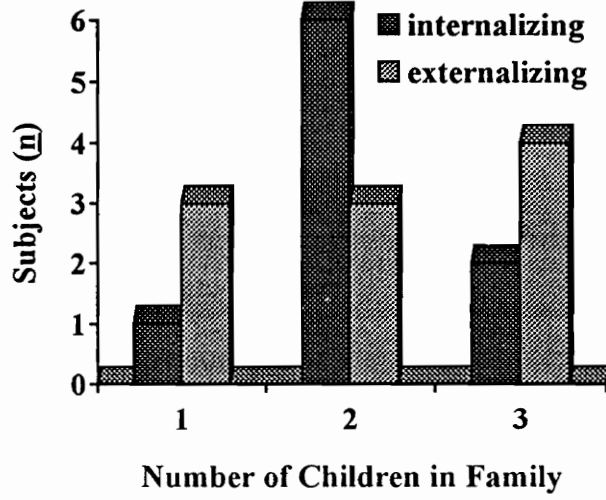


Figure 5. Distribution of number of children in the family for internalizing ($n = 9$) and externalizing ($n = 10$) subjects.

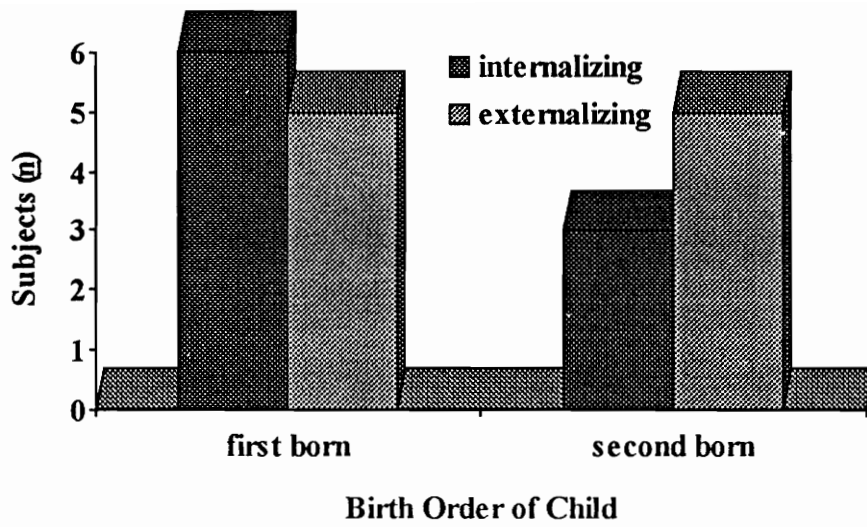


Figure 6. Distribution of birth order of the child for internalizing ($n = 9$) and externalizing ($n = 10$) subjects.

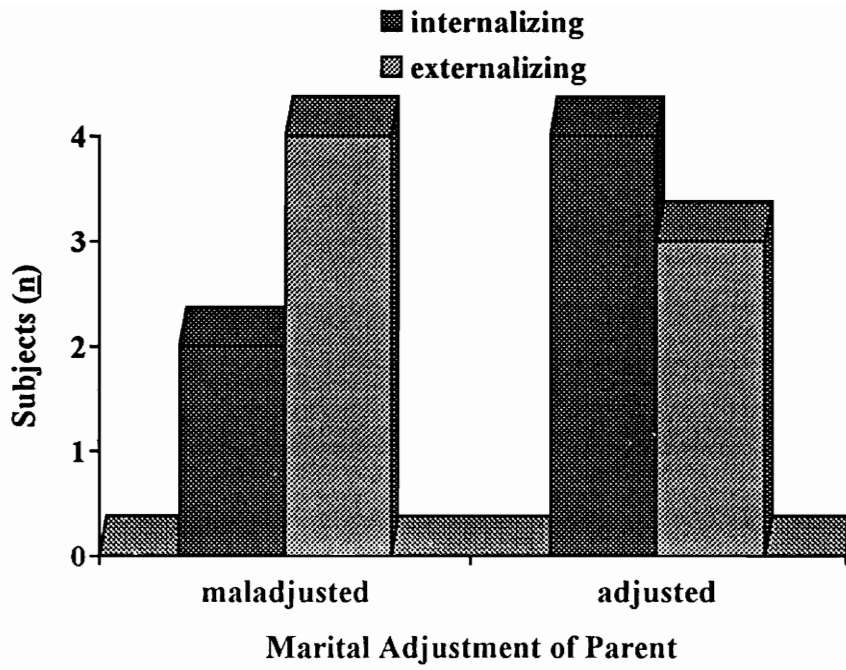


Figure 7. Distribution of marital adjustment (as determined by the LWMAT) of parents who were married or cohabiting for internalizing ($n = 6$) and externalizing ($n = 7$) subjects.

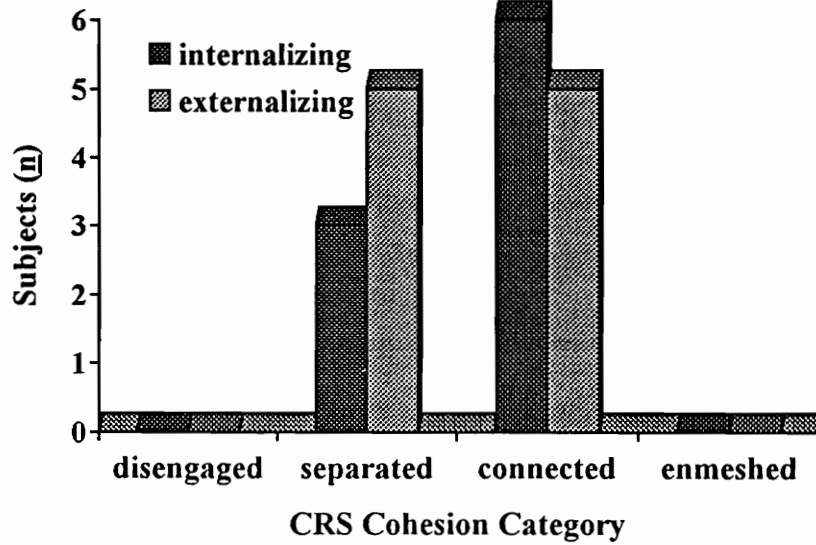


Figure 8. Distribution of cohesion category as measured by the CRS for internalizing ($n = 9$) and externalizing ($n = 10$) subjects.

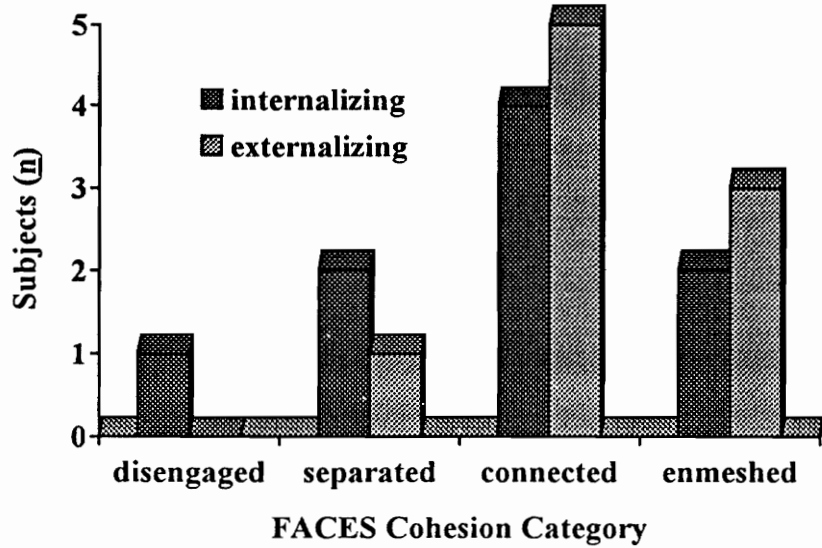


Figure 9. Distribution of cohesion category as measured by the FACES for internalizing ($n = 9$) and externalizing ($n = 9$) subjects.

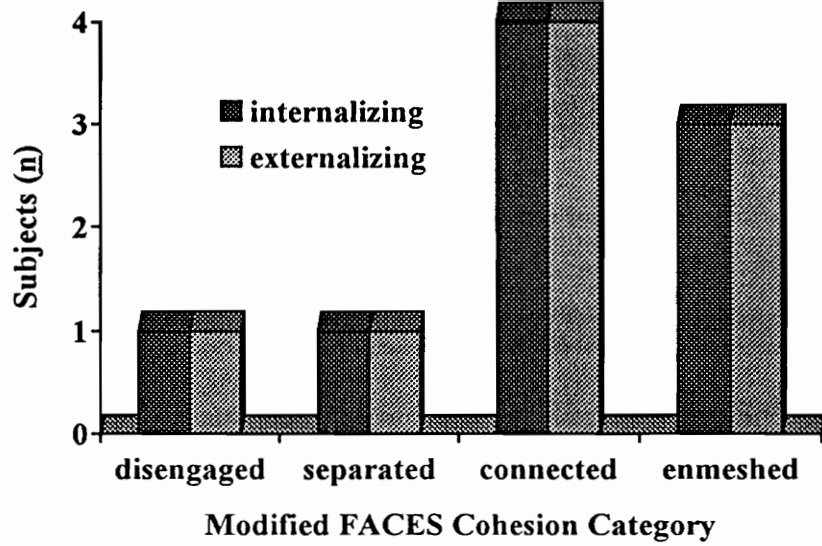


Figure 10. Distribution of cohesion category as measured by the Modified FACES for internalizing ($n = 9$) and externalizing ($n = 9$) subjects.

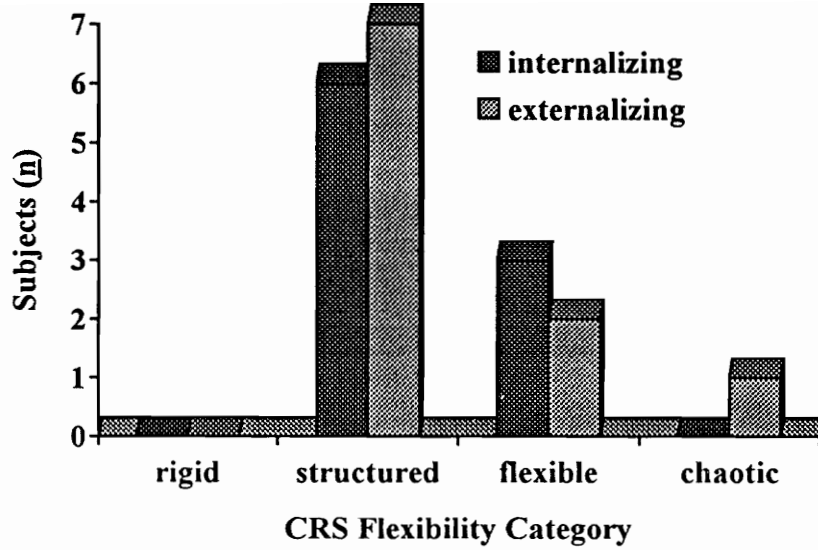


Figure 11. Distribution of flexibility category as measured by the CRS for internalizing ($n = 9$) and externalizing ($n = 10$) subjects.

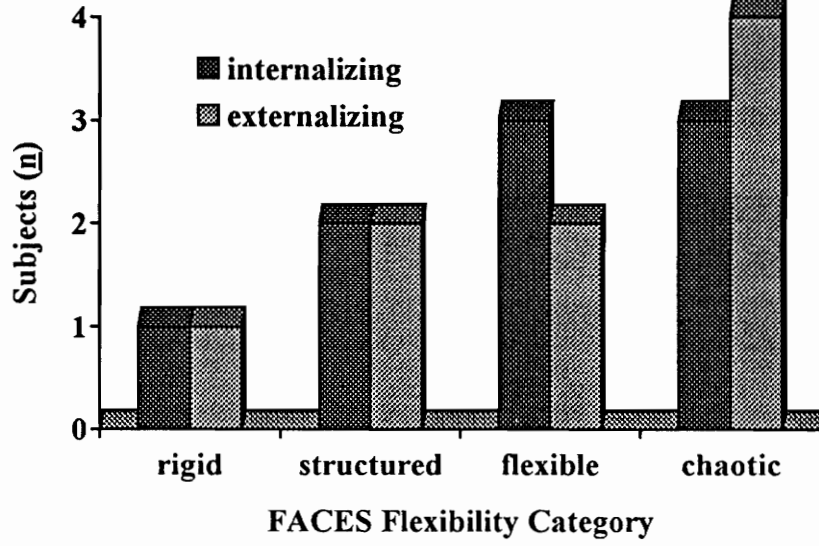


Figure 12. Distribution of flexibility category as measured by the FACES for internalizing ($n = 9$) and externalizing ($n = 9$) subjects.

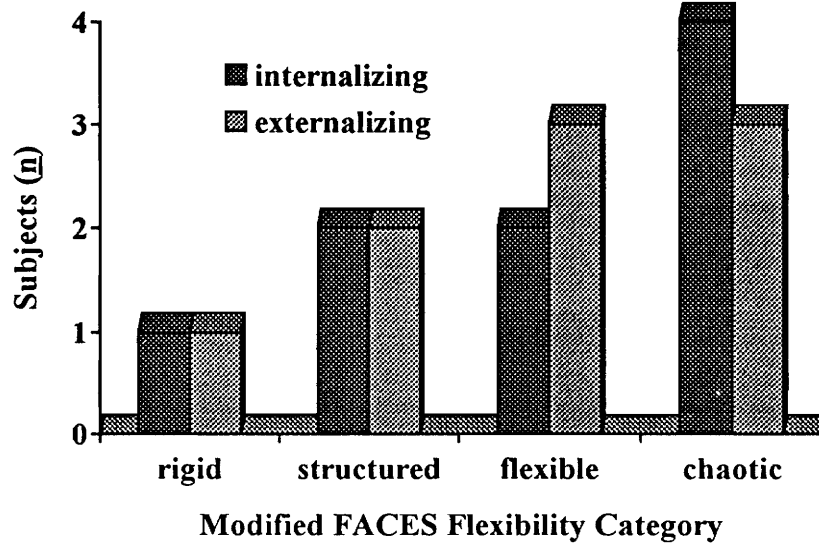


Figure 13. Distribution of flexibility category as measured by the Modified FACES for internalizing ($\underline{n} = 9$) and externalizing ($\underline{n} = 9$) subjects.

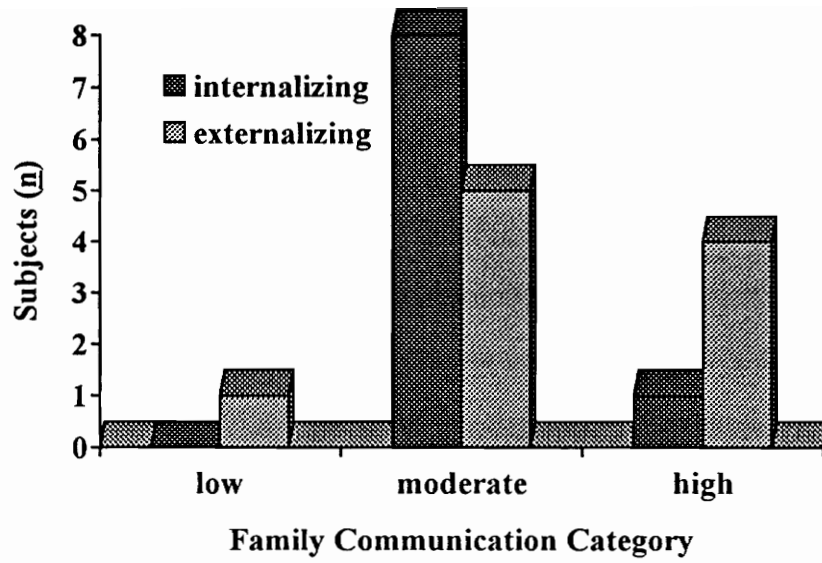


Figure 14. Distribution of family communication (as determined by the CRS) for internalizing ($n = 9$) and externalizing ($n = 10$) subjects.

Appendix A

Family Map for the Circumplex Model

Family Map of the Circumplex Model

The Family Map of the Circumplex Model is a copyrighted figure, and therefore could not be reproduced here. It can be found in the following reference:

Olson, D. H. (1993). Circumplex model of marital and family systems: Assessing family functioning. In F. Walsh (Ed.), Normal family processes (2nd ed., pp. 104-137). New York: Guilford.

Appendix B

Anxiety Disorders Interview Schedule for DSM-IV

Child and Parent Versions

Anxiety Disorders Interview Schedule for DSM-IV

Child and Parent Versions

The Anxiety Disorders Interview Schedule for DSM-IV is a copyrighted instrument, and therefore could not be reproduced here. It can be obtained from Graywind Publications, c/o Center for Stress and Anxiety Disorders, 1535 Western Avenue, Albany, NY 12203.

Appendix C

Child Behavior Checklist

Child Behavior Checklist

The Child Behavior Checklist is a copyrighted instrument, and therefore could not be reproduced here. It can be obtained from Child Behavior Checklist, University Associates in Psychiatry, 1 South Prospect Street, Burlington, VT 05401-3456.

Appendix D

Clinical Rating Scale for the Circumplex Model
of Marital and Family Systems

Clinical Rating Scale for the Circumplex Model of Marital and Family Systems

The Clinical Rating Scale for the Circumplex Model of Marital and Family Systems is a copyrighted instrument, and therefore could not be reproduced here. It can be obtained from Family Social Science, University of Minnesota, 290 McNeal Hall, St. Paul, MN 55108.

Appendix E

Family Adaptability and Cohesion Evaluation Scale III

Family Adaptability and Cohesion Evaluation Scale III

The Family Adaptability and Cohesion Evaluation Scale III is a copyrighted instrument, and therefore could not be reproduced here. It can be obtained from Family Social Science, University of Minnesota, 290 McNeal Hall, St. Paul, MN 55108.

Appendix F

Modified Family Adaptability and Cohesion Evaluation Scale

Modified Family Adaptability and Cohesion Evaluation Scale III

The Modified Family Adaptability and Cohesion Evaluation Scale III was adapted from a copyrighted instrument, and therefore could not be reproduced here. For more information about this instrument please contact Kathleen A. Ingman, Department of Psychology, Virginia Tech, Blacksburg, VA 24061.

Appendix G
Family Environment Scale

Family Environment Scale

The Family Environment Scale is a copyrighted instrument, and therefore could not be reproduced here. It can be obtained from Consulting Psychologists Press, Inc., 3803 E. Bayshore Road, Palo Alto, CA 94303.

Appendix H

Modified Family Environment Scale - Conflict

Modified Family Environment Scale - Conflict

The Modified Family Environment Scale - Conflict was adapted from a copyrighted instrument, and therefore could not be reproduced here. For more information about this instrument please contact Kathleen A. Ingman, Department of Psychology, Virginia Tech, Blacksburg, VA 24061.

Appendix I

Locke-Wallace Marital Adjustment Test

Locke-Wallace Marital Adjustment Test

The Locke-Wallace Marital Adjustment Test is a copyrighted instrument, and therefore could not be reproduced here. It can be found in the following reference:

Locke, H. J., & Wallace, K. M. (1959). Short marital adjustment and prediction tests: Their reliability and validity. Marriage and Family Living, 21, 251-255.

Appendix J

Subject Recruitment Letter

Dear parent:

We are conducting a study that will examine the relationship between childhood behavior and family interactions. More specifically, the study will look at how parents and children interact with one another and how those interactions are related to the types of behavior problems children exhibit.

For this project, we are looking for parents who have children between the ages of 7 and 12 with possible behavior problems at home or school. We are interested in problems such as anxiety, depression, withdrawing from others, hyperactivity, aggression, and oppositional or defiant behavior. One child and one parent are needed from each family. If you decide to participate in the study, you and your child will receive a *free* comprehensive assessment of your child's problems. You will also be given feedback on the results of this assessment which may provide valuable information about your child's problems and what can be done about them.

If you are interested in participating in this study and would like to learn more about it, please call Katie Ingman at 231-6914. Thank you for your help.

Sincerely,

Katie Ingman, B.A.
Graduate Clinician

Thomas H. Ollendick, Ph.D.
Director of Clinical Training

Appendix K

Parental Consent Form

INFORMED CONSENT FORM
Primary Caregiver

TITLE OF EXPERIMENT: The Relationship Between Family Environment and Internalizing and Externalizing Behavior Problems in Childhood

1. PURPOSE OF EXPERIMENT:

You are invited to participate in a study that will examine the relationship between childhood behavior and family environment. More specifically, the study will look at how parents and children interact with one another and how those interactions are related to the types of behavior problems that children exhibit.

2. PROCEDURE TO BE FOLLOWED IN THE STUDY:

To accomplish the goals of this study, you will first be asked to fill out a questionnaire about your child's behavior. Depending on your responses, you may be asked to continue in the study. If this is the case, you will be asked to fill out some additional questionnaires about your family. Two structured, diagnostic interviews will be conducted: one with you and one with your child. These interviews take approximately one to one and a half hours and will ask questions about your child's behavior and feelings and will help us determine if your child meets a specific diagnosis. You and your child will also be asked to engage in an interaction task that will require you to discuss certain topics and to work on two brief projects together. The entire interaction task will take about 30 minutes and will be videotaped.

3. CONFIDENTIALITY OF RESULTS:

The results of this study will be kept strictly confidential. At no time will the researcher release your results to anyone without your written consent. The information you provide will have your name removed and only a subject number will identify you during analyses and any write-up of the research.

The experiment will be videotaped. These tapes may be viewed by the experimenter, Dr. Ollendick (faculty supervisor), and some research assistants who will be undergraduate or graduate students in the Psychology department at Virginia Tech. The videotapes will be erased at the end of the study. The videotapes and all of the questionnaires will be kept in a locked file.

4. DISCOMFORTS AND RISKS FROM PARTICIPATING IN THE STUDY:

There may be some risks from your participation in this study. It is possible that you or your child may become upset when answering questions for the study. To minimize this risk, you will only be meeting with graduate students who are experienced in working with children and families and dealing with their problems. You do not have to answer any questions or discuss any topics that make you feel uneasy. Of course, you may stop participating in the study at any time if you or your child feel uncomfortable.

5. EXPECTED BENEFITS:

This results of this study may help us better understand what variables contribute to children's behavioral and emotional problems. Such an understanding may help design ways of preventing and treating these problems in the future.

Your responses on the questionnaires and during the interviews will provide information about you, your child, and your family. The results of your assessment will be decided by the graduate clinicians who interview you and your child and the researcher who is conducting the study. They are supervised by a licensed clinical psychologist. You will be given feedback on the results this assessment by a trained graduate clinician. If your child or family is currently in therapy, you may wish to discuss these results with your therapist. We will discuss the results of this assessment with your therapist if he/she should request further clarification and you provide written permission for us to do so. *No information will be given to your therapist unless you give your written permission to do so.*

6. FREEDOM TO WITHDRAW:

You are free to withdraw from participation in this study at any time without penalty.

7. USE OF RESEARCH DATA:

The information from this research may be used for scientific or educational purposes. It may be presented at scientific meetings and/or published and reproduced in professional journals or books, or used for any other purpose that Virginia Tech's Department of Psychology considers proper in the interest of education, knowledge, or research.

9. APPROVAL OF RESEARCH:

This research project has been approved by the Human Subjects Committee of the Department of Psychology and by the Institutional Review Board of Virginia Tech, as required for all university-based research projects.

10. SUBJECT'S PERMISSION:

I have read and understand the above description of the study. I have had an opportunity to ask questions and have had them answered. I hereby acknowledge the above and give my voluntary consent for my own and my child's participation in this study.

I further understand that if I participate I may withdraw at any time without penalty.

I understand that should I have any questions regarding this research and its conduct, I should contact any of the persons named below.

PRIMARY RESEARCHER: Kathleen Ingman

FACULTY ADVISOR: Thomas H. Ollendick

CHAIR, HSC: Richard Eisler

CHAIR, IRB: Ernest Stout

PHONE: 231-6914

PHONE: 231-6451

PHONE: 231-7001

PHONE: 231-9359

CHILD'S NAME: _____

PARENT/GUARDIAN'S NAME: _____

PARENT/GUARDIAN'S SIGNATURE: _____

DATE: _____

Appendix L
Child Assent Form

CHILD ASSENT FORM

You have been asked to be in a study about children and families. If you agree to be in the study, you will be asked questions about your feelings and the way you behave. For example, we will ask you what makes you get sad or angry or nervous. These questions will take about an hour. You will also be asked to do some projects or activities, such as build something, and to talk about certain things about your family, such as the activities you do together, with one of your parents. This will take about half an hour and will be videotaped so we can watch it later to see what you did. The videotape will be erased when we are done with the study. Everything you tell us will be kept confidential. That means that we will not tell anyone else what you said or what you did, unless you want us to.

Some of the questions that we will ask you may upset you or cause you some discomfort. If anything you are asked to do upsets you, you do not have to do it. You can tell the person who is working with you that you want to skip that part or that you want to stop. If you have any questions after the study is finished, you can call Katie Ingman at 231-6914. It is up to you whether you want to be in the study. If you decide to be in the study, I want you to know that you can stop at any time with *or without* a reason. By choosing to be in the study, you will help us understand more about children and families.

If you want to be in the study, please sign this form to let us know that you understand what the study is about, you know who to ask if you have questions, and that you understand that you can stop at any time.

“I agree to be in the study”.

Name: _____

Signature: _____

Date: _____

The child named above voluntarily gave his/her assent to participate in the study.

Witness' name: _____

Witness' signature: _____

Date: _____

Appendix M

Family Interaction Task Audiotaped Instructions

Family Interaction Task
Audiotaped Instructions

Task 1: Family Kvebaek (6 minutes)

Use the chess pieces on the board and pretend that each piece represents a member of your family. Take turns arranging your family members on the chess board according to how close you feel to each other. Then explain why you placed the pieces the way you did. Where you differ from one another, discuss the reasons for those differences.

You have four minutes. (5 second pause) Please begin.

(Researcher turns off audio tape. At this time the researcher will wait until the family has finished completing the first part of task 1 but no longer than 4 minutes. Then the audio tape is turned back on again when the family is ready to begin the next instructions).

Please stop this task. (5 second pause)

Now that each of you has had your turn, we would like you to come to agreement as a family on where the pieces should be placed to best represent closeness or distance in your family. Please arrange the pieces on the chess board accordingly.

You have 2 minutes. (5 second pause) Please begin.

(Researcher turns off the audio tape. The researcher will wait no longer than 2 minutes to turn the audio tape back on again).

Please stop this task and put the chess pieces back in the box.

(30 seconds)

Task 2: Spending \$100 (3 minutes)

Imagine that your family has just been given \$100 and that you must spend this money together as a family. Take three minutes and discuss how you would like to spend this money. (5 second pause) Please begin.

(2 minutes)

You have one minute to complete this task.

(1 minute)

Please stop this task. (5 second pause)

Task 3: Typical evening in your family (5 minutes)

We would like each of you to tell what a typical weekday evening is like for you in your family. If your family eats its evening meal together, talk about whether you help prepare the meal and clean up, what you talk about during the meal, and what you do until you go to bed. If your family doesn't usually eat together, talk about what you do for dinner and what you do until you go to bed.

You have three minutes for this part of the task. (5 second pause) Please begin.

(2 minutes)

You have one minute to complete this task.

(1 minute)

Please stop this task. (5 second pause)

Now that you have described your evening, each of you should indicate one thing you'd like to change about your typical evening as a family.

You have two minutes. (5 second pause) Please begin.

(1 minute)

You have one minute to complete this task.

(1 minute)

Please stop this task. (5 second pause)

Task 4: Family Quandary (4 minutes)

Please take out the four cups, three knives, and piece of paper with a circle drawn on it and place these items on the table.

(20 seconds)

Suppose that your family is a team of engineers whose task is to build an observation booth above the mouth of a volcano. Think of three of the cups as foundations for an observation tower and the fourth cup as an observation booth. Think of the three knives as poles to support the observation booth. Think of the circle as the edge of the volcano.

Place three cups, or foundations, around the base of the volcano. The cups must remain outside the circle. Using the three knives, or poles, support the fourth cup, or the observation booth, above the center of the volcano. The observation booth *must not* touch the table.

You now have four minutes to complete this task. Remember, three cups must be outside the circle and the knives must be used to support the fourth cup above the *center* of the volcano. (5 second pause) Please begin.

(3 minutes)

You have one minute to complete this task.

(1 minute)

Please stop this task and put the materials back in the box.

(30 seconds)

Task 5: Family Togetherness (3 minutes)

Discuss whether you spend too much or too little time together as a family.

You have three minutes to complete this task. (5 second pause) Please begin.

(2 minutes)

You have one minute to complete this task.

(1 minute)

Please stop this task. (5 second pause)

Task 6: Member Absence (6 minutes)

Go through each member of your family and tell how things would change if that person had to be away from the family for a month. Would things change? If so, how?

You have four minutes to complete this task. (5 second pause) Please begin.

(3 minutes)

You have one minute to complete this task.

(1 minute)

Please stop this task. (5 second pause)

Task 7: Family and Couple Strengths (4 minutes)

We would like you to discuss your family's good qualities.

You have two minutes. (5 second pause) Please begin.

(1 minute)

You have one minute to complete this task.

(1 minute)

Please stop this task. (5 second pause)

If yours is a single parent family, you are now done with the interaction task. Thank you for participating. (5 second pause)

If yours is a two-parent family we would like you to complete one more task. Please discuss the strengths in your couple relationship. Each adult should share a strength and then the children can share their ideas.

You will have two minutes to complete this task. (5 second pause) Please begin.

(1 minute)

You have one minute to complete this task.

(1 minute)

Please stop this task. Thank you for participating.

CURRICULUM VITAE

Kathleen A. Ingman
315 Hunt Club Road, Apt. 6100K
Blacksburg, VA 24060
(540) 953-1972

Education:

Virginia Polytechnic Institute and State University, Blacksburg, VA

Dates in attendance: August, 1993 - present
Degree expected: Master of Science, Doctor of Philosophy
Date expected: May, 1996; May, 1999
Program: Clinical Psychology, Clinical-Child Psychology specialization
Awards: Graduate assistantship/Tuition waiver

State University of New York at Albany, Albany, New York

Dates in attendance: September, 1990 - December, 1992
Degree: Bachelor of Arts, Summa Cum Laude
December, 1992
Major: Psychology
Minors: Sociology and Spanish
Cumulative GPA: 3.75 GPA in major: 3.78
Awards and Honors: Presidential Award for Undergraduate
Research, May, 1992
Phi Beta Kappa - member
Psi Chi - member
Presidential Honor Society - advisory
board
Dean's List, September, 1990 - December, 1992

Santa Clara University, Santa Clara, California

Dates in attendance: September, 1989 - June, 1990
Major: Undeclared
Cumulative GPA: 3.60
Honors: Dean's List, September, 1989 - June, 1990

Relevant Work Experience:

Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, VA: Graduate Student

August, 1993 - present

Supervisor: Thomas H. Ollendick, Ph.D., Director of Clinical Training

Research Experience

Child: Conducted assessment study of children with both internalizing and externalizing disorders using semi-structured interviews, self-report, and observational data. Currently conducting literature review for cross-cultural study of fear in children. Will assist in data analysis and write up of project. Also involved in planning and implementation of an assessment clinic for children.

Clinical Experience

Adult: Attending weekly supervision meetings and conducting therapy as part of clinical training. Presenting problems of clients include adjustment and marital difficulties, depression, anxiety, and parenting difficulties, and referrals for personality and intellectual assessments. Special assignments include: consultant/supervisor for social anxiety treatment group.

Child: Attending weekly supervision meetings and conducting therapy as part of clinical training. Presenting problems of clients include anxiety, depression, social skills deficits, Tourette's syndrome, autism, conduct problems, adjustment difficulties, hyperactivity, parent-child relationship difficulties, and referrals for intellectual and ADHD assessments. Special assignments include: providing therapy for emotionally disturbed children at a local middle school and serving as co-therapist of a social skills training group.

Southwest Virginia Mental Health Institute, Marion, VA: Psychology Practicum Student

August, 1995 - present

Supervisor: Richard Mears, Ph.D.

Job description and duties:

Responsibilities include conducting diagnostic, intellectual, and personality evaluations; and serving as therapist for individual and group therapy for adolescent and adult psychiatric inpatients. The hospital primarily serves a lower class, rural Appalachian patient population.

Macquarie University, Sydney, Australia: Research Assistant

June, 1994 - July, 1994

Supervisor: Ronald M. Rapee, Ph.D.

Job description and duties:

Responsibilities include observing and coding interactions between anxious children and their parents, observing and coding socially phobic adults in public speaking and interaction tasks, interviewing anxious children and their parents, and conducting literature reviews for manuscripts.

Center for Stress and Anxiety Disorders, Albany, NY: Research Assistant

Part-time: September, 1991 - May, 1992

September, 1992 - December, 1992

Full-time: June, 1992 - August, 1992

January, 1993 - July, 1993

Supervisors: David H. Barlow, Ph.D., Director

Anne Marie Albano, Ph.D., Assistant Director

Research Experience

Adult: Responsibilities include data collection, management, and computer analysis using SPSS-X. Also conducted literature reviews for manuscripts and attended research meetings. Relevant diagnoses include: panic disorder, obsessive-compulsive disorder, simple phobia, and generalized anxiety disorder.

Child: Regular responsibilities include data collection and management, and conducting literature reviews for manuscripts. Relevant diagnoses include: overanxious disorder, social phobia, eating disorders, elective mutism, attention deficit hyperactivity disorder, and panic disorder. Special assignments include: Research assistant for NIMH funded project: "Psychosocial Treatments for Adolescent Social Phobia". Responsible for organization, administration, and scoring of questionnaire measures (parent and child), and data collection and analysis of behavior tests.

Clinical Work

Adult: Attended weekly diagnostic conference and undergraduate seminar.

Served as co-therapist of treatment group for panic disorder patients.

Child: General duties include therapist for individual and group treatment of children and adolescents, questionnaire administration, and role play exposure participant. Presenting problems of clients include anxiety, depression, hyperactivity, and eating disorders. Served as co-therapist of treatment group for pre-adolescents with social phobia.

Albany Rape Crisis Center, Albany, NY: Volunteer Counselor

May, 1992 - June, 1993.

Supervisors: Judith V. Condo, Director

Debra Schramek, Deputy Director

Job description and duties:

Offered psychological, medical, and legal counseling to victims of rape, sexual abuse, and incest as well as their families on a crisis hotline.

Escorted rape victims to emergency room and police station. Attended monthly staff meeting following 25 hours of training as counselor.

Stanford University Medical Center Pain Management Clinic, Stanford, CA: Research Assistant

Part-time: Summer, 1991.

Supervisor: William Brose, M.D., Director

Job description and duties:

Research assistant in adult outpatient clinic for patients with medically and psychologically based chronic pain conditions. Research involved examining the effects of medications on cognitive functioning. Research responsibilities included literature reviews and data management. Clinical work involved administration of neuropsychological tests including the Trail Making Test, Digit Span, and Serial Digit Learning.

Computer Experience:

Coursework: Computing in the Social Sciences. Overview of computer applications in the social sciences, including use of the VAX/VMS mainframe, Scribe for word processing, and SPSS-X for data analysis.

Academic Use: Experience with SPSS-X and SAS for data analysis and extensive use of Microsoft Word and Word Perfect for word processing.

Professional Affiliations:

American Psychological Association (APA), student affiliate

Association for the Advancement of Behavior Therapy (AABT), student member

Conference Papers and Presentations:

Ingman, K. A., & Ollendick, T. H. (1996, November). Family Environment in Internalizing and Externalizing Children. Poster presentation submitted for the meeting of the Association for the Advancement of Behavior Therapy, New York, NY.

Ingman, K. A., & Ollendick, T. H. (1995, September). Family environment in internalizing and externalizing children. Symposium presented at the Fifth Annual Virginia Beach Conference, Virginia Beach, VA.

Ingman, K. A., Seligman, L. D., Ollendick, T. H., & Akande, D. (1994, November). Cross-cultural aspects of fear in African children and adolescents. Poster presentation at the meeting of the Association for Advancement of Behavior Therapy, San Diego, CA.

Albano, A. M., Chorpita, B. F., Ingman, K. A., & Barlow, D. H. (1993, November). Use of the fear and avoidance hierarchy in the prescriptive treatment of school refusal. Poster presentation at the meeting of the Association for Advancement of Behavior Therapy, Atlanta, GA.

Chorpita, B. F., Albano, A. M., Ingman, K. A., Cornish, P., & Barlow, D. H. (1993, November). The Childhood Anxiety Sensitivity Index: Psychometric examinations in a sample of children with anxiety disorders. Poster presentation at the meeting of the Association for the Advancement of Behavior Therapy, Atlanta, GA.

Griegel, L. E., Lilienfeld, S., Barlow, D. H., & Ingman, K. A., (1992, November). Magical thinking, religiosity, and obsessive-compulsive traits. Poster presentation at the meeting of the Association for the Advancement of Behavior Therapy, Boston, MA.

Griegel, L. E., Brown, T. A., Barlow, D. H., & Ingman, K. A. (1992, May). The effects of depersonalization and derealization on treatment outcome in individuals with panic disorder. In D. H. Barlow (chair), Recent advances in panic disorder research: Assessment and Treatment Implications. Symposium at the meeting of the New York State Psychological Association, Bolton Landing, NY.

Other Manuscripts:

Ingman, K. A., & Albano, A. M. (1992). Background History Questionnaire. Unpublished manuscript. Center for Stress and Anxiety Disorders, State University of New York at Albany.

Griegel, L. E., Albano, A. M., & Ingman, K. A. (1992). Family Events Schedule. Unpublished manuscript. Center for Stress and Anxiety Disorders, State University of New York at Albany.

Griegel, L. E., Albano, A. M., & Ingman, K. A. (1992). Biology of Breathing - A. Unpublished manuscript. Center for Stress and Anxiety Disorders, State University of New York at Albany.

Griegel, L. E., Albano, A. M., & Ingman, K. A. (1992). What Happens When We Breathe - C. Unpublished manuscript. Center for Stress and Anxiety Disorders, State University of New York at Albany.

Research in progress:

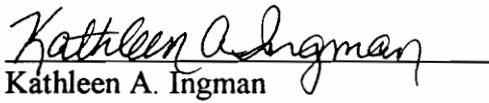
Ingman, K. A., & Ollendick, T. H. The relationship between family environment and internalizing and externalizing behavior problems in childhood.

Ollendick, T. H., Ingman, K. A., & Akande, D. Cross-cultural aspects of fears in African children and adolescents.

References:

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(540) 231-6451

Anne Marie Albano, Ph.D., Assistant Professor and CoDirector, Anxiety Research and
Treatment Center, Department of Psychology, University of Louisville, Louisville,
KY 40292, (502) 852-8264.


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