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**NONSHARED ENVIRONMENT AND SYMPTOM OUTCOME DIFFERENCES
FOR SIBLINGS IN DISTRESSED FAMILIES**

by

DEBORA DUDLEY, B.A. (Hon.) Psych.

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of
Master of Arts
Department of Psychology

Carleton University

Ottawa, Ontario

October, 1994

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Abstract

The relationships among family distress, nonshared environment, and differences in siblings' symptomatology was assessed using The Family Assessment Device (FAD), The Sibling Inventory of Differential Experience, and the Symptom Checklist-90. Twenty-eight Carleton University students and their siblings participated. Nineteen sibling pairs were considered to have greater family distress, based on a median-split of FAD scores. Outcome differences were expected to be related to differential parental warmth and control, popularity, and caretaking that siblings provide for each other. It was predicted that siblings who reported: greater parental affection, less parental control, being more popular, and having their sibling act as caretaker toward them would show better adjustment. These hypotheses were not supported. Additional analysis indicated that symptom outcome differences were not associated with the birth order or sex of the subject. Family distress was also not found to be related to higher levels of emotional distress.

The undersigned recommend to the Faculty
of Graduate Studies acceptance of the thesis

"Non-Shared Environment and Symptom
Outcome Difference for Siblings
in Distressed Families"

submitted by

Debra Dudley

in partial fulfilment of the requirements
for the degree of Master of Arts

Thesis Supervisor

Chairman, Department of Psychology

Carleton University

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Nonshared Environment and Symptom Outcome Differences For Siblings in Distressed Families

For several decades researchers have focused on the family's role in the etiology and maintenance of child and adolescent symptomatology. Robust relationships have been found between measures of family distress and indices of adolescent depression (Jacobvitz, Fullinwider, & Loera, 1991; Prange, Greenbaum, Silver, Friedman, Kutash, & Duchnowski, 1992), conduct and externalizing disorders (Christensen, Phillips, Glasgow, & Johnson, 1983; Prange et al., 1992), secondary psychosomatic illness (Minuchin, Baker, Rosman, Liebman, Milman, & Todd, 1975), lower self-esteem (Jacobvitz et al., 1991; Marquis Bishop, & Ingersoll, 1989), and symptoms of schizophrenia (Fendrich, Warner, & Weismann, 1990) for a target child.

Given that each child within a family (on the surface) seems to share a common maladaptive environment, what is lacking in our knowledge is how familial processes may be detrimental to one child in the family, while other children seem to be faring much better. "Superkids" (Kauffman, Grunbaum, Cohler, & Gamer, 1979), "invincible" (Werner & Smith, 1982), "invulnerable" (Anthony, 1974), and "resilient" (Beardslee & Podorefsky, 1988) are terms which have been used to describe children who seem competent despite intense life stresses (Garmezy, 1981) such as those encountered in a discordant home.

The purpose of this paper is twofold. First, a review of theory and research will be presented identifying nonshared environmental experiences which may help to buffer the effects of a dysfunctional family system. Second, the results of exploratory research which attempted to explore the relationships among family distress, nonshared environmental influences, and differences in sibling symptomatology will be presented.

Recently, attention has been turned to nonshared family processes and extra-familial factors which may contribute to developmental differences between siblings. Nonshared environment refers to

environmental influences which vary within a family and which thus do not contribute to sibling resemblance (Dunn & Plomin, 1991). It has been postulated that three potential sources of nonshared environment include: qualitative differences in the relationship each sibling has with their parent; differences in the sibling relationship; and individual differences in peer groups (Dunn and Plomin, 1991).

Differential parental warmth and control

Despite parental claims that they try to treat their offspring similarly, there is evidence to suggest that parents often feel differing levels of affection toward their children, and show varying levels of attention, control and discipline (Dunn & Plomin, 1991).

For example, Daniels, Dunn, Furstenberg, and Plomin (1985) assessed the extent to which differences in maternal closeness, and family decision making would be associated with adjustment differences within adolescent sibling pairs (age 11-17). Three hundred and forty-eight mothers and their two offspring were interviewed by telephone regarding family, friends, school, and psychological adjustment. Signed difference scores were created for parental and sibling perception of environmental and sibling adjustment differences. Multiple regression analyses of sibling differences in adjustment were performed on differences in Mothers' and siblings' perceptions of the environment.

Parent perception of differential maternal closeness was negatively correlated with parent perception of emotional distress, and accounted for 14% of variance in sibling adjustment differences. Sibling perception of differences in maternal closeness was negatively correlated with teacher ratings of disobedience and accounted for 13% of variance in sibling adjustment differences, based on the Child Behavior Checklist. Therefore, a child who receives less maternal closeness, relative to another sibling, may exhibit more emotional distress and disobedient behavior. In addition, when a child is more emotionally distressed or disobedient, the parent may respond by withdrawing or by showing less affection.

Maternal perception of difference in the amount of say in family decisions was positively correlated with parent perception of delinquency and accounted for 13% of the variance in sibling adjustment differences, suggesting that less say in family decision making relative to another sibling may provoke disobedient behavior. When children behave disobediently mothers may also be more likely to respond by giving a child less control or less say in family decisions.

Similarly, Dunn, Stocker, and Plomin (1990) rated differential affection and control of sixty-seven mothers toward their two offspring (mean ages 4 and 7), based on observations during a play task and interviews with each mother. Thirty-percent of mothers reported some difference in the amount of affection they showed to each child, while 35% of the mothers indicated a marked difference in the amount of affection they displayed to each child. In addition, 32% of the mothers interviewed reported that there was some difference in the extent they attempted to control and discipline each child, while 29% of the mothers reported much difference in the amount they attempted to control and discipline each child.

Based on the interview data and maternal ratings of older children on the Child Behavioral Checklist, differences in maternal affection were negatively correlated with older children's internalizing scores and predicted 18% of variance in older children's internalizing scores. Therefore, when mothers were less affectionate to the older child relative to the younger child, older offspring were more likely to have higher internalizing scores compared to families in which mothers were less differentially affectionate (Dunn et al., 1990). Older children's internalizing scores were also positively correlated ($.48, p < .05$) with maternal ratings of differences in control and discipline shown to each child. Differences in control and discipline, therefore, predicted 23% of the variance of internalizing scores for older children. Older children's externalizing scores were positively correlated with maternal ratings of

differential control and discipline, accounting for 14% of the variance. Therefore, when mothers were more controlling toward older offspring than the younger, the older offspring was more likely to display internalizing and externalizing problems, compared to families in which mothers were less differentially controlling (Dunn et al., 1990). Overall, differential maternal behavior toward the older child, compared to the younger, significantly predicted 34% of the variance in internalizing problems. Differential maternal behavior also predicted 27% of the variance for externalizing problems, however not significantly.

In contrast, Jenkins and Smith (1990) did not find that a positive parent-child relationship had a protective effect for children of disharmonious homes. Jenkins and Smith (1990) compared the emotional and behavioral disturbances of children, between the ages of nine and twelve, whose parents had a discordant marriage with those children whose parents had a happier marriage. In a semi-structured interview, mothers were asked to report on the quality of their relationship with an index child, the quality of their husband's relationship with the same child, and on emotional and behavioral symptoms exhibited by the child. Mother-child and father-child relationships were rated as poor, moderate or good based on loss of control with the child, the child confiding in each of the parents, time spent with the child, and warmth toward the child. Results indicated that the mother-child relationship and the father-child relationship had a significant effect on children's symptoms. However, the interaction between the quality of parental marriage and the mother-child and father-child relationships were not significant. Jenkins and Smith (1990) argue that because a positive relationship with a parent did not have a significant ameliorative effect for children in disharmonious homes, compared to controls, one can not regard this variable as a true protective factor. The absence of a positive relationship with a parent will in itself constitute a risk, regardless of the level of stress within the family (Jenkins & Smith, 1990).

However, conclusions based on Jenkins and Smith's findings must be considered with caution. First, all data were based on non-standardized semi-structured interviews with mothers. Second, it is possible that maternal perceptions regarding the index child's symptoms, and the quality of mother-child relationship are biased. These factors would also account for the discrepancy between the results of Jenkins and Smith and previous findings.

The present study will attempt to extend Jenkins and Smith's contributions by assessing the importance of within family influence in understanding individual differences in symptomatology. Perceiving less warmth from a parent, relative to another sibling, may be more important in determining individual differences in outcome than the perception of an absence of warmth from a parent (Daniels & Plomin, 1985). The perception of having a warmer relationship with a parent, compared to a sibling, may be especially important in a maladaptive family where attention and warmth may be more scarce than in a functional family environment.

Research tends to focus on mothers' contributions to differences in psychological outcome. Equally important is a father's role in his child's welfare and development. Therefore, this study will not be limited to differences in maternal behavior shown to offspring, but will also consider differences in paternal control and affection.

Since a lack of parental warmth and higher levels of parental control seem to be associated with internalizing and externalizing disorders, delinquency, and emotional distress (Daniels et al., 1985; Dunn et al., 1990; Jenkins & Smith, 1990; Rutter, 1981), and each parent may display differing levels of affection and control toward each child (Dunn & Plomin, 1991; Rutter, 1981), then one could speculate that differences in siblings' level of distress will vary as a function of both maternal and paternal warmth and control. In the present study, level of distress will be assessed with the Symptom Checklist-90, a global index of symptomatology (Derogatis, 1977). Therefore, siblings who report higher

levels of symptomatology based on the Symptom checklist-90 would be expected to perceive less maternal and paternal warmth and greater maternal and paternal control, relative to their less symptomatic brother or sister.

Social support

There is general consensus among many family theorists that in some distressed families, members tend to be overly involved with one another, tend to feel overly responsible for one another, and tend to feel an unreasonable sense of loyalty to the family (Aponte & Van Deusen, 1981; Bowen, 1965; Epstein, Bishop, & Levin, 1978; Olson, Sprenkle, & Russell, 1979). Social support and extra-familial activities may offer an alternative to focusing on the concerns of the family, and mediate the sense of overresponsibility to the family. A social network may also provide a basis for a more positive self-concept (Kaplan, Robbins, & Martin, 1983) by offering positive acceptance and a sense of predictability and stability (Cohen & Wills, 1985). Thus, an active involvement in a peer group, and availability of supportive persons such as, coaches, teachers, neighbours and extended family may help to mitigate the effects of life stressors (Rutter, 1981) particular to a distressed family.

The importance of having a social network is supported by the finding that children of alcoholics are less likely to develop alcoholism themselves if they successfully separated themselves from their family, had compensatory outside relationships during childhood and adolescence, and had attachments to an alternative family with a non-alcoholic lifestyle (see Doane, Hill, & Diamond, 1991).

The presence of a close relationship with an adult outside a disharmonious family has been identified as a protective factor (Jenkins & Smith, 1990). A close relationship with an adult was associated with a significantly lower level of emotional and behavioral problems for children living in families where there is marital discord as compared to

controls (Jenkins & Smith, 1990).

Kauffman and associates, (1979) interviewed six talented and competent high risk children who were, "strikingly more competent, colourful, creative and talented than the highest functioning control children" (p. 1398). These children more often reported having a best friend, and extensive positive contact with an extra-familial adult, compared with high risk children who were faring less well.

In following eighteen well functioning adolescents, whose parent had major affective disorder, Beardslee & Podorefsky (1988) found that two of the eighteen subjects turned to an adult outside of the family, two of the eighteen subjects turned to a sibling perceived as best friend, and four of the eighteen subjects left the family and stayed with close friends. Therefore, a social network seemed to buffer the possible negative effects which have been found to be associated with being parented by persons displaying symptoms of major affective disorder (Downey & Coyne, 1990).

Given the important role social support and outside activities seem to play in mediating and ameliorating the effects of a stressful family situation, one would expect a negative correlation to exist between symptomatology and popular peer group involvement.

Sibling caretaking

A more specific source of social support may be found in the sibling relationship itself. Siblings may provide very similar or very different caretaking environments for one another in a dysfunctional family.

For example, an older sibling may remove a younger sibling from a volatile situation (Bank & Kahn, 1975). Siblings may join forces together, particularly in an abusive family environment (Bank & Kahn, 1975). If both children are "misbehaving" then both are seen as the cause, and it is less likely that one child will be the sole target of punishment. Finally, children may alert one another of a parent's mood, or offer warnings of parental punishment (Bank & Kahn, 1975). Forewarning another sibling may be quite prevalent in situations which children are hypersensitive to a

parent's changing moods and the children feel as if they "are walking on eggshells".

Bank & Kahn (1982) interviewed one-hundred sibling pairs and made observations of sibling bonds, loyalty, and the relationships of "well" and "disturbed sibling" pairs. One type of caretaking pattern which has been identified involves the parental child who may take care of another sibling's emotional and/or physical needs when parents are incapable of doing so. It is also possible that a parental child may act as peacemaker or go-between by mediating quarrels among parents and a scapegoated sibling (Bank & Kahn, 1975). Since the relationship between care giver and recipient is not reciprocal, siblings provide somewhat different environments for each other. One could speculate that playing the role of caretaker would be detrimental to the emotional development of a child, since his/her own needs are not likely to be met in the course of looking after others.

Jenkins and Smith (1990) found that the quality of sibling relationships had a significant protective effect in maritally distressed families compared to families where there was marital harmony. An index child was rated as having a poor, moderate or good sibling relationship depending on whether the child had a special sibling relationship, whether the target child was protective toward another during periods of stress, and whether this was reciprocated by siblings. The emotional and behavioral problems of children living in disharmonious homes were comparable to controls when they had a good sibling relationship.

Daniels and associates, (1985) studied 348 families that included two siblings 11-17 years of age. Adolescents who were better adjusted (as reported by parents, teachers, and siblings) than their sibling counterparts tended to receive more sibling friendliness. Although Daniels, et al. (1985) did not measure sibling caretaking patterns specifically, these findings suggest that children who do receive warmth from another sibling may fare better.

East and Rook (1992) found that socially isolated children tended to perceive school friendships as being low in social support, relative to children identified as aggressive and average. Furthermore, socially isolated children perceived relatively high levels of support from their favourite sibling, relative to aggressive and average children. When isolated children had the support of a favourite sibling their levels of anxiety and immaturity diminished. However, isolated children with high sibling support were less well adjusted than average children, indicating an ameliorative effect associated with a supportive sibling relationship rather than a protective effect (East & Rook, 1992).

One could hypothesize that a child who has a sibling who shows concern toward him/her, and plays the role of a parental child or caretaker, would show better adjustment than a child who does not have the benefit of such a relationship. Further, children in distressed families who show a lower level of symptomatology, relative to their sibling, may be more likely to indicate that their brother or sister acts as a caretaker toward them.

Summary

The present study will attempt to answer a number of questions. First, are siblings in a dysfunctional family equally distressed by their environment? Second, if children are not equally distressed in a dysfunctional family, what aspects of nonshared environment may exacerbate symptomatology? Also, what aspects of nonshared environment may help to make children more resilient in a distressed family?

Three potential sources of nonshared environment have been identified: differences in parental warmth and control, differences in popularity, and differences in the caretaking which siblings may provide for each other. To review, it is predicted that siblings' level of symptomatology will vary as a function of differences in both maternal and paternal warmth and control. Siblings are expected to have higher levels of symptomatology when parents are perceived as more cold and more

controlling to the index child, relative to their brother or sister. Further, children who perceive having warmer and more flexible relationships with parents, relative to their sibling, will report lower levels of symptomatology.

Differences in siblings' popularity will also be measured. A negative correlation is expected to exist between symptomatology and popularity. Also, a sibling who perceives him/herself as more the more popular child would be expected to show fewer symptoms relative to a sibling who views him/herself as being less popular than his/her brother or sister.

Finally, a lower level of symptoms is expected to be associated with having a sibling who plays a caretaking role. In contrast, a sibling who exhibits greater maladjustment would be more likely to play a caretaking role, and as a result may not benefit from their brother or sister caring for them.

The consideration of variables which might mediate the effects of a dysfunctional family environment is of particular clinical interest, since there is a paucity of theoretical and experimental focus to explain how one member may show hardier adaptation given that each member may share a common maladaptive environment.

Historically, research on resiliency has focused on high risk children with a parent diagnosed with schizophrenia and major affective disorder, and "well" siblings of schizophrenics. In studying children of maritally distressed families, who may be at risk for developing symptomatology, Jenkins and Smith are the only exception to this trend in research.

In comparing children on a family-by-family basis this body of research has identified a number of possible protective factors which may buffer the effects of a potentially maladaptive environment. However, in observing one index child per family and analyzing data on a family by family basis psychologists have been neglecting the influence of within

family differences. Further, our conclusions regarding protective factors may be more striking if two siblings within the same family are compared, and protective factors are still shown to influence differences in levels of symptomatology. To the author's awareness, the present study will be the first to assess the relationships among family distress, nonshared environment, and level of symptomatology for two offspring using standardized measures.

Method

Subjects

Efforts were made to secure a clinical adolescent outpatient sample through the Ottawa General Hospital's Family and Child Clinic, the Royal Ottawa Hospital, Serenity Renewal for Families, the Dave Smith Drug and Alcohol Treatment Centre, the RideauWood Institute, the Children's Hospital of Eastern Ontario and through private clinical practices. Due to a lack of interest, and/or a limited number of potential subjects at these institutions, Carleton University Psychology 49.100 students were solicited for participation. The only criterion for selection was for students to have a sibling who was at least thirteen years of age, who was willing to participate. Students were given a course credit equal to one hour for their participation in this study.

Students were solicited using a poster requesting participation in the study. Students were asked to sign their names and to give their phone numbers if they were interested in participating. The students were then approached by telephone to inform them of the details of the project and to ensure that they were eligible for involvement.

The sample consisted of 28 sibling pairs. Participants who displayed a higher Global Severity Index (GSI) on the SCL-90 were considered to be "sibling A" (the more symptomatic child) in the data set, while their brother or sister was considered to be "sibling B" (the less symptomatic offspring). The GSI is the best single indicator of level of symptomatology (Derogotis, 1977). Differences between the GSI for the pairs in the sample ranged from 0 to 24, with a mean difference of 9.5 (SD = 7.6). A t-test confirmed that sibling "A" reported a higher Global Severity Index ($M = 62.96$) than sibling "B" ($M = 53.5$), $t(27) = 6.53$, $p < .001$.

Of the 28 families in the sample, 7 parents were separated or divorced (one had re-married), 5 were widowed (one had re-married), and 14 parents remained married. Four percent of the families reported having an

Afro-Canadian identity, .25% were Anglo-Caucasian, 11% were French-Canadian, 4 % were Filipino, while the remaining families did not respond to the question or offered a religious affiliation, such as United, Jewish, or Roman Catholic. Family size ranged from two to six offspring. On average, 66% of the subjects resided at home with their parents, while the remaining 34% live on their own. There were 16 sister-sister pairs, 1 brother-brother pair, and 11 sister-brother pairs in this sample. The participants included 22 first-born, 5 second-born, 6 third-born, and 20 youngest positioned children. Data concerning birth order were missing for 3 sibling pairs.

The siblings ranged in age from 17 years to 35 years, with an average age of 22 years. The average age of the more symptomatic siblings (sibling "A") was 22.3 years ($SD = 4.6$), and varied from 17 to 35 years. Thirty-two percent of subjects allocated to position "A" were male, while 67.9 % were female. Sixty-four percent lived at home, and the remaining 36% indicated that they lived away from their families.

The mean age of the less symptomatic sibling (sibling "B") was 21 years ($SD = 4.6$), and ranged from 21 to 32 years. Fourteen percent of these subjects were male and 86 % were female. Sixty-eight percent of subjects with the lower GSI score continued to reside with their parents while 32 % lived on their own.

Differences between the age of sibling "A" and "B" ranged from 1 year to 13 years, with an average difference of 3.94 years ($SD = 2.5$). A t-test indicated that there were no significant differences between the mean ages of sibling "A" (22.3 years) and "B" (21.1 years).

If either sibling reported a score greater than or equal to 108.5 on the Family Assessment Device, they were considered to be a part of the more distressed family group. The score was determined based on a median-split of FAD scores for the entire sample. Based on Epstein, Baldwin, and Bishops (1983) findings, a mean score of 102 differentiates clinical and non-clinical groups (when the Role subscale is not considered). Scores on

the Family Assessment Device ranged from 69 to 148 for sibling A ($M = 112.63$), and from 85 to 133 for sibling B ($M = 112$). Seventy-nine percent of sibling A subjects, and 90 percent of sibling B subjects scored equal to or greater than 102 on the FAD, indicating that the majority of subjects viewed their families as being distressed.

The more distressed family group consisted of a total of 19 sibling pairs, including 1 brother-brother, 6 brother-sister, and 12 sister-sister dyads. Ten of the parents remained married, while 6 parents reported being divorced or separated (one had re-married), and 3 were widowed (one widower had re-married). In terms of ethnic identity, 32% reported being Canadian, 5% French-Canadian, 5% Filipino, and 58% of the families failed to answer or offered a religious affiliation when responding to the question.

The average age of sibling "A" in the more distressed family group was 22.5 years ($SD = 4.8$), with ages ranging from 17 to 35 years. Twenty-one percent of these participants were male and 79 % were female. Fifty six percent reported that they lived at home, while the remaining 44% said that they lived on their own.

The siblings who were less symptomatic ranged in age from 15 to 32 years, with an average age of 22 years ($SD = 4.9$). Twenty-one percent were male, and 79 % were female. The majority of these subjects lived at home (68%), while the minority (32%) resided on their own.

A t-test indicated that there were no significant differences between the mean ages of siblings "A" (22.48) and "B" (21.68) in the more distressed family group. Differences in ages ranged from 1 to 12 years, with an average difference of 4.4 years ($SD = 2.9$).

Differences between the Global Severity Index of siblings A and B in the more distressed family group ranged from 1 to 22. A t-test confirmed that sibling "A" reported a higher Global Severity Index ($M = 62.3$) than sibling "B" ($M = 52.2$), $t(18) = 5.73$, $p < .001$. A Global Severity Index score of 63 or greater indicates that the psychological symptoms are of

clinical proportions (Derogatis, 1977). Only 47 percent of the sibling A subjects, and 16 percent of sibling B subjects reported a score of 63 or greater. Even though GSI scores ranged from 33 to 81 for Sibling A, and from 28 to 73 for Sibling B, the majority of the subjects did not display symptoms at a clinical level.

Instruments

Each subject and his/her sibling were given a package of questionnaires including: The Family Assessment Device (Epstein, Bishop, & Levin, 1978); The Sibling Inventory of Differential Experience (Daniels & Plomin, 1985); and The Symptom Check-List 90 (Derogatis, 1977).

One parent was asked to report on their marital status, ethnic identity, and number of offspring (see Appendix A). If parents were divorced or separated, the parent with whom the children reside was asked to report the ex-spouse's occupation, if the ex-spouse has regular visitation rights.

The McMaster Family Assessment Device (FAD) is a 53 item self-report measure examining seven aspects of family functioning: problem solving, communication, roles, affective responsiveness, affective involvement, behavior control, and general functioning (see Appendix B).

The first dimension, Problem Solving, assesses the families' capacity to resolve instrumental problems (housing, finances etc.) and affective problems in a constructive fashion. Epstein and associates (1978) outline seven steps to successful problem resolution in families. An item example includes "after our family tries to solve a problem, we usually discuss whether it worked out or not."

The Communication scale focuses on a family's ability to communicate in a clear and direct fashion. According to Epstein and associates (1978), ineffective functioning occurs when communication is masked and indirect (the content, and for whom the message is intended is unclear). Items on the Communication scale include: "When someone is upset, the others know why," and "We don't talk to each other when we are angry."

The Role subscale concerns the family's capacity to allocate roles, and to be accountable for roles to fulfill various functions (provision of basic needs, provision of support etc.). In a healthy family, roles are defined openly, are age appropriate, and people are accountable for their responsibilities (Epstein et al., 1978).

Affective Responsiveness refers to a family's capacity to respond with an appropriate quantity and quality of emotions. As an item example, "We are reluctant to show affection to one another." Affective involvement is associated with the degree of interest family members show to one another. A dysfunctional family may be over-involved with one another, or at the other end of the continuum, may be uninvolved and neglectful of the members (Epstein et al., 1978). Items from the Affective Involvement scale include: "If someone is in trouble, the others become too involved," and "You get the interest of others when something is important to them."

The Behavioral Control scale assesses a family's pattern of dealing with physically dangerous situations, expressing physiological needs, and nurturing socialized behaviors (Epstein et al., 1978). Maladaptive behavioral control can either be overly-rigid (infelxible) or chaotic (lacking rules and boundaries). Examples from this scale include: "we have no clear expectations about toilet habits" and "you can easily get away with breaking the rules."

The McMaster Family Assessment Device is both a reliable and valid measure of family functioning. The FAD has been shown to differentiate between clinical and nonclinical samples. In one study 67% of the nonclinical and 64% of the clinical group membership was predicted based on scores of individual subjects (Epstein, Bishop, & Levin, 1983). Even though the FAD differentiated clinical and non-clinical groups, these results suggest that hypotheses regarding family membership should be made with caution. In another study comparing clinical, nonclinical, and medical samples, families with a psychiatric inpatient showed significantly greater difficulties across all subscales relative to the

nonclinical and medical group (Kabacoff, Miller, Bishop, Epstein, & Keitner, 1990).

To assess concurrent validity, 178 couples in their sixties were studied to evaluate their adjustment to retirement. The Philadelphia Geriatric Morale Scale and The Locke-Wallace Marital Adjustment Scale were employed. The FAD accounted for 28% of the variance on marital adjustment for both husbands and wives. Twenty-two percent of variance in morale scores of husbands and 17% of variance for wives were predicted. The Locke-Wallace only predicted 11% for husbands and 13% for wives (see Epstein et al., 1983), indicating that the FAD was a more powerful predictor than the Locke-Wallace. However, the Locke-Wallace has been criticized in terms of the conceptualization and the operationalization of "marital satisfaction" (Laws, 1971), which gives less credence to Epstein and associates' (1983) results.

All subscales show adequate internal reliability with an alpha coefficient of .70 or greater with the exception of the Role subscale. The internal reliability for the Role subscale for clinical and medical samples was .69, and was .57 for the nonclinical sample. Therefore, the Role subscale should be used with caution across all samples (Kabacoff et al., 1990), and was not used in this study.

Wenniger, Hageman, and Arrindell (1993) assessed a Dutch translation of the Family Assessment Device. Moderate correlations were found between subscale scores on the FAD and those of the Family Environment Scale, indicating that the FAD has concurrent validity with a respected measure of family distress.

Although the Family Assessment Device may have some psychometric weaknesses, the FAD seems comparable to other highly respected measures of family functioning. For example, the Adaptability subscale of The Family Adaptability and Cohesion Evaluation Scales (FACES) has been found to be invalid (Green, Harris, Forte, & Robinson, 1991). As another example, Moos (1974) reports that the alpha coefficients across the ten subscales of The

Family Environment Scale (FES) range from .61 to .70 or greater, which suggests comparable levels of internal consistency with the FAD. Further, in the author's opinion, The Family Environment Scale seems to be class bound, culture bound, and has questionable face validity. Item examples for the FES include: "We rarely go to lectures, plays or concerts", "We don't believe in heaven or hell", "Family members often go to the library", "Dishes are usually done immediately after eating", "The Bible is a very important book in our home", and "Family members attend church, synagogue, or Sunday School fairly often". In contrast, it has been found that the FAD is not affected by sex, age, or religious affiliation in a Dutch culture (Wenniger et al., 1993).

The Sibling Inventory of Differential Experience (SIDE) assesses four possible sources of reported nonshared environmental influences which siblings might experience: Differential Sibling Interaction, Differential Parental Treatment, Differential Peer Characteristics, Events Specific to the Individual (see Appendix B). Subjects are asked to think about the causes of differences between self and his/her brother or sister over the last 12 months, and are asked to rate each item according to whether the item applies to the sibling much more (1), the sibling a bit more (2), the subject and sibling are the same in this way (3), the subject a bit more (4), or the subject much more (5).

The Differential Parental Treatment subscales appraise differential parental control and affection toward each offspring, and includes nine items per parent. An example of an item assessing parental control is "Has punished us for our misbehaviour". The Parental Affection subscale includes items; such as, "Has been sensitive to what we think and feel" and "Has shown interest in the things we do".

Twenty-six items appraising three dimensions of Differential Peer Characteristics are incorporated on the SIDE: orientation toward college; delinquency; and popularity. Subjects are asked to rate each characteristic according to whether the adjective describes his/her peer

group "much more", "a bit more" or if peer groups are the same in this way. Adjeccives related to popularity include, "popular", "friendly", and "having a boyfriend or girlfriend."

The Differential Sibling Interaction subscale contains 24 items measuring mutual or non-mutual caretaking, antagonism, jealousy, and closeness between siblings. Item examples include: "In general, who has been more likely to take responsibility for the other ?", "In general, who has shown more affection toward the other ?".

SIDE subscales exhibit low to moderate intercorrelations ranging from less than .30 to -.43 (Daniels & Plomin, 1985). Two week test-retest reliabilities for a sample of 57 biological siblings range from .77 to .93 (Daniels & Plomin, 1985).

Sibling agreement for 174 biological siblings was found to be low to moderate. The median correlation of sibling perceptions of differential experience is -0.49 (Daniels & Plomin, 1985), which indicates that siblings perceive differences in their environment in the same way. For example, if one child reported receiving more maternal warmth relative to the other sibling, the second child would report less maternal warmth relative to his/her brother or sister. Since the relationship between siblings' perceptions of differential experience has been found to be moderate, both siblings were asked to report on their perceptions of differential experiences.

The Symptom Checklist-90 (SCL-90) measures a person's general level of symptom status on a five point Likert scale. Ratings are provided for persons thirteen years and older for symptoms of psychoticism, anxiety, depression, somatization, interpersonal sensitivity, phobic anxiety, paranoid ideation, and obsessive-compulsive behavior which have occurred in the last week (see Appendix B).

One week Test-retest reliability for ninety-four psychiatric outpatients ranged from .78 (Hostility subscale) to .90 (Phobic Anxiety subscale). A study of internal consistency with 219 "symptomatic

volunteers" indicated alpha coefficients ranging from .77 for Psychoticism to .90 for Depression (Derogatis, 1977). Research has also shown factor invariance across sex for all subscales with the exception of the Paranoid Ideation subscale (Derogatis, 1977).

Evidence for convergent validity is reflected by moderate correlations between the SCL-90 and the MMPI with a sample of 119 "symptomatic volunteers" (Derogatis, 1977). The SCL-90 has been used in studies on sexual dysfunction, stress, drug abuse, and within medical contexts (Derogatis, 1977). Margo, Dewan, Fisher, and Greenberg (1992) compared the SCL-90 with the Beck Depression Inventory (BDI) and the Brief Psychiatric Rating Scale for 71 depressed inpatients. It was concluded that the SCL-90 was comparable to the BDI in assessing depression.

McGough and Curry (1992) assessed the diagnostic utility of the SCL-90 for depressed and conduct-disordered adolescents in an inpatient psychiatric institution. Adolescents with major depression were found to score higher on the Depression, Anxiety, and Obsessive-Compulsive subscales compared to other adolescents (dysthymic, adjustment disordered, and remitted depressives). A Depression subscale score of 65 discriminated between adolescents who suffered from major depression and those who did not. It was also suggested that some depressed adolescents may score below this cut-off point.

Hafkenscheid (1993) compared Global scores of 437 psychiatric inpatients and 269 psychiatric outpatients with normative data for the general population. Findings indicated that 91.3 percent of the inpatient sample, and 87.4 percent of the outpatient sample scored above the 80th percentile when compared to general population norms. Hafkenscheid (1993) concludes that the SCL-90 is capable of distinguishing inpatient and outpatient samples from the general population.

Procedure

Subjects were given two packages of questionnaires at the time of their appointment (one for each person in the dyad). The questionnaires

included: The Family Assessment Device; The Sibling Inventory of Differential Experience; and The Symptom Checklist-90. Parents were asked to report on demographic information as previously noted. Subjects were also given a consent form, and participants under the age of 18 were given a parental consent form to have signed (see Appendix A).

Instructions for the questionnaires were reviewed and the subjects were reminded not to confer with their sibling when answering the questions. After one week duration, the participants were called and reminded to drop off their completed packages at Carleton University, at a pre-arranged place and time. Subjects were given a written debriefing once their questionnaire packages were returned. A telephone number was also provided in the event that students had concerns or questions regarding the research.

Once the packages were completed, the participants' names were removed, and the questionnaires were coded numerically. Subjects who reported having a higher Global Severity Index were considered to be "sibling A" (the more symptomatic child), while their brother or sister was considered to be "sibling B" (the less symptomatic child). All dyads pairs showed differences in their Global Severity Index with the exception of one sibling pair. For this pair, the positions of "A" and "B" were determined based on their subscale symptom scores. According to Derogotis (1977), a person with a score greater than or equal to 63 on three or more subscales may be considered a "case." Therefore, the subject who fit this criterion was considered to be "sibling A," while his/her sibling (who did not meet this criterion) was considered to be "sibling B."

As previously discussed, subjects were allocated to the more distressed family group according to ratings on the Family Assessment Device. The mean score for sibling "A" on the FAD was 106.67 (SD = 18.6), and the mean score for sibling "B" was 106.6 (SD = 13.6). A t-test confirmed that these means are not significantly different. A median-split conducted on FAD scores yielded more conservative results. The median for

sibling "A" was 108, while the median for sibling "B" was 108.5. Therefore, if either sibling "A" or sibling "B" scored greater than or equal to 108.5 on the FAD, the dyad was considered to be a part of the more distressed family group.

Results

Preliminary analyses focused on whether or not siblings perceive family distress and the experiences within their family in the same way. Relative scoring was used for all SIDE scores, which indicates the extent and direction of differences in nonshared experiences. Recall, for example, that relative scoring will reveal if a subject experiences less maternal love relative to a sibling and how much less. To illustrate, a large negative correlation between sibling scores on differential paternal control indicates that both siblings are in agreement that one of the offspring is more controlled, and that the other is less controlled by their father.

Pearson correlations were calculated between perceptions of differential experience on all SIDE subscales and FAD scores for siblings "A" and "B". Significant correlations ranged from $-.50$ to $-.69$ showing that offspring moderately agree on differential sibling and peer group characteristics (see Table 1).

Table 1
Associations Between Siblings Perceptions
of Nonshared Environment in Families (N = 28)

Maternal Affection	-.45	
Maternal Control	-.08	
Paternal Affection a	-.30	
Paternal Control a	.30	
Sibling Antagonism	-.50*	
Sibling Caretaking	-.61**	
Sibling Jealousy	-.51*	
Orientation College	-.52*	
Delinquency	-.69**	
Popularity	-.69	* p < .01 ** p < .001
FAD	.35	a : n = 23

Similar patterns were found for subjects in more distressed families. Significant correlations between the perceptions of sibling A and B were found in terms of differential caretaking and delinquency (see Table 2). Due to missing data related to paternal affection and control, only 23 sibling pairs in the sample and 16 sibling pairs in the more

distressed family group were involved in these analyses.

Table 2
Associations Between Siblings' Perceptions
of Nonshared Environment in More Distressed Families (N = 19)

Maternal Affection	-.42
Maternal Control	-.16
Paternal Affection a	-.48
Paternal Control a	.11
Sibling Antagonism	-.52
Sibling Caretaking	-.64*
Sibling Jealousy	-.33
Orientation College	-.39
Delinquency	-.75**
Popularity	-.50
FAD	.01

* p < .01 ** p < .001

a : n = 16

To determine whether or not offspring exhibit differing levels of symptomatology and symptom patterns, siblings were compared across all subscales of the SCL-90. Table 3 shows that sibling "A" displays a higher index across all symptoms, with the exception of behaviors related to phobic anxiety where no significant differences were found. The differences in symptom scores were expected, since the GSI is a composite of all other symptom scores.

When the GSI and all other symptom scores for sibling "A" were correlated with those for "B", significant positive relationships were found, suggesting that offspring may display similar symptom patterns in families (see Table 4). Table 5 shows that in more distressed families, significant differences are evident across all SCL-90 subscales (with the exception of phobic anxiety). Significant positive correlations between the symptoms of "A" and "B" were also found, with the exception of somatization, phobic anxiety, and psychoticism (see Table 6).

Table 3
Means, Standard Deviations, and t Values
of Siblings' Symptom Scores in Families

Symptom		Mean	SD	t
Somatization	A	58.9	10.6	
	B	49.1	11.5	4.5 **
Obsessive Compulsive	A	62.7	08.7	
	B	54.5	12.7	3.9 **
Interpersonal Sensitivity	A	62.1	11.2	
	B	54.3	11.0	5.5 **
Depression	A	62.4	10.1	
	B	54.4	9.60	5.6 **
Anxiety	A	61.0	11.9	
	B	54.5	10.9	3.0 *
Hostility	A	63.1	9.60	
	B	55.1	11.5	4.8 **
Phobic Anxiety	A	52.3	8.60	
	B	51.9	8.90	.19
Paranoid Ideation	A	58.4	11.2	
	B	51.9	12.4	3.38 *
Psychoticism	A	59.7	9.90	
	B	49.7	12.1	4.31 **

* p <.005 ** p <.001

Table 4
Correlations Between Siblings' Symptoms
in Families

Somatization	.78 ***
Obsessive Compulsive	.53 **
Interpersonal Sensitivity	.76 ***
Depression	.71 ***
Anxiety	.51 **
Hostility	.66 ***
Phobic Anxiety	-.07
Paranoid Ideation	.63 ***
Psychoticism	.39 *

* p <.05 ** p <.01 *** p <.001

Table 5
Means, Standard Deviations, and t Values of Siblings'
Symptom Scores in More Distressed Families

		Mean	SD	t	
Somatization	A	58.1	12.1		
	B	49.2	12.0	3.0	**
Obsessive Compulsive	A	62.6	9.90		
	B	54.0	13.0	3.9	***
Interpersonal Sensitivity	A	61.4	12.2		
	B	53.1	10.3	5.2	***
Depression	A	62.0	11.0		
	B	54.2	10.0	4.5	***
Anxiety	A	61.0	13.0		
	B	54.0	11.0	2.6	*
Hostility	A	63.0	9.40		
	B	53.0	10.0	5.2	***
Phobic Anxiety	A	52.6	8.70		
	B	50.4	9.20	.81	
Paranoid Ideation	A	59.0	12.2		
	B	50.4	13.0	4.1	***
Psychoticism	A	59.0	10.0		
	B	49.1	12.0	3.7	*

* p < .02 ** p < .007 *** p < .001

Table 6
Associations Between Siblings' Symptom
Scores in More Distressed Families

Somatization	.79	***
Obsessive Compulsive	.43	
Interpersonal Sensitivity	.83	***
Depression	.75	***
Anxiety	.47	*
Hostility	.64	**
Phobic Anxiety	.12	
Paranoid Ideation	.74	***
Psychoticism	.42	

* p < .05 ** p < .01 *** p < .001

Symptom differences and differential parental behavior

Analyses were conducted on the "more distressed family group" to determine which factors might help to buffer the effects of family dysfunction. Analyses were also carried out on the entire sample in order to gain an understanding of the potential effects of differential experience on symptom outcome for families in general.

To test the hypothesis that the perception of being the more loved

and less controlled child in the family will lead to a better outcome, the Global Severity Indices for "A" and "B" were correlated with their respective ratings of differential parental affection and control. One would expect a negative correlation to exist between symptom scores and differential parental affection, and a positive correlation to exist between symptoms and parental control. (Recall that a low score on the SIDE signifies that "my parents behave like this toward my sibling", while a high score indicates that they "behave like this toward me"). Results showed that there were no significant associations between the symptoms of A and B and their respective perceptions of differential parental affection and control. This was true for siblings in the more distressed family group, as well as siblings in the entire sample.

T-tests were then conducted to investigate whether or not there were significant differences in the perceptions of differential parental affection and control for siblings "A" and "B". If differences in the perceptions of parental treatment contribute to the differences found with symptoms, scores should indicate that sibling "A" perceives less affection and more control relative to his/her brother or sister. No significant differences were found when comparing means (between "A" and "B") for perceptions of differential maternal affection, maternal control, paternal affection, or paternal control (in more distressed families and in the entire sample).

A symptom difference score was then computed for each sibling pair, subtracting the GSI score of sibling "B" from the GSI score of sibling "A". It should be noted that using a difference score can be problematic, and may increase error variance and decrease the reliability of the score. The symptom difference score was correlated with the perceptions of differential parental affection and control for "A". Again, since sibling "A" shows a greater level of symptomatology, and the differences in symptoms may thus be attributed to this subject, one would expect a negative correlation to exist between differences in symptoms and

differential parental affection shown to "A", and a positive correlation to exist between differences in symptoms and differential parental control shown to "A". The predicted relationships were not found for offspring belonging to more distressed families or for families in general. However, a positive correlation was found ($r = .48$, $p < .03$) between the symptom difference score and differential paternal control shown to sibling B in the more distressed family group. The finding is limited, as there were only 16 subjects involved in the analysis.

Finally, difference scores were computed by subtracting the SIDE scores for "B" from the SIDE scores for "A". A score of 0 indicates that there are no differences in the perceptions of siblings, a positive score of 4 shows that the siblings agree that "A" receives more affection or control, and a negative score of 4 signifies agreement that child "B" receives more affection or control from the parents. Again, since the differences in symptoms may be attributed to the higher symptom scores reported by sibling "A", one would expect a large negative correlation to exist between the symptom difference score and parental affection (the siblings both agree that "A" is the recipient of less parental affection), and a large positive relationship to exist between symptom difference scores and parental control (the siblings both agree that "A" is controlled more by the parents). When symptom difference scores were correlated with difference scores calculated for maternal and paternal affection and control, the expected associations were not found for siblings in more dysfunctional families or for families in general.

Symptom differences and differential popularity

To test the hypothesis that perceiving that you are the more popular offspring will be associated with a lower level of symptoms, the perception of differential popularity for "A" was correlated with the GSI score for "A". The same analysis was conducted for sibling "B". Since a high score on differential popularity indicates that the subject perceives him/herself to be more popular, a negative correlation was expected.

Analyses showed no significant relationships between the GSI for either sibling and their perceptions of being the more popular child.

T-tests were then computed to determine if there were significant differences between the means for siblings "A" and "B" in regards to their perceptions of differential popularity. One would expect that significant differences do exist, and that the more symptomatic offspring would regard him/herself as the less popular in the dyad. Results indicated that there were no significant differences in means when comparing siblings "A" and "B" on this variable, for either offspring in the more distressed family group or for offspring in the entire sample.

Symptom differences and differential caretaking

Finally, to test the hypothesis that having a sibling who acts as a caretaker toward you will result in better adjustment, the GSI scores for "A" and "B" were correlated with their respective perceptions of differential caretaking. A positive relationship would indicate that symptoms increase when a child perceives him/herself to be the caretaker (and may not have the benefit of having their sibling act in a caretaking capacity towards them). Significant positive relationships were not found.

T-tests were then used to compare the perceptions of differential caretaking for siblings "A" and "B". One would expect a significant difference to exist, and for "A" to show greater caretaking patterns, resulting in sibling "B" benefiting from a brother or sister who cares for them. The analysis revealed no significant differences in differential caretaking between siblings "A" and "B."

Additional analyses

Since the analyses did not support the predicted hypotheses either for families showing greater dysfunction or for families in general, the relationship between differences in sibling outcome, birth order, and sex of the subject were explored. Since family dysfunction is generally associated with maladjustment for offspring, the relationship between the perception of family distress and symptomatology was also examined.

First, symptom scores were compared for siblings "A" and "B" across different birth positions (oldest, middle, youngest). For both sibling "A" and "B" groups, there was only one subject who was the second youngest child. Therefore, data were recoded to include these persons in the "middle" child category. No significant differences were found in GSI symptoms based on birth order for either sibling "A" ($\bar{M}$ oldest = 61.4, SD = 11.7; $\bar{M}$ middle = 59.5, SD = 8.8; $\bar{M}$ youngest = 65.4, SD = 10) or sibling "B" ($\bar{M}$ oldest = 48.5, SD = 10.65; $\bar{M}$ middle = 52.3, SD = 11.2; $\bar{M}$ youngest, 55.4 SD = 13.5). No significant differences were found across all other symptom scores for "A" or "B" either.

A widely held assumption is that a child's role in the family is dictated by birth order. For example, most assume that the eldest child in the family acts as the caretaker, while the middle child is the "trouble maker" or family scapegoat. While the data did not lend itself to examining the assumption completely, caretaking across different birth positions could be explored. Significant differences in caretaking were apparent across birth positions for sibling "A" ($F = 5.01$, $p < .001$) and sibling "B" ($F = 7.26$, $p < .004$), with the eldest child reporting that s/he is more likely to take care of his/her sibling ($\bar{M}$ for "A" = 3.7, SD = .49; $\bar{M}$ for "B" = 3.6, SD = .71), and the youngest child reporting that s/he is least likely to take on this role ($\bar{M}$ for "A" = 2.2, SD = .49; $\bar{M}$ for "B" = 2.7, SD = .48). Due to the small number of subjects holding the middle position and the youngest position (for "A" subjects), these results must be considered with caution.

When means were compared for males and females, no significant differences were found across all symptom scores. GSI symptoms were generally higher for males ($\bar{M}$ for "A" = 64.2, SD = 14.7; $\bar{M}$ for "B" = 59.8, SD = 11.8), than for females ($\bar{M}$ for "A" = 62.4, SD = 8.5; $\bar{M}$ for "B" = 52.5, SD = 12). However, due to the small number of males who participated in the study, these results are limited.

To investigate the relationship between family dysfunction and

psychological symptomatology, FAD scores for each sibling were correlated with all symptom subscales of the SCL-90 (GSI, depression, interpersonal sensitivity, anxiety etc.). It was expected that significant positive relationships would be found between the perception of family distress and symptom scores. No significant associations were found for either sibling.

Discussion

The present study attempted to explore the relationship between nonshared environment and outcome differences in children's symptomatology in distressed families. Nonshared environmental factors which may mediate the negative psychological effects of a dysfunctional family environment was of specific interest. Three aspects of nonshared environment have been identified in previous research: differences in parental warmth and control, differences in sibling popularity, and differences in the sibling caretaking patterns (Dunn & Plomin, 1990).

Family perceptions

Previous research suggests that siblings show moderate agreement in their perceptions of nonshared environmental experiences (Daniels & Plomin, 1985). Results of the present study indicated that offspring tend to have quite similar perceptions of their own relationship, and peer group characteristics.

Are siblings really different ?

In conducting studies related to individual difference in outcome, researchers generally focus on one target child in the family in an effort to determine what factors may be protective or to identify variables which may hinder the emotional development of a given child. This approach is based on the underlying assumption that siblings do in fact exhibit differences in their psychological symptoms, and that one child is either faring better or faring worse.

In dysfunctional families it is unclear whether or not this assumption is accurate. A scapegoated child, for example, may clearly be distressed by their environment, may exhibit externalizing behaviors, and may be more likely to come to the attention of health care professionals. A child who is parentified on the other hand, may overcompensate and be overstriving. On the surface, the parentified child may seem to be adapting very well by achieving in school, following community rules, and helping within the family, but may actually suffer from more covert

internalizing symptoms, such as anxiety or depression. Therefore, the first questions to be asked are whether or not siblings tend to show differing levels or types of symptoms in families, and more specifically, if offspring are equally distressed by their environment in dysfunctional homes.

Results showed that there were significant differences in symptoms for offspring in distressed families as well as for families in general (with the exception of phobic anxiety), revealing that symptom outcome differences tend to exist for most siblings, regardless of the level of family distress.

Although sibling pairs showed differing levels of symptomatology, there was also some indication that offspring may display similar patterns of symptomatic behaviors, in distressed families and for families in general. The reasons for the possible similarities in symptom patterns are beyond the scope of this paper, but are likely influenced by shared biological and environmental components.

Nonshared Environment

The suppositions that symptoms will vary as a function of parental affection and control, and that symptom outcome differences may be attributed to differential parental behavior was not supported, even for families that reported greater distress. Paternal control was positively correlated with symptom difference scores for the less symptomatic child in more dysfunctional families, suggesting that this factor may contribute to emotional distress for these individuals.

Given that the average age of the participants in this study was 21.5 years, and 34% of the subjects (on average) resided on their own, differential parental behavior seems to have little influence on offspring who are well on their way to becoming independent adults. Parental behavior may be a more important determinant for outcome for children and/or adolescents who are still emotionally, physically, and financially dependent on their parents. Further, subjects were asked to report on

their relationships with their parents over the last year. Since parent-child relationships develop and change over time, different results might have been found if subjects were asked to report retrospectively on their childhood.

The postulations that outcome differences may be associated with differences in popularity and caretaking patterns in the sibling relationship were not supported. The perception of being the more popular child is not enough to influence symptom outcome, and an extensive social network and relationships with special adults may be more important factors affecting adjustment.

Differences in Birth Order and Sex

Consistent with research findings in the past, the birth order of offspring had no bearing on symptom outcome. No significant differences in symptoms were found between siblings who held the eldest, middle, or the youngest position in the family. Caretaking behavior did seem to be related to being the eldest child in the family, and was least likely for the youngest in the family. Results are limited, however, by the small number of subjects involved in the analysis.

Symptom differences were not found based on the sex of the subjects in this sample. Since sex differences in the manifestation of depressive symptoms are commonly reported both clinically and in research, the present findings are suspect. Perhaps the limited number of male subjects in the sample (13 out of 58) can help explain why the present findings are incongruent with previous studies.

Associations Between Family Distress and Symptomatology

Very consistent relationships have been found between measures of family distress and psychopathology (see Jacobvitz et al., 1991; Prange et al., 1992; Christensen et al., 1983; Minuchin et al., 1975; Marquis Bishop et al., 1989; Fendrich et al., 1989). However, the perception of greater family dysfunction was not associated with a higher level of psychological difficulty in this sample.

Limitations and Future Research

A number of limitations are evident in the present research. First, a sample consisting mostly of female university students limits the scope and generalizability of the study. Quite different findings would likely be obtained if a large clinical sample of outpatient clients or families participated, where symptom differences and family distress may be more prevalent.

The SCL-90 may also be more appropriate to administer to a clinical sample, since it is probably uncommon for a large number of students to suffer from paranoid ideation, psychoticism, or obsessive compulsive behaviors at a clinical level in any given week. University students may also tend to respond in a socially desirable fashion when asked questions, such as whether or not they "hear voices that other people do not hear." The SCL-90 does not appear to be a good predictor for student populations, evidenced by the findings that no significant sex differences were found for depression, and the perception of family distress was not found to be associated with maladjustment. A better index of symptomatology for this type of sample might have been a measure of depressed mood as opposed to depression, for example.

Due to the small sample that was obtained results and analyses were severely limited, and it was also impossible to control for differences in the siblings' sex and ages. Age difference is particularly relevant in this sample, where different norms were required for adolescent subjects, and where marked differences in standard scores were apparent when converting the data from raw score form.

Given the exploratory nature and the aforementioned limitations of this study, future researchers should secure a large clinical sample to ensure that thorough analyses can be conducted and that more meaningful results may be obtained. Nonshared environment may be more important to children and adolescents than to young adults; therefore, subjects should be much younger in age and more likely to be residing at home.

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Appendix A

Agreement to Participate in Research
Nonshared Environment

Carleton University frequently cooperates in student research projects. Since these projects involve the voluntary contributions of time and effort by students and their families, all research projects are reviewed by the Ethic committee of Carleton University. Potential participants in research must be made aware of any physical or psychological risks to their wellbeing and of their rights as research participants. Please read this form, and if you agree that members of your family may participate, sign it at the bottom. Please discuss this with your children and have them indicate their willingness to participate on the enclosed forms.

This research project focuses on the experiences of brothers and sisters and their families. Specifically, we are interested in what makes brothers and sisters both similar and different in families. Two of your children will be asked to fill out a series of questionnaires (appropriate for persons 13 years of age and older) which ask about their family experience, their relationship with each other and their activities outside the family. The children's questionnaires will take approximately one hour to complete, and have been judged to provide little or no psychological discomfort to participants.

Parents will also be asked to provide answers to some questions about their current marital status, current occupation, number of years in school and ethnic identity. Some questions may be personal in nature. Although it is preferable if you and your children answer all of the questions, if you or your children are uncomfortable with any particular question you may refuse to answer. You are also free to withdraw from the study at any time, and to withdraw permission for us to use any information which you have provided, without in any way affecting academic standing at this university. Any information that you or other members of your family provide will be kept confidential, and the results will only appear in a form that maintains confidentiality.

The research is being conducted by Debora Dudley, a graduate student in Psychology at Carleton University, under the supervision of Dr. Roger Wells, a Registered Psychologist and Associate Professor of Psychology at Carleton. Should you have further questions regarding this request for your family to participate, you may contact Dr. Wells at 788-2661.

I have read the information presented above and agree to the participation of members of my family in this project. I understand that this agreement to participate extends only through December, 1993, and that I may freely withdraw from this agreement without any academic penalty for my children.

Parent's Name _____

Parent's Signature _____

Date _____

Witness' Name _____

Witness' Signature _____

Date _____

Investigator's Signature _____

Date _____

Agreement to Participate in Research
Nonshared Environment

This research project focuses on the experiences of brothers and sisters and their families. Specifically, we are interested in what makes brothers and sisters both similar and different in families. You and one of your brothers or sisters will be asked to fill out some questionnaires which ask about your family, your relationship with each other and your activities outside the family. The questionnaires will take about one hour to finish, and should not make you feel uneasy or uncomfortable.

Your parents will also be asked to provide answers to some questions about their marriage, and the number of years they have spent in school. Some questions that you will be asked may be personal. Although it is better if you answer all of the questions, if you are uncomfortable with any question you may skip the question if you choose. You can also stop participating in the study at any time, and to withdraw permission for us to use any information which you have given us, without any academic penalty. Any information that you or other members of your family give us will be kept private, and the final results of the study will only appear in a way that keeps all your answers private.

The research is being conducted by Debora Dudley, a graduate student in Psychology at Carleton University, under the supervision of Dr. Roger Wells, a Registered Psychologist and Associate Professor of Psychology at Carleton. If you have any questions about the research, you may contact Dr. Wells at 798-2661.

I have read all of the information presented and want to participate in this project. I understand that the information I provide will only be used until December, 1993, and that I may freely withdraw from this study at any time without any academic penalty.

Your Name _____

Your Signature _____ Date _____

Witness' Name _____

Witness' Signature _____ Date _____

Investigator's Signature _____

Date _____

Background Information

The following questionnaire is to be completed by the head of the household. Read each statement and answer the question in the space provided or place an X in the appropriate space. You may find some of the questions to be personal in nature. Although it is preferable to answer all of the questions, if you are uncomfortable with any particular question you may refuse to answer. All information will be kept confidential.

1. Is the respondent _____ male _____ female ?

2. Please check all appropriate spaces

Are you _____ married _____ single _____ living common-law
_____ divorced _____ separated _____ widow/widower

If single, divorced, separated, or widowed/widower please proceed to Question 8.

3. If you are presently married/living common-law, is this your first marriage/common-law relationship ?

_____ yes _____ no

If "yes", please proceed to Question 8.

4. If "no", how many times have you been married/lived common-law, since you have had children ? _____ times

5. Is this your partner's first marriage/common-law relationship ?

_____ yes _____ no

If "yes", please precede to Question 9.

6. Does your partner have his/her own children ?

_____ yes _____ no

If "no", please proceed to Question 9.

7. If "yes", how many times has your partner been married/lived common-law, since s/he has had his/her own children ?

8. If single, widowed, divorced/separated, how many marriages/ common law relationships have you had, since you have had children ? _____

9. What is the highest grade level you have attained ?

_____ grade 12 _____ grade 13 _____ Bachelors

_____ Masters _____ PhD _____ other

10. If applicable, what is the highest grade level your partner has attained ?

_____ grade 12 _____ grade 13 _____ Bachelors

_____ Masters _____ PhD _____ other

_____ Not Applicable

11. What is your present occupation ? _____

12. If applicable, what is your present marital/ common-law partner's occupation _____

13. If you have a previous partner who has regular visitation with your children, what is his/her occupation _____

Please list the sex and age of children presently residing with you, from oldest to youngest.

Sex	Age
_____	_____
_____	_____
_____	_____
_____	_____

15. If applicable, please list the sex and ages of children who are not presently residing with you, from oldest to youngest.

Sex	Age
_____	_____
_____	_____
_____	_____

16. If there are children who are not presently residing with you, please specify where they are residing (i.e. Children's Aid, Youth Services, parent, grandparent, on their own etc.)

17. What is your ethnic background ?

Thank-you for taking the time to complete this information sheet.

Appendix B

McMaster Family Assessment Device

Name _____ Age _____ Sex M/F (circle one)

This questionnaire asks about your family (parents and siblings). By "family" we mean the people you consider yourself emotionally related to, or those you consider to be your family. For example, this could be a biological family, step-family, foster family, or adopted family.

Please read each statement and indicate whether or not you agree that the statement is a relatively accurate description of your family. Please use the following rating scale:

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

Response Statement

- _____ 1) We usually act on our decisions regarding family problems.
- _____ 2) When someone is upset, the others know why.
- _____ 3) When you ask someone to do something, you have to check to see that they did it.
- _____ 4) We are reluctant to show our affection for each other.
- _____ 5) If someone is in trouble, the others become too involved.
- _____ 6) We don't know what to do if an emergency comes up.
- _____ 7) Planning family activities is difficult because we misunderstand each other.
- _____ 8) After our family tries to solve a problem, we usually discuss whether it worked or not.
- _____ 9) You can't tell how a person is feeling by what they are saying.
- _____ 10) We make sure members meet their family responsibilities.
- _____ 11) Some of us just don't respond emotionally.
- _____ 12) You only get the interest of others when something is important to them.
- _____ 13) You can easily get away with breaking the rules.

- _____ 14) In times of crisis, we can turn to each other for support.
- _____ 15) We resolve most emotional upsets that come up.
- _____ 16) People come right out and say things instead of just hinting at them.
- _____ 17) Family tasks don't get spread around enough.
- _____ 18) We do not show our love for each other.
- _____ 19) We are too self-centred.
- _____ 20) We know what to do in an emergency.
- _____ 21) We cannot talk to each other about the sadness we feel.
- _____ 22) We confront problems involving feelings.
- _____ 23) We are frank with each other.
- _____ 24) We have trouble meeting our bills.
- _____ 25) Tenderness takes second place to other things in our family.
- _____ 26) We get involved with each other only when something interests us.
- _____ 27) We have no clear expectations about toilet habits.
- _____ 28) Individuals are accepted for who they are.
- _____ 29) We try to think of different ways to solve problems.
- _____ 30) We don't talk to each other when we are angry.
- _____ 31) There's little time to explore personal interests.
- _____ 32) We express tenderness.
- _____ 33) We show interest in each other when we can get something out of it personally.
- _____ 34) We have rules about hitting people.
- _____ 35) We avoid discussing our fears and our concerns.
- _____ 36) When we don't like what someone has done, we tell them.
- _____ 37) We discuss who is to do household jobs.

- _____ 38) We cry openly.
- _____ 39) Our family shows interest in each other only when they can get something out of it.
- _____ 40) We don't hold to any rules or standards.
- _____ 41) We can express our feelings to each other.
- _____ 42) If people are asked to do something, they need reminding.
- _____ 43) Even though we mean well, we intrude too much in each other's lives.
- _____ 44) If the rules are broken, we don't know what to expect.
- _____ 45) There are alot of bad feelings in the family.
- _____ 46) We are able to make decisions about how to solve problems.
- _____ 47) We are generally dissatisfied with the family duties assigned to us.
- _____ 48) Anything goes in our family.
- _____ 49) We don't get along well together.
- _____ 50) We feel accepted for what we are.
- _____ 51) There are rules about dangerous situations.
- _____ 52) Making decisions is a problem for our family.
- _____ 53) We confide in each other.

Sibling Inventory of Differential Experience

Sibling completing the questionnaire _____

Age _____ Sex _____

PLEASE READ THIS INTRODUCTION CAREFULLY

This questionnaire is designed to ask you and your sibling about what makes you different from each other as you are growing up. We would like you to compare yourself to your sibling (or one of your siblings, which we have specified below). For each question, think about what causes differences between you and your brother or sister. We will first ask you about differences in how you have interacted with your brother or sister. Then we will ask you how your parents have interacted with you and your sibling. Last we will question you about your friends and other influences outside your home.

For the entire questionnaire compare yourself to _____

For the entire questionnaire, think about your experiences in the last 12 months.

1. Interactions With Your Sibling

Circle the appropriate number for each question on the answer sheet provided. No item will apply in each situation, but try to consider what has usually happened between you and your sibling. Please answer quickly and honestly -- there are no right or wrong answers. It should take about twenty minutes to complete this questionnaire.

- 1 = My sibling has been much more this way than I have.
- 2 = My sibling has been a bit more this way than I have.
- 3 = My sibling and I have been the same in this way.
- 4 = I have been a bit more this way than my sibling.
- 5 = I have been much more this way than my sibling.

For example: The first question asks who has started fights more often between the two of you. If your sibling nearly always has started the fights, you would answer by circling "1". If you nearly always have started them, you would circle "5". Circle "3" if there is no difference between you and your sibling (if you both start fights allot or very little). If you don't know or can't remember, or if the question doesn't apply to you, leave the question blank. (Avoid circling "3" or leaving the question blank whenever possible).

- 1) In general, who has started fights more often ?
- 2) In general, who has shown more trust for the other ?

- 3) In general, who has shown more concern and interest for the other ?
- 4) In general, who has been more willing to help the other succeed ?
- 5) In general, who has liked spending time with the other more ?
- 6) In general, who has been more likely to have taken responsibility for the other ?
- 7) In general, who has been more stubborn with the other ?
- 8) In general, who has shown more confidence in the other ?
- 9) In general, who has acted more bitter toward the other ?
- 10) In general, who has compared him/herself with the other more ?
- 11) In general, who has been more likely to show feelings of anger toward the other ?
- 12) In general, who has been more likely to feel superior over the other ?
- 13) In general, who has shown more understanding for the other ?
- 14) In general, who has been more likely to get jealous of the other ?
- 15) In general, who has acted more kindly toward the other ?
- 16) In general, who has been more likely to let the other down ?
- 17) In general, who has shown more affection toward the other ?
- 18) In general, who has been more likely to deceive the other ?
- 19) In general, who has been more bossy toward the other ?
- 20) In general, who has been more likely to want to get along well with the other ?
- 21) In general, who has been more supportive of the other ?
- 22) In general, who has tried to outdo the other more ?
- 23) In general, who has admired the other more ?
- 24) In general, who has felt like the inferior one the most ?

Parental Interactions With You and Your Sibling

On the answer sheet, circle the numbers separately for your mother and father. If your parents were divorced/separated or if one died, answer the questions for the mother and father with whom you lived for the longest period of time. Remember to think about your experiences in the last twelve months.

- 1 = In general, this parent has been much more this way toward my sibling than me.
- 2 = In general, this parent has been a bit more this way toward my sibling than me.
- 3 = In general, this parent has been the same toward my sibling and me.
- 4 = In general, this parent has been a bit more this way toward me than my sibling.
- 5 = In general, this parent has been much more this way toward me than my sibling.

For example, the first question asks if your parent has been stricter with you or your sibling. If your parent has been more strict with your sibling than with you, you should circle "1" on the answer sheet. If your parent has been much more strict with you, circle "5". Circle "3" if your parent has been equally strict with both of you. If you don't know or if the question just doesn't apply to you leave it blank. First answer questions 25 to 33 in relation to your mother, then answer the same questions in relation to your father.

- 25) Has been strict with us.
- 26) Has been proud of the things we have done.
- 27) Has enjoyed doing things with us.
- 28) Has been sensitive to what we think and feel.
- 29) Has punished us for our misbehaviour.
- 30) Has shown interest in the things we like to do.
- 31) Has blamed us for what another family member did.
- 32) Has tended to favour one of us.
- 33) Has disciplined us.

Interactions With Your Peer Group

Circle the appropriate number for each question below. Think of each item as if your peer group (your main group of friends) has a personality of its own. Even though friends inside each peer group might be quite different, think about how the group is in general. If you are unable to answer any question, please leave it blank -- that is do not circle any number for that question on the answer sheet. Think of your experience in the last twelve months.

- 1 = My sibling has had a peer group much more like this than my peer group.
- 2 = My sibling has had a peer group a bit more like this than my peer group.
- 3 = My sibling and I have had the same type of peer group in this way.
- 4 = I have had a peer group which has been a bit more like this than my sibling's peer group.

5 = I have had a peer group which is much more like this than my sibling's peer group.

For example: the first question asks whose group of friends has generally been more popular. If your sibling usually "hung out" with a much more popular group of friends than yours, you would circle "1". If you usually had a more popular group of friends than your sibling's peer group, you would circle a "5". Circle "3" if there is no difference between you and your sibling for the characteristic. Leave it blank if you don't know or if the characteristic does not apply to your peer group.

- 34) popular
- 35) ambitious
- 36) outgoing
- 37) lazy
- 38) hard working
- 39) intelligent
- 40) mature
- 41) extroverted
- 42) delinquent
- 43) responsible
- 44) successful
- 45) friendly
- 46) rebellious
- 47) conforming
- 48) well adjusted

Circle the appropriate number on the answer sheet for each interest below. Friends inside peer groups may have separate interests, but rate the activity that best describes what the group has liked to do in general.

- 1 = My sibling has had a peer group much more interested in this than my peer group.
- 2 = My sibling has had a peer group a bit more interested in this than my peer group.
- 3 = My sibling and I have had peer groups with this same interest.
- 4 = I have had a peer group a bit more interested in this than my sibling's peer group.
- 5 = I have had a peer group much more interested in this than my sibling's peer group.

- 49) going on to college or university
- 50) achieving in school
- 51) student government
- 52) "partying", drinking etc.
- 53) illicit drugs such as marijuana
- 54) political and social issues
- 55) achieving status in social situations
- 56) having a boyfriend or girlfriend
- 57) likely to skip class
- 58) likely to get along well
- 59) likely to be called the "bad" crowd

Events Specific To You and Your Sibling

Circle the appropriate number for each of the questions below.

- 1 = Sibling much more
- 2 = Sibling a bit more
- 3 = The same for me and my sibling
- 4 = Me a bit more than my sibling
- 5 = Me much more than my sibling

Think about your experiences in the last twelve months.

- 60) Who has been more likely to go out on dates ?
- 61) Who has been more likely to get in fights with their boyfriend or girlfriend ?

- 62) Who has had a more difficult time breaking up with their boyfriend or girlfriend ?
- 63) Who has been the one more likely to have an intense, close friendship ?
- 64) Who has been the one to have more friendships at any one time ?
- 65) Who has been more influenced by teachers in school ?
- 66) Who has been more influenced by close relatives such as grandparents, aunts, uncles etc. Explain
- 67) Who has been more influenced by meeting a special person ? Explain
- 68) Who has been more influenced by an extraordinary event ? Explain
- 69) Who has been more influenced by an accident or illness ? Explain
- 70) Who has been more influenced by a death of a loved one ? Explain
- 71) Who has been more influenced by parental separation or divorce ? Explain
- 72) Who has been more influenced by a family psychological problem ? Explain
- 73) Who has been more likely to have a psychological problem ? Explain

SCL-90-R

Name _____

Instructions:

Below is a list of problems people sometimes have. Please read each one carefully, and place the number to the right that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED YOU IN THE PAST 7 DAYS INCLUDING TODAY. Write only one number for each problem and do not skip any. If you change your mind, erase the mark carefully.

- 0 = Not at all
- 1 = A little bit
- 2 = Moderately
- 3 = Quite a bit
- 4 = Extremely

Headaches _____
Nervousness or shakiness inside _____
Faintness or dizziness _____
Loss of sexual interest or pleasure _____
feeling critical of others _____
The idea that someone else can control your thoughts _____
Feeling others are to blame you for most of your troubles _____
Trouble remembering things _____
Worried about sloppiness or carelessness _____
Feeling easily annoyed or irritated _____
Pains in heart or chest _____
Feeling afraid in open spaces or on the streets _____
Feeling low in energy or slowed down _____
Thoughts of ending your life _____
Hearing voices that other people do not hear _____
Trembling _____
Feeling that most people can not be trusted _____
Poor appetite _____
Crying easily _____
Feeling shy or uneasy with the opposite sex _____
Suddenly scared for no reason _____
Temper outbursts that you could not control _____
Feeling afraid to go out of your house alone _____
Blaming yourself for things _____
Pains in lower back _____
Feeling blocked in getting things done _____
Feeling lonely _____
Feeling blue _____
Worrying too much about things _____
Feeling no interest in things _____
Feeling fearful _____
Your feelings are being easily hurt _____
Other people being aware of your private thoughts _____
Feeling other do not understand you or are unsympathetic _____
Feeling that other people are unfriendly or dislike you _____
0 = Not at all
1 = A little bit
2 = Moderately
3 = Quite a bit
4 = Extremely

Having to do things very slowly to ensure correctness _____
Nausea or upset stomach _____
Feeling inferior to others _____
Soreness of your muscles _____
Feeling that you are being watched or talked about by others _____
Trouble falling asleep _____

Having to check and double check what you do ____
 Difficulty making decisions ____
 Feeling afraid to travel on buses, subways or trains. ____
 Trouble getting your breath ____
 Hot or cold spells ____
 Having to avoid certain places, things because they frighten you ____
 Your mind going blank ____
 Numbness or tingling in parts of your body ____
 A lump in your throat ____
 Feeling hopeless about the future ____
 Trouble concentrating ____
 Feeling weak in parts of your body ____
 Feeling tense or keyed up ____
 Heavy feelings in your arms and legs ____
 Thoughts of death or dying ____
 Overeating ____
 Feeling uneasy when people are watching or talking about you ____
 Having thoughts that are not your own ____
 Having urges to beat, injure, or harm someone ____
 Awakening early in the morning ____
 Having to repeat the same actions such as touching, counting,
 or washing ____
 Sleep that is restless or disturbed ____
 Having urges to break or smash things ____
 Having ideas or beliefs that others do not share ____
 Feeling very self-conscious with others ____
 Feeling uneasy in crowds, such as shopping or at a movie ____
 Feeling everything is an effort ____
 Spells of terror or panic ____
 Feeling uncomfortable about eating or drinking in public ____
 Getting into frequent arguments ____
 Feeling nervous when you are left alone ____
 Others not giving you proper credit for your achievements ____
 Feeling lonely even when you are with other people ____
 Feeling so restless you couldn't sit still ____
 Feelings of worthlessness ____
 The feeling that something bad is going to happen to you ____
 Shouting or throwing things ____
 Feeling you will faint in public ____
 Feeling that people will take advantage of you if you let them ____

0 = Not at all
 1 = A little bit
 2 = Moderately
 3 = Quite a bit
 4 = Extremely

Having thoughts about sex that bother you a lot ____
 The idea that you should be punished for your sins ____
 Thoughts and images that are frightening in nature ____
 The idea that something is seriously wrong with your body ____
 Never feeling close to another person ____
 Feelings of guilt ____
 The idea that something is wrong with your mind ____

END

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FIN