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A Longitudinal Study on the Impact of Maternal Depression on Child Adjustment

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This thesis is dedicated to

my husband, Bob Lilly, for his love, friendship, and gentle reminders to stop and smell the roses from time to time

and

my parents, Agi and Pista Kallos, for supporting me through my struggles and rejoicing in my triumphs.

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Abstract

A community sample of depressed women, their spouses, and their 8 to 12 year old children participated in a 6 month longitudinal study. Aspects of the mothers' depression, their marital relationship, and their parenting style were investigated in terms of their association with child adjustment. Fathers' marital relationship and their parenting style were also assessed to examine their association with child adjustment. Severity, duration, and chronicity of the mothers' depression were assessed at two time points. Similarly academic and nonacademic self-concept, mathematics and verbal achievement, and internalizing and externalizing symptoms of the children were assessed at both time points. Marital functioning (i.e., warmth, intimacy, and control) and parenting style (i.e., expressiveness, cohesion, and conflict) were assessed at Time 1 only for both mothers and fathers. Using data from Time 1, children were classified into adjustment groups (well or poorly adjusted). They were considered well adjusted if they functioned at or above normal limits on at least two out of the three domains investigated. Results indicated that less than 30% of the children of depressed mothers were classified as poorly adjusted. Analyses revealed that both chronicity and severity of maternal depression distinguished the child adjustment groups at Time 1. Child adjustment groups did not differ on any of the marital or parenting variables for either mothers or fathers. Longitudinal analyses indicated that mother-child cohesion at Time 1 predicted a decline in children's self-concept from Time 1 to Time 2. Specifically, the closer the relationship with the depressed mother at Time 1, the more negative the child's combined academic and nonacademic self-concept was at Time 2. These results are discussed in terms of attachment theory. Additionally, the merits of longitudinal research investigating variability within the families of depressed mothers are highlighted.

One of the most striking features of unipolar depression is its prevalence in the general population. The lifetime incidence of depression in the general population is estimated to be between 20% to 25% (Kessler et al., 1994; Weissman, Myers, & Harding, 1978). High rates of recurrence and a pattern of progressive increases in severity from initial to later episodes are typical characteristics of depression (Maj, Veltro, Pirozzi, Lobracc, & Magliano, 1992; Shea et al., 1992). The well-documented gender difference in the prevalence of depression is also notable. Females are twice as likely to report an episode of depression in their lifetimes as are males (Coryell, Endicott, & Keller, 1992; Kessler et al., 1994; Nolen-Hocksema, 1987; Weissman & Klerman, 1977). Furthermore, whereas approximately 8% of women are clinically depressed at any given time (Weissman, Leaf, & Bruce, 1987), the rate of depression for women who have recently given birth is 13% (Whiffen, 1992). Evidence suggests that women who are raising children and who are not employed outside the home are particularly vulnerable to depression (Weissman et al., 1984). Thus, a substantial number of children are exposed to parental depression (Downey & Coyne, 1990) and children with younger siblings may be at risk for exposure to more than one episode of maternal depression.

There is also evidence that depressed women find it difficult to be warm and consistent mothers, that they derive less satisfaction from being mothers, and that they feel inadequate in this role (Bromet & Cornely, 1984; Weissman, Paykel, & Klerman, 1972). Given these findings, it is not surprising that accumulating evidence suggests that the children of depressed mothers are at increased risk for a variety of psychological and social difficulties (Beardslee, Bemporad, Keller, & Klerman, 1983; Lee & Gotlib, 1989a). Perhaps the recent explosion of interest and research on the association between maternal depression and child adjustment has been spurred on by these concerning findings.

The review that follows begins by outlining the particular areas of risk for children of parents suffering from depression. Second, interaction patterns that characterize the relationships between depressed parents and their children are described. Third, proposed family mediators of the association between parental depression and child adjustment, such as marital distress and paternal involvement, are summarized. Finally, the theoretical and empirical rationale for the present study is introduced and the specific hypotheses to be tested are outlined.

Parental Depression as a Risk Factor for Child Psychopathology

Investigators employ various methodologies to determine the relation between maternal depression and child adjustment. Depressed parents consistently report high rates of depressed and anxious mood, suicidal ideation, unexplained headaches, fighting, loss of interest in usual activities, hypochondriacal concerns, crying, and difficulties in school among their children (e.g., Billings & Moos, 1983; Weissman et al., 1984; Welner, Welner, McCrory, & Leonard, 1977). Of particular significance is the finding that these childhood problems persisted even after remission of the parents' depressive symptomatology (Billing & Moos, 1985; Lee & Gotlib, 1989b; Richters & Pellegrini, 1989).

Studies that utilized structured diagnostic interviews appropriate for children found that children of depressed mothers report more fears, worries, anxiety, mood disturbance, self-image problems, and conduct disorder, and have higher rates of comorbidity than do the children of control mothers (Fendrich, Warner, & Weissman, 1990; Hammen, Burge, Burney, & Adrian, 1990; Lee & Gotlib, 1989a, 1989b). The majority of children of unipolar depressed mothers experience onset of a major psychiatric disorder by the age of 14 years, with the highest occurrence between the ages of 10 to 14 years, and the second highest occurrence between 5 and 9 years of age (Hammen et al., 1990). Furthermore, the lifetime rate of psychopathology among children of depressed parents is reported to be as high as 65% (Keller et al., 1986). This figure may even under-estimate the true incidence of

psychopathology in this population because most of the children in this study had not yet passed through the critical risk period of young adulthood.

Thus, results from studies that employed clinician administered diagnostic interviews confirm parental reports. This suggests that observations made by depressed parents about their children are not explained by negative response biases. In a recent review paper, Richters (1992) concluded that there was no empirical evidence to support the belief that depressed mothers display distorted perceptions about their children's problems. Some authors have even suggested that depressed mothers may be more accurate in their perceptions of child functioning than nondepressed mothers (Conrad & Hammen, 1989; Tarullo, Richardson, Radke-Yarrow, & Martinez, 1995). Additionally, correlations between parents' reports of child functioning are similar for couples with and without a depressed partner (Billings & Moos, 1983). Therefore the conclusion that children of depressed parents generally function at a lower level than do children of nondepressed individuals can be drawn with confidence.

Fewer studies have assessed child functioning from a developmental perspective, that is, by examining the child's functioning on developmentally appropriate tasks. The studies that used this orientation toward assessment of child outcome also found impaired functioning. For instance, Whiffen and Gotlib (1989) examined infants of clinically depressed women in order to determine whether they showed emotional and cognitive deficits parallel to those reported for older children. By 2 months of age, the infants of the depressed women obtained lower scores than infants of nondepressed mothers on the Bayley Scales of Infant Development (Bayley, 1969), a measure of cognitive status. In addition, compared to the nondepressed group, infants of depressed mothers were perceived by an objective rater to show more negative affect (Whiffen & Gotlib, 1989) and were not as able to self-soothe (Cicchetti & Aber, 1986). Children of depressed mothers aged 1.5 to 3 years showed higher rates of insecure attachment (Murray, 1992; Radke-Yarrow, Cummings,

Kuczynski, & Chapman, 1985) and more extreme and aimless activity (Cicchetti & Aber, 1986) than controls. Goodman (1987) also found the preschool aged children of depressed mothers to engage in less role play than control children. Finally, school aged children and young adolescents of depressed mothers suffer impairments in academic performance, self-concept, and social competence (Anderson & Hammen, 1993; Billings & Moos, 1983; Forehand, Brody, Long, & Fauber, 1988; Hammen, 1988). These studies suggest that impairment in the children of depressed parents is evident not only in measures of psychopathology, but also in subtle measures of child development.

Whereas the child's risk for a lifetime diagnosis is strongly predicted by parental lifetime diagnosis (Goodyer, Cooper, Vize & Ashby, 1993; Grizenko & Pawliuk, 1994), current functioning is also clearly tied to the parent's current (Billings & Moos, 1983; Hammen et al., 1987) and recent symptomatology (i.e., within the past year; Forehand & McCombs, 1988). Thus, it follows that an increased lifetime risk to the child is associated with greater severity and chronicity of the parent's depression (Cicchetti & Aber, 1986; Keller et al., 1986). In line with this hypothesis, one longitudinal study found that a cumulative history of maternal depression predicted a small, but significant amount of variance in child functioning four to five years later (Fergusson & Lynskey, 1993). Similarly, in their recent review paper, Chiariello and Orvaschel (1995) concluded that the earlier the age of onset of depression for the mother, the greater the risk of depression in offspring. However, this could be due to a greater genetic loading for children of depressed mothers with an early onset (Weissman, Warner, Wickramaratne, & Prusoff, 1988).

Severity and chronicity of depression has not been consistently associated with greater disruption in child functioning. Billings and Moos (1983) reported that severity of maternal depression was not associated with greater psychiatric symptomatology among children assessed in their study. Additionally, in their study children of chronically depressed mothers fared better than children of nonchronically depressed mothers. The authors speculated that over time children learn

to adapt to their mothers' chronic depression. Difficulties of children experiencing a first time maternal depression may be interpreted as an adjustment response to an acute family stressor.

Clearly the phenomenology of depression is heterogeneous. In order to understand the association between maternal depression and child adjustment, researchers need to take into account possible differences in the effects of severity and chronicity on family functioning (Downey & Coyne, 1990; Gelfand & Teti, 1990; Fergusson & Lynskey, 1993). For instance, greater severity and chronicity of depression may be associated with more serious impairments in the parenting role.

Interactions Between Depressed Mothers and Their Children

In an attempt to understand how parental psychopathology is "transmitted" to children, researchers have recently focused their efforts on identifying the parenting characteristics of depressed individuals. Observational methods have typically been used to examine the interactions of depressed parents with their children. The general hypothesis guiding these investigations is that depression impairs the parent's ability to function optimally in this role. These studies have been conducted almost exclusively with depressed mothers. The focus on mothers is likely due, in part, to the observed gender difference in depression noted above (Kessler et al., 1994; Nolen-Hocksema, 1987; Weissman & Klerman, 1977), persisting societal norms in which mothers are the primary caregivers for their children, and the finding that maternal depression is associated with greater impairment of child functioning than is paternal depression (Keller et al., 1986).

Much of the empirical literature has focused on mother-child interactions during infancy of women reporting elevated levels of depressive symptoms. Livingood, Daen, & Smith (1983), for instance, found that symptomatic women, compared with nonsymptomatic women, gazed less often at their newborns and showed less positive regard for them during a feeding session. These authors noted that visual regard may be viewed as a measure of interest and, as such, may reflect the mother's readiness to interact socially with her infant. They speculated that the lower levels of gaze observed

among the dysphoric mothers indicated that these women were withdrawn from their infants.

Similarly, the results of studies conducted by Field and her colleagues (1984; Field et al., 1985; 1988) indicate that, compared with nonsymptomatic mothers, symptomatic mothers were rated as less active, less playful, and less contingently responsive in face-to-face interactions with their infants. Finally, Bettes (1988) reported that symptomatic mothers were delayed in speech directed toward their infants. Bettes emphasized that the mean response delay of the symptomatic women was sufficiently long to suggest disengagement from the child.

These results are consistent with a longitudinal study in which mothers who were dysphoric during pregnancy or at 1 month postpartum engaged in significantly less affectionate contact with their infants at 1 and 3 months postpartum than did nondysphoric mothers (Fleming, Ruble, Flett, & Shaul, 1988). Of greater concern is the finding that this style becomes more pronounced as the infant matures (Cicchetti & Aver, 1986). Considered collectively, the research indicates that disengagement appears to be a pervasive aspect of maternal behaviour among depressed women, likely interfering with the ongoing affective relationship between a mother and her infant (Fleming et al., 1988).

Some support also exists for the hypothesis that depressed mothers are hostile and intrusive in interactions with their infants. However, the studies reporting this effect used samples of symptomatic women who were also at high risk for neglecting their infants (Cohn, Matias, Tronick, Lyons-Ruth, & Connell, 1986; Lyons-Ruth, Zoll, Connell, & Grunebaum, 1986; Field, Healy, Goldstein, & Guthertz, 1990). Thus, the maternal hostility observed in these samples of mothers cannot be attributed unambiguously to depression. Overt maternal hostility directed toward an infant may be relatively rare. Maternal hostility may be more apparent in the interactions of depressed women with their older children.

In studies of depressed mothers' interactions with their older children, researchers either employ a lifetime or a current diagnosis of maternal depression. Studies using a lifetime diagnosis of depression classify women as depressed if they have experienced an episode of depression during the target child's lifetime. Research comparing the results obtained with groups formed on the basis of current or lifetime diagnoses have found current diagnosis to be a better predictor of current child adjustment (Gordon et al., 1989; Hammen et al., 1987).

Cross-sectional studies comparing the interactions of depressed and nondepressed mothers with their children found depressed mothers to be less responsive (Cox, Puckering, Pound, & Mills, 1987; Goodman & Brumley, 1990), less affectionate and more negative, irritable, and critical than nondepressed mothers (Dumas & Serketich, 1994; Goodman, 1987; Gordon et al., 1989; Hamilton, Jones, & Hammen, 1993; Hops et al., 1987; Panaccione & Wahler, 1986; Webster-Stratton & Hammond, 1988). Depressed mothers were also found to be more avoidant of disciplining or confronting their children than nondepressed mothers (Goodman & Brumley, 1990; Kochanska, Kuczynski, Radke-Yarrow, & Welsh, 1987). These studies are generally consistent with the infant studies discussed previously in that they highlight elements of parental disengagement and negativity. It is important to note, however, that several investigators remark on the variability in the parenting styles of depressed mothers (Cox et al., 1987; Goodman & Brumley, 1990).

Research based on a lifetime diagnosis of depression essentially replicates the empirical literature concerning current diagnosis. Depressed mothers displayed higher proportions of negative and critical comments with their school aged children than did nondepressed mothers (Conrad & Hammen, 1989). However, no differences were found between depressed and nondepressed mothers in terms of the frequency of positive interactions. Fendrich et al. (1990) also found that families of depressed parents were marked by parent-child discord, affectionless control, and low family cohesion in comparison with families of nondepressed parents. Finally, mother-child problem-solving

interactions consisting of negative, critical, and nonconstructive communication predicted child adjustment (i.e., social competence, behaviour problems, and diagnosis) in a 6 month longitudinal study (Hammen, Burge, & Stansbury, 1990).

Studies report less clear cut findings for the behaviour of children interacting with their depressed mothers. For instance, children of depressed mothers were found to be less cooperative and vocal, and more irritable (Cicchetti & Aber, 1986; Goodman, 1987; Hammen et al., 1990; Hops et al., 1987) than children in control groups, suggesting reciprocity between mothers' and their children's functioning (Hammen et al., 1990). In other studies, however, expressions of dysphoric affect by depressed mothers were found to suppress children's aggression (Dumas, Gibson, & Albin, 1989; Hops et al., 1987), and to increase child compliance and comforting behaviours (Cox et al., 1987; Dumas et al., 1989; Dumas & Gibson, 1990; Johnston & Pelham, 1990). Still other studies found no differences in the behaviour of children with and without a depressed or dysphoric mother (e.g., Dumas & Serketich, 1994; Webster-Stratton & Hammond, 1988). These results highlight the variability in the children's behaviours and suggest that the association between maternal depression and childhood behaviour may be mediated by variables that protect or hinder the children of depressed mothers.

The interaction studies are unanimous in suggesting that depressed mothers are less responsive, more hostile, and more avoidant than are nondepressed mothers in interactions with their children. This parenting style may be critical in the development of psychopathology in their children. The behaviour of the children of depressed mothers appears to vary widely, which suggests that not all children respond similarly to these maternal characteristics. The interaction studies have provided a rich picture of the relations between depressed women and their children. However, the studies have not adequately addressed two major questions in this area. The first is that despite the recognition that there is considerable variability in the functioning of children of depressed women

(Billings & Moos, 1983; Keller et al., 1986), it is not clear what accounts for this variability. Perhaps severity and chronicity of maternal depression and/or associated parenting styles play an important role in determining which children develop adjustment difficulties. The second issue refers to which characteristics of the mothers' depression and parenting style are related to subsequent child functioning (Gelfand & Teti, 1990), including both psychopathology and the achievement of developmentally appropriate tasks. Most of the studies conducted to date have provided only cross-sectional data, and therefore have not addressed questions regarding the longitudinal impact of maternal depression and parenting style on child adjustment.

Although the risks to children of depressed mothers appear to be numerous and severe, based on the rates reported above, as many as one third of them are likely to function well throughout their lives (Billings & Moos, 1983; Keller et al., 1986). The notion that a proportion of children with depressed mothers are well-adjusted was demonstrated empirically in an observational study of two year old children interacting with their peers (Zahn-Waxler, Cummings, Iannotti, & Radke-Yarrow, 1984). Diversity in depressed mothers' parenting styles and child functioning highlight the importance of identifying variables that mediate the association between parental depression and child adjustment (Forehand, McCombs, & Brody, 1987). One possibility is that maternal depression is indirectly related to child adjustment through its association with a third variable, such as parenting style. However, a mother's parenting style may also be mediated by aspects of family functioning, such as her marital relationship. It is clear that the role of mediating variables needs to be considered in understanding the association between maternal depression and child adjustment.

Proposed Family Mediators

In light of the consistent findings, it is tempting to conclude that maternal depression causes child psychopathology. Depressive symptomatology, such as lack of energy, reduced concentration, or feelings of helplessness (American Psychiatric Association, 1994) may result in the depressed

person's withdrawal from family activity, thereby making it difficult to be affectionate and responsive to children (Coyne & Fechner-Bates, 1992; Forehand et al., 1987; Lee & Gotlib, 1989b).

Inconsistency in discipline may be associated with symptoms of irritability, indecisiveness, feelings of inadequacy, or decreased tolerance for child misbehaviour, potentially resulting in overly harsh or lenient parenting styles (Coyne & Fechner-Bates, 1992; Forehand et al., 1987). It has been suggested that these are the very parenting practices that could impede favourable child development (Forehand et al., 1987). Thus, the risk to children may stem from explicit hostility in the depressed woman's relations with her children and/or from her tendency to be self-preoccupied, which makes her less aware of and, subsequently, less responsive to her children (Cummings & Davies, 1994; Lee & Gotlib, 1989b).

However, not all researchers agree that there is a direct link between maternal depression and child functioning. Some have raised the possibility that the risk to children stems from variables correlated with, but not directly due to depression. For instance, Lee & Gotlib (1989a) found the children of nondepressed psychiatric patients to be as disturbed as the children of depressed patients on several symptom dimensions. Thus, they proposed that maternal psychopathology rather than depression per se increases risk to the child. In a similar vein, other authors reported that child functioning was significantly associated with chronic strains in the family that were not necessarily attributable to the mother's diagnosis (Billings & Moos, 1983; Fergusson & Lynskey, 1993; Goodyer et al., 1993; Hammen et al., 1987; Johnston & Pelham, 1990).

One critical "chronic strain" that is consistently associated with depression is marital distress (Adrian & Hammen, 1993; Billings & Moos, 1983; Coyne & Fechner-Bates, 1992; Cummings & Davies, 1994; Gotlib & Hooley, 1988). Paykel et al. (1969) found that the life event most often reported by women as occurring within six months preceding the onset of their depressive episode was marital difficulties. Significant correlations between depression and marital maladjustment (over

$r=.31$) have been found for self-report measures (Coleman & Miller, 1975; Emery, Weintraub, & Neale, 1982), as well as therapists' ratings (Bouras, Vanger, & Bridges, 1986; Caserta, Lund, & Gray, 1987; Crowther, 1985; Dobson, 1987; Fadden, Bebbington, & Kuipers, 1987; Harvey & McGrath, 1988; Rounsaville, Weissman, Prusoff, & Herceg-Baron, 1979; Weiss & Aved, 1978) of inpatient and outpatient groups. Interestingly, both the depressed partner and the nondepressed spouse perceive the marriage and their partner negatively (Gotlib & Whiffen, 1989; Kahn, Coyne, & Margolin, 1985). Researchers have also found that marital dysfunction may persist even after the wife's depression has dissipated (Bothwell & Weissman, 1977; Schmaling & Jacobson, 1990; Weissman & Paykel, 1974). In summary, a moderate negative correlation between depression and marital functioning has consistently been found, leading increasingly more researchers to advocate the inclusion of spouses in the treatment of depression for married individuals (Beach, Sandeen, & O'Leary, 1990; Rounsaville et. al., 1979; Roy, 1985).

Marital distress and the family environment of depressed individuals.

Marital distress research suggests that the family environment of depressed persons may be marked by tension and conflict, a conclusion that is supported by an emerging empirical literature (e.g., Billings & Moos, 1983; Forehand et al., 1988). This atmosphere undoubtedly has consequences for child functioning and may, in fact, account for the apparent association between parental depression and impaired child functioning (Cummings & Davies, 1994; Downey & Coyne, 1990). Furthermore, persistence of negative marital functioning beyond the depressive episode may explain why the problems exhibited by children can persist beyond the remission of their parents' symptoms (Billings & Moos, 1985; Lee & Gotlib, 1989b).

Few studies have incorporated measures of marital distress into research on parental depression and child functioning. In one study, Keller et al. (1986) reported that marital distress was associated with an increased risk for psychopathology among the children of depressed parents. That

is, the children of maritally nondistressed but depressed parents had lower rates of psychopathology than did the children of maritally distressed and depressed parents. However, the contributions of depression and marital distress to child outcome were not compared statistically, leaving the relative importance of each variable undetermined. Goodman, Brogan, Lynch, and Fielding (1993) also found that couples' marital distress and disruption (and fathers' psychiatric status) explained much of the variability in functioning of children of depressed mothers. Finally, in a cross-sectional structural equation model, another group of researchers found that the association between parental depression and child functioning was mediated by marital quality (Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993).

Two studies examined the relative impact of maternal depression and marital distress on child functioning over time. In the first study, Cox et al. (1987) assessed a sample of 2 year olds and their mothers. Depression and marital distress at the first assessment were used to predict the quality of the mother-child relationship 6 months later. The quality of the relationship was defined by the degree of mutual responsiveness observed in joint activities. They found that, over time, the marital relationship influenced the quality of mother-child interactions more strongly than did the severity of the mother's depression. However, the statistical procedure they used, cross-lagged correlational analysis, lacks the sophistication of such procedures as path analysis because zero order correlations are compared rather than path coefficients. Thus, their findings should be regarded as provisional. Emery et al. (1982) also tested the explanatory value of marital relations by conducting a study on the effects of marital discord and parental depression on children's school problems. They found that marital discord accounted for much of the relation between parental depression and problematic school behaviour.

The few studies that have incorporated measures of marital distress into research on maternal depression and child adjustment indicate that the quality of a couple's marital relations may be

associated with the functioning of their children. However, these studies all utilized measures of general marital satisfaction in order to assess level of marital distress. Although there is a large body of literature pertaining to specific aspects of the marriages of depressed individuals, these particular variables have generally not been investigated in studies of child adjustment. Therefore, it is impossible to identify which specific aspects of the distressed marriages of depressed women may be the most detrimental to their children's level of adjustment.

One consistent finding in studies investigating the marriages of depressed women is that their relationships seem to be characterized by elevated levels of interpersonal friction (e.g., Bullock, Siegel, Weissman, & Paykel, 1972; Corney, 1987; Rounsaville et al., 1979; Weissman & Paykel, 1974) and negative affect (e.g., Gotlib & Whiffen, 1989; Hautzinger, Linden, & Hoffman, 1982; Kowalik & Gotlib, 1987; Ruscher & Gotlib, 1988). In studies investigating conflict resolution, spouses with a depressed partner were found to experience each other as more dominant, competitive, hostile, mistrusting, detached, inhibited, and submissive, and as less constructive, agreeable, and nurturant than couples without a depressed partner (Kahn et al., 1985; McCabe & Gotlib, 1993).

Several researchers (e.g., Bullock et al., 1972; Weissman & Paykel, 1974) also reported that depressed women were more reticent and submissive, and felt more guilt and resentment toward their spouses than did nondepressed women. The relationships of depressed women were also found to involve qualitatively less emotional and physical intimacy than those of nondepressed women (Weissman & Paykel, 1974). Depressed women were less likely to discuss general problems and difficulties regarding their sexual relations with their spouses than were nondepressed women. Biglan et al. (1985) also found that the rate of self-disclosure was significantly higher among couples of a control group than couples with a depressed partner.

The evidence of diminished involvement and submissiveness may simply be interpreted as disengagement. However, these behaviours may be associated with feelings of inequality in marital decision-making power and control. There is some evidence to support the notion of a negative correlation between power and depression. As mentioned above (Bullock et al., 1972; Weissman & Paykel, 1974), depressed women were judged by interviewers to be significantly more submissive and reticent than women in a control group. They experienced considerable difficulty making decisions for themselves and found themselves consistently unable to say "no" to a variety of requests. Furthermore, women who reported greater effectiveness in defending themselves from rights-infringement by their husbands reported higher levels of marital satisfaction (Smolen, Spiegel, Bakker-Rabau, Bakker, & Martin, 1985). Smolen, Spiegel, and Martin (1986) found that the level of marital dysfunction and depression was significantly higher if both spouses perceived the other as transgressional and themselves as ineffectual. Thus, perceived control is positively associated with marital satisfaction. Furthermore, depressed individuals have been found to behave in a manner that suggests an imbalance of marital power (i.e., withdrawal, submissiveness, and reticence).

In summary, research investigating the marital relationships of depressed women suggest that they are characterized by conflict, hostility, resentment, disengagement, diminished intimacy, and an imbalance of power and control. It is interesting to note that this theme of negativity and disengagement parallels the interactions of depressed mothers with their children. In order to identify the mechanisms involved in the association between the marital relations of depressed women and their children's development, specific components of the marriage need to be assessed.

Studies of marital conflict suggest that children are particularly sensitive to angry exchanges between their parents (Cummings, Pellegrini, Notarius, & Cummings, 1989; Long, Forehand, Fauber, & Brody, 1987). Cummings et al. (1989) found that children aged 2 to 5 years, whose parents were maritally distressed, tended to display increased concern and to seek social support when a research

confederate initiated an angry exchange with their mothers. Furthermore, there seemed to be a developmental effect with greater concern and intervention shown by children increasing with age. Expressions of concern and the seeking of social support may be reflective of the threatened emotional security experienced by children in the face of adult conflict (Davies & Cummings, 1994). Child behaviour associated with parental conflict includes both undercontrolled (e.g., aggressiveness or impulsivity) and overcontrolled behaviour (e.g., depression or withdrawal; Peterson & Zill, 1986).

Investigators generally agree that exposure to prolonged periods of open interparental hostility without witnessing conflict resolution is likely to be particularly detrimental (Davies & Cummings, 1994; Emery, 1982; Peterson & Zill, 1986). Not surprisingly, this type of marital conflict also appears to be related to the quality of parent-child relationships in families. In children over 6 years of age, low levels of overt marital aggression initiated by mothers were associated with warm mother-son relations and low levels of paternal withdrawal from the marital relationship were related to a warm father-daughter relationship (Burman, John, & Margolin, 1987).

In summary, the evidence clearly indicates that marital hostility is associated with adjustment difficulties in children. However, the causal mechanisms involved in this association have yet to be identified. Researchers have recently attempted to address this question by testing structural equation models (Forehand, Thomas, & Wierson, 1990; Miller et al., 1993). Both Forehand et al. (1990) and Miller et al. (1993) found that marital conflict seemed to exert its influence on child adjustment through parenting behaviours. Specifically, a parenting style consisting of rejection, withdrawal, and lack of warmth was related to externalizing problems in children. Thus, although marital satisfaction and the level of spousal conflict are consistently associated with various measures of child adjustment, these variables may be exerting their influence through the parenting styles of both mothers and fathers.

The father's role in family functioning.

Until recently, few researchers focused their attention on the role of fathers in their children's development. Whereas there is some controversy in the literature regarding infants' preferences for one parent over the other, there is evidence that children aged 7 to 18 months demonstrate attachment behaviours toward both parents (Bowlby, 1982; Clarke-Stewart, 1978; Cohen & Campos, 1974; Lamb, 1978; Main & Weston, 1981; Schaffer & Emerson, 1964). Mothers and fathers are sought by their infants to an equal degree when approached by a stranger. During times of infant distress, if both parents are available to provide comfort, children under 18 months of age prefer their mothers (Cohen & Campos, 1974; Lamb, 1976). Children 2 years of age do not demonstrate a preference when distressed (Lamb, 1976). Finally, insecure attachment to mothers of 2 and 3 year olds was significantly more likely if the fathers were absent from the home (Radke-Yarrow et al., 1985). These studies highlight the importance of fathers as key attachment figures for their children. The type of attachment seems to be most determined by the quality versus the quantity of parent-child interactions (Lamb, 1978; Weinraub, 1978). Thus, although it is most common for mothers to be the primary attachment figure for their children during particular developmental periods in infancy, it is clear that children develop significant relationships with both parents and that these attachments develop at around the same time for mothers and fathers (Bowlby, 1982; Cohen & Campos, 1974; Lamb, 1976).

The phenomenon of social referencing has also been utilized to determine the extent to which infants rely on each of their parents to clarify uncertain situations (Dickstein & Parke, 1988). The concept of social referencing refers to the active pursuit of emotional and/or instrumental information from significant others in order to help appraise an ambiguous context. In a study by Dickstein and Parke, infants approximately 11 months of age were approached by a stranger separately in the presence of each parent. Mothers and fathers were used equally by their babies as referencing agents.

The attachment and social referencing studies support the contention that both mothers and fathers are sought by their infants in times of situational uncertainty and emotional distress.

Specific areas of paternal influence have been found for cognitive abilities and achievement motivation. For instance, sons of fathers who were characterized by warmth and acceptance were found to exhibit enhanced cognitive abilities and achievement motivation (Epstein & Radin, 1975). Parental restrictiveness was associated with poorer performance on cognitive abilities tests and diminished achievement motivation. Although this research suggests that fathers exert an influence on their children's intellectual development and motivation, most of this literature is limited in generalizability to sons of middle- and working-class men (Weinraub, 1978).

The literature on fathers indicates that infants rely on their fathers in times of uncertainty and emotional distress. Furthermore, working- and middle-class fathers have been found to influence their son's scores on cognitive abilities tests and their overall level of achievement motivation. These results suggest that fathers exert considerable influence in their children's lives. Therefore, one viable alternative for children of depressed mothers could be to rely more heavily on their fathers as their influential parenting figure. Children whose fathers are involved in their child care, are available, and are responsive to their needs may not be as hindered by exposure to maternal depression as are children without an alternative, attentive parent. Fathers may also play a significant role in helping children understand their mothers' depression. Thus, a favourable relationship between children of depressed mothers and their fathers could attenuate the negative association between maternal depression and child adjustment.

In summary, although it may be tempting to conclude that maternal depression causes child psychopathology, it is clear that several variables may mediate this association. The literature suggests that marital distress is negatively correlated with child adjustment. Additionally, in their caregiving role, fathers may either buffer or exacerbate the negative impact of maternal depression.

A closer examination of these variables and their associations is clearly warranted to increase our understanding of child functioning in families of depressed mothers.

The Present Study

Children of depressed mothers are found to be at a greater risk for developing a variety of psychosocial difficulties (e.g., Beardslee et al., 1983; Lee & Gotlib, 1989a). Additionally, depressed women have been characterized as disengaged (e.g., Cox et al., 1987; Field, 1984; Livingood et al., 1983), as well as, negative, irritable, and critical of their children (e.g., Goodman, 1987; Gordon et al., 1989; Hops et al., 1987; Webster-Stratton & Hammond, 1988). Although depressed women demonstrate a characteristic interaction style with their children, several important issues need to be considered. First, variability in the parenting styles of depressed mothers has been consistently noted (e.g., Cox et al., 1987; Goodman & Brumley, 1990). Variability in parenting styles may be explained by heterogeneity in the phenomenology of depression (Fergusson & Lynskey, 1993). Second, marital distress is consistently correlated with both maternal depression (e.g., Caserta et al., 1987; Coleman & Miller, 1975; Emery et al., 1982) and child adjustment (e.g., Burman et al., 1987; Howes & Markman, 1989). Preliminary evidence suggests that the quality of depressed women's parenting may be explained by the influence of marital distress (e.g., Cox et al., 1987; Emery et al., 1982; Forehand et al., 1990; Miller et al., 1993). Additionally, children's adjustment difficulties can persist beyond the remission of their mothers' depression (Billings & Moos, 1985; Richters & Pellegrini, 1989). This persistence may be attributable to the persistence of marital distress (Bothwell & Weissman, 1977). Finally, the literature on maternal depression has ignored the potential impact of fathers on their children's functioning. Fathers elicit attachment behaviours from their children (e.g., Bowlby, 1982; Lamb, 1978; Schaffer & Emerson, 1964) and play an important role in the development of cognitive abilities and achievement motivation, especially for their sons (e.g., Epstein & Radin, 1975). Having at least one good parent-child relationship may mitigate the negative effects

of maternal depression and marital distress on children's functioning (Brody & Forehand, 1990; Emery, 1982; Hetherington, Cox, & Cox, 1979; Peterson & Zill, 1986; Rutter, 1971). Thus, in attempting to understand the association between marital distress or maternal depression and child functioning, it is important to assess the child's relationship to both parents.

The present study set out to clarify the association between maternal depression and child adjustment by using a longitudinal design and by focusing on various aspects of marital and parent-child relationships. The study included two cohorts of children of depressed mothers. One group was classified as "well adjusted", whereas the other group was classified as "poorly adjusted". Child adjustment was defined in terms of both symptomatology, and the extent to which children attained age-appropriate developmental goals. The goals relevant to children in the present study included 1) the development of a positive self-concept, at a level within or above published norms, in both academic and nonacademic domains, and 2) a level of academic achievement within or above published norms (Erikson, 1963; Havighurst, 1972; Jones & Burks, 1973). Based on the literature review delineating the marriages of depressed individuals, the marital variables of interest were level of warmth, intimacy, and perceived control in the relationship. The parent-child variables assessed were closeness, expressiveness, and unresolved conflict (Dumas & Serketich, 1994; Fendrich et al., 1990; Goodman, 1987; Gordon et al., 1989; Hops et al., 1987; Panaccione & Wahler, 1986; Webster-Stratton & Hammond, 1988). Depressed women, their spouses, and their children aged 8 to 12 years completed self-report measures at two time points, 6 months apart. A 6 month follow-up period was chosen for the sake of consistency with other research (e.g., Anderson & Hammen, 1993; Hammen, 1988; Hammen et al., 1990).

The methodology of the present study builds on the existing literature in a number of ways. First, the first generation of maternal depression and child adjustment studies identified both a negative (Billings & Moos, 1983; Weissman et al., 1984) and heterogeneous (Billings & Moos,

1983; Keller et al., 1986) impact of parental depression on children. Several investigators acknowledge variability not only in the functioning of children of depressed mothers, but also in the parenting styles to which they are exposed (e.g., Cox et al., 1987; Goodman & Brumley, 1990). To determine what accounts for the variability in functioning of children of depressed mothers we capitalized on the variance within these families (Forehand et al., 1987). The present study uses the well adjusted children of depressed mothers as a control group for the poorly adjusted children of depressed mothers. Second, marital distress was conceptualized as a multidimensional construct in order to capture specific aspects of the marital relationship that may be relevant for child adjustment. Third, the inclusion of fathers in the study permitted the investigation of their role in the association between maternal depression and child adjustment. Finally, child adjustment was conceptualized both in terms of symptomatology and by the extent to which children attained age-appropriate developmental goals. Nonsymptomatic indicators of child functioning were employed in order to identify subtle aspects of adjustment difficulties that may be evident prior to the emergence of symptomatology. The age group investigated in the current study was limited to middle childhood (8 to 12 years of age). This age range was chosen in order to capture the typical age of onset of children's disorders (Hammen et al., 1990) and to circumvent the introduction of potential confounds by combining children in different developmental stages (Gelfand & Teti, 1990).

The present study was designed to explore two major questions related to the association between maternal depression and child adjustment. The first goal was to compare well and poorly adjusted children and test for mean differences on specific depression, marital, and parent-child relationship variables. The second goal was to determine which combination of depression, marital, and parent-child relationship variables predicted child adjustment over time.

Hypotheses to be Tested

The hypotheses to be tested in the present study were divided into cross-sectional and longitudinal effects. For the cross-sectional analyses, hypotheses related to the association between maternal depression and child adjustment were based on previous research suggesting that an increased lifetime risk to children is associated with greater severity and chronicity of parental depression (Cicchetti & Aber, 1986; Keller et al., 1986). The mothers of poorly adjusted children were hypothesized to suffer from more severe and chronic depression, as well as to meet diagnostic criteria for more comorbid disorders than were the mothers of well adjusted children.

Hypotheses regarding the family relationships of depressed women were guided by two lines of research: 1) the identification of a parenting style characteristic of depressed mothers (e.g., Cox et al., 1987; Dumas & Serketich, 1994), and 2) the negative association between maternal depression and marital adjustment (e.g., Coleman & Miller, 1975; Downey & Coyne, 1990). Depressed mothers of poorly adjusted children were hypothesized to have more problems in marital and parental relationships than the depressed mothers of well-adjusted children. Husbands of depressed women with poorly adjusted children were also hypothesized to have more problematic marital and parental relationships than husbands of depressed women with children who were functioning well.

Cross-sectional effects.

1. The mothers of poorly adjusted children were hypothesized to suffer from more severe and chronic depression, as well as to meet diagnostic criteria for more comorbid disorders than were the mothers of well adjusted children.
2. It was hypothesized that depressed mothers with poorly adjusted children would report lower levels of marital intimacy and warmth, and that they would perceive themselves as more submissive and powerless in their marital relationships than the depressed mothers of well adjusted children. It was further hypothesized that poorly adjusted children would report

lower levels of maternal cohesion and expressiveness, and higher levels of conflict than well adjusted children.

3. It was hypothesized that fathers with poorly adjusted children would report lower levels of marital intimacy and warmth than fathers with well adjusted children. No specific predictions were made regarding perceptions of marital control. It was further hypothesized that poorly adjusted children would report lower levels of paternal cohesion and expressiveness, and higher levels of conflict than well adjusted children.

Few longitudinal studies have been conducted on maternal depression and child adjustment. The existing research suggests that maternal depression and marital distress predict both parenting style (Cox et al., 1987) and child adjustment (Emery et al., 1982). It was hypothesized that a combination of variables measuring maternal depression, marital functioning, and parenting style would predict child adjustment prospectively.

Longitudinal effects.

1. It was hypothesized that a linear combination of variables consisting of maternal depression, mothers' marital relationship (i.e., intimacy, warmth, and control), and mothers' parenting style (i.e., cohesion, expressiveness, and conflict) at Time 1 would predict subsequent child adjustment at Time 2.
2. It was hypothesized that a linear combination of variables consisting of maternal depression, fathers' marital relationship (i.e., intimacy, warmth, and control), and parenting style (i.e., cohesion, expressiveness, and conflict) at Time 1 would predict subsequent child adjustment at Time 2.

Participants

Participants were recruited through newspaper advertisements in the Ottawa Citizen, the Penny Saver, and several community newspapers (see Appendix A). Additional recruitment consisted of public service announcements on the CBC radio and CJOH Community Calendar, and information pamphlets available at various licensed daycare and family/parent resource centres throughout the greater Ottawa region (see Appendix B). Of the 114 women who were screened, 60 families agreed to participate in the study and met the following inclusion criteria:

1. The parents were married or cohabiting for longer than 1 year.
2. The mother had a biological child between the ages of 8 and 12 living at home.
3. Both members of the couple dyad had a minimum of an eighth-grade level of education.
4. The mothers met DSM-III-R (American Psychiatric Association, 1987) criteria for a major depressive episode or dysthymia within the past year.

Measures

1. Maternal depression

The Schedule for Affective Disorders and Schizophrenia (SADS). The SADS (Endicott & Spitzer, 1978) is a semi-structured interview designed to make diagnoses according to the Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978). The SADS was used to screen for entry into the study. The SADS interview was administered to the mothers by trained clinical psychology interns ($N=4$). Interviewer training involved approximately 10 hours of a combination of didactic instruction, listening to audiotaped sample interviews, and direct feedback on interviews conducted. Training continued until acceptable levels of reliability were achieved between the interviewer and the dissertation supervisor, Dr. Valerie Whiffen.

The reliability of the SADS has been demonstrated with ratings from observers in joint interviews, as well as separate (test-retest) interviews. Intraclass correlation coefficients of reliability for the composite scales relevant to depression ranged from $r=.95$ to $.97$ for joint interviews and $r=.78$ to $.88$ for test-retest interviews (Endicott & Spitzer, 1978). Kappa coefficients ranging from $\kappa=.81$ to $.90$ were obtained for the depression diagnoses (Spitzer et al., 1978). These figures reflect high inter-rater reliability (Fliess, 1981). Cronbach alpha coefficients for depression diagnoses ranged from $.79$ to $.87$ and provide support for internal consistency (Endicott & Spitzer, 1978). Correlations between the SADS summary scale scores for depression diagnoses and the depression subscale of the Symptom Checklist-90 (SCL-90; Derogatis, Lipman, & Covi, 1973) revealed adequate agreement between the two measures (i.e., $r=.61$ to $.68$) and provide evidence of convergent validity.

In the present study, the SADS interview was modified in two important ways. First, only the sections of the SADS interview pertaining to the diagnosis of major depression and dysthymia were administered. Second, women were diagnosed on the basis of their worst episode of depression over the previous year. Research has shown that approximately 60% of depressed individuals recover from an episode within 6 to 9 months (Coryell et al., 1994; Downey & Coyne, 1990). Therefore, the previous year was used as a time frame to capitalize on rates of remission in order to capture possible changes in child adjustment as a function of depression status. All measures are presented in Appendix C.

The Diagnostic Interview Schedule (DIS). The DIS (Robins, Helzer, Croughan, & Ratcliff, 1981) was administered to identify comorbid diagnoses. Depressed women completed a computerized version of the DIS with a trained clinical psychology intern available to answer questions that arose during the administration.

Previous research with the DIS found that it possessed acceptable sensitivity and specificity as a diagnostic instrument (Helzer et al., 1985; Robins et al., 1981; Wittchen, Semler, & von Zerssen, 1985). Computerized administration of the DIS demonstrated equivalent or superior test-retest reliability in comparison to the interview format. A kappa coefficient of $\kappa=.61$ was obtained with the C-DIS when equivalent diagnoses on the computerized and interview format were considered (Blouin, 1990). This value falls within the range of $\kappa=.40$ to $.75$ which is thought to represent fair to good agreement beyond chance (Fleiss, 1981). The construct validity of the C-DIS was demonstrated by comparison of the number and types of diagnoses based on the computerized and interview formats of the DIS (Blouin, 1990; Blouin, Perez & Blouin, 1988). Support for the construct validity of the C-DIS was derived from concordance on various diagnoses with the lay DIS (Greist et al. , 1987), with symptom checklists (Blouin, 1990), and with psychiatrists' diagnoses (Mathisen, Evans, & Meyers, 1987) with overall kappas over the $\kappa=.40$ accepted level suggested by Fleiss (1981).

The Beck Depression Inventory (BDI). The BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) measures the severity of depressive symptomatology. The BDI is a 21 item self-report scale that assesses symptoms and attitudes frequently expressed by depressed individuals. Respondents rate the intensity with which they have experienced each item during the past week on a scale from 0 to 3. The total score on the BDI can range from 0 to 63, with higher scores indicating greater severity of symptoms.

In a review of the research on the BDI (Beck, Steer, & Garbin, 1988), internal consistency estimates ranged from $.76$ to $.95$ (mean coefficient alpha was $.86$) for psychiatric populations, and $.73$ to $.92$ (mean coefficient alpha was $.81$) for nonpsychiatric populations. Test-retest reliability of the BDI ranged from $r=.60$ to $r=.90$ with the time between administrations ranging from 5 days to 4 months. The concurrent validity of the BDI was assessed by correlating BDI scores with several

other measures of depression, such as the Hamilton Psychiatric Rating Scale for Depression (HRSD; Hamilton, 1960) and the Zung Self-reported Depression Scale (Zung; Zung, 1965). The mean correlation coefficients between the BDI and the HRSD were $r=.73$ and $r=.78$ for psychiatric and nonpsychiatric populations, respectively. Similarly, the mean correlation coefficients between the BDI and the Zung were $r=.76$ and $r=.71$ for psychiatric and nonpsychiatric samples, respectively. In both psychiatric and student samples, the BDI has also shown high convergent validity with psychiatric ratings of depression severity (Beck et al., 1961; Bumberry, Oliver, & McClure, 1978).

2. Marital relationship

Miller Social Intimacy Scale (MSIS). The MSIS (Miller & Lefcourt, 1982) measures each partner's level of intimacy experienced in their marital relationship. The MSIS is a 17 item measure that requires respondents to rate each item on a 10 point scale. Scores on the MSIS can range from 17 to 170, with higher scores indicating greater levels of intimacy experienced in the relationship.

Cronbach alpha coefficients of .86 and .91 for two independent samples demonstrate that the MSIS measures a single construct (Miller & Lefcourt, 1982). Test-retest reliability coefficients over 1-month and 2-month intervals were $r=.84$ and $r=.96$, respectively. The MSIS was found to correlate positively ($r=.71$) with the Interpersonal Relationship Scale (Schlein, Guernsey, & Stover, 1971, cited in Guernsey, 1977) and to correlate negatively ($r=-.65$) with the UCLA Loneliness Scale (Russell, Peplau, & Ferguson, 1978), thereby demonstrating its convergent validity (Miller & Lefcourt, 1982). Evidence for the discriminant validity of the MSIS came from nonsignificant correlations ($r=.36$ and $r=.16$) between the MSIS and the Marlowe-Crowne Need for Approval Scale (Crowne & Marlowe, 1964). The construct validity of the MSIS was assessed by asking subjects to complete the scale for both intimate and casual friendships. The results supported the prediction that scores for the participants' closest friends were significantly greater than scores for casual acquaintances (Miller &

Lefcourt, 1982). Furthermore, the mean MSIS score for nonclinic couples was significantly greater than the mean score of couples seeking counselling.

Checklist of Interpersonal Transactions (CLOIT). The CLOIT (Kiesler, 1984) assesses each spouse's perception of his/her interactive behaviour in the marital relationship. The perceived level of marital affiliation (i.e., warmth/hostility) and marital control (i.e., dominance/submission) were of primary interest. The CLOIT is a 96 item checklist of overt interpersonal behaviours derived from Kiesler's theoretical model. Kiesler's Interpersonal Circle (Kiesler, 1983) proposes that interpersonal behaviour can be measured along 2 major dimensions, affiliation and control. Behaviour can be described in terms of 16 aspects of the two main dimensions, such as dominance, sociability, and mistrust. Each of the 16 scales is measured by 6 items. Respondents indicate whether or not an item is descriptive of their typical interactions with a target individual.

The internal consistency of the 16 CLOIT scales was assessed with ratings by undergraduate students of their acquaintances' interpersonal behaviour (Kiesler, Goldston, Paddock, & VanDenburg, 1986; cited in Kiesler & Goldston, 1988). Alpha coefficients ranged from .43 to .81 with only 2 of the 16 scales obtaining values below .50. In terms of evaluating the validity of the CLOIT, undergraduate university students were asked to rate the interpersonal behaviour of Carl Rogers, Albert Ellis, and Fritz Perls in the Gloria psychotherapy film (Kiesler & Goldston, 1988). Students rated Rogers as significantly more friendly than Perls, and as less dominant than both Perls and Ellis. Gloria's behaviour was rated to be significantly more friendly with both Rogers and Ellis than with Perls. She was also found to be significantly more dominant with Perls than with both Rogers and Ellis. These results offer preliminary evidence for the validity of the CLOIT as a measure of interpersonal behaviour.

3. Child Functioning

Child Behavior Checklist (CBCL). The CBCL (Achenbach & Edelbrock, 1983) measures the level of psychiatric symptomatology displayed by children. This instrument was completed by the mothers. The questionnaire yields overall scores for children's behaviour problems (118 items) and social competencies (20 items). Responses to the items pertaining to social competencies are plotted on one of six profiles depending on the age (4-5 years, 6-11 years, and 12-16 years) and sex of the child. The profiles generated for each group consist of eight or nine factors (e.g., depression, social withdrawal, somatic complaints, aggressiveness). Norms were collected for 1,300 normal children well stratified regarding socioeconomic class and ethnic composition (Barkley, 1988). The mother rated T-scores for internalizing and externalizing behaviour problems, normed for age and gender groups, were of interest in the present study.

The one-week test-retest reliability of the CBCL was found to be $r=.99$ for social competence and $r=.95$ for behaviour problems (Achenbach & Edelbrock, 1983). Test-retest coefficients over a 3 month period were found to be $r=.97$ and $r=.84$ for social competence and behaviour problems, respectively. In terms of the agreement between raters, Richters and Pellegrini (1989) found nonsignificant differences between teacher- and mother-completed CBCLs for both depressed and nondepressed mothers. The CBCL showed adequate discriminant validity in distinguishing between clinic-referred and nonreferred children (Achenbach & Edelbrock, 1983) and between children of maritally distressed and nondistressed mothers (Bond & McMahon, 1984). Additionally, both mother- and teacher-completed CBCLs distinguished between children of mothers with and without a history of depression (Richters & Pellegrini, 1989).

Canadian Tests of Basic Skills (CTBS). The CTBS (Nelson Canada, 1984) measures basic academic skills and students' strengths and weaknesses in the following areas: vocabulary, reading, language skills, methods of study, and mathematics. Only the mathematical concepts and vocabulary

subscales were administered in the present study. These subscales were chosen to provide a balance between quantitative and verbal skills and because both are highly correlated with the composite score of the CTBS (mean $r=.80$ for mathematics concepts subscale and mean $r=.87$ for the vocabulary scale for grades 3 to 6). The entire mathematical concepts subscale is comprised of 123 items and the entire vocabulary subscale consists of 107 items. However, the selection and number of items depends on the child's grade level and the academic term in which the test is taken. Raw scores on the identified subscales were converted into percentile ranks.

The CTBS was found to have good content coverage and internal consistency (Gallivan, 1984; King, Lindquist, & Hieronymus, 1968). Internal consistency coefficients ranged from .64 to .93 across subscales. The split-half reliability coefficients for the mathematical concepts and vocabulary subscales ranged from $r=.82$ to .84 and $r=.87$ to .90, respectively, for grades 3 to 6 (King et al., 1968). Additionally, moderate to high correlations (ranging from $r=.53$ to .76) between CTBS test scores and year-end course grades for an older sample provided evidence of predictive validity (Nelson Canada, 1984).

Self-Description Questionnaire (SDQ-I). The SDQ-I (Marsh, 1992) measures several domains of self-concept. It is a 76-item questionnaire that requires subjects to rate self-descriptive statements in terms of their truth/falsity on 5-point scales. For the present study, subscales were developed which, according to the manual, represent the domains of academic self-concept (i.e., reading, math, and general school facets) and nonacademic self-concept (i.e., physical abilities, physical appearance, peer relations, parent relations facets). These subscales were chosen to reflect two important aspects of self-concept (academic and nonacademic) for preadolescent children. Total scores range from 24 to 120 for academic self-concept and 32 to 160 for nonacademic self-concept with higher scores indicating a more positive self-concept.

The SDQ-I subscales demonstrated high internal consistency with Cronbach alpha coefficients of .92 for the total academic scale and .91 for the total nonacademic scale (March, 1989; 1992). Six month test-retest reliability for children in grades 4 to 6 ranged from $r=.27$ to .74. This was considered to be moderate to high for all subscales with the exception of the parent relations scale for fourth graders (Byrne, 1996; Marsh, 1992; Marsh, Smith, Barnes, & Butler, 1983). Convergent and divergent validity was established by correlating the SDQ-I with the same and other content domains of established measures of self-concept such as the Perceived Competence Scale for Children (PCSC; Harter, 1982). Convergence between the SDQ-I and PCSC is strong, with validity coefficients ranging from $r=.56$ to .74 (Byrne, 1996; Marsh & Gouvenet, 1989; Marsh & Holmes, 1990). Additionally, low correlations between the SDQ-I subscales and logically unrelated constructs provide evidence for discriminant validity (Marsh & Gouvenet, 1989). The construct validity of the SDQ-I has been demonstrated in numerous factor analytic studies (e.g., Marsh, 1989; Marsh, Smith, & Barnes, 1983) and overall the instrument is regarded as the most psychometrically validated self-concept measure available for use with preadolescent children (Byrne, 1996).

4. Parent-child relationship

Self-Report Family Inventory (SFI). The SFI (Beavers, Hulgus, & Hampson, 1988) is a 36-item self-report questionnaire designed to elicit perceptions of family functioning. In the present study, the SFI was used to assess children's perceptions of their relationship with each of their parents. Children were asked to fill it out twice, once with their mothers in mind and once with their fathers in mind. Items tap the following domains of family functioning: conflict, cohesion, expressiveness, health/competence, communication, and directive leadership. Only the first three domains were of interest in the present study. Respondents rate the degree to which each item describes their family on a scale of 1 to 5. The items for each factor are summed (with reverse

scored items taken into account) and then averaged. Thus, scale averages range from 1 to 5 with lower scores indicating greater cohesion and expressiveness, and less conflict.

Internal consistency reliability for the SFI scales ranged from $r=.84$ to $.88$ (Beavers et al., 1988). Test-retest reliability was assessed over 30 and 90 day periods. The correlations for the scales relevant to the present study ranged from $r=.50$ to $.89$ over 30 days and from $r=.50$ to $.79$ over a 90 day period. Thus, the SFI demonstrates high internal consistency and moderate to high stability. The SFI was shown to converge with other measures of family functioning assessing similar constructs. For instance, the family cohesion scores on the SFI correlated $r=.81$ and $r=.67$, respectively, (Hampson, Beavers, & Hulgus, 1988) with the corresponding subscales of the FACES II (Olsen, Bell, & Porter, 1982) and FACES III (Olsen, Portner, & Lavee, 1985). Similarly, correlations between relevant factors on the SFI (i.e., conflict, cohesion, and expressiveness) and theoretically similar constructs on the Family Assessment Device (Epstein, Baldwin, & Bishop, 1983) ranged from $r=.35$ to $.69$. Although these correlation coefficients are within the moderate range, it is important to recognize that family adaptability measures are based on constructs that may differ depending on the theoretical underpinnings of the instrument. Finally, two of the SFI factors (health/competence and expressiveness) were found to distinguish between therapist rated high and low functioning families (Beavers, Hampson, & Hulgus, 1985), thereby demonstrating evidence for criterion validity.

Procedure

Families interested in participating in the study underwent a two-tiered screening process. First, the parent who made initial contact was interviewed over the telephone to determine if his/her family met the inclusionary criteria. Second, if those criteria were met, an appointment was scheduled for the mothers to be administered the modified SADS interview over the telephone. Mothers who met diagnostic criteria for either major depression or dysthymia in the past year were

invited to participate in the study with their families. An appointment was scheduled for the mothers and children to come into the laboratory. Written consent to participate was obtained from the mothers (see Appendix D) during their first visit to the laboratory. The C-DIS was then administered to the mothers in the presence of a trained clinical psychology intern who answered any questions that arose during the administration. A second research assistant administered the self-report measures, the SDQ-I and SFI, as well as the academic achievement scale, the CTBS, to the children. The mothers were then given questionnaire packages for them and their husbands to complete independently. The package for husbands included a consent form. The questionnaire packages consisted of a Demographic Information Questionnaire (DIQ; see Appendix E) and the self-report measures, the BDI, the MSIS, the CLOIT, and the CBCL (for mothers only). The questionnaires were completed at home and returned via mail. The mothers were then contacted 6 months later and asked to bring their child to the laboratory for a second time. At this time the children were re-administered the self-report measures (the SDQ-I and the SFI) and the academic achievement scale (the CTBS) by a research assistant. The mothers' depression status was reassessed and they again completed the CBCL. To reduce subject attrition, the families were compensated for their time through graduated payments in increments of \$5.00. Thus, families received \$10.00 for completing the C-DIS, \$15.00 for sending in the take-home questionnaires, \$20.00 for the first child assessment, and so on up to a total of \$100.00 for the two time points of the study.

Statistical Analyses

All statistical analyses were conducted using the SPSS statistical package. The preliminary analyses were conducted and are presented in three major steps. First, demographic information for the entire sample is presented. Second, descriptive statistics for the psychiatric functioning of the mothers are reported. Third, children were classified in terms of their level of adjustment and then

compared on the demographic data. Group differences on the continuous demographic variables were examined using one-way Analyses of Variance (ANOVAs) with two-tailed tests of significance. Group differences on the dichotomous demographic variables were analyzed using the chi-square statistic (χ^2).

Presentation of the main analyses is divided into the cross-sectional and longitudinal hypotheses. The cross-sectional hypotheses pertained to the associations between maternal depression, marital functioning, parenting style, and child adjustment at Time 1. Multivariate Analysis of Variance (MANOVA) was used to test for group differences between the well and poorly adjusted children on the mothers' depression variables. Given statistically significant group differences, post-hoc Discriminant Function Analysis (DFA) was used to identify which maternal depression variables best discriminated between the well and poorly adjusted children. Multivariate Analysis of Covariance (MANCOVA) was used to test for group differences between the well and poorly adjusted children on the marital functioning and parenting style variables, when maternal depression was held constant. These analyses were conducted separately for mothers and fathers due to sample size constraints (Tabachnick & Fidell, 1996).

Longitudinal hypotheses pertained to the prediction of child adjustment at Time 2 from a linear combination of maternal depression, marital functioning, and parenting style variables at Time 1. However, it was necessary to reduce the number of variables to be entered into the analyses in order to maintain adequate power. Separate Principle Components Analyses (PCA) were conducted for fathers and mothers for the purposes of variable reduction. Hierarchical Multiple Regression (HMR) was then used to test the longitudinal hypotheses separately for mothers and fathers.

Results

Demographic Characteristics of the Sample

Of the 60 families that were recruited for the study, complete data were available for 53 families at the first time point (i.e., $N=53$ for mothers and children and $N=48$ for fathers). Approximately equal numbers of male ($n=28$) and female ($n=25$) children took part in the study. The mean age was 37.3 years ($SD=4.8$) for mothers, 41.4 years ($SD=6.7$) for fathers, and 9.6 years ($SD=1.2$) for children. The couples had been married or living together for a mean of 12.8 years ($SD=5.1$). An average of two children were living in the family home. The mean score on the Socio-economic Index for Occupations (SEIO; Blishen, Carroll, & Moore, 1987) for employed mothers indicated that their occupations were equivalent to social workers or sales clerks ($M=44.6$, $SD=9.9$). Additionally, 6% of the women were self-employed and 34% of them were not employed outside the home. The corresponding SEIO mean scores for fathers indicated that their occupations were equivalent to management in the service industry, insurance sales, or electrical equipment installation ($M=52.7$, $SD=14.6$). Two percent of fathers were self-employed and 4% were unemployed. A substantial number of the participants held a college or university degree (40% of mothers and 54.5% of fathers) and over half of the families (52%) earned an annual income of over \$55,000. Thus, the sample was of medium to high socioeconomic status.

Complete Time 2 data were available for 48 families ($N=48$ for mothers and children and $N=45$ for fathers). This reflects an overall attrition rate of 10% between the Time 1 and Time 2 assessments. Participants who completed both phases of the study ($n=48$) were compared with those who dropped out during or after the Time 1 assessment ($n=12$) on the depression and child adjustment variables. One way ANOVAs indicated no significant group differences on the mothers' depression variables: diagnosis at Time 1 ($F(1,58)=.28$, $p>.05$), number of episodes of depression ($F(1,50)=.47$, $p>.05$), duration of the index episode of depression ($F(1,58)=2.18$, $p>.05$), and age at

first episode ($F(1,58)=2.14, p>.05$); comorbidity ($F(1,58)=1.74, p>.05$); and overall child adjustment ($F(1,58)=.76, p>.05$). Similarly, participants who completed both phases of the study were compared with those who dropped out during or after the Time 1 assessment on the demographic variables. One way ANOVAs indicated no significant group differences on mothers' age ($F(1,58)=1.13, p>.05$) and occupation ($F(1,30)=1.87, p>.05$)¹, or fathers' age ($F(1,43)=2.14, p>.05$) and occupation ($F(1,43)=.01, p>.05$). Chi-square analyses revealed no significant differences on mothers' education level ($\chi^2(2, N=53)=1.14, p>.05$), fathers' education level ($\chi^2(2, N=47)=1.42, p>.05$), and gross family income ($\chi^2(1, N=53)=.24, p>.05$)². However, significant group differences were found on the duration of the marital relationship ($F(1,51)=4.19, p<.05$), with the drop-out group reporting a significantly shorter relationship duration ($M=8.2$ years, $SD=6.3$) in comparison to the group that completed the study ($M=13.0$ years, $SD=4.9$). It is unclear why the couples who remained in the study sustained longer relationships than those who dropped out. In summary, participants who completed the study were comparable to those who did not in terms of maternal depression, child adjustment, and general demographics. One exception was the duration of the marital relationship in which case the families who completed the study were married longer than the families who dropped out.

Diagnostic Information

Inter-rater reliability.

The SADS interviews were conducted by four clinical psychology interns in order to ensure that the mothers were interviewed by a different person at each time point of the study. Inter-rater reliabilities were conducted on 35% of the Time 1 assessments (i.e., 21 out of 60 interviews). Reliabilities were calculated separately for agreement on the presence or absence of depression and

¹ Degrees of freedom reflect data available for individuals employed outside the home.

² Except where otherwise indicated, differences in degrees of freedom among demographic variables reflect missing data.

for agreement on the specific type of depression. There was 100% agreement among raters regarding the presence or absence of depression and 73% agreement on the specific type of depression. The kappa statistic, which reflects the degree of agreement attained over and above what would be predicted by chance, was calculated as outlined by Fleiss (1971). Kappa can only be calculated when agreement among raters is less than 100%. Therefore it was only calculated for agreement regarding the type of depression. The mean kappa, $\kappa=.63$, is comparable with values reported in depression research (Keller et al., 1995). According to Fleiss (1981) kappas at this level fall within the range of fair to good agreement (i.e., κ between .40 and .75). Given that the mean kappa attained in the present study fell in the upper end of this range, it reflects an acceptable level of inter-rater reliability.

Mothers' diagnoses

At Time 1, the majority of the women suffered from either major depression or "double depression", major depression and dysthymia. However, at Time 2, the majority of the women were suffering from dysthymia. The breakdown of mothers' diagnoses is displayed in Table 1. It is interesting to note that the sample was characterized by both moderately severe and chronic depression. In terms of severity, mean BDI scores fell within the moderate to severe range at Time 1 and at the high end of the mild to moderate range at Time 2 (Beck et al., 1988; see Table 2). Additionally, 79.2% of the present sample of depressed women had sought help for depression at least once in their lifetime. The majority of women (90.5%) sought help on an outpatient basis and 61.9% of them received medication for depression. A sizable minority, 13.2% of the sample, had made a suicide attempt. In terms of chronicity, as indicated in Table 1, only 29.8% of the sample had remitted at Time 2. The average duration of the index episode was several months ($M=4.5$ months, $SD=3.9$; see Table 2) and the mean total lifetime number of episodes of depression was notably high ($M=12.0$, $SD=17.9$). There were also nine women (17%) who indicated that they had

Table 1

Frequencies (Fq) and Percentages (%) for Mothers' Diagnoses by Type of Depression

Assessment	Dysthymia		Major Depression		Double Depression		Remitted	
	Fq	%	Fq	%	Fq	%	Fq	%
Time 1 (N=53)	3	5.7	29	54.7	21	39.6	--	--
Time 2 (N=47)	16	34.0	10	21.3	7	14.9	14	29.8

Note. Diagnoses are based on the SADS interview.

too many episodes of depression to count. Finally, the age reported by women for their first episode ($M=20.6$ years, $SD=8.3$) is several years younger than the average onset age of 26 years reported by other researchers (Burke, Burke, Regier, & Rae, 1990). This was particularly true for women who reported too many episodes to count ($M=15.4$ years, $SD=6.4$). It is also interesting to note that 50.9% of the women in the total sample suffered their first episode of depression before the age of 18. In summary, although the sample consisted of self-referred community participants, it is clear that it included women suffering from both severe and recurrent depression.

As is common with depression, the majority of the women sampled suffered from other disorders in addition to depression (American Psychiatric Association, 1994). Just over ninety percent (90.5%) of women suffered from another disorder, with a mean of 3.7 ($SD=2.5$) co-diagnoses. The modal number of co-diagnoses was 2 and the range was 11. The most common co-

Table 2

Means (M) and Standard Deviations (SD) for Characteristics of Mothers' Depression

Depression characteristic	Time 1 (N=53)		Time 2 (N=47)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Severity ^a	19.9	8.3	16.3	9.0
Duration of index episode ^b	4.5	3.9	--	--
Age at first episode	20.6	8.3	--	--
Lifetime number of episodes	12.0	17.9	--	--
Number of times sought help	1.2	.9	--	--
Comorbidity ^c	3.7	2.5	--	--

Note. ^aBDI. ^bIn months. ^cC-DIS.

diagnoses were anxiety disorders, somatoform disorders, and substance abuse (see Table 3). The rates of comorbidity in the current sample are higher than rates reported by other authors which range from 36% to 79% (Kessler et al., 1994; Markowitz, 1993; Markowitz, Moran, Kocsis, & Frances, 1992). Although these comorbidity rates indicate that the women suffered from a host of problems, for the most part the disorders reported were those that typically co-occur with depression (American Psychiatric Association, 1994; Kendler et al., 1995; Markowitz, 1993; Markowitz et al., 1992).

Table 3

Frequencies (Fq) and Percentages (%) of Comorbid Disorders Suffered by Women at Time 1

Disorder	Fq (N=53)	%
Anxiety disorders:	44	83.0
Agoraphobia without history of panic disorder	7	13.2
Generalized anxiety disorder	11	20.8
Panic disorder without agoraphobia	8	15.1
Panic disorder with agoraphobia	1	1.9
Posttraumatic stress disorder	18	34.0
Social phobia	27	50.9
Other specific phobias	27	50.9
Eating disorders:	7	13.2
Bulimia nervosa	7	13.2
Mood disorders:	10	18.9
Bipolar disorder	2	3.8
Hypomanic episode	7	13.2
Single manic episode	1	1.9
Personality disorders:	1	1.9
Antisocial personality disorder	1	1.9
Psychotic disorders:	1	1.9
Schizophrenia	1	1.9
Somatoform disorders:	34	64.2
Pain disorder	34	64.2
Somatization disorder	6	11.3
Substance abuse:	23	43.4
Alcohol dependence	9	17.0
Drug dependence	10	18.9
Nicotine dependence	18	34.0

Note. Diagnoses are based on the C-DIS

Three subjects were deleted from further analyses because they met DSM-III-R (American Psychiatric Association, 1987) criteria for either bipolar disorder ($n=2$) or schizophrenia ($n=1$). Studies indicate that there is a stronger genetic component to schizophrenia and bipolar disorders than to unipolar disorders (Goodman, 1984; Suinn, 1993), and that children of parents suffering from bipolar disorder and schizophrenia are more emotionally disturbed than children of unipolar depressed parents (Goodman, 1984). Mothers with bipolar disorder are also found to be more rejecting than mothers with unipolar depression (Inoff-Germain, Nottelmann, & Radke-Yarrow, 1992). Thus, there could be differences between these groups of children on genetic predisposition and parenting style (Downey & Coyne, 1990) that would introduce a potential confound into the data. Therefore, they were excluded from further analyses. This is consistent with the strategy of other researchers who either separate bipolar and unipolar depressed groups or exclude individuals suffering from bipolar disorder (e.g., Anderson & Hammen, 1993; Billings & Moos, 1983; Hammen et al., 1987, 1990, Keller et al., 1986).

Fathers' depressive symptoms.

Fathers reported a mean BDI score of 8.7 ($SD=9.3$). Twenty-five percent of fathers scored above the traditional cut-off score representing mild symptomatology (i.e., a score of 10 on the BDI; Beck et al., 1988), suggesting that dysphoria among fathers was elevated in the current sample.

Comparability of Groups

Classification of children.

The children's scores on the CBCL (internalizing and externalizing disorders), the CTBS subscales (mathematics and vocabulary), and the SDQ-I (academic and nonacademic self-concept) were used to classify them as either well or poorly adjusted. Children who scored below the published norms for academic achievement and self-concept, or above the published norms for psychiatric symptoms were identified. Children who were functioning poorly on at least two of the

three domains assessed were classified as poorly adjusted; 14 of the 50 children met this criterion. This indicates that less than one third (28%) of the sample of children of depressed mothers scored outside normal limits on two or more measures of child functioning.

Comparisons between child adjustment groups.

Analyses were conducted to determine the comparability of the child adjustment groups on the demographic data. One-way ANOVAs indicated no significant group differences on the following demographic variables: mother's age ($F(1,48)=.97, p>.05$), father's age ($F(1,42)=.62, p>.05$), target child's age ($F(1,48)=.65, p>.05$), duration of current marriage or common law relationship ($F(1,48)=.16, p>.05$), total number of children living in the family home ($F(1,48)=.01, p>.05$), mother's occupation ($F(1,29)=.52, p>.05$), or father's occupation ($F(1,40)=.77, p>.05$). Thus, the two child adjustment groups were comparable in terms of the demographic variables. Means and standard deviations are presented in Table 4.

The results of chi-square analyses indicated that the child adjustment groups were also comparable in terms of the sex of the child ($\chi^2(1, N=50)=.03, p>.05$), mother's education ($\chi^2(2, N=50)=.58, p>.05$), father's education ($\chi^2(2, N=44)=3.19, p>.05$), whether the father was the natural parent or a step-parent ($\chi^2(1, N=45)=0, p>.05$), gross family income ($\chi^2(1, N=50)=.12, p>.05$), diagnosis of the index episode of depression ($\chi^2(2, N=50)=.07, p>.05$), and whether the index episode of depression was current or within the year prior to the Time 1 assessment ($\chi^2(1, N=50)=.08, p>.05$). Frequencies and percentages are presented in Table 5.

Table 4

Means (M) and Standard Deviations (SD) for Demographic Variables

Demographic Variable	Well adjusted children (n=36)		Poorly adjusted children (n=14)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Mother's age ^a	37.7	4.4	36.2	5.7
Father's age ^a	40.9	6.1	42.6	7.9
Child's age ^a	9.5	1.3	9.8	1.2
Duration of marital relationship ^a	12.9	4.9	12.3	5.8
Number of children living at home	2.2	.7	2.1	.6
Mother's occupation ^b	45.1	10.7	45.8	8.1
Father's occupation ^b	54.8	14.9	50.4	13.9

Note. ^aIn years. ^bSEIO.

Table 5

Frequencies (Fq) and Percentages (%) for Demographic Variables

Demographic Variable	Well adjusted children (n=36)		Poorly adjusted children (n=14)	
	Fq	%	Fq	%
Child's sex:				
Male	19	52.8	7	50.0
Female	17	47.2	7	50.0
Mother's education:				
High school	9	25.0	5	35.7
Community college or Undergraduate degree	24	66.6	8	57.1
Graduate degree	3	8.3	1	7.1
Father's education^a:				
High school	7	21.9	6	50.0
Community college or Undergraduate degree	20	62.5	4	41.6
Graduate degree	5	15.7	1	8.3
Father's relationship to child^b:				
Biological parent	27	84.4	11	84.6
Step-parent	5	15.6	2	15.4
Gross family income:				
Under \$45,000	11	30.6	5	35.7
Over \$45, 000	25	69.5	9	64.3
Diagnosis of index episode of depression^c:				
Dysthymia	2	5.6	1	7.1
Major depression	20	55.6	8	57.1
Double depression	14	38.9	5	35.7

(table continues)

Table 5

Demographic Variable	Well adjusted children (<i>n</i> =36)		Poorly adjusted children (<i>n</i> =14)	
	<i>F</i> _q	%	<i>F</i> _q	%
Occurrence of index episode of depression:				
Current	19	53.8	8	57.1
Within past year	17	47.2	6	42.9

Note. ^a*n*=44 due to missing data for fathers. ^b*n*=45 due to missing data for fathers. ^cSADS.

Cross-Sectional Hypotheses: Do Maternal Functioning and Family Relationships Differ Between Well and Poorly Adjusted Children?

The associations among maternal functioning, marital distress, parenting, and child adjustment at Time 1 were tested using MANOVA and MANCOVA. The maternal functioning variables (i.e., comorbidity and depression variables) were initially analyzed separately from the marital and parenting variables in a MANOVA, with child adjustment as the independent variable. Given statistically significant group differences, post-hoc DFA was used to identify which maternal functioning variables best discriminated between child adjustment groups. Differences between the child adjustment groups on maternal functioning were then controlled in subsequent analyses using MANCOVA with the marital relationship and parenting style as dependent variables. Mothers' and fathers' data were analyzed separately. The means and standard deviations for the main dependent and independent variables are displayed in Table 6. Correlations among the variables are reported in Table 7. The sample was characterized by marital intimacy scores that are consistent with norms for clinic couples (Miller & Lefcourt, 1982). In addition, the scores on the parenting variables indicate

Table 6

Means (M) and Standard Deviations (SD) for Dependent and Independent Variables

Variable	Total (N=50)		Well adjusted children (n=36)		Poorly adjusted children (n=14)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Child Adjustment:						
Math achievement ^a	58.1	28.7	68.3	21.9	31.9	27.9
Vocabulary achievement ^a	62.4	26.2	68.9	23.1	45.8	27.3
Internalizing symptoms ^b	11.8	9.7	8.3	5.6	21.0	12.2
Externalizing symptoms ^b	11.0	8.0	8.1	5.0	18.2	9.8
Academic self-concept ^c	33.1	5.4	33.7	4.7	31.8	7.0
Nonacademic self-concept ^c	32.7	3.8	33.5	3.2	30.6	4.5
Maternal depression^d:						
Severity ^e	19.6	8.2	17.6	7.3	24.8	8.5
Duration	4.4	4.0	4.0	3.3	5.4	5.3
Age at first episode	21.0	8.2	22.7	8.3	16.5	6.3
Number of lifetime episodes	12.0	17.9	12.8	20.3	9.4	5.4
Comorbidity ^f	3.4	2.2	2.9	2.1	4.5	2.1
Marital functioning:						
Mother's intimacy ^g	6.9	1.8	7.0	1.8	6.6	1.9
Mother's warmth ^h	3.6	12.0	4.5	11.7	2.3	13.0
Mother's control ^h	-1.4	7.7	-2.3	7.9	.7	6.9
Father's intimacy ^g	7.2	1.3	7.2	1.4	7.4	.9
Father's warmth ^h	9.1	11.1	8.6	11.2	10.3	11.1
Father's control ^h	-1.3	8.8	-.8	8.5	-2.4	9.7
Parenting styleⁱ:						
Mother's cohesion	2.3	.6	2.2	.6	2.5	.7
Mother's conflict	3.1	.4	3.1	.5	3.1	.4
Mother's expressiveness	1.9	.5	1.9	.5	2.0	.6
Father's cohesion	2.5	.7	2.4	.7	2.6	.7
Father's conflict	2.7	.5	2.8	.5	2.6	.3
Father's expressiveness	2.2	.7	2.2	.7	2.3	.7

Note. ^aPercentiles from the CTBS. ^bCBCL. ^cSDQ-I. ^dMeans and standard deviations for the total sample differ slightly from those reported in Table 2 due to the exclusion of 3 subjects who met DSM-III-R criteria for either bipolar disorder or schizophrenia. ^eBDI. ^fC-DIS. ^gMSIS. ^hCLOIT. ⁱSFI, lower scores represent healthier relationships.

Table 7

Correlations among the Dependent and Independent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Child adjustment:																							
1. Time 1 self-concept ^a	-																						
2. Time 1 academic achieve ^b	.14	-																					
3. Time 1 symptoms ^c	-.29	-.21	-																				
4. Time 2 self-concept ^a	.11	.60	.11	-																			
5. Time 2 academic achieve ^b	.29	-.19	-.28	-.28	-																		
6. Time 2 symptoms ^c	-.18	.13	-.13	.29	-.18	-																	
Maternal Depression:																							
7. Severity ^d																							
8. Duration																							
9. Age at first episode																							
10. Number of episodes																							
11. Comorbidity																							
Marital functioning:																							
12. M's intimacy ^e																							
13. M's warmth ^f																							
14. M's control ^f																							
15. F's intimacy ^e																							
16. F's warmth ^f																							
17. F's control ^f																							
Parenting style ^g :																							
18. M's cohesion																							
19. M's conflict																							
20. M's expressiveness																							
21. F's cohesion																							
22. F's conflict																							
23. F's expressiveness																							

Note. ^acomposite variable SDQ-1. ^bcomposite variable CTBS. ^ccomposite variable CBCL. ^dBDI. ^eMASIS. ^fCLOT. ^gSFI, lower scores represent healthier relationships.

that the sample was similar to norms for competent nonclinic families on cohesion and expressiveness, but similar to norms for clinic families on level of unresolved conflict. Prior to analyzing the data, it was screened separately for the well and poorly adjusted groups (Tabachnick & Fidell, 1996).

Data screening.

Data screening was based on $N=50$ mothers and children, and $N=44$ fathers. The data were first examined for accuracy of data entry, missing data, and outliers. This was followed by a series of preliminary analyses designed to test the following assumptions: normality of sampling distributions, homogeneity of variance-covariance matrices, linearity, multicollinearity and singularity, and homogeneity of regression for the covariates. For the Time 1 data, missing values were found on items assessing child internalizing and externalizing symptoms and academic and nonacademic self-concept, as well as on the following maternal functioning variables: severity of index episode of depression, duration of index episode, and age at first episode. Given that missing values on these variables appeared to be random and minimal (less than 3%), group means were substituted for missing items in order to maintain an adequate sample size (Tabachnick & Fidell, 1996).

Examination of z -scores was then used to identify univariate outliers. One outlier was found on the dependent variable assessing the duration of the index episode of depression in the well adjusted group and excluded from further analyses. No within cell multivariate outliers were detected on any combination of the Time 1 variables using Mahalanobis distance at $p<.001$.

Univariate normality was assessed through evaluation of skewness and kurtosis values. For the Time 1 well adjusted group, duration of mother's index episode of depression was found to be kurtotic ($z=6.16$) and skewed ($z=2.17$). For the Time 1 poorly adjusted group, duration of mother's index episode of depression was found to be kurtotic ($z=2.15$), mother's marital intimacy was both kurtotic ($z=5.29$) and skewed ($z=-2.18$), and father's marital control was kurtotic ($z=5.7$). Duration of mother's index episode of depression was normalized with a square root transformation and logarithmic transformations were used on the marital functioning variables.

Analysis of Box's M test of multivariate homogeneity of variance indicated no violation of this assumption for the MANOVA in the domain of maternal functioning $F(3,11212.9)=.70$, $p>.001$ and the MANCOVAs in the domains of marital and parenting relationships for mothers $F(3,17371.5)=3.84$, $p>.001$ and fathers $F(1,4068.4)=.001$, $p>.001$. Within cell scatterplots between the dependent variables for each of the MANOVA and MANCOVAs were examined and revealed that linearity, normality, and homoscedasticity were satisfactory. This was accomplished after the transformation of the following variables: duration of mother's index episode of depression, mother's marital intimacy, father's marital control.

Homogeneity of regression for the covariates was assessed by examining the interaction between each covariate and the independent variable. Nonsignificant interactions for severity of index episode of depression, $F(4,41)=.70$, $p>.05$, and for age at first episode of depression, $F(4,41)=.24$, $p>.05$, were found for the mothers' relationship data. Similarly, nonsignificant interactions were found for the fathers'

relationship data for severity of the index episode of depression, $F(4,36)=1.43$, $p>.05$, as well as for age at the first episode of depression $F(4,36)=1.60$, $p>.05$. These results indicate homogeneity of regression for the covariates and support the use of MANCOVA analyses (Tabachnick & Fidell, 1996).

Finally, multicollinearity and singularity were assessed by investigating Pearson correlations among the independent variables. All variables were well below the conventional cut-off value of $r=.90$ (Tabachnick & Fidell, 1996), suggesting that multicollinearity and singularity were not indicated.

Main analyses.

The first objective of the present study was to determine if there were differences between the child adjustment groups on maternal depression, marital functioning, and parenting style. First, a one-way between-subjects MANOVA was performed on four dependent variables that reflected maternal psychological functioning: comorbidity, severity of depression, duration of the index depressive episode (transformed), and age at first episode. The variable reflecting total lifetime number of depressive episodes was excluded from this analysis due to the number of subjects who reported that they had too many episodes to count ($n=9$). The inclusion of this variable would have resulted in substantial loss of data. The independent variable was child adjustment (well adjusted or poorly adjusted). It was hypothesized that the mothers of poorly adjusted children would suffer from more chronic and more severe depression and would have higher rates of comorbidity than the mothers of well adjusted children. Post hoc DFA was used as a follow-up to MANOVA, based on Bray and Maxwell's (1982) argument that DFA takes

into account correlations between dependent variables, whereas interpretation of univariate F tests with or without a Bonferroni correction does not. They concluded that DFA is the preferred method for discriminating between groups as a follow-up to MANOVA. Therefore, a post hoc DFA was employed to identify which of the four maternal functioning variables best discriminated between the two child adjustment groups. Only those variables that significantly discriminated between child adjustment groups were used as covariates in subsequent analyses. Two one-way between-subjects MANCOVAs were used to determine if there were differences between the child adjustment groups on the marital relationship and parenting style variables, with maternal depression held constant. The dependent variables consisted of 3 marital relationship variables (intimacy, warmth, and control) and 3 variables assessing parenting style (cohesion, expressiveness, and conflict). Data from mothers and fathers were analyzed separately in order to maintain power (Tabachnick & Fidell, 1996). For both mothers and fathers, it was hypothesized that the parents of maladjusted children would experience more marital difficulties and would engage in a less optimal parenting style.

Does maternal functioning differ between groups of well and poorly adjusted children?

Using Pillai's criterion, which is robust to unequal sample sizes (Tabachnick & Fidell, 1996), the one-way between-subjects MANOVA revealed a significant main effect for child adjustment with $F(4,44)=4.44$, $p<.01$. These results suggested that the combined dependent variables were significantly related to child adjustment with a moderate association $\eta^2=.29$. Given that there were statistically significant differences

between the two child adjustment groups, post hoc DFA was conducted to identify which maternal functioning variables best discriminated between the groups. One discriminant function was calculated for child adjustment, with a $\chi^2(2, N=49)=13.10$, $p<.001$ and an eigenvalue of .33. Results of this analysis indicated that 25% of the total variance in the linear discriminant function was attributable to child adjustment as indicated by the canonical correlation ($R_c=.50$). The loading matrix of correlations between each predictor and the linear discriminant function (see Table 8) indicated that the best discriminators between the well and poorly adjusted children were the severity of depression and age at first episode. In comparison to mothers of well adjusted children, mothers of poorly adjusted children reported more severe depression in the index episode ($M\ BDI=24.8$, $SD=8.5$ vs. $M\ BDI=17.5$, $SD=7.3$), as well as an earlier age of onset for their first episode of depression ($M=16.5$ years, $SD=6.3$ vs. $M=22.9$ years, $SD=8.3$).

In summary, two maternal functioning variables emerged as reliable discriminators of well and poorly adjusted children. As predicted, severity of the mother's depression and her age at first onset were associated with child functioning. That is, greater severity of depression and a younger age of onset was associated with poorer child functioning.

Does family functioning differ between groups of well and poorly adjusted children?

Separate one-way between-subjects MANCOVAs were performed for mothers' and fathers' data (as recommended by Phares & Compas, 1992) while controlling for group differences associated with maternal depression. The purpose of this analysis was to determine if group differences existed on variables that have been found to correlate

Table 8

Results of Post-Hoc Analyses for the Main Effect of Child Adjustment for Maternal Functioning Variables

Predictor variable	Correlation between each predictor and the LDF ^a	Percentage of variance in LDF ^a explained by each predictor	Univariate F(1,47)
Severity of index episode ^b	.76	58%	8.89*
Age at first episode	-.65	42%	7.58*
Comorbidity ^c	.24	6%	1.32
Duration of index episode ^d	.02	0%	1.05
Canonical R	.50		
Eigenvalue	.33		

Note. ^aLDF=linear discriminant function. ^bBDI. ^cC-DIS. ^dVariable transformed.
*p<.01.

with maternal depression, such as marital functioning and parenting style (Cox et al., 1987; Forehand et al., 1990), would account for child adjustment difficulties once the effects of maternal functioning were statistically controlled. Based on the DFA, adjustment was made for two covariates: severity of depression and age at first episode. In the interests of identifying the relative importance of the three marital and three parenting variables in relation to one another, these dependent variables were analyzed together. Once again, the independent variable was child adjustment (well adjusted or poorly adjusted). For both mothers and fathers it was hypothesized that, in comparison to

the well adjusted group, the parents of poorly adjusted children would report more marital difficulties and more problematic parenting styles.

Using Pillai's criterion, multivariate tests of significance indicated that after controlling for severity of depression and age at first episode, the combination of marital intimacy (transformed), warmth, and control, and parental cohesiveness, expressiveness, and conflict was not significantly related to child adjustment for the mothers' data ($F(6,40)=.84, p>.05$). There was a small association between the dependent variables and the covariates, with $\eta^2=.16$. Similarly, multivariate tests of significance indicated that after adjustment for severity of depression and age at first episode, the combination of marital intimacy, warmth, and control (transformed), and parental cohesiveness, expressiveness, and conflict was not significantly related to child adjustment for the fathers' data ($F(6,35)=.88, p>.05$). Once again there was a small association between the dependent variables and the covariates, with $\eta=.12$.

To investigate more specifically the nature of the statistical adjustments made by the covariates to the dependent variables, multiple regressions were run for each dependent variable in turn with the covariates acting as multiple predictors (as outlined by Tabachnick & Fidell, 1996). For data provided by mothers, only severity of depression provided significant adjustment for mothers' reported level of warmth in the marital relationship. The $\beta=-.40$ for severity of depression was significantly different from zero, $t(48)=-2.67, p<.05$. No other adjustments were revealed by either of the covariates for the other dependent variables. For data provided by fathers, severity of depression again provided significant adjustment for fathers' reported level of marital intimacy, with $\beta=-.33$

significantly different from zero, $t(43)=-2.10$, $p<.05$. Thus, greater severity of mothers' depression was associated with less marital warmth for mothers and less marital intimacy for fathers. Age at first episode provided significant adjustment for the children's reported level of conflict with their fathers, with $\beta=-.35$ significantly different from zero, $t(43)=-2.2$, $p<.05$. A younger age of first onset of depression for mothers was associated with less father-child conflict. These results suggest that a significant proportion of the variance in marital warmth for women and marital intimacy for men was accounted for by severity of the mother's depression. Additionally, a significant proportion of the variance in father-child conflict was accounted for by the age of mothers' first onset of depression.

In summary, contrary to the predictions, after adjustment for severity of the mothers' depression and age at first episode, marital functioning and parenting style were not significantly related to child adjustment for mothers' or fathers' data. However, severity of the mothers' depression provided adjustment for reported marital warmth (for mothers) and reported marital intimacy (for fathers). Additionally, mothers' age at first episode of depression provided adjustment for children's reported levels of conflict with their fathers. Therefore, in the present study, the severity of the mothers' recent or current depressive episode was associated with less marital warmth for mothers and less marital intimacy for fathers. Additionally, a younger age at first episode of mothers' depression was associated with less father-child conflict.

Longitudinal Hypotheses: Which Aspects of Maternal Functioning and Family Relationships at Time 1 Predicted Child Adjustment at Time 2?

The second goal of this study was to determine the combination of maternal

functioning, marital relationship, and parenting style variables that predicted child adjustment 6 months later. This was achieved using Hierarchical Multiple Regression (HMR) analyses. However, the first objective was to develop a statistical strategy to reduce the number of variables entered into the equation at one time in order to maintain adequate power, as well as retain the specificity of the variables considered (versus turning to global variables). Unidimensional PCAs were run separately for mothers' and fathers' data in order to select variables that were most highly correlated with the dimensions assessed: maternal functioning, the marital relationship, and parenting style. The selected variables were then included in separate HMR analyses for mothers' and fathers' data. Additionally, a PCA was conducted on the child adjustment domains, psychiatric symptomatology, academic achievement, and self-concept, to discern which variables formed coherent subsets. Child adjustment was the dependent variable in each of the HMRs conducted.

Data screening.

Following the same format as the Time 1 analyses, accuracy of data entry, missing data, and outliers were first examined for ungrouped data. This was followed by a series of preliminary analyses designed to test the assumptions of multiple regression. Specifically the following assumptions were tested: normality of sampling distributions, homogeneity of variance-covariance matrices, linearity, multicollinearity and singularity, and independence of residuals.

Five families dropped out between the Time 1 and Time 2 assessments and two families underwent marital separation. Given that marital disruption would likely be

experienced by these children as a significant and added psychosocial stressor (Fendrich et al., 1990; Goodman et al., 1993; McCombs-Thomas & Forehand, 1993), they were excluded from further analyses. Therefore data screening was based on $N=43$ for mothers and children, and $N=40$ fathers. For the Time 2 data, missing values were found on the following variables: child symptoms and academic and nonacademic self-concept. Given that missing values on these variables appeared to be random and minimal (less than 3%), group means were substituted for missing items in order to maintain an adequate sample size (Tabachnick & Fidell, 1996).

Examination of z -scores was used to identify univariate outliers. One outlier was found on each of the following independent variables at Time 1: duration of mother's index episode of depression, mother's level of intimacy in her marriage, mother's marital control, father's marital warmth, father's marital control, and father-child cohesion. In accordance with Tabachnick and Fidell's (1996) suggestion, univariate outliers were recoded either one unit larger or smaller than the next most extreme case in order to reduce influence. One outlier was detected on the composite dependent variable, combined mathematics and vocabulary achievement at Time 1, and deleted from further analyses. There were no outliers detected on any of the composite child adjustment variables at Time 2. No multivariate outliers were identified on any combination of the Time 1 or Time 2 variables using Mahalanobis distance at $p<.001$.

Univariate normality was assessed through evaluation of skewness and kurtosis values. For the Time 1 data, duration of the mothers' index episode of depression was found to be kurtotic ($z=8.8$). A square root transformation was applied to normalize the

distribution of this variable. For Time 2 data, no variables were found to be skewed or kurtotic.

Scatterplots of residuals were examined and revealed that linearity, normality, and homoscedasticity were satisfactory. This was accomplished after the transformation of the variable assessing duration of the mother's index episode of depression. An examination of the Durbin-Watson statistic, which yielded a value of 1.93 for Time 1 and 1.8 for Time 2, suggested that errors of prediction were independent from one another.

Multicollinearity and singularity were assessed by investigating Pearson correlations among the independent variables. These are presented in Table 7. All variables were well below the conventional cut-off value of $r = .90$ (Tabachnick & Fidell, 1989), indicating that multicollinearity and singularity were not suggested.

Main analyses.

Two HMRs were employed to determine which combination of maternal functioning, marital functioning, and parenting variables predicted child adjustment at Time 2, separately for mothers and fathers. However, given Tabachnick and Fidell's (1996) minimum guideline of 5 subjects to each independent variable, it was necessary to reduce the number of variables to be entered into the regression equations. Each set of maternal functioning, marital, and parenting variables was subjected to a unidimensional PCA separately for data provided by mothers and fathers (resulting in 5 analyses) in order to select those variables that correlated most highly with each underlying factor.³ In each

³ A conventional approach to PCA, postulating 3, 4, and 5 factor solutions, was attempted prior to turning to the approach reported above. Results were consistently difficult to interpret and therefore this approach was abandoned as a method of variable reduction.

case, principal components extraction was used with a moderately conservative cut-off score of .40 (Tabachnick & Fidell, 1996) as a basis for variable selection.

The first unidimensional PCA was performed on the following maternal functioning variables: comorbidity, duration of the index episode of depression (transformed), severity, and age at first episode of depression. Again, the variable reflecting total lifetime number of depressive episodes was excluded from this analysis due to the number of subjects who reported that they had too many episodes to count. Only two maternal functioning variables, comorbidity and severity of depression, were retained for further analyses. Following unidimensional PCAs on the three marital variables (intimacy, warmth, and control), intimacy and warmth for both mothers' and fathers' data were retained for further analyses. Finally, unidimensional PCAs on the three parenting variables (cohesion, expressiveness, and conflict) lead to the retention of cohesion and expressiveness for both the mothers' and fathers' data. Component loadings are presented in Table 9.

The six child adjustment variables were then examined for the purposes of variable reduction. Correlations between subscales of the same measures indicated that the correlation between academic and nonacademic self-concept was $r=.55$ at Time 1 and $r=.48$ at Time 2; the correlation between mathematics and vocabulary achievement was $r=.55$ at Time 1 and $r=.39$ at Time 2; and the correlation between internalizing and externalizing symptoms was $r=.68$ at Time 1 and $r=.57$ at Time 2.

The six child adjustment variables were then submitted to a series of PCAs in order to reduce the number of variables into subsets. Principal components extraction

Table 9

Unidimensional PCAs for Maternal Functioning, Marital Relationship, and Parenting Style

Variable	Component loading	
	Mothers' data	Fathers' data
Maternal functioning:		
Severity of index episode ^a	.56	-
Comorbidity ^b	.56	-
Age at first episode of depression	--	-
Duration of index episode ^c	--	-
Marital relationship:		
Warmth ^d	.53	.46
Intimacy ^e	.53	.42
Control ^d	--	--
Parenting style^f:		
Expressiveness	.46	.54
Cohesion	.62	.55
Conflict	--	--

Note. For the sake of clarity, factor loadings below .40 are not reported. ^aBDI. ^bCDIS. ^cvariable is transformed. ^dCLOIT. ^eMSIS. ^fSFI.

with oblique rotation was chosen because the factors were expected to be at least minimally correlated. Separate PCAs were conducted for Time 1 and Time 2 data, with the solution most representative of both time points being retained. Final results suggested that a three-factor solution provided the most parsimonious and conceptually meaningful structure for the variables. Both sets of child adjustment variables produced

three factors with eigenvalues exceeding 1.0, and a scree plot of factor roots revealed a clear break after three factors. These solutions accounted for 81% of the variance in Time 1 data and 76% of the variance in Time 2 data. The first factor was labeled “combined internalizing and externalizing symptoms” and was comprised by the internalizing and externalizing subscales of the CBCL. The second factor was labeled “combined academic and nonacademic self-concept” and consisted of these subscales of the SDQ-I. Finally, the third factor was labeled “combined mathematics and vocabulary achievement” and included the mathematics and vocabulary subtests of the CTBS. Table 10 presents the factor loadings for the three-factor solutions obtained for the Time 1 and Time 2 child adjustment data.

The following predictor variables were entered into the HMRs: comorbidity, severity of depression, marital intimacy, marital warmth, parent-child expressiveness, and parent-child cohesiveness. Scores on the three domains of child adjustment were created by summing the *z*-scores for the variables within each factor. Three HMRs were conducted separately for mothers’ and fathers’ data, with each of the following child adjustment domains as the dependent variable (combined internalizing and externalizing symptoms, combined mathematics and vocabulary achievement, and combined academic and nonacademic self-concept). These analyses resulted in six regression equations. In order to control for the child adjustment domains at Time 1, these variables were always entered into the regression equation first. Second, due to the strong association between maternal depression and child adjustment (e.g., Hammen et al., 1987), the maternal functioning variables were entered into the equation as a block. Third, the marital

Table 10

PCAs with Oblique-Rotated Factor Loadings for Time 1 and Time 2 Child Adjustment**Variables**

Variable	Factor 1 Combined internalizing and externalizing symptoms	Factor 2 Combined academic and nonacademic self-concept	Factor 3 Combined mathematics and vocabulary achievement
Time 1 child adjustment:			
Internalizing symptoms ^a	-.90		
Externalizing symptoms ^a	-.93		
Academic self-concept ^b		.89	
Nonacademic self-concept ^b		.86	
Mathematics achievement ^c			.89
Vocabulary achievement ^c			.87
Time 2 child adjustment:			
Internalizing symptoms ^a	-.86		
Externalizing symptoms ^a	-.89		
Academic self-concept ^b		.84	
Nonacademic self-concept ^b		.87	
Mathematics achievement ^c			.83
Vocabulary achievement ^c			.83

Note. For the sake of clarity, factor loadings below .40 are not reported. ^aCBCL. ^bSDQ-I.
^cCTBS

functioning variables were entered as a block given the empirical support for the association between marital distress and child functioning (e.g., Keller et al., 1986).

Fourth, the parenting variables were entered as a block in order to determine if the parent-

child relationship explained any variance in child adjustment over and above mothers' diagnostic and marital variables.

Prediction of children's combined academic and nonacademic self-concept at Time 2 from mothers' diagnostic and family functioning variables at Time 1.

For data provided by mothers, analyses were based on N=42 mother-child pairs. Table 11 presents the F values (F_{change}), the squared multiple correlations (R^2), and the squared semipartial correlations (R^2_{change}) after each variable set was entered into the equation. The R for regression was significantly different from zero after all of the variables were entered into the equation, $F(7,34)=4.38$, $p<.002$, with $R=.69$, $Rsq=.47$, and adjusted $Rsq=.37$. Time 1 combined academic and nonacademic self-concept ($R^2_{change}=.31$) and mother-child cohesion ($R^2_{change}=.09$) contributed significantly to the prediction of combined academic and nonacademic self-concept at Time 2. The results indicated that a closer mother-child relationship predicted a decline in combined academic and nonacademic self-concept for the child from Time 1 to Time 2. None of the other variables accounted for a significant amount of variance. The beta weights for marital warmth and intimacy indicated substantial associations with combined academic and nonacademic self-concept. However, it was evident from the semi-partial correlations that this variance was associated with maternal functioning and did not contribute uniquely to the variance in combined academic and nonacademic self-concept at Time 2. Together, the linear combination of predictors accounted for 37% of the variance in Time 2 combined academic and nonacademic self-concept scores.

Table 11

HMR of Time 1 Maternal Functioning, and Marital and Parenting Variables on Children's Combined Academic and Nonacademic Self-concept at Time 2

Predictor variables	R^2_{change}	R^2	F_{change}	R^2_{change}	R^2	F_{change}
	Mothers			Fathers		
Time 1 combined academic and nonacademic self-concept ^a	.31	.31	18.17**	.27	.27	13.57**
Depression variables:	.01	.33	.40	.02	.28	.41
Comorbidity ^b	.00	--	--	.01	--	--
Severity ^c	.01	--	--	.01	--	--
Marital variables:	.05	.38	1.41	.04	.33	1.06
Intimacy ^d	.05	--	--	.02	--	--
Warmth ^e	.03	--	--	.00	--	--
Parenting variables ^f :	.10	.47	3.18*	.02	.35	.54
Cohesion	.09	--	--	.02	--	--
Expressiveness	.00	--	--	.00	--	--

Note. ^acomposite variable comprised of the SDQ-I. ^bCDIS. ^cBDI. ^dMSIS. ^eCLOIT. ^fSFI.
* $p < .05$ ** $p < .001$.

For data provided by fathers, analyses were based on N=39 father-child pairs. The R for regression was significantly different from zero after all of the variables were entered into the equation, $F(7,31)=2.39$, $p < .05$, with $R=.59$ $Rsq=.35$ and adjusted $Rsq=.20$. However, only Time 1 combined academic and nonacademic self-concept ($R^2_{\text{change}}=.27$) contributed significantly to the prediction of combined academic and

nonacademic self-concept at Time 2. None of the other variables accounted for a significant amount of the variance. Together, the linear combination of predictors accounted for 20% of the variance in Time 2 combined academic and nonacademic self-concept scores.

Prediction of children's combined mathematics and vocabulary achievement at Time 2 from mothers' diagnostic and family functioning variables at Time 1.

For data provided by mothers, analyses were based on N=42 mother-child pairs. Table 12 presents the F values (F_{change}), the squared multiple correlations (R^2), and the squared semipartial correlations (R^2_{change}) after each variable set was entered into the equation. The R for regression was significantly different from zero after all of the variables were entered into the equation, $F(7,34)=5.01$, $p<.001$, with $R=.71$, $Rsq=.51$, and adjusted $Rsq=.41$. Only Time 1 combined mathematics and vocabulary achievement ($R^2_{\text{change}}=.46$) contributed significantly to the prediction of combined mathematics and vocabulary achievement at Time 2. None of the other variables accounted for a significant amount of the variance. Together, the linear combination of predictors accounted for 41% of the variance in Time 2 combined mathematics and vocabulary achievement scores.

For data provided by fathers, analyses were based on N=39 father-child pairs. The R for regression was significantly different from zero after all of the variables were entered into the equation, $F(7,31)=5.33$, $p<.001$, with $R=.74$, $Rsq=.55$, and adjusted $Rsq=.44$. Time 1 combined mathematics and vocabulary achievement ($R^2_{\text{change}}=.45$) contributed significantly to the prediction of combined mathematics and vocabulary

Table 12

**HMR of Time 1 Maternal Functioning, and Marital and Parenting Variables on Children's
Combined Mathematics and Vocabulary Achievement at Time 2**

Predictor variables	R^2_{change}	R^2	F_{change}	R^2_{change}	R^2	F_{change}
	Mothers			Fathers		
Time 1 combined mathematics and vocabulary achievement ^a	.46	.46	34.00**	.45	.45	30.64**
Depression variables:	.02	.48	.70	.01	.47	.48
Comorbidity ^b	.02	--	--	.01	--	--
Severity ^c	.00	--	--	.00	--	--
Marital variables:	.02	.50	.63	.02	.48	.48
Intimacy ^d	.02	--	--	.01	--	--
Warmth ^e	.00	--	--	.01	--	--
Parenting variables ^f :	.01	.51	.41	.06	.55	2.17
Cohesion	.01	--	--	.00	--	--
Expressiveness	.00	--	--	.04	--	--

Note. ^acomposite variable comprised of the CTBS. ^bCDIS. ^cBDI. ^dMSIS. ^eCLOIT. ^fSFI.
** $p < .001$.

achievement at Time 2. None of the other variables accounted for a significant amount of the variance. Together, the linear combination of predictors accounted for 44% of the variance in Time 2 combined mathematics and vocabulary achievement scores.

Prediction of children's combined internalizing and externalizing symptoms at Time 2 from mothers' diagnostic and family functioning variables at Time 1.

For data provided by mothers, analyses were based on N=42 mother-child pairs. Table 13 presents the F values (F_{change}), the squared multiple correlations (R^2), and the squared semipartial correlations (R^2_{change}) after each variable set was entered into the equation. The R for regression was significantly different from zero after all of the variables were entered into the equation, $F(7,34)=17.27$, $p<.05$, with $R=.88$, $Rsq=.78$, and adjusted $Rsq=.74$. Time 1 combined internalizing and externalizing symptoms ($R^2_{\text{change}}=.73$) contributed significantly to the prediction of combined internalizing and externalizing symptoms at Time 2. None of the other variables accounted for a significant amount of variance. Together, the linear combination of predictors accounted for 74% of the variance in Time 2 combined internalizing and externalizing symptom scores.

For data provided by fathers, analyses were based on N=39 father-child pairs. The R for regression was significantly different from zero after all of the variables were entered into the equation, $F(7,31)=14.91$, $p<.001$, with $R=.88$, $Rsq=.77$, and adjusted $Rsq=.72$. Time 1 combined internalizing and externalizing symptoms ($R^2_{\text{change}}=.73$) contributed significantly to the prediction of combined internalizing and externalizing symptoms at Time 2. None of the other variables accounted for a significant amount of the variance. Together, the linear combination of predictors accounted for 72% of the variance in Time 2 combined internalizing and externalizing symptom scores.

In summary, only one child adjustment domain was predicted longitudinally by one parenting variable. Specifically, mother-child cohesion added substantially to the

Table 13

HMR of Time 1 Maternal Functioning, and Marital and Parenting Variables on Children's Combined Internalizing and Externalizing Symptoms at Time 2

Predictor variables	R^2_{change}	R^2	F_{change}	R^2_{change}	R^2	F_{change}
	Mothers			Fathers		
Time 1 combined internalizing and externalizing symptoms ^a	.73	.73	110.34**	.73	.73	101.87**
Depression variables:	.01	.74	.44	.01	.74	.55
Comorbidity ^b	.00	--	--	.00	--	--
Severity ^c	.00	--	--	.01	--	--
Marital variables:	.03	.77	2.04	.00	.74	.21
Intimacy ^d	.00	--	--	.00	--	--
Warmth ^e	.02	--	--	.00	--	--
Parenting variables ^f :	.01	.78	1.08	.03	.77	1.77
Cohesion	.00	--	--	.00	--	--
Expressiveness	.01	--	--	.04	--	--

Note. ^acomposite variable comprised of the CBCL. ^bCDIS. ^cBDI. ^dMSIS. ^eCLOIT. ^fSFI.
****** $p < .001$.

prediction of Time 2 combined academic and nonacademic self-concept, accounting for an additional 9% of the variance after controlling for the effects of Time 1 combined academic and nonacademic self-concept. Interestingly, the findings suggest that a closer mother-child relationship predicted a decline in combined academic and nonacademic self-concept for the child from Time 1 to Time 2.

Post hoc analyses.

Contrary to our expectations, maternal functioning, marital relationships, and the relationships of fathers with their children did not add substantially to the prediction of child adjustment longitudinally, after the effects of the Time 1 child adjustment domains were controlled. In order to better understand the inability to predict the child adjustment domains longitudinally with these predictors, several explanations were investigated. The first possibility was that stability in the maternal functioning predictors and criterion variables left little variance to predict. Indeed, maternal depression evidenced substantial stability, with over 70% of the sample still depressed at Time 2. Two of the criterion variables were also highly correlated across time points. The correlations for combined mathematics and vocabulary achievement and combined internalizing and externalizing symptoms were .77 and .88, respectively. Therefore, stability in maternal depression over time and in two of the criterion variables likely limited the amount of variance to predict.

The second explanation considered was that the marital and parenting variables were restricted in range. A common effect of range restrictions is to reduce the correlation between variables (Tabachnick & Fidell, 1996). The marital and parenting variables were therefore tested for restricted range using Hartley's statistic (Kirk, 1982). Differences between sample and estimated population variances, determined on the basis of norms published by the authors, were calculated for all the nonsignificant predictor variables. These analyses revealed that marital intimacy for both mothers ($F(2,39)=8.83$, $p<.05$) and fathers ($F(2,36)=342.49$, $p<.05$) had a restricted range, as did the fathers' expressiveness toward their children ($F(2,36)=1.78$, $p<.05$). Therefore, it is possible that

correlations were reduced in the present study as a result of restricted range in the sample on the marital intimacy variables and the expressiveness variable for fathers.

Finally, the third explanation considered was that the inability to predict child adjustment longitudinally was due to low power. Power analyses for each set of nonsignificant predictors were conducted using guidelines provided by Cohen and Cohen (1983). These analyses revealed that with a sample size of 42 and alpha set at .05, the corresponding power levels ranged from less than .10 to .20 for the mothers data. Similarly with a sample size of 39 and alpha set at .05, the corresponding power levels ranged from less than .10 to .20 for data provided by fathers. The low power was undoubtedly due to uniformly low effect sizes, ranging from .01 to .06 (as indicated in Tables 11 to 13). A very large sample size would be required to detect such effects. Thus, the inability to predict child adjustment at Time 2 with the nonsignificant predictor variables was likely due to a combination of a) stability in maternal depression and child adjustment, b) a restricted range problem with at least three of the predictor variables, and c) minimal power to predict change due to small effect sizes.

Discussion

The present study set out to address two main questions regarding the association between maternal depression and child adjustment in a nonclinical sample. The first question focused on determining whether group differences existed between the well and poorly adjusted children on specific maternal depression, marital relationship, and parenting style variables of depressed women and their spouses. Children were classified on the basis of their functioning in the domains of mathematics and vocabulary

achievement, academic and nonacademic self-concept, and internalizing and externalizing symptoms. Based on prior research comparing depressed and nondepressed individuals, the mothers of poorly functioning children were expected to report more chronic and severe depression and more disorders comorbid to their depression than were the mothers of children who were functioning well. Furthermore, based on previous family relationship studies, it was predicted that the poorly functioning children would be exposed to greater levels of marital distress and less optimal parenting styles than well adjusted children.

These hypotheses received partial support in the present study. Cross-sectionally, significant differences between well and poorly adjusted children were found on maternal functioning. Furthermore, both the severity and chronicity of mothers' depression discriminated the two adjustment groups. This finding supports previous literature indicating that the child's current functioning is related to the parents' current level of functioning (Hammen et al., 1987), and also that a cumulative history of maternal depression poses a risk to children (Chiariello & Orvaschel, 1995, Goodyer et al., 1993, Grizenko & Pawliuk, 1994). It is also congruent with longitudinal research which found chronic maternal depression to impede psychosocial functioning (Anderson & Hammen, 1993; Hammen, 1988) and to predict subsequent psychiatric symptomatology (Fergusson & Lynskey, 1993; Goodyer et al., 1993).

However, these results may also help to explain the seemingly contradictory findings that, on the one hand, child functioning is tied to mothers' current functioning (Hammen et al., 1987), and that, on the other hand, child adjustment problems persist

after remission of mothers' depression (Billings & Moos, 1985; Richters & Pellegrini, 1989). One interpretation of these discrepant findings is that the children of chronically depressed mothers have learned from experience that depression recurs (i.e., is episodic and cyclic). Therefore, when it remits, their emotional security is not restored and their problems persist. In fact, they may experience their mothers as unpredictable and unreliable, and become clingy and anxiously dependent regardless of her current status (Gizynski, 1985). However, if depression has not been chronic, then the children would have no reason to expect it to recur and their adjustment would be more likely to improve as a function of their mothers' improvement. Therefore it is most likely the children of nonchronically depressed mothers whose adjustment returns to normal after maternal depression remits, whereas adjustment levels of children exposed to chronic maternal depression likely remain stable.

It also bears mentioning that procedures for the classification of child adjustment employed in the present study indicated that less than one third of the children met the criteria for poor adjustment. This is relatively minimal considering the level of chronicity and the severity of depression evidenced by the mothers in the present sample. Billings & Moos (1983) found only 11% of the children of depressed mothers to be "invulnerable". The higher rate in the present study may be due to the nonclinical nature of the sample. Also, the relatively high level of socioeconomic status in the sample suggests that these families may not have been experiencing as much stress as the families in the Billings and Moos (1983) study. Nevertheless, these results demonstrate considerable resiliency

among the majority of the children of depressed mothers, a finding that has not been sufficiently highlighted by previous research.

Contrary to the predictions, the two child adjustment groups did not differ in terms of their parents' marriages and parenting styles. This finding is not consistent with past literature. However, an important distinction is that other studies compared depressed and nondepressed groups and did not look for variability within the depressed group. Whereas differences may exist between depressed and nondepressed individuals in marital distress and parenting, the present study suggests that these variables do not differ between the well and poorly adjusted children of depressed mothers. In fact, couples in the two groups portrayed their marital relationships in the areas of intimacy, warmth, and control in a remarkably similar light. As in previous research, the results from the cross-sectional analyses suggested that depression was associated with lower levels of marital intimacy and warmth (e.g., Biglan et al., 1985; Weissman & Paykel, 1974).

Similarly, the parenting relationships reported by the children were comparable in the two adjustment groups. Interestingly, the levels of parent-child cohesiveness and expressiveness reported by the children corresponded to the norms reported for nonclinic families by the authors of the SFI (Beavers et al., 1988). The levels of unresolved conflict were similar to the norms for clinic referred families. The fact that the sample was characterized by normal levels of cohesiveness and expressiveness is inconsistent with prior research in which depressed parents have generally been found to be more disengaged in comparison to nondepressed individuals (e.g., Billings & Moos, 1983; Cox et al., 1987; Goodman & Brumley, 1990). Whereas these studies employed clinic referred

depressed women, the present study recruited a nonclinic sample. The use of a community sample may, in part, explain the normal levels of cohesion and expressiveness found in the present study.

Most of the research on the interactions between depressed mothers and their children employed observational methods (e.g., Cox et al., 1987; Dumas & Serketich, 1994; Hamilton et al., 1993). Differences in findings between the present study and previous research may be due, in part, to different assessment strategies. It is possible that the self-report measures of the marital relationship and parenting styles used in the present study were not sensitive enough to detect differences between groups. However, measures in the present study portrayed the levels of intimacy between parents and unresolved conflict between parents and children to be comparable to clinic referred couples and families. These findings support the sensitivity of the self-report measures to identify clinically significant impairments in family functioning. Nonetheless, before it could be confidently stated that marital and parenting factors do not distinguish the well and poorly functioning children of depressed mothers, it would be important to replicate the study with one that utilizes observational measures of parent-child and marital interactions. Observational data would permit the exploration of various family relationship variables in isolation and in interaction. Different combinations of key relationship variables for mothers and fathers could also be explored. One innovative study investigated the impact of interactions between parents and a target child separately for mothers and fathers and then observed the triadic interaction (Clarke-Stewart, 1978).

This would be a very interesting study to replicate for the purposes of comparing the dyadic and triadic episodes with a sample of families in which one parent was depressed.

Thus, the similarity between parenting styles in the child adjustment groups raises two important issues. First, it is conceivable that the well and poorly adjusted children of depressed mothers are not exposed to different parenting styles. However, based on their personalities or coping skills, children may respond differently to similar parenting styles. The implication of this conclusion would be that characteristics of the child must also be considered in order to understand the association between maternal depression and child adjustment (Hammen et al., 1990). Second, it could be that the short-term effects of various aspects of parenting are associated with child functioning in combination rather than in isolation, as suggested by Fendrich et al. (1990). It is possible that levels of conflict and cohesion interact to produce negative consequences for children. For instance, high levels of conflict combined with high levels of cohesion may be more detrimental to children than either in isolation. Although it would have been interesting to test potential moderator effects, overall low power to detect longitudinal effects precluded our ability to do so. By examining parenting variables independently from one another such findings could have been obscured in the present study.

The second aim of the present study was to predict various domains of child adjustment from maternal functioning, the marital relationship, and parenting styles assessed 6 months earlier. It was expected that a combination of mothers' comorbidity and severity of depression, marital intimacy and warmth, and a parenting style consisting of expressiveness and cohesion would predict child adjustment. The domains of child

adjustment investigated were combined academic and nonacademic self-concept, combined mathematics and vocabulary achievement, and combined internalizing and externalizing symptoms. The longitudinal predictions received little support. Mother-child cohesion predicted children's combined academic and nonacademic self-concept at Time 2 over and above combined academic and nonacademic self-concept at Time 1. A closer relationship between mothers and their children predicted a decrease in combined academic and nonacademic self-concept in children from Time 1 to Time 2. The results of the present study support other findings that impairments of self-concept in children are associated with maternal depression (Hammen, 1988; Jaenicke et al., 1987). One interpretation of this finding is that having a cohesive relationship with a depressed mother may erode a child's combined academic and nonacademic self-concept over time. Poor self-concept may pose a risk for other psychosocial difficulties, childhood depression, and other psychiatric disorders which may only become apparent later (Hammen, 1988; Hammen et al., 1990; Harter & Marold, 1989; Jaenicke et al., 1987). Parenting style did not contribute to the prediction of combined mathematics and vocabulary achievement or combined internalizing and externalizing symptoms.

In the present study, none of the fathers' relationship variables distinguished the child adjustment groups cross-sectionally or predicted child adjustment longitudinally. It is difficult to compare this finding with other research given that few studies have investigated the role of fathers in research on maternal depression and child adjustment. The little research that has been conducted suggests that as many as 40% to 55% of adults living with a depressed individual are so distressed themselves that they meet

standardized criteria for referral (Downey & Coyne, 1990; Goodman et al., 1993).

Therefore, a substantial number of children may be exposed to two psychologically distressed parents. The functioning of a depressed parent's spouse has been related to child health and psychosocial functioning in previous research (Billings & Moos, 1983; Goodman et al., 1993; McCombs-Thomas & Forehand, 1991). However, these studies reflect differences between families of depressed and nondepressed women and may not generalize to research investigating within-group variance, as in the present study.

Additional research on the father's role in the family is clearly warranted. The role of fathers' own psychological functioning may help to elucidate the added stressors that children of depressed mothers face (Hammen et al., 1990). In the present study, greater severity of maternal depression was associated with father reported diminished marital intimacy. The mothers' age at first episode was also associated with children's reported level of conflict with their fathers. Fathers' marital functioning and parenting style were conceptualized as possible moderators of the impact of maternal depression on child adjustment. However, there was insufficient power to test moderator effects by including interaction terms in the longitudinal analyses. It would be informative to investigate more specifically fathers' responses to their wife's depression, as this may have an impact on the family system as a whole (Forehand et al., 1987; Gelfand & Teti, 1990; Miller et al., 1993). For instance, if they feel helpless in response to their wife's condition, fathers may encourage children to cater to their mother's depression, thereby exacerbating the child's feelings of responsibility for her distress (Gizynski, 1985).

In summary, the present study extends prior research by investigating the variability of functioning within a nonclinical sample of depressed mothers and their families. This research design permitted the identification of two aspects of maternal depression that distinguished well and poorly functioning children: severity and chronicity. Although the marriages and parenting styles of depressed individuals were found to be impaired in certain respects, these variables did not differ between child adjustment groups cross-sectionally. However, mother-child cohesion predicted children's combined academic and nonacademic self-concept longitudinally. A closer relationship between a depressed mother and her child predicted a decline in combined academic and nonacademic self-concept for the child.

Theoretical Implications

There are three main theoretical implications of the present study. First, theories need to address the direct effects of chronic and severe symptomatology on child adjustment. Second, attachment theory may be useful in understanding the impact on children of developing a close relationship with a depressed mother. Third, the two-thirds of the children who appeared to be functioning well despite exposure to chronic and severe depression must not be overlooked by theorists. Contemporary theories of maternal depression and child adjustment need to incorporate protective and resiliency factors.

The first significant implication of the present study is its relevance to current theories about the impact of maternal depression on child adjustment. Specifically, we may need to re-evaluate existing models of how psychopathology is "transmitted" to the

children of depressed parents. Most existing models propose indirect effects of maternal depression on child functioning through either marital distress or parenting styles (e.g., Cummings & Davies, 1994; Downey & Coyne, 1990; Forehand et al., 1987; Gelfand & Teti, 1990). The present study suggests that maternal depression is uniquely related to child adjustment beyond its association with either marital distress or parenting styles. This is consistent with models that posit a direct path from parental depression to child adjustment (e.g., Downey & Coyne, 1990). However, to date the heterogeneity of depression has not been adequately incorporated into these models (Cummings & Davies, 1994; Gelfand & Teti, 1990). In the present study maternal depression had to be severe and chronic before it differentiated the child functioning groups. Severity and chronicity need to be considered in theories aimed at delineating the impact of maternal depression on child adjustment.

Long term exposure to chronic and severe depression may complicate the attainment of age appropriate psychosocial milestones and lead to the development of serious psychiatric disturbance. A positive self-concept, social skills, academic achievement, and the ability to regulate emotions are child competencies that are potentially at risk when maternal depression is chronic and severe (Chiariello & Orvaschel 1995; Cummings & Davies, 1994). Some authors propose that a negative self-concept poses a vulnerability to other developmental difficulties including childhood depression (Hammen, 1988; Hammen et al., 1990; Harter & Marold, 1989; Jaenicke et al., 1987). This argument suggests that psychosocial tasks build on each other. Therefore, early difficulties and lack of integration of psychosocial tasks can complicate further

development (Cicchetti & Aber, 1986). This notion is consistent with research which demonstrates that the relation between maternal depression and child adjustment increases with the child's age (Cummings & Davies, 1994). Thus, it is critical to consider not only the effects of maternal psychopathology on child adjustment, but also the effects of adjustment difficulties on future development (Cicchetti & Aber, 1986). However, the effects of age and cumulative exposure to stressors such as maternal depression and marital distress are recognizably difficult to tease apart (Cummings & Davies, 1994).

The present study found that the more cohesive the relationship between a depressed mother and her child, the more negative that child's combined academic and nonacademic self-concept is likely to be 6 months later. Bowlby's (1979; 1982) attachment theory may be informative in understanding why cohesion with a depressed mother may prove detrimental to children. Rejection, unavailability, and lack of responsiveness, which are characteristics of depressed mothers, are also qualities that are associated with insecure attachment between children and their caregivers (Bowlby, 1979; 1982; Cicchetti & Aber, 1986; Cummings & Davies, 1994). Repeated rejection by depressed mothers may eventually lead children to avoid the attachment relationship. However, periods of intermittent engagement and disengagement may foster anxiety. Therefore, high cohesion may reflect anxious clinginess on the part of children resulting from the unpredictability of their mothers moving in and out of depressive episodes or having "good" days followed by "bad" days (Gizynski, 1985). The attachment relationship would likely be experienced by the child as insecure due to past episodes of emotional withdrawal by the child's mother. Insecure attachment fosters negative views

about self-worth and one's own lovability, as well as the conviction that others are unavailable, unresponsive, and untrustworthy in meeting one's needs (Bowlby, 1979; 1982). From an attachment theory perspective, children in highly cohesive relationships with depressed mothers will likely have trouble with intimate relationships in the future.

Alternatively, some depressed mothers may turn to their children for emotional support (Bowlby, 1977). Beardslee & Podorefsky's (1988) found that over 60% of the adolescents of depressed parents played a care-giving role either within or outside of the family. Children in a care-giving role suppress their own needs as a defense against re-experiencing early childhood frustration in caring relationships, while maintaining relational proximity to their parents (West & Sheldon-Keller, 1994). However, this role overburdens children because they are not capable of fulfilling their parents' physical and emotional needs (Nichols, 1984). Thus, they will inevitably fail at this task which could affect their self-concept.

It is conceivable that a more distant or avoidant relationship with one's depressed mother would better preserve a child's self-concept in the short term. Avoidance may protect children from repeated failed attempts to engage their depressed mothers in positive interactions, and from disappointment that their own needs remain unfulfilled. A distant relationship allows children to meet their own needs outside of the insecure attachment relationship, resulting in self-sufficiency rather than parentification (West & Sheldon-Keller, 1994). However, one cannot help wondering about the long term consequences of adopting such a stance. West and Sheldon-Keller (1994) argue that individuals who are compulsively self-sufficient denigrate meaningful contact with others which compromises the development of intimate relationships later in life. In adult

relationships, self-sufficiency remains the central guiding theme and meaningful contact with others is sacrificed.

Finally, a large percentage of the children were functioning within normal limits on at least two out of the three dimensions considered in the present study. This indicates that there is considerable resilience among children of depressed mothers, and suggests the need to incorporate protective and resiliency factors into our models (Beardslee & Podorefsky, 1988; Cummings & Davies, 1994). One protective factor is the development of significant relationships with other family members, such as a grandparent or older sibling (Beardslee & Podorefsky, 1988; Cicchetti & Aber, 1986; Grizenko & Pawliuk, 1994; Forehand et al., 1987). These relationships provide a positive base for defining the self-concept and developing expectations of others. Fathers did not appear to fulfill this role in the present study. However, during middle childhood to early adolescence, friendships become increasingly important as a source of emotional and social support (Camarena, Sarigiani, & Peterson, 1990; Cicchetti & Aber, 1986; Sullivan, 1953; Youniss & Smollar, 1985). These friendships may be protective. Intrapsychic factors that affect child resilience include the ability to cope with stress, adaptability to change, self-reflection and emotional expressivity (Beardslee & Podorefsky, 1988; Cicchetti & Aber, 1986; Grizenko & Pawliuk, 1994). The search for protective intrapsychic and interpersonal variables needs to coincide with the development of more integrative and complex models in understanding the cross-sectional and prospective relations between maternal depression and child adjustment.

In summary, we need to increase the specificity and complexity of current models of the impact of maternal depression on child adjustment. The association between severity and chronicity of depression and various domains of child adjustment needs to be clearly delineated. Additionally, protective variables need to be included in theoretical models in order to explain the resiliency of children who do not appear to be detrimentally affected by their mother's depression.

Empirical Implications

Three main empirical implications emerge from the present study. The first is that there are advantages to a methodology that permits the investigation of within group variance among depressed individuals. Second, researchers must extend the time frame of their longitudinal research in light of the stability of maternal depression and child adjustment (Hammen et al., 1990; McCullough et al, 1988; 1994). Third, researchers need to outline the impact of particular depression, marital functioning, and parenting style variables, on specific child functioning domains.

The present study, which investigated variability in the family functioning of depressed women, identified limits to the generalizability of previous research. Both marital distress and parenting styles explain differences in child adjustment cross-sectionally (e.g., Cox et al., 1987; Goodman & Brumley, 1990; Gordon et al., 1989) when the methodology compares families of depressed and nondepressed parents (i.e., between group variance). However, these factors do not explain differences in child adjustment within a sample of depressed mothers (i.e., within group variance). Some researchers also argue that depression influences child adjustment indirectly through its association with

marital distress (e.g., Cox et al., 1987; Cummings & Davies, 1994). However, there was no evidence in the present study that marital distress added to the prediction of child adjustment longitudinally. Thus, many of our current assumptions about maternal depression and child adjustment are based on between group studies. Their findings may not be applicable to the question of which factors account for differences in functioning among the children of depressed parents.

Research focused on within group variance in depressed samples would also allow investigators to identify personality variables and coping skills of children that buffer them against the detrimental effects of parental depression. For instance, it would be interesting to determine why children in the same family respond differently to parental depression (Forehand et al., 1987). An interesting idea suggested by Forehand and his colleagues is the possibility that one child in the family may be scapegoated. This is often used as a form of avoidance in families suffering from marital distress (Nichols, 1984).

In the present study, both child adjustment and maternal depression were quite stable across time. This finding suggests that the time frame for studying these families needs to be extended to further advance existing theories (Gelfand & Teti, 1990). One strategy could be to assess families longitudinally for an extended period at 6 month intervals, following the method of Hammen and her colleagues (Anderson & Hammen, 1993; Hammen et al., 1990). This strategy would help us to understand how early developmental difficulties influence later adjustment. Perhaps critical developmental periods during which maternal depression is more detrimental than at other times could be identified. This strategy would not be time efficient or cost effective. However, given the

pervasiveness of adult depression and its documented impact on family members, a thorough understanding of its implications seems critical.

Several investigators have commented on the importance of specific versus global variables in future research (Cummings & Davies, 1994; Gelfand & Teti, 1990). Specific maternal, marital, and parental functioning factors may differentially influence various domains of child adjustment. Global measures could obscure important findings. The importance of specificity is illustrated in the present study by the finding that mother-child cohesion predicted combined academic and nonacademic self-concept, but not combined mathematical and vocabulary achievement or combined internalizing and externalizing symptoms. In future research it would be informative to conceptualize self-concept as a multidimensional construct (Marsh, 1989; Marsh & Gouvenet, 1989) to determine which facets of self-concept, such as peer or parental relations, are associated with maternal depression and parenting style.

In summary, future research addressing within group variability is required to test current assumptions. Extending the time frame for studying maternal depression and child adjustment would allow researchers to capture changes that occur as the mothers' depression remits. Finally, continued specificity in the research variables under study would enable investigators and theorists to refine their understanding of the associations among maternal depression, marital distress, parenting, and child adjustment.

Strengths and Limitations of the Present Study

The present study was designed to build on the existing literature in several respects. The first strength of the present study lies in its attempt to identify family

functioning variables that differed between the well and poorly adjusted children of depressed mothers. Other researchers have made comparisons between groups comprised by depressed and nondepressed individuals. We tried to account for variability within a group of depressed mothers to advance our understanding of the association between maternal depression and child adjustment (e.g., Billings & Moos, 1983; Forehand et al., 1987).

Second, child adjustment was conceptualized both in terms of the attainment of developmental goals, as well as psychiatric symptomatology. This approach is consistent with the direction in which research on maternal depression and child adjustment is evolving (Cicchetti & Aber, 1986; Cummings & Davies, 1994; Forehand et al., 1987; Gelfand & Teti, 1990). Developmental tasks are a more subtle measure of functioning than are symptoms, and dysfunction in age appropriate competencies may precede more serious psychopathology (Goodman et al., 1993; Hammen, 1988). In the present study, mother-child cohesion predicted declines in children's academic and nonacademic self-concept, which may precede the development of psychiatric symptomatology.

Although the present study clearly extended previous research, there were also some limitations. First, there may be limits to the generalizability of the findings to intact families of middle to high socioeconomic status. Depressed women are at a greater risk for divorce than nondepressed women (Beardslee & Podorefsky, 1988; Fendrich et al., 1990). Therefore, many are not in intact families. Additionally, socioeconomic status has been hypothesized to be associated with both maternal depression and child adjustment (Goodman, 1984; Hammen et al., 1987). Research suggests that socioeconomic status,

particularly financial hardship, is a predictor of early child development (Cicchetti & Aber, 1986; Dumas & Serketich, 1994; Fergusson & Lynskey, 1993). Children living with divorced mothers will likely experience more financial hardship than children living in intact families. Thus, although the present research may be limited in generalizability to middle class, married women, it also avoided confounding low socioeconomic status and marital status with depression.

Second, it is possible that some of the longitudinal effects could have been washed out by combining the six child adjustment indicators into three main domains: self-concept, academic achievement, and symptoms. In the case of self-concept, for example, there is some research to show that the math and verbal facets of the SDQ-I are minimally correlated (Marsh, 1990) and that a high, positive self-concept on one facet may compensate for a low, negative self-concept on another facet (Byrne, 1984). Therefore, combining several facets into a global measure could have obscured effects on specific facets. Additionally, there is evidence of sex differences on several facets of self-concept (March, 1989; Marsh, Barnes, Cairns, & Tidman, 1984). However, due to the small sample size it was not possible to explore sex differences in the present study.

Finally, the power to detect longitudinal effects was uniformly low. However, low power was due to small effect sizes, not sample size. Given the effect sizes in the present study, very large sample sizes would have been required to raise the level of power to an acceptable level.

Directions for Future Research

Given the present state of the literature on maternal depression and child adjustment, an extensive longitudinal study on the children of depressed women with regular assessments, from birth to late adolescence, would be highly informative. This study would capitalize on within group variability among depressed parents to answer key theoretical questions. This strategy would enable researchers to investigate the attachment relationships between depressed parents and their children as they evolve. By incorporating age appropriate developmental measures of child adjustment it would be possible to identify particularly sensitive developmental periods (Gelfand & Teti, 1990; Gizynski, 1985). The course of children's adjustment problems could be observed and the impact of early problems on later functioning could be delineated. Additionally, the emergence of gender specific responses to parental depression could be charted, as most research does not identify gender effects prior to adolescence (Hammen et al., 1990). Finally, it would help determine whether children respond in a prompt or delayed fashion once parental depression remits (Gelfand & Teti, 1990).

In conclusion, although volumes of research exist on the impact of maternal depression, marital distress, and parenting on child adjustment, the associations among and the causal ordering of these variables are not well understood. Given the pervasiveness of depression, it is vital that investigators extend our understanding of its impact on family functioning by exploring the question from various angles. In the present study, a shift in methodology identified limits to the generalizability of previous research. This was an important advance and suggests that by employing different

research methodologies we can fine-tune our understanding of complex phenomena under study.

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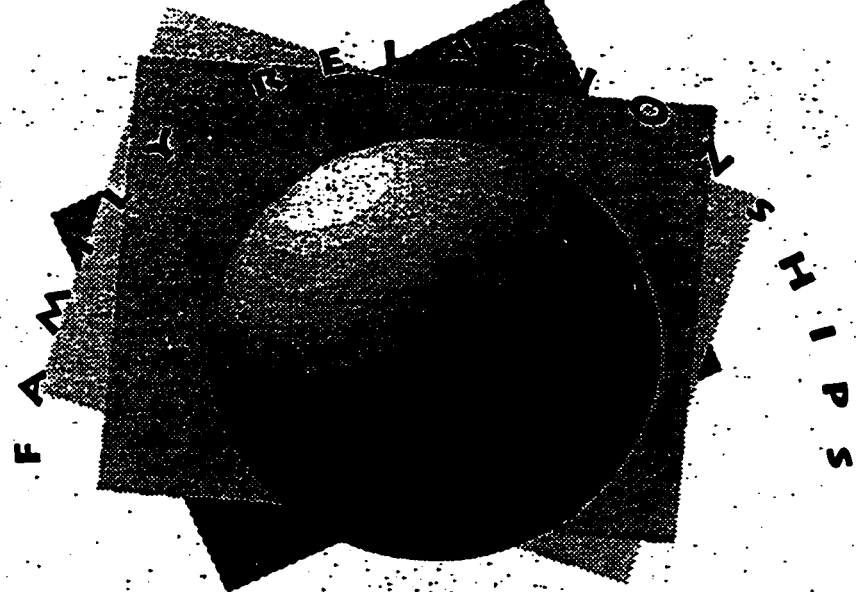
Appendix A

Newspaper Advertisement

Are you feeling unhappy or down?

A study investigating these feelings in the context of family relationships is being conducted at the University of Ottawa. If you are a married woman between the ages of 26 and 45, and have a child aged 8 to 12 living at home with you, we would appreciate talking to you. Participation will be compensated. For further information please contact Dr. Valerie Whiffen or Ms. Veronica Kallos from the School of Psychology at 564-9461 or 564-9463.

Appendix B
Recruitment Pamphlet



UNDERSTANDING FAMILY RELATIONSHIPS

As families grow and change they typically experience difficult or stressful times.

We would like to further our understanding of how family relationships are affected by these challenges.

We are researchers from the University of Ottawa:

**Valerie Whiffen, Ph.D., C.Psych.,
Associate Professor,
School of Psychology**

**Veronica Kallos,
Doctoral Student,
School of Psychology**

WHO IS ELIGIBLE?

We would like to talk to families in which:

- the women have felt down or blue within the last year
- the couple have been married or co-habiting for at least one year
- there is a child between 8-12 years of age living at home

WHAT DOES PARTICIPATION INVOLVE?

- mothers will be interviewed over the telephone (*approximately 1 1/2 hour*)
- mothers and children will be asked to come to the university to be interviewed and fill out questionnaires (*approximately 1 1/2 hours*)
- mothers and fathers will be asked to complete a questionnaire

WHY SHOULD I PARTICIPATE?

- the opportunity to gain feedback regarding your child's development
- receive a summary of the general results of the study
- financial compensation is provided
- the opportunity to make a valuable contribution to research which will provide knowledge to be used in helping other families

HOW DO I GET INVOLVED?

For more information, please call
**Valerie Whiffen or
Veronica Kallos
at 564-9461**

This project is funded by the

Appendix C

Measures

Modified SADS Interview

General Notes:

1. Questions that are not in parentheses should always be asked. Those statements or questions in parentheses are "probes" intended to encourage the subject to expand on a statement or to elicit specific information for the purposes of coding.
2. The questions and the probes are arranged in the approximate order that they should be asked. If you feel that you do not have enough information from the probes to code an item, ask an open-ended general question like: "Can you tell me more about that?" or "I'm not sure I understand what you mean when you say ..." Do not ask the subject to choose from a list of options you provide, or to endorse some wording from the interview, but keep the question as general as possible while getting the information that you need. It is also appropriate to ask a general question about a specific problem to get the subject to expand on her answer, but make sure that the question you ask does not lead her into giving a particular response.
3. Whenever "..." appears, you should substitute the word used by the subject herself.
4. It is always appropriate to remind her of things that she said earlier in the interview when you get to the question dealing with that symptom. If she confirms that she is experiencing the symptom at a specific level, ask probes only to see whether a higher score is more appropriate.
5. Any information offered during the interview may be used for coding. If she originally denies or minimizes a symptom, but subsequently shows evidence of it, the latter information should be reflected in the score selected. For instance, she may deny feelings of guilt when asked directly, but use the term to describe her feelings at several points in the interview.
6. The following are general guidelines for coding her responses.

In terms of frequency

score of 3 = 3 times a week for a brief period of time
 4 = part of every day or a large part (> half) of every other day
 5 = a large part (>half) of every day
 6 = constantly or almost constantly, as one sees symptoms in hospitalized patients or extremely distressed out-patients.

In terms of severity

score of 3 = mild
 4 = moderate

**5 = severe, as one would see in an extremely distressed out-patient
6 = extreme, maybe psychotic, and definitely as one sees in hospitalized patients.**

Judgements regarding severity are often helped by attending to the language that the subject uses to describe her symptoms. For example, saying that she feels "pessimistic" is stronger than "discouraged". These qualitative distinctions are often reflected in the severity level descriptions given in the interview.

Note that, for the purposes of diagnosis, a score of 3 or more is considered positive for the mood symptoms, and a score of 4 or more is considered positive for the associated symptoms.

IDENTIFICATION OF EPISODE

To begin, I'd like to hear about any problems or difficulties you have had in the last year.

(Has there been a period within the last year that was difficult or problematic for you?)

During this time, when would you say it has been at its worst?

How were you feeling?

For the rest of this interview, I'm going to focus specifically on that time in ... when you were feeling ... First, I'll ask some questions about how you were sleeping and eating, then I'd like to talk about some feelings that you may have had.

OR

If no specific episode is identified, then focus interview on the last 2 weeks.

For the rest of our interview, I will be asking you questions about how you have been feeling during the past two weeks.

Note: All questions are phrased in the past tense, however, they should be modified to suit the specific circumstances of the subject.

INSOMNIA

Did you have trouble sleeping?

If yes, What seemed to be the difficulty?

Choose probes appropriate for the type of insomnia identified by the client

If okay, Did you have any trouble falling asleep?
(How long did it usually take you?)
(How many times a week did this happen?)

Did you wake up in the middle of the night?
(How long did it take you to get back to sleep?)
(How many times a week did this happen?)

Did you find that you were awake in the morning before you
wanted to get up?
(How much earlier did you awaken?)
(How many times a week did this happen?)

Coding:

- 0 -No information**
- 1 -Not at all**
- 2 -Slight (e.g., occasional difficulty of any type, once per week)**
- 3 -Mild (e.g., twice weekly, initial only)**
- 4 -Moderate (e.g., at least 3 nights per week, 2 hrs initial or > 30 mins. middle or terminal)**
- 5 -Severe (e.g., at least 3 nights per week, 3 hrs. initial or > 1 hr. middle or terminal)**
- 6 -Extreme (e.g., at least 3 nights per week, claims she hardly sleeps and feel exhausted the next day. Complete circadian reversal, i.e., does not fall asleep until early hours of the morning and sleeps until noon.)**

INCREASED SLEEP

Were you sleeping longer or more than usual?

(How much more than usual were you sleeping?)
(How often did you do this in an average week?)

*** If the subject also reports insomnia, ask her to generate a typical sleep schedule during the specified time in order to determine whether she was just making up for lost time when she napped.**

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Occasionally, twice a week
- 3 -Often slept at least 1 hour more than usual
- 4 -Often slept at least 2 hours more than usual
- 5 -Often slept at least 3 hours more than usual
- 6 -Often slept at least 4 hours more than usual

FATIGUE

Did you have less energy than usual to do things or were you getting tired more easily?

**If yes, Did you feel that way all the time or did the feeling come and go?
(How many days in an average week did you feel tired?)**

**Did you spend much time resting during the day?
(How much time did you spend resting, e.g., watching TV, reading?)**

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Possibly less energy than usual
- 3 -At times, definitely more tired or less energy than usual, i.e., a specific but brief period of time during the day
- 4 -Often feels tired or without energy, has to rest during the day, most days
- 5 -Almost all the time feels very tired or without energy, or spends a great deal of time resting during the day, every day.
- 6 -Constant feeling of extreme fatigue or lack of energy, or spends most of the time resting, limbs heavy and hard to move.

APPETITE

What about your appetite for food compared to the way it usually is?

**If decreased, How much less than usual were you eating?
(Did you have to force yourself to eat?)**

**If increased, How much more than usual were you eating?
(Did you have to stop yourself from eating even though you were hungry?)**

Were you eating any more or less than usual?

Coding:

*** If subject reports a change in one direction, score the opposite direction as a "1".**

*** If subject reports a change due to dieting, score the change in eating as reported, but note the special circumstances on the scoring sheet, and do not count symptom toward a diagnosis.**

Appetite has decreased:

- 0 **-No Information**
- 1 **-Not at all**
- 2 **-Slight decrease of questionable significance**
- 3 **-Mild decrease, up to 500 calories per day or 1/3 less than usual, skips a small meal such as breakfast**
- 4 **-Moderate decrease, >500 calories per day less or 1/2 of the usual amount, skips breakfast and lunch**
- 5 **-No appetite, but forces self to eat**
- 6 **-No appetite, has to be fed**

Appetite has increased:

- 0 **-No Information**
- 1 **-Not at all**
- 2 **-Slight increase of questionable significance**
- 3 **-Mild increase, up to 500 calories per day or 1/3 more than usual, eats an extra small meal such as breakfast, or extra snacks, or takes larger portions**
- 4 **-Moderate increase, >500 calories per day or 1/2 of the usual amount extra, eats extra meals (i.e., sandwich in the middle of the night)**
- 5 **-Hungry all the time, but restrains self**
- 6 **-Hungry all the time and eats without restraint**

WEIGHT CHANGE

Did you gain or lose any weight during ... (whenever episode began, up to one year ago)?

(How much did you gain/lose?)

Coding:

- * If subject reports one change, score the opposite as "1"
- * A weight change of 5 or more lbs in one month is considered "significant"

0	-No information
1	-No weight change
2	-Doubtful, or up to 4 lbs gained/lost
3	-5 to 9 lbs
4	-10 to 14 lbs
5	-15 to 24 lbs
6	-25 lbs or more

DEPRESSED MOOD

How were you feeling?

Describe your mood.

(Did you feel depressed? (Sad, blue, moody, down, empty, as if you didn't care)

If yes, Can you tell me about those feelings?

(How many times in an average week did you feel ... ?)

(Did these feelings come and go, or did they stay with you all the time?)

(How long did the feeling usually last?)

(How bad was the feeling? Could you stand it?)

If no, Were you moody? [If yes, as above]

Did you feel empty or as if you didn't care?

[If yes, as above]

(Did you cry or were you tearful?)

If yes, (How many times in an average week were you tearful or crying?)

(How long did you cry for?)

Coding:

- * The words used to describe her mood also help in coding. When she reports feeling "depressed" this is stronger than feeling "blue", and means that she is probably at least a 3 in severity, although the frequency criterion must also be met.

- 0 -No information
- 1 -Not at all
- 2 -Slightly, only occasionally feels sad or down, once per week for 1 hour
- 3 -Mild, e.g., Feels somewhat depressed, blue, or downhearted, 3 times a week for 3 hours each time, for at least part of each week in a two week period
- 4 -Moderate, e.g., Feels depressed for part of every day (<50%), or for more than half of the day, every second day.
- 5 -Severe, e.g., Feels depressed more than half her waking time, at times the feeling gets "quite bad"
- 6 -Extreme, e.g., Most of the time extreme depression which "I can't stand"
- 7 -Very extreme, e.g., Constant, unrelieved extremely painful feelings of depression

GUILT

Did you tend to blame yourself for anything you did or didn't do?
If yes, Can you give me an example?

What about feeling guilty?
If yes, Can you give me an example?

Did you feel that you had done anything wrong?
(Did you deserve punishment?)
(Did you feel that you had brought this (problem) on yourself?)

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Slight self-blame, i.e., does not use the word "guilt" or can recall only one or two instances of brief duration
- 3 -Mild, often feels somewhat guilty, exaggerates the consequences of actions
- 4 -Moderate, often feels quite guilty
- 5 -Severe, pervasive feelings of self-blame
- 6 -Extreme, delusions of guilt

NEGATIVE SELF-EVALUATION

How did you feel about yourself?
(What was your opinion of yourself compared to other people?)

Were you down on yourself?
(Did you feel worthless or like a failure?)

(How often did you feel this way about yourself)

Coding:

*** The three general areas to be assessed are appearance, personality, adequacy at work, or as a mother and housewife**

- 0 -No information
- 1 -Not at all
- 2 -Slight, e.g., occasional feelings of inadequacy
- 3 -Mild, e.g., often feels somewhat inadequate
- 4 -Moderate, e.g., often feels like a failure
- 5 -Severe, e.g., frequent feelings of worthlessness
- 6 -Extreme, e.g., pervasive feelings of being worthless or a failure

DISCOURAGEMENT, PESSIMISM, HOPELESSNESS

What kind of future did you see for yourself?

Did you feel discouraged (pessimistic; hopeless)?

(How did you think things would work out?)

(Could you see yourself or your situation getting any better?)

Coding:

- 0 -No information
- 1 -Not at all discouraged about the future
- 2 -Slight, e.g., occasional feelings of mild discouragement about the future
- 3 -Mild, e.g., often somewhat discouraged, but felt she would eventually reach goal
- 4 -Moderate, e.g., often felt quite pessimistic about the future, doubted that she would reach goal
- 5 -Severe, e.g., pervasive feelings of intense pessimism, had given up, felt helpless to change
- 6 -Extreme, e.g., delusions or hallucinations that she was doomed or that the world was coming to an end, psychotic

SUICIDAL IDEATION (Omit if no indication of hopelessness)

When a person gets upset, depressed, or feels hopeless, she may think about dying or even killing herself. Have you?

If yes, How often did you have these thoughts?

(Did you think about how you would do it?)

(Did you tell anybody?)

(Did you actually do anything?)

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Slight, e.g., occasional thoughts of death, without suicidal ideation, e.g., "I would be better off dead"
- 3 -Mild, e.g., frequent thoughts she would be better off dead, or occasional thoughts of suicide, but has not thought of a specific method
- 4 -Moderate, e.g., often has thoughts of suicide, or has thought of a specific method
- 5 -Severe, e.g., often thinks of suicide, and has thought of, or mentally rehearsed a specific plan or has made a gesture of communicative rather than potentially medically harmful type
- 6 -Extreme, e.g., has made preparations for a potentially serious suicide attempt
- 7 -Very extreme, e.g., suicidal attempt with definite intent to die or potentially medically harmful

INDECISIVENESS

Did you have any difficulty making everyday decisions?

(Were there things that did not get done because you could not decide what to do?)

Did it take longer to make decisions than when you were feeling good, like what to wear, what to cook, where to go, what to buy?

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Slight, or of doubtful significance
- 3 -Subjective feeling that it is harder to make decisions, but decisions do get made
- 4 -Unable to make some decisions or process is so prolonged as to cause difficulties (i.e., defers to husband or does not eat because she can not decide what to have)
- 5 -Important activities are delayed or not done because of difficulty deciding
- 6 -Paralysed in important activities because of inability to decide

POOR CONCENTRATION

Did you have trouble concentrating?

If yes, When did you have trouble?

(What difficulties did it cause?)

(Did it affect your work?)

(Is that because you couldn't concentrate or just that you were not interested?)

Was your thinking slowed down?

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Slight, or doubtful significance
- 3 -Definitely aware of limited attention span, but causes no difficulties
- 4 -Interferes with some activities, but not work
- 5 -Interferes with work and some other activities, e.g., watching TV or having a conversation (this may be evident in the interview)
- 6 -Unable to do the simplest task because of inability to concentrate

LOSS OF INTEREST

Did you find that you had lost interest in or got less pleasure from things that you used to enjoy -like your job, friends, family, sex, eating, watching TV, hobbies?

If yes, Which things did you lose interest in?

Which things did you still enjoy?

(Were there things that you still enjoyed as much as usual?)

Coding:

- 0 -No information
- 1 -All activities interesting or pleasurable
- 2 -1 or 2 activities less interesting or pleasurable
- 3 -Several activities less interesting or pleasurable
- 4 -Most activities less interesting or pleasurable, activities both inside and outside the home
- 5 -Almost all activities less interesting or pleasurable, can only name a few that are still pleasurable
- 6 -All activities less interesting or pleasurable

IRRITABILITY

How annoyed, angry, or resentful did you feel, whether you showed it or not?

If yes, How did you show your ... ?

(Did you get into heated arguments? Did you lose your temper? Did you throw or break things? What about hitting someone?)

(How strongly did you feel this way?)

(How much of the time did you feel this way in an average week?)

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Slight, and of doubtful significance
- 3 -Mild, e.g., definitely more than called for, but only occasional, and never very intense, argumentative or shouts at children, quick to express annoyance
- 4 -Moderate, e.g., often aware of feeling quite angry, or occasionally very angry, shouts at other adults, loses temper
- 5 -Marked, e.g., most of the time aware of feeling quite angry, or often feeling very angry, throws or breaks things, feels in a "rage"
- 6 -Extremely, e.g., almost constantly aware of feeling very angry, repeatedly violent against things or persons.

PSYCHOMOTOR AGITATION

When you felt ... , were there times that you were unable to sit still or did you always have to be moving or pacing up and down?

(Did you wring your hands?)

(Did you pull or rub your clothing, skin, or other things?)

How much of the time did you feel ... ?

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Slight, or of doubtful significance
- 3 -Mild, e.g., unable to sit quietly in a chair, pulling at clothes
- 4 -Moderate, e.g., paces about a great deal, frequent tantrums
- 5 -Marked, e.g., almost constantly moving and pacing about, hand-wringing
- 6 -Extreme, almost constantly moving and pacing about in a frantic manner

PSYCHOMOTOR RETARDATION

When you did things, were you slowed down because you couldn't move as quickly as usual?

If yes, (Did you feel like you were moving in slow motion?)

How long did this feeling last (i.e., hours)?

(How much of the time did you feel this way in an average week?)

Was your speech slowed down?

(Did you find it hard to start talking?)

(Did you talk a lot less than usual?)

Coding:

- 0 -No information
- 1 -Not at all
- 2 -Slight, or of doubtful significance
- 3 -Mild, e.g., conversation noticeably retarded some days, but not strained
- 4 -Moderate, conversation strained, moves very slowly, most days
- 5 -Marked, conversation difficult, hardly moves at all, most days
- 6 -Extreme, conversation almost impossible, sits in one position for hours most days

DYSTHYMIA

We have been talking about a distinct (particularly difficult) time throughout most of this interview. Now I am going to ask you if you have been bothered by feeling depressed or low much of the time for the past 2 years?

If yes, How much of the time have you felt this way?

Coding:

- 0 -No information or not sure
- 1 -No
- 2 -Yes

During this time when you felt depressed much of the time, have you often had periods when you felt alright, or even good, for a few hours, days, or weeks at a time? Or have you felt constantly depressed for the entire period?

Coding:

- 0 -No information or not sure
- 1 -No
- 2 -Yes

In the last 2 years, has there been a period of 3 or more months when you have not been bothered by these feelings?

Coding:

- 0 -No information or not sure
- 1 -No
- 2 -Yes

When you have been feeling down, does that feeling ever go away when you have your mind on other things, or when something pleasant happened -like talking to a friend or hearing good news- or would you feel bad no matter what was happening?

(If someone tried to cheer you up, could they?)

Coding:

- 0 -No information
- 1 -Very responsive to environmental events, feels almost normal for some time
- 2 -Usually responsive
- 3 -Often responsive
- 4 -Somewhat responsive, but still feels depressed
- 5 -Rarely feels any better
- 6 -Unresponsive, does not make any difference

In the last 2 years, have you felt less effective or productive at work, school, or home?

Coding:

- 0 -No information or not sure
- 1 -No
- 2 -Yes

In the last 2 years, have you spent less time socializing with others?

Coding:

- 0 -No information or not sure
- 1 -No
- 2 -Yes

HISTORY OF EPISODES

You have said that you felt worst during ... , how long did this period last, that is, when you felt depressed and also experienced some of the other problems we have talked about today?

When was the last time you felt depressed and had some of the problems you have described for at least a 2 week period?

When was the first time in your life that you felt depressed and also experienced some of the other symptoms for at least a 2 week period?

Including the worst time that we have talked about today, the first and the last episodes, how many episodes like this have you had altogether, in your life?

HISTORY OF TREATMENT

Has there ever been a time that you received help for an emotional problem (i.e., from your GP or a counsellor)?

If yes, Can you tell me about that?

Who did you see (i.e., type of professional)?

When did you see them?

How long did you see them for?

Were you depressed?

Were you given any medication? What type?

(Were you ever hospitalized?)

(Did you attempt suicide?)

CLOSING

That is all the questions I have for you today, do you have any questions for me?

Thank the subject and let her know that she will be contacted within the next 2 weeks regarding further participation in the project.

BECK INVENTORY

Date: _____

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY. Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1. 0 I do not feel sad:
 1 I feel sad.
 2 I feel sad all the time and I can't snap out of it.
 3 I feel so sad or unhappy that I can't stand it.
2. 0 I am not particularly discouraged about the future.
 1 I feel discouraged about the future.
 2 I feel I have nothing to look forward to.
 3 I feel that the future is hopeless and that things cannot improve.
3. 0 I do not feel like a failure.
 1 I feel I have failed more than the average person.
 2 As I look back on my life, all I can see is a lot of failures.
 3 I feel I am a complete failure as a person.
4. 0 I get as much satisfaction out of things as I used to.
 1 I don't enjoy things the way I used to.
 2 I don't get real satisfaction out of anything anymore.
 3 I am dissatisfied or bored with everything.
5. 0 I don't feel particularly guilty.
 1 I feel guilty a good part of the time.
 2 I feel guilty most of the time.
 3 I feel guilty all the time.
6. 0 I don't feel I am being punished.
 1 I feel I may be punished.
 2 I expect to be punished.
 3 I feel I am being punished.
7. 0 I don't feel disappointed in myself.
 1 I am disappointed in myself.
 2 I am disgusted with myself.
 3 I hate myself.

8. 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.
9. 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.
10. 0 I don't cry any more than I used to.
1 I cry more than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.
11. 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time now.
3 I don't get irritated at all by the things that used to irritate me.
12. 0 I have not lost interest in other people.
1 I am less interested in other people than I used to.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.
13. 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.
14. 0 I don't feel I look any worse than I used to.
1 I am worried that I am looking unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.
15. 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.
16. 0 I can't sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now
3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any, lately.
1 I have lost more than 5 pounds.
2 I have lost more than 10 pounds.
3 I have lost more than 15 pounds.

I am purposely trying to lose weight by eating less. Yes ___ No ___

20. 0 I am no more worried about my health than usual.
1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think about anything else.

21. 0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

MILLER SOCIAL INTIMACY SCALE

Couple no.: _____

M _____ F _____

Please use the following questions to describe your current relationship with your partner. We are interested in the relationship as it is, not in the way you think it should be. We would like to know what your relationship seems like to YOU. DO NOT try to figure out how your partner will see your relationship, but DO answer the questions by giving as true a picture of YOUR own feelings and beliefs as possible. Be sure to read each item carefully and draw a circle around the number that best describes your answers to the questions.

	Very Rarely	Some of the Time	Almost Always
1. When you have leisure time how often do you choose to spend with him/her alone?	1	2 3 4 5 6 7 8 9 10	
2. How often do you keep very personal information to yourself and do not share it with him/her?	1	2 3 4 5 6 7 8 9 10	
3. How often do you show him/her affection?	1	2 3 4 5 6 7 8 9 10	
4. How often do you confide very personal information to him/her?	1	2 3 4 5 6 7 8 9 10	
5. How often are you able to understand his/her feelings?	1	2 3 4 5 6 7 8 9 10	
6. How often do you feel close to him/her?	1	2 3 4 5 6 7 8 9 10	
	Not Much	A Little	A Great Deal
7. How much do you like to spend time alone with him/her?	1	2 3 4 5 6 7 8 9 10	
8. How much do you feel like being encouraging and supportive to him/her when he/she is unhappy?	1	2 3 4 5 6 7 8 9 10	
9. How close do you feel to him/her most of the time?	1	2 3 4 5 6 7 8 9 10	
10. How important is it to you to listen to his/her very personal disclosures?	1	2 3 4 5 6 7 8 9 10	
11. How satisfying is your relationship with him/her?	1	2 3 4 5 6 7 8 9 10	

12. How affectionate do you feel towards him/her? 1 2 3 4 5 6 7 8 9 10
13. How important is it to you that he/she understands your feelings? 1 2 3 4 5 6 7 8 9 10
14. How much damage is caused by a typical disagreement in your relationship with him/her? 1 2 3 4 5 6 7 8 9 10
15. How important is it to you that he/she be encouraging and supportive to you when you are unhappy? 1 2 3 4 5 6 7 8 9 10
16. How important is it to you that he/she show you affection? 1 2 3 4 5 6 7 8 9 10
17. How important is your relationship with him/her in your life? 1 2 3 4 5 6 7 8 9 10

Thank You

CHECK LIST OF INTERPERSONAL TRANSACTIONS
(Self-Rating Form: R)

DIRECTIONS: The following pages contain lists of actions that can occur in interactions between two persons. Your task is to check each item which accurately describes an action typically exhibited by you in your transactions with you spouse/partner.

To help make these judgements, imagine that, for some time, a hidden observer has followed you around daily as you interacted with your partner. Make your judgements about the occurrence of you actions with this person based on what this hidden observer would have typically seen.

In order to receive a check, the action described by a particular item must have occurred at least once in your transactions with your partner, and must also be judged by you as typical of the way you interact with this person. If an item describes an action that does not typically occur in your interactions with this person leave that item blank.

- _____ 1. I am quick to take charge of the conversation or discussion, or to offer suggestions about what needs to be done
- _____ 2. I am hesitant to express approval or acceptance of them
- _____ 3. I am careful not to let my feelings show clearly; or speak undemonstratively, with little variation in tone or manner
- _____ 4. I find it difficult to take the initiative; or I look to them for direction or focus; or I show a desire to do "whatever you want"
- _____ 5. I am receptive and cooperative to their requests, directions, appeals, or wishes; or I am quick to assist or work together with them
- _____ 6. I express pleasure in myself; or I comment on my own accomplishments, awards, or successes
- _____ 7. I scan carefully to detect any of their reactions, evaluations, or motives that might have a harmful intent
- _____ 8. I show little attention, interest, curiosity, or inquisitiveness about their personal lives, affairs, feelings, or opinions
- _____ 9. I wait for or follow their lead regarding topics or issues to discuss, directions or actions to pursue
- _____ 10. I am quick to express approval or acceptance of them
- _____ 11. I speak or act emotionally or melodramatically, or with much variation in tone or manner
- _____ 12. I show an intense task focus or desire to "get down to business"; or I suggest directions or objectives
- _____ 13. I am quick to resist, not cooperate, or refuse to comply with their requests, directions, appeals, or wishes
- _____ 14. I make self-critical statements; or I express low self-worth; or I apologize frequently
- _____ 15. I gaze at them in an open, receptive, trusting, non-searching manner
- _____ 16. I inquire into or express attention, interest, or curiosity about their personal lives, affairs, feelings, or opinions

- _____ 17. I dominate the flow of conversation, or change topic, or interrupt and "talk them down"
- _____ 18. I avoid at any cost showing affection, warmth, or approval
- _____ 19. I endlessly preface or qualify statements to the place where points I'm making get lost, or my views or positions are unclear or ambiguous
- _____ 20. I go out of way to give them credit for their contributions, or to admire or praise them for their good ideas or suggestions
- _____ 21. I inconvenience myself or sacrifice to contribute, help, assist, or work cooperatively with them
- _____ 22. I am cocky about my positions or decisions; or I make it abundantly clear I can do things by myself; or I avoid any hint that they can help
- _____ 23. I express doubt, mistrust, or disbelief regarding their intentions or motives
- _____ 24. I refrain at all costs from close visual or physical contact or direct body orientation with them
- _____ 25. I find it almost impossible to take the lead, or to initiate or change the topic of discussion
- _____ 26. I constantly express approval, affection, or effusive warmth to them
- _____ 27. I make startling or "loaded" comments; or I take liberties with facts to embellish stories
- _____ 28. I work hard to avoid giving them credit for any contribution; or I imply or claim that good ideas or suggestions were my own
- _____ 29. I am openly antagonistic, oppositional, or obstructive to their statements, suggestions, or purposes
- _____ 30. I am hesitant or embarrassed to express my opinions; or I conduct myself in an unsure, unconfident, or uneasy manner
- _____ 31. I respond openly, candidly, or revealingly to the point of "telling all"
- _____ 32. I continually stand, sit, move or lean toward them to be physically close

- _____ 33. I expresse firm, strong personal preferences; or I stand up for my opinions or positions
- _____ 34. I act in a stiff, formal, unfeeling, or evaluative manner
- _____ 35. I find it difficult to express my thoughts simply or without qualifications; or I work hard to find precise words to express my thoughts
- _____ 36. I am content, unquestioning, or approving about the focus or direction of a given topic of discussion or course of action; or I am quick to follow their lead
- _____ 37. I express appreciation, delight, or satisfaction about them, our situation, or our task
- _____ 38. I prefer to rely on my own resources to make decisions or solve problems
- _____ 39. I claim that I misunderstand, misinterpret, or misjudge their intentions or actions
- _____ 40. I remain aloof, distant, remote, or stand-offish from them
- _____ 41. I claim I don't have an opinion, preference, or position, or that "it doesn't matter," "whatever you want," "I don't know," etc.
- _____ 42. I act in a relaxed, informal, warm, or nonjudgmental manner
- _____ 43. I make comments or replies that "pop out" quickly and energetically
- _____ 44. I question or expresse reservation or disagreement about the focus or direction of the conversation or course of action
- _____ 45. I grumble, gripe, rag, or complain about them, our situation, or our task
- _____ 46. I readily ask them for advice, help, or counsel
- _____ 47. I communicate that I am sympathetic or fair in interpreting or judging their intents or actions
- _____ 48. I am absorbed in, attentive to, or concentrate intensely on what they say or do

- _____ 49. I state preferences, opinions, or positions in a dogmatic or unyielding manner
- _____ 50. I have absolutely no room for sympathy, compromise, or mercy regarding their mistakes, weaknesses, or misconduct
- _____ 51. I "talk around" or hedges on evaluations of them, events, or objects, or I constantly minimize expressions of my feelings
- _____ 52. I make statements that are deferentially, softly, or carefully presented as if I desperately want to avoid any implication of disapproval, criticism, or disagreement
- _____ 53. I seem always to agree with or accommodate them; or seem impossible to rile
- _____ 54. I brag about achievements, successes, or good-fortune; or I "put on airs" as if in complete control of my life
- _____ 55. I expresse harsh judgment, "never forgetting," or no forgiveness for their mistakes, weaknesses, or injurious actions
- _____ 56. I seem constantly uncomfortable with them as if I want to leave or be by myself
- _____ 57. I express my own preferences hesitantly or weakly; or I yield easily to their viewpoints; or I back down quickly when they question or disagree
- _____ 58. I go out of my way to understand or be sympathetic towards them, or to find something about them to approve of, endorse, or support
- _____ 59. I constantly overstate evaluations of them, events, or objects; or I exaggerate expression of my feelings
- _____ 60. I make comments that avoid sharing credit with them for good happenings or joint accomplishments; or I "play up" my own contributions
- _____ 61. I argumentatively challenge or refute their statements or suggestions; or I "tell them off," "let them have it" when I disagree
- _____ 62. I claim I am a constant failure, or I am helpless, witless, or at the mercy of events and circumstances
- _____ 63. I express unbending sympathy, understanding, or forgiveness for their hurtful or injurious actions
- _____ 64. I find it difficult to leave them; or I go out of my way to secure more and more of their company

- _____ 65. I seize opportunities to instruct or explain things, or to give them advice
- _____ 66. I express stringent, exacting, rigorous standards or expectations of them
- _____ 67. I delay giving clear answers or postpone decisions; or I deliberate carefully before speaking or acting
- _____ 68. I make comments that give them credit for any good happenings or joint accomplishments; or I point out their contributions while "playing down" my own
- _____ 69. I am attentive to, considerate or solicitous of their feelings, or sensitive to pressures or stresses in their lives
- _____ 70. I express my opinions with conviction and ease; or I conduct myself in a confident, assured, and unruffled manner
- _____ 71. in response to their inquiries or probings, I act evasively as if I'm hiding important secrets
- _____ 72. I am slow to respond or speak to them; or I seem distracted by my own thoughts
- _____ 73. I am quick to agree with their opinions or to comply with their directions or preferences
- _____ 74. I express lenient, soft-hearted, or compassionate standards or expectations of them
- _____ 75. I make hasty decisions; or I jump into new activities with little premeditation
- _____ 76. I challenge or dispute their ideas or statements; or I attempt to get the better of them or put them down
- _____ 77. I ignore, overlook, or am inconsiderate of their feelings; or I disregard pressures or stresses in their lives
- _____ 78. I urgently solicit their advice, help, or counsel even for everyday troubles or difficulties
- _____ 79. I show trust in or reliance upon their good intentions or motives; or I cast their behavior in the best possible "light"
- _____ 80. I am careful to acknowledge and be responsive to their statements and actions

- _____ 81. I overwhelm or "steamroll" them by my arguments, positions, preferences, or actions
- _____ 82. I express severe, inflexible, or uncompromising expectations for their conduct
- _____ 83. I endlessly avoid or delay clear answers, decisions, actions or commitments to positions
- _____ 84. I make flattering or glowing comments about them, our situation, or our joint task
- _____ 85. I make unconditionally supportive, encouraging, endorsing, comforting, or bolstering comments to them
- _____ 86. I act as if excessively "full of myself," or as feeling I am special or favored, or as cocksure of my future
- _____ 87. I am bitterly accusatory, suspicious, or disbelieving of them
- _____ 88. I seem totally unmoved, unaffected, or untouched by their comments or actions
- _____ 89. I seem unable to assert what I want, or to stand up to them, or to take any opposing position
- _____ 90. I am unwaveringly tolerant, patient, or lenient in regard to my expectations for their conduct
- _____ 91. I seem compelled to act out feelings with them, or impulsively to jump into new actions or activities
- _____ 92. I make critical, demeaning, snide, or derisive statements about them, our situation, or our joint task
- _____ 93. I swear at them; or I make abusing, disparaging, damaging, or crude comments to them
- _____ 94. I am constantly dissatisfied with myself, feel guilty or depressed; or I feel hopeless about the future
- _____ 95. I show blind faith or Pollyannaish trust in them; or I believe almost anything they say
- _____ 96. I seem totally engrossed in them; or I am constantly moved, affected, or responsive to their comments or actions

CHILD'S NAME _____

SEX ☐ Boy ☐ Girl

AGE _____

ETHNIC GROUP OR RACE _____

TODAY'S DATE Mo. _____ Date _____ Yr. _____

CHILD'S BIRTHDATE Mo. _____ Date _____ Yr. _____

GRADE IN SCHOOL _____

NOT ATTENDING SCHOOL ☐

Please fill out this form to reflect your view of the child's behavior even if other people might not agree. Feel free to write additional comments beside each item and in the spaces provided on page 2.

PARENTS' USUAL TYPE OF WORK, even if not working now. (Please be specific—for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)

FATHER'S TYPE OF WORK: _____

MOTHER'S TYPE OF WORK: _____

THIS FORM FILLED OUT BY:

☐ Mother (name): _____

☐ Father (name): _____

☐ Other—name & relationship to child: _____

I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc. ☐ None a. _____ b. _____ c. _____	Compared to others of the same age, about how much time does he/she spend in each? <table border="0"> <tr> <td>Don't Know</td> <td>Less Than Average</td> <td>Average</td> <td>More Than Average</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>	Don't Know	Less Than Average	Average	More Than Average	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Compared to others of the same age, how well does he/she do on one? <table border="0"> <tr> <td>Don't Know</td> <td>Below Average</td> <td>Average</td> <td>Above Average</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>	Don't Know	Below Average	Average	Above Average	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
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II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, cars, singing, etc. (Do not include listening to radio or TV.) ☐ None a. _____ b. _____ c. _____	Compared to others of the same age, about how much time does he/she spend in each? <table border="0"> <tr> <td>Don't Know</td> <td>Less Than Average</td> <td>Average</td> <td>More Than Average</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>	Don't Know	Less Than Average	Average	More Than Average	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Compared to others of the same age, how well does he/she do on one? <table border="0"> <tr> <td>Don't Know</td> <td>Below Average</td> <td>Average</td> <td>Above Average</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>	Don't Know	Below Average	Average	Above Average	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
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III. Please list any organizations, clubs, teams, or groups your child belongs to. ☐ None a. _____ b. _____ c. _____	Compared to others of the same age, how active is he/she in each? <table border="0"> <tr> <td>Don't Know</td> <td>Less Active</td> <td>Average</td> <td>More Active</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>	Don't Know	Less Active	Average	More Active	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																	
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IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, working in store, etc. (Include both paid and unpaid jobs and chores.) ☐ None a. _____ b. _____ c. _____	Compared to others of the same age, how well does he/she carry them out? <table border="0"> <tr> <td>Don't Know</td> <td>Below Average</td> <td>Average</td> <td>Above Average</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>	Don't Know	Below Average	Average	Above Average	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐																	
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1. About how many close friends does your child have?
(Do not include brothers & sisters) ☐ None ☐ 1 ☐ 2 or 3 ☐ 4 or more
2. About how many times a week does your child do things with any friends outside of regular school hours?
(Do not include brothers & sisters) ☐ Less than 1 ☐ 1 or 2 ☐ 3 or more

VI. Compared to others of his/her age, how well does your child:

- | | Worse | About Average | Better | |
|---|--------------------------|--------------------------|--------------------------|---|
| a. Get along with his/her brothers & sisters? | ☐ | ☐ | ☐ | ☐ Has no brothers or sisters |
| b. Get along with other kids? | ☐ | ☐ | ☐ | |
| c. Behave with his/her parents? | ☐ | ☐ | ☐ | |
| d. Play and work by himself/herself? | ☐ | ☐ | ☐ | |

I. 1. For ages 6 and older—performance in academic subjects. If child is not being taught, please give reason _____

- | | Failing | Below average | Average | Above average |
|---------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Reading, English, or Language Arts | ☐ | ☐ | ☐ | ☐ |
| b. History or Social Studies | ☐ | ☐ | ☐ | ☐ |
| c. Arithmetic or Math | ☐ | ☐ | ☐ | ☐ |
| d. Science | ☐ | ☐ | ☐ | ☐ |
| e. _____ | ☐ | ☐ | ☐ | ☐ |
| f. _____ | ☐ | ☐ | ☐ | ☐ |
| g. _____ | ☐ | ☐ | ☐ | ☐ |
- Other academic subjects—for example: computer courses, foreign language, business. Do not include gym, shop, career ed., etc.

2. Is your child in a special class or special school? ☐ No ☐ Yes—what kind of class or school?

3. Has your child repeated a grade? ☐ No ☐ Yes—grade and reason

4. Has your child had any academic or other problems in school? ☐ No ☐ Yes—please describe

When did these problems start?

Have these problems ended? ☐ No ☐ Yes—when?

Does your child have any illness, physical disability, or mental handicap? ☐ No ☐ Yes—please describe

What concerns you most about your child?

Please describe the best things about your child:

...true of your child. If the item is not true of your child, circle the 0. Please answer all items as well as you can, even if some not seem to apply to your child.

0 = Not True (as far as you know)

1 = Somewhat or Sometimes True

2 = Very True or Often True

1	2	1.	Acts too young for his/her age	0	1	2	31.	Fears he/she might think or do something bad
1	2	2.	Allergy (describe): _____	0	1	2	32.	Feels he/she has to be perfect
			_____	0	1	2	33.	Feels or complains that no one loves him
1	2	3.	Argues a lot	0	1	2	34.	Feels others are out to get him/her
1	2	4.	Asthma	0	1	2	35.	Feels worthless or inferior
1	2	5.	Behaves like opposite sex	0	1	2	36.	Gets hurt a lot, accident-prone
1	2	6.	Bowel movements outside toilet	0	1	2	37.	Gets in many fights
1	2	7.	Bragging, boasting	0	1	2	38.	Gets teased a lot
1	2	8.	Can't concentrate, can't pay attention for long	0	1	2	39.	Hangs around with others who get in trouble
1	2	9.	Can't get his/her mind off certain thoughts; obsessions (describe): _____	0	1	2	40.	Hears sounds or voices that aren't there (describe): _____
1	2	10.	Can't sit still, restless, or hyperactive	0	1	2	41.	Impulsive or acts without thinking
1	2	11.	Clings to adults or too dependent	0	1	2	42.	Would rather be alone than with others
1	2	12.	Complains of loneliness	0	1	2	43.	Lying or cheating
1	2	13.	Confused or seems to be in a fog	0	1	2	44.	Bites fingernails
1	2	14.	Cries a lot	0	1	2	45.	Nervous, highstrung, or tense
1	2	15.	Cruel to animals	0	1	2	46.	Nervous movements or twitching (describe): _____
1	2	16.	Cruelty, bullying, or meanness to others	0	1	2	47.	Nightmares
1	2	17.	Day-dreams or gets lost in his/her thoughts	0	1	2	48.	Not liked by other kids
1	2	18.	Deliberately harms self or attempts suicide	0	1	2	49.	Constipated, doesn't move bowels
1	2	19.	Demands a lot of attention	0	1	2	50.	Too fearful or anxious
1	2	20.	Destroys his/her own things	0	1	2	51.	Feels dizzy
1	2	21.	Destroys things belonging to his/her family or others	0	1	2	52.	Feels too guilty
1	2	22.	Disobedient at home	0	1	2	53.	Overeating
1	2	23.	Disobedient at school	0	1	2	54.	Overtired
1	2	24.	Doesn't eat well	0	1	2	55.	Overweight
2		25.	Doesn't get along with other kids				56.	Physical problems without known medical cause:
2		26.	Doesn't seem to feel guilty after misbehaving				a.	Aches or pains (not headaches)
2		27.	Easily jealous	0	1	2	b.	Headaches
2		28.	Eats or drinks things that are not food — don't include sweets (describe): _____	0	1	2	c.	Nausea, feels sick
			_____	0	1	2	d.	Problems with eyes (describe): _____
2		29.	Fears certain animals, situations, or places, other than school (describe): _____	0	1	2	e.	Rashes or other skin problems
			_____	0	1	2	f.	Stomachaches or cramps
2		30.	Fears going to school	0	1	2	g.	Vomiting, throwing up
				0	1	2	h.	Other (describe): _____

0	1	2	57.	Physically attacks people	
0	1	2	58.	Picks nose, skin, or other parts of body (describe):	
0	1	2	59.	Plays with own sex parts in public	
0	1	2	60.	Plays with own sex parts too much	
0	1	2	61.	Poor school work	
0	1	2	62.	Poorly coordinated or clumsy	
0	1	2	63.	Prefers being with older kids	
0	1	2	64.	Prefers being with younger kids	
0	1	2	65.	Refuses to talk	
0	1	2	66.	Repeats certain acts over and over; compulsions (describe):	
0	1	2	67.	Runs away from home	
0	1	2	68.	Screams a lot	
0	1	2	69.	Secretive, keeps things to self	
0	1	2	70.	Sees things that aren't there (describe):	
1	2		71.	Self-conscious or easily embarrassed	
1	2		72.	Sets fires	
1	2		73.	Sexual problems (describe):	
1	2		74.	Showing off or clowning	
1	2		75.	Shy or timid	
1	2		76.	Sleeps less than most kids	
1	2		77.	Sleeps more than most kids during day and/or night (describe):	
1	2		78.	Smears or plays with bowel movements	
1	2		79.	Speech problem (describe):	
1	2		80.	Stares blankly	
1	2		81.	Steals at home	
1	2		82.	Steals outside the home	
1	2		83.	Stores up things he/she doesn't need (describe):	

0	1	2	84.	Strange behavior (describe):	
0	1	2	85.	Strange ideas (describe):	
0	1	2	86.	Stubborn, sullen, or irritable	
0	1	2	87.	Sudden changes in mood or feeling	
0	1	2	88.	Sulks a lot	
0	1	2	89.	Suspicious	
0	1	2	90.	Swearing or obscene language	
0	1	2	91.	Talks about killing self	
0	1	2	92.	Talks or walks in sleep (describe):	
0	1	2	93.	Talks too much	
0	1	2	94.	Teases a lot	
0	1	2	95.	Temper tantrums or hot temper	
0	1	2	96.	Thinks about sex too much	
0	1	2	97.	Threatens people	
0	1	2	98.	Thumb-sucking	
0	1	2	99.	Too concerned with neatness or cleanliness	
0	1	2	100.	Trouble sleeping (describe):	
0	1	2	101.	Truancy, skips school	
0	1	2	102.	Underactive, slow moving, or lacks energy	
0	1	2	103.	Unhappy, sad, or depressed	
0	1	2	104.	Unusually loud	
0	1	2	105.	Uses alcohol or drugs for nonmedical purposes (describe):	
0	1	2	106.	Vandalism	
0	1	2	107.	Wets self during the day	
0	1	2	108.	Wets the bed	
0	1	2	109.	Whining	
0	1	2	110.	Wishes to be of opposite sex	
0	1	2	111.	Withdrawn, doesn't get involved with others	
0	1	2	112.	Worries	
			113.	Please write in any problems your child has that were not listed above:	
0	1	2			
0	1	2			
0	1	2			

Mathematics Skills M-1: Mathematics Concepts

Directions: This is a test of how well you understand the number system and the terms and operations used in mathematics.

Four answers are given for each exercise, but only one of these answers is right. You are to choose the one answer that you think is better than the others. Then, on the answer sheet, find the row of answer spaces numbered the same as the exercise. Mark the answer space for the best answer.

Use the table below to find where your level is to begin and stop on this test.

Begin With		Stop After	
Level 9	→ Page 73, Exercise 1	→ Exercise 28, Page 75	
Level 10	→ Page 74, Exercise 15	→ Exercise 46, Page 76	
Level 11	→ Page 75, Exercise 29	→ Exercise 65, Page 78	
Level 12	→ Page 77, Exercise 47	→ Exercise 86, Page 79	
Level 13	→ Page 78, Exercise 66	→ Exercise 107, Page 81	
Level 14	→ Page 79, Exercise 80	→ Exercise 123, Page 82	

Make no marks in this booklet

Which is a numeral that represents 4 tens?

- 1) 410 3) 40
2) 41 4) 104

Which set of coins has the greatest value?

- 1) 15 pennies 3) 2 dimes
2) 1 quarter 4) 4 nickels

The figure below is divided into two equal parts. What is one of these parts called?

- 1) A half
2) A third
3) A fourth
4) The whole



4. Which numeral below represents the greatest number?

- 1) 198 3) 402
2) 256 4) 375

5. The dots below show which of these equations is true?

- 1) $4 + 4 = 8$ 3) $2 + 3 + 4 = 9$
2) $6 + 6 = 12$ 4) $3 + 3 + 3 = 9$

6. Which numeral should replace the square in the equation below?

- 1) 0 3) 5
2) 3 4) 8

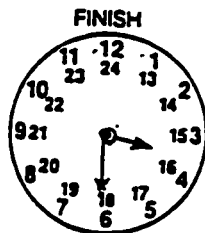
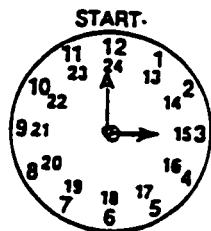
7. In which number sentence below is the circle a plus sign?

- 1) $1 \bigcirc 7 = 7$ 3) $8 \bigcirc 2 = 4$
2) $9 \bigcirc 5 = 4$ 4) $3 \bigcirc 5 = 8$

8. Which set is equivalent to  ?



9. Ann helped her parents clean up the yard. The two clocks show when she started and when she finished. How long did she work?



- 1) 3 min
2) 6 min

- 3) 30 min
4) 50 min

10. How would you write thirty-seven cents?

- 1) 307¢
2) .37¢

- 3) 37¢
4) ¢37

1. Which of the following is the numeral for three hundred five?

- 1) 3 005
2) 3 050

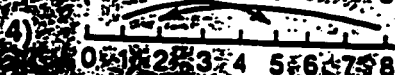
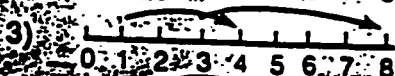
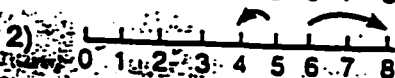
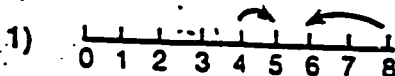
- 3) 350
4) 305

2. There were 10 children standing in line for the show. Barb was sixth in line. How many children were behind Barb in the line?

- 1) 4
2) 5

- 3) 6
4) 7

3. Which figure below best shows that $4 + 1 < 8 - 2$?



4. Don's birthday is 1 week after his father's. Don's birthday is March 13. When is his father's birthday?

- 1) March 30
2) March 6

- 3) March 12
4) March 20



Make no marks in this booklet

15. Which of the following is nearest in value to 70?

- 1) 60
2) 68

- 3) 73
4) 80

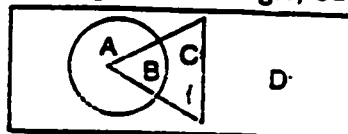
16. Where is the arrow pointing in the picture of the number line below?



- 1) 9
2) 10

- 3) 11
4) 14

17. In the figure below which letter is in the rectangle and triangle, but not the circle?



- 1) A
2) B

- 3) C
4) D

18. In the numeral 3 589, what digit is in the hundreds' place?

- 1) 3
2) 5

- 3) 8
4) 9

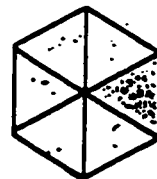
19. What part of this figure is shaded?

- 1) $\frac{1}{3}$

- 2) $\frac{1}{4}$

- 3) $\frac{1}{5}$

- 4) $\frac{1}{6}$



20. Bill is taller than Sally. Sally is taller than Jack. Which of the following statements is true?

- 1) Bill is taller than Jack.
2) Sally is taller than Bill.
3) Jack is taller than Sally.
4) Jack is taller than Bill.

21. What should replace the Δ in $6 + (3 + 4) = (6 + 3) + \Delta$?

- 1) 7
2) 6

- 3) 4
4) 3

Level
11
Begin
Here

Make no marks in this booklet.

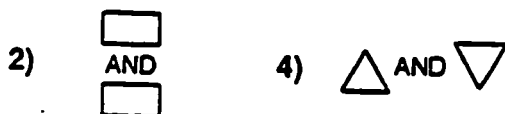
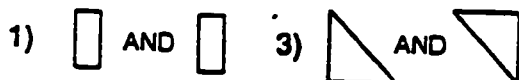
22. What is the missing numeral in the number sentence $6 \times \square = 18$?

- 1) 2 3) 12
2) 3 4) 24

23. How would you write 2 005 in words?

- 1) Two thousand five
2) Two thousand fifty
3) Two hundred fifty
4) Two hundred five

24. Which of these pairs of figures could not be put together to make a square?



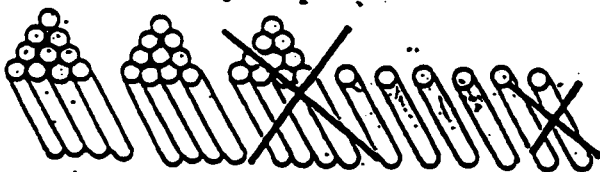
25. How many sevens must be subtracted from 21 to get 0?

- 1) 2 3) 4
2) 3 4) 7

26. What is the largest number that can be represented by using the numerals 7, 2, and 6 once each?

- 1) 267 3) 736
2) 672 4) 762

27. There are ten sticks in each bundle below. What is shown by the picture?



- 1) $24 - 12 = 12$
2) $22 - 14 = 8$
3) $34 - 12 = 22$
4) $36 - 12 = 24$

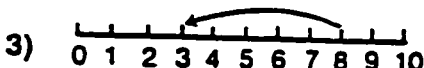
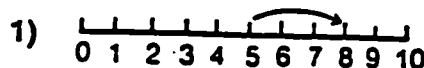
28. In which subtraction exercise do you rename a ten as 10 ones, or borrow a ten?

1) $\begin{array}{r} 44 \\ - 27 \\ \hline 17 \end{array}$ 3) $\begin{array}{r} 40 \\ - 20 \\ \hline 20 \end{array}$
2) $\begin{array}{r} 38 \\ - 20 \\ \hline 18 \end{array}$ 4) $\begin{array}{r} 29 \\ - 13 \\ \hline 16 \end{array}$

29. Which of the following is not equivalent to $2 \times 3 \times 4$?

- 1) 6×4 3) 8×3
2) 2×12 4) $2 + 3 + 4$

30. Which drawing best shows that $8 - 5 = 3$?



31. What sign, used in place of the O, will make $15 \bigcirc 5 = 3$ a true number sentence?

- 1) + 3) $\times$
2) - 4) $\div$

32. Which of the following is a simple closed curve?



33. Which numeral below is equivalent to 5 ones + 3 tens + 4 hundreds?

- 1) 12 3) 435
2) 345 4) 534

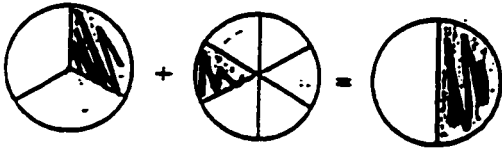
34. Which of these numbers will have a remainder when divided by 4?

- 1) 12 3) 24
2) 18 4) 32

41. How much later than 21:00 is 02:00?

- 1) 2 h 3) 5 h
2) 3 h 4) 7 h

42. What does the picture below show?



- 1) $\frac{1}{3} + \frac{1}{6} = \frac{1}{2}$
2) $\frac{1}{3} - \frac{1}{6} = \frac{1}{6}$
3) $\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$
4) $\frac{1}{6} + \frac{1}{6} = \frac{1}{3}$

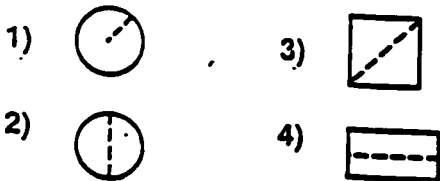
In the number sentence $\square + \triangle = \bigcirc$, let $\square = 4$ and $\triangle = 7$. What does $\bigcirc$ equal?

- 1) 3 3) 11
2) 10 4) 47

What number between 16 and 23 is both a multiple of 3 and an even number?

- 1) 16 3) 21
2) 18 4) 22

In which figure below is the dotted line segment a radius?



Which of the following would give the best estimate of 21×59 ?

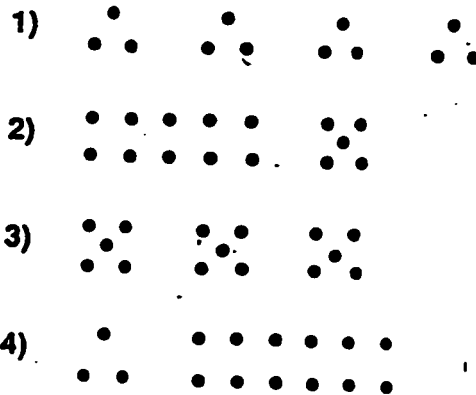
- 1) 30×60 3) 20×50
2) 30×50 4) 20×60

What numeral makes the following number sentence true?

$$(6 + 4) \times (4 + 3) = 10 \times (3 + \Delta)$$

- 1) 0 3) 4
2) 3 4) 2

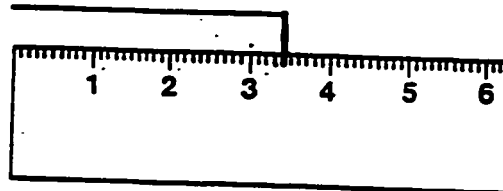
42. Which picture below best shows is one-fifth of fifteen?



43. What is the missing numeral in the sentence $(8 \times \Delta) + 8 = 16$?

- 1) 0 3) 2
2) 1 4) 8

44. In the picture below, how long is segment above the ruler?



- 1) 3.5 cm 3) 3.5 m
2) 3.5 mm 4) 35 cm

45. Which fraction below has a value less than $\frac{1}{2}$?

- 1) $\frac{2}{3}$ 3) $\frac{4}{10}$
2) $\frac{3}{8}$ 4) $\frac{1}{4}$

46. What should replace Δ to make the number sentence $18 - \Delta - \Delta = 0$ true?

- 1) 2 3) 10
2) 9 4) 18

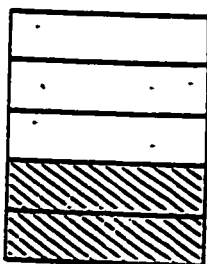
Make no marks in this booklet

What should replace the Δ in the number sentence $9\ 843 = 9\ 000 + 800 + \Delta + 3$?

- 1) 4 3) 400
2) 40 4) 4 000

What part of the figure below is shaded?

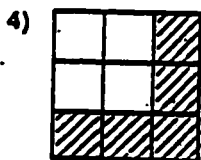
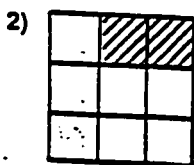
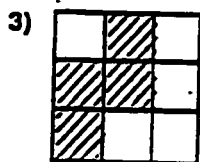
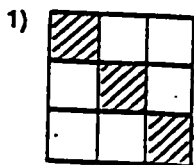
- 1) $\frac{2}{5}$
2) $\frac{3}{5}$
3) $\frac{2}{3}$
4) $\frac{3}{2}$



Which product is greater than 3×4 and less than 5×4 ?

- 1) 3×3 3) 3×5
2) 6×2 4) 8×3

Which figure below has the greatest shaded area?



What is the greatest whole number that makes $7 \times \square \leq 30$ a true number sentence?

- 1) 3 3) 5
2) 4 4) 22

What should replace the Δ in the answer to the division problem below?

$$\begin{array}{r} 2\Delta 1 \\ 8 \overline{) 1608} \end{array}$$

- 1) 0 3) 2
2) 1 4) 8

53. Which pair of numbers below are both factors of 30?

- 1) 20, 5 3) 14, 1
2) 9, 6 4) 3, 5

54. Which of these fractions is reduced to its lowest terms?

- 1) $\frac{5}{6}$ 3) $\frac{4}{6}$
2) $\frac{6}{10}$ 4) $\frac{2}{8}$

55. What is the approximate mass of one ball?

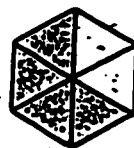
- 1) 1 kg 3) 1 mg
2) 1 g 4) 100 g

56. What should replace the Δ in the number sentence $(7 + 5) + \square = (\square + 5) + \Delta$?

- 1) 0 3) 5
2) 4 4) 7

57. The figure below shows that $\frac{2}{3}$ is equal to what number?

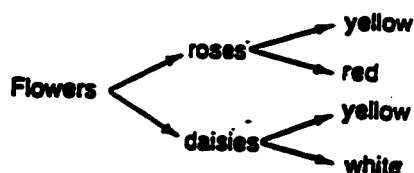
- 1) $\frac{2}{4}$
2) $\frac{2}{6}$
3) $\frac{1}{3}$
4) $\frac{4}{6}$



58. In the numeral 416 235 which digit is in the 'thousands' place?

- 1) 1 3) 4
2) 3 4) 6

59. Which statement below does the diagram not show?



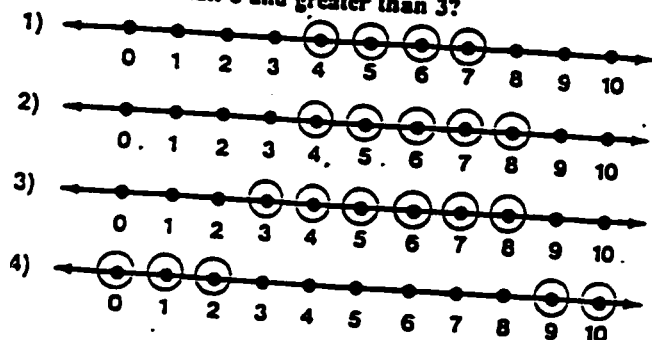
- 1) All daisies are flowers.
2) All red roses are flowers.
3) Some flowers are white daisies.
4) All yellow flowers are daisies.



- A new sign $\otimes$ between two numbers means multiply the two numbers together and then subtract the first number from the product. What does $3 \otimes 4$ equal?

- 1) 15
2) 12
3) 9
4) 4

Which drawing below shows the set of whole numbers less than 8 and greater than 3?



Which of these is a correct solution to the number sentence $4\frac{1}{3} + 2\frac{1}{2} = \square$?

- 1) $4\frac{1}{3}$
2) $2\frac{1}{2}$
3) $4\frac{1}{3} = 4\frac{2}{6}$
4) $4\frac{1}{3} = 4\frac{2}{6}$
5) $6\frac{2}{3}$
6) $6\frac{5}{6}$
7) $2\frac{1}{2}$
8) $2\frac{3}{6}$
9) $6\frac{2}{3}$
10) $6\frac{5}{12}$

The person giving the weather report in Sarnia said the high temperature during the month was 37°C . Which of these is the most likely month?

- 1) April
2) July
3) October
4) January

Which statements below tell how four numbers were rounded. Which statement is false?

- 1) 47 rounded to the nearest ten is 50.
2) 1 435 rounded to the nearest thousand is 1 000.
3) 648 rounded to the nearest hundred is 700.
4) 173 rounded to the nearest ten is 170.

How many units longer is line segment AD than line segment BC?



- 1) $5\frac{1}{2}$
2) $4\frac{1}{2}$
3) $4\frac{1}{2}$
4) 2

Level
13
Begin
Here

Make no marks in this booklet

66. How much would the value of 27 365 be increased by replacing the 7 with an 8?

- 1) 1
2) 100
3) 1 000
4) 10 000

67. Which of the fractions below has a value greater than $\frac{1}{4}$ and less than $\frac{1}{2}$?

- 1) $\frac{1}{3}$
2) $\frac{1}{5}$
3) $\frac{1}{8}$
4) $\frac{3}{4}$

68. Which pair of numerals could be used as replacements for the $\square$ and the $\triangle$ in the equation $87 = (\square \times 4) + \triangle$?

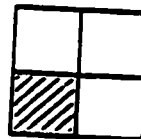
- 1) 2 and 1
2) 2 and 7
3) 20 and 3
4) 21 and 3

69. What should replace the square to make $\square \times (9 + 7) = 27 + 21$ a true number sentence?

- 1) 2
2) 3
3) 16
4) 48

70. What part of the figure below is shaded?

- 1) 0.20
2) 0.25
3) 0.35
4) 0.50



71. Which of the following is a factor of $2 \times 3 \times 5 \times 7$?

- 1) 12
2) 17
3) 21
4) 23

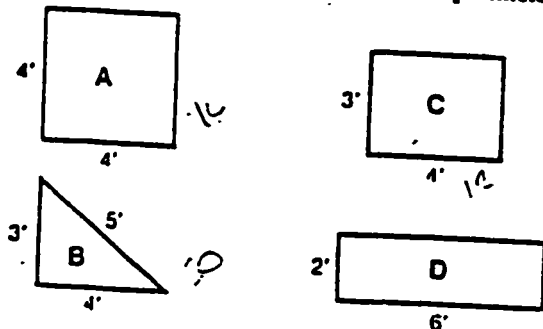
72. Which of the following is not a common denominator for the set of fractions $\{\frac{1}{2}, \frac{1}{3}, \frac{1}{6}\}$?

- 1) 6
2) 11
3) 12
4) 18

73. Which numeral below is equivalent to fourteen million twenty five thousand?

- 1) 1 425 000
2) 14 250 000
3) 14 025 000
4) 14 000 025 000

74. Which of the figures below have the same perimeter?



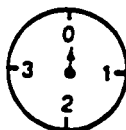
- 1) A and D
2) B and C
3) B and D
4) C and D

75. Which of the following numerals represents the greatest value?

- 1) 0.09
2) 0.076
3) 0.059 9
4) 0.081 01

For each kilometre an hour the wind blows, the needle on the dial below moves one unit. At what numeral would the needle be pointing when the wind is blowing 6 km/h?

- 1) 1
2) 2
3) 3
4) 0



If $6 > x$ and $x > y$, then what should replace the $\circ$ in the number sentence $6 \circ y$?

- 1) =
2) +
3) <
4) >

Which of these is the greatest mass?

- 1) 1.75 kg
2) 1 250 g
3) 1 kg 850 g
4) 1.6 kg

Which of the following is equivalent to three and four-sevenths?

- 1) $\frac{3+4}{7}$
2) $3 \times \frac{4}{7}$
3) $\frac{3 \times 4}{7}$
4) 3×4



Make no marks in this booklet

80. How would you write 6 thousandths as a decimal?

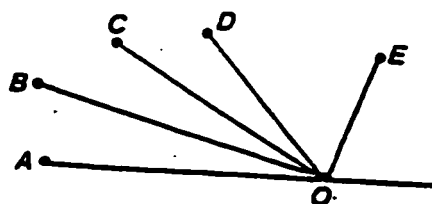
- 1) 0.06
2) 6000
3) 0.0006
4) 0.006

81. A map of the city Paul lives in is drawn to the scale 2 cm = 1 km. On the map Paul's house is 7 cm from the city library. How many kilometres does Paul live from the library?

- 1) 3.5
2) 7
3) 9
4) 14

82. In the figure below, which line segment appears to bisect angle AOC?

- 1) BO
2) DO
3) EO
4) AO



83. Darla read 18 books last year. On the average, how many books did she read each month?

- 1) 6
2) 2
3) 1
4) $1\frac{1}{2}$

84. Which numeral below rounded to the nearest whole number is 3?

- 1) 3.99
2) 3.55
3) 3.09
4) 2.44

85. How many members are in the intersection of the sets $\{\square, \circ, \star\}$ and $\{\square, \star, \oplus, \boxtimes\}$?

- 1) Exactly one
2) Exactly two
3) Exactly three
4) Exactly five

86. Which of the following is a prime number?

- 1) 100
2) 21
3) 7
4) 4

$1\frac{1}{2} \times \frac{1}{2} = \frac{1}{2}$
 $1\frac{1}{2} \times \frac{1}{2} = \frac{1}{2}$



87. For which of these multiplication exercises would 6×7 give the best estimate of the product?

- 1) 5.95×7.09 3) 6.43×7.52
2) 6.03×7.85 4) 6.92×7.14

88. The population of British Columbia in a recent census was 2 466 418. Which of these is the closest approximation for this number of people?

- 1) $2\frac{1}{4}$ million 3) $2\frac{1}{2}$ million
2) $2\frac{1}{3}$ million 4) $2\frac{2}{3}$ million

89. What should replace n in the equation $(-8) + (-6) = n$?

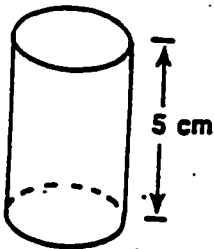
- 1) 2 3) 14
2) -2 4) -14

90. If $46 + a = b$, what is $b \times a$?

- 1) $b + 46$
2) $46 \times b$
3) 46
4) $46 \times a$

The area of the base of the cylinder below is 9 cm^2 . What is the volume of the cylinder in cubic centimetres?

- 1) 14
2) 18
3) 45
4) 90



How would you write 65% as a decimal?

- 1) 0.0065
2) 0.65
3) 6.5
4) 65.0

What should replace the $\square$ to make $\frac{\square}{9} - \frac{5}{9} = \frac{1}{3}$ a true number sentence?

- 1) 1 3) 8
2) 3 4) 9

94. Which expression below is equivalent to

- 1) $4 + 4 + 4$
2) $4 \times 4 \times 4$
3) $3 \times 3 \times 3 \times 3$
4) $16 + 4$

95. The mass of a boulder was 1 kg. How many grams would this be?

- 1) 100 3) 10 000
2) 1 000 4) 100 000

96. Which of the following is not equivalent to

- 1) $\frac{3}{2}$ 3) $\frac{1}{6}$
2) $\frac{8}{12}$ 4) $\frac{2 \times 5}{3 \times 5}$

97. What should replace x in the equation $2(x + 4) = 12$?

- 1) 2 3) 8
2) 3 4) 10

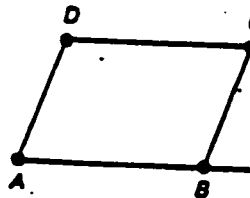
98. In the sequence of numbers below, each sequence is the sum of the term before it. What is the 30th term in the sequence?

4, 8, 12, 16, ...

- 1) 44 3) 124
2) 120 4) 480

99. In the diagram below, the enclosed region is a parallelogram. Which angle has the same measure as angle ABC?

- 1) Angle CBE
2) Angle DCB
3) Angle DAB
4) Angle ADC



100. In the number sentence $1.5 \times 0.3 = 45$ the point in the product is missing. Which of the facts below is correct?

- 1) 0.045 3) 4.5
2) 0.45 4) 4 500

1. Which fraction below has a value greater than five-eighths?

- 1) $\frac{7}{16}$ 3) $\frac{5}{8}$
2) $\frac{1}{2}$ 4) $\frac{5}{7}$

2. Which of the following expressions is not equivalent to $12 - (4 \times 2)$?

- 1) $(12 - 4) \times 2$
2) $12 - (2 \times 4)$
3) $12 - 4 - 4$
4) $12 - 2 - 2 - 2 - 2$

3. What is the greatest common factor of 100 and 2365?

- 1) 2 3) 5
2) 4 4) 10

4. The diameter of a round pipe is 2 cm. What is the best estimate of its circumference?

- 1) Slightly greater than 6 cm
2) Slightly greater than 3 cm
3) Slightly greater than 12 cm
4) 3 cm

5. What should replace the $\square$ in the number sentence

$$\frac{4}{7} \div \frac{1}{4} = \frac{4 \times \square}{7} ?$$

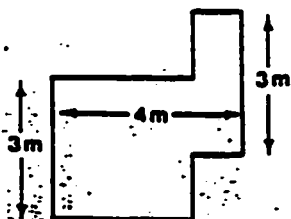
- 1) 7 3) 1
2) 4 4) $\frac{1}{4}$

6. Ed got 40% of the items right on a spelling test. Which of these fractions tells what part of the items he got right?

- 1) $\frac{1}{10}$ 3) $\frac{4}{5}$
2) $\frac{2}{5}$ 4) $\frac{1}{4}$

7. What is the area in square metres of the figure below?

- 1) 6
2) 9
3) 10
4) 12



Make no marks in this booklet

108. Which of the fractions below is equivalent to

- 1) $\frac{3}{2}$ 3) $\frac{6}{2}$
2) $\frac{4}{2}$ 4) $\frac{7}{2}$

109. Which of the following is the numeral for two hundredths?

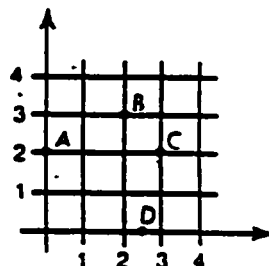
- 1) 6.02 3) 6.2
2) 6200 4) 0.62

110. What could replace the $\square$ to make $\square$ a true number sentence?

- 1) 0 3) 7
2) 6 4) 8

111. On the graph below, which point has co (2, 3)?

- 1) A
2) B
3) C
4) D



112. Karen measured her height as 166 cm to the nearest centimetre. What was the greatest possible her measurement?

- 1) 0.5 cm 3) 2 cm
2) 1 cm 4) 5 cm

113. Which of the following is equivalent to $\sqrt{24}$?

- 1) $\sqrt{2} \times \sqrt{2} \times \sqrt{3}$
2) $\sqrt{12} \times \sqrt{12}$
3) $\sqrt{6} \times \sqrt{4}$
4) $\sqrt{20} + \sqrt{4}$

What should replace the $\square$ in the equation $\frac{4}{5} \times \frac{\square}{4} = 2$?

- 1) 2
- 2) 4
- 3) 5
- 4) 10

If a , b , and c are real numbers, what sign should replace the $\square$ in the equation $a \square (b + c) = (a \times b) + (a \times c)$?

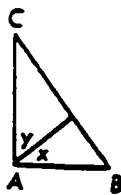
- 1) $\times$
- 2) $+$
- 3) $=$
- 4) $+$

What number should replace the square in the number sentence $0.713 \times \square = 71.3$?

- 1) 0.1
- 2) 10
- 3) 100
- 4) 1000

Triangle ABC shown below is a right triangle. The measure of angle x is 40 degrees. What is the measure of angle y ?

- 1) 40 degrees
- 2) 50 degrees
- 3) 90 degrees
- 4) 130 degrees



A bowl contains 20 chips of the same size numbered one through twenty. What is the probability that the number on a single chip drawn from the bowl will be a multiple of 6?

- 1) $\frac{6}{20}$
- 2) $\frac{3}{10}$
- 3) $\frac{3}{10}$
- 4) $\frac{3}{20}$

What should replace n in the equation $7 \times \frac{n}{7} = 10$?

- 1) 1
- 2) 7
- 3) 10
- 4) 21

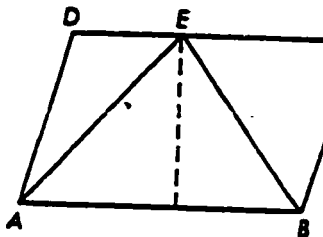
120. How many whole numbers are greater than 21?

- 1) None
- 2) Exactly two
- 3) Exactly three
- 4) Exactly four

121. In a basketball game Donna made 60% of the shots she attempted. Donna made 9 shots. How many shots did she attempt?

- 1) $\frac{60}{100} = \frac{9}{x}$
- 2) $\frac{60}{100} = \frac{x}{9}$
- 3) $\frac{9}{100} = \frac{x}{60}$
- 4) $\frac{9}{60} = \frac{100}{x}$

122. In the figure below the area of triangle ABC is 12 cm². What is the area of parallelogram $ABED$ in square centimetres?



- 1) 6
- 2) 18
- 3) 24
- 4) It is not possible to determine this without more information.

123. Which of the following is equivalent to 10^3 ?

- 1) $(1 \times 10^4) + (6 \times 10^3) + (3 \times 10^{-1})$
- 2) $(1 \times 10^3) + (6 \times 10^1) + (3 \times 10^{-1})$
- 3) $(1 \times 10^3) + (6 \times 10^0) + (3 \times 10^{-2})$
- 4) $(1 \times 10^3) + (6 \times 10^2) + (3 \times 10^1)$

Level 14



Here

Make no marks in this booklet



Vocabulary

Directions: In each exercise, you are to decide which one of the four answers has most nearly the same meaning as the word in heavy type above it.

Then, on the answer sheet, find the row of answer spaces numbered the same as the exercise you are working on. You are to mark the answer space on the answer sheet that has the same number as the answer you picked.

The sample exercise in the box at the right has already been marked correctly on the answer sheet.

SAMPLE EXERCISE

0. Bake the cake
- 1) eat
 - 2) bring
 - 3) cook
 - 4) draw

Use this table to find where your level is to begin and stop on this test.

Begin With		Stop After	
		STOP	
Level 9	→ Page 4, Exercise 1	→ Exercise 30, Page 5	
Level 10	→ Page 5, Exercise 11	→ Exercise 46, Page 6	
Level 11	→ Page 5, Exercise 25	→ Exercise 63, Page 7	
Level 12	→ Page 6, Exercise 39	→ Exercise 80, Page 7	
Level 13	→ Page 7, Exercise 56	→ Exercise 98, Page 8	
Level 14	→ Page 7, Exercise 64	→ Exercise 107, Page 8	

Make no marks in this booklet

Level 9
begin here

Patch a shirt

- 1) wear
- 2) mend
- 3) change
- 4) wash

A camper's lantern

- 1) tent
- 2) axe
- 3) compass
- 4) lamp

To be always honest

- 1) nearby
- 2) nervous
- 3) truthful
- 4) absent

4. Underneath the chair

- 1) below
- 2) around
- 3) near
- 4) opposite

5. A bird's beak

- 1) claw
- 2) mouth
- 3) wing
- 4) tail

6. Glow in the dark

- 1) shine
- 2) rest
- 3) creep
- 4) whisper

7. A quiet evening

- 1) happy
- 2) cloudy
- 3) restful
- 4) special

8. Shaking from fright

- 1) fear
- 2) fever
- 3) worry
- 4) cold

9. To tame an animal

- 1) observe
- 2) flee from
- 3) hunt for
- 4) make gentle

10. A shallow stream

- 1) muddy
- 2) not deep
- 3) rocky
- 4) winding

Level
10
Begin
Here

Make no marks in this booklet

Level
11
Begin
Here

11. A quick glance
 - 1) nap
 - 2) trip
 - 3) look
 - 4) start
12. Explore the woods
 - 1) search
 - 2) enter
 - 3) enjoy
 - 4) leave
13. A few houses
 - 1) group of
 - 2) block of
 - 3) great many
 - 4) small number of
4. To arrive finally
 - 1) quickly
 - 2) at last
 - 3) too late
 - 4) early
5. The driver's fault
 - 1) trouble
 - 2) view
 - 3) skill
 - 4) mistake
6. Damage the furniture
 - 1) deliver
 - 2) harm
 - 3) arrange
 - 4) repair
7. A vicious animal
 - 1) savage
 - 2) hungry
 - 3) lively
 - 4) wounded

18. A strong faith
 - 1) hint
 - 2) dislike
 - 3) belief
 - 4) opinion
19. To speak naturally
 - 1) gently
 - 2) normally
 - 3) harshly
 - 4) humorously
20. Invent an excuse
 - 1) believe
 - 2) explain
 - 3) accept
 - 4) make up
21. A slender branch
 - 1) thin
 - 2) long
 - 3) thick
 - 4) leafy
22. Make a selection
 - 1) wish
 - 2) purchase
 - 3) choice
 - 4) statement
23. Gather the packages
 - 1) collect
 - 2) deliver
 - 3) sort
 - 4) send out
24. A dangerous plan
 - 1) thoughtful
 - 2) risky
 - 3) faulty

25. To buy in quantity
 - 1) installments
 - 2) large amounts
 - 3) season
 - 4) pieces
26. Expensive clothes
 - 1) attractive
 - 2) comfortable
 - 3) old-fashioned
 - 4) costly
27. Organize a picnic
 - 1) enjoy
 - 2) announce
 - 3) arrange
 - 4) attend
28. Advanced cautiously
 - 1) carefully
 - 2) directly
 - 3) easily
 - 4) quickly
29. Refund the money
 - 1) send in
 - 2) save up
 - 3) give back
 - 4) borrow
30. Throughout the period
 - 1) until
 - 2) following
 - 3) preceding
 - 4) during

1. A special bulletin
1) recipe
2) election
3) announcement
4) shipment

2. Rehearse a speech
1) practise
2) prepare
3) rewrite
4) record

3. An ordinary performance
1) awful
2) unexpected
3) outstanding
4) average

4. A joyous festival
1) miracle
2) celebration
3) adventure
4) reunion

5. Absolutely sure
1) almost
2) seldom
3) totally
4) somewhat

6. Instruct an assistant
1) criticize
2) work with
3) give directions to
4) help

7. Reflected sunlight
1) decreased
2) absorbed
3) clouded
4) mirrored

8. Guarantee the outcome
1) predict
2) guess
3) influence
4) assure

Level
12
Begin
Here

39. The original plan
1) first
2) newest
3) best
4) changed

40. Include a statement
1) agree with
2) leave out
3) contain
4) question

41. To avoid the collision
1) injury
2) crash
3) decision
4) damage

42. Durable equipment
1) modern
2) dangerous
3) high-priced
4) sturdy

43. To ignore the issue
1) explain
2) neglect
3) think about
4) inquire about

44. To study earnestly
1) happily
2) endlessly
3) carelessly
4) seriously

45. A great banquet
1) battle
2) concert
3) feast
4) victory

46. Recognize a voice
1) identify
2) describe
3) imitate
4) listen to

47. To annoy the driver
1) assist
2) confuse
3) irritate
4) startle

48. Intense heat
1) instant
2) increasing
3) moderate
4) extremely great

49. To set the pace
1) speed
2) trap
3) race
4) rule

50. Approximately correct
1) exactly
2) never
3) rarely
4) nearly

51. A firm refusal
1) demand
2) request
3) rejection
4) offer

52. Baffle the reader
1) deceive
2) confuse
3) amuse
4) convince

53. Confident of the result
1) doubtful
2) certain
3) fearful
4) hopeful

54. Express an opinion
1) reverse
2) defend
3) declare
4) compare

55. A visible entrance
1) secret
2) private
3) usable
4) noticeable

Make no marks in this booklet

Make no marks in this booklet

Level 10



Here

Level
13
Begin
Here

6. Notice the reaction
- 1) attempt
 - 2) accomplishment
 - 3) influence
 - 4) response

7. Eliminate the obstacle
- 1) remove
 - 2) avoid
 - 3) encounter
 - 4) overlook

- To win eventually
- 1) with ease
 - 2) happily
 - 3) finally
 - 4) dramatically

- The object of the game
- 1) rules
 - 2) purpose
 - 3) story
 - 4) ending

- A cluttered desk
- 1) disorderly
 - 2) well-built
 - 3) littered
 - 4) broken-down

- Astonish the audience
- 1) inform
 - 2) delight
 - 3) upset
 - 4) surprise

- A frantic search
- 1) desperate
 - 2) quick
 - 3) complete
 - 4) useless

- I lack information
- 1) want more
 - 2) be without
 - 3) withhold
 - 4) look for

11  Here

Level
14
Begin
Here

64. A display of gratitude
- 1) resentment
 - 2) appreciation
 - 3) freedom
 - 4) guilt

65. A bankrupt business
- 1) financially ruined
 - 2) recently financed
 - 3) newly formed
 - 4) profitable

66. To overcome a handicap
- 1) admit
 - 2) conquer
 - 3) reveal
 - 4) deny

67. Data for a report
- 1) schedule
 - 2) objectives
 - 3) information
 - 4) work

68. To visit occasionally
- 1) once in a while
 - 2) almost never
 - 3) frequently
 - 4) unexpectedly

69. To assure success
- 1) be denied
 - 2) work for
 - 3) demand
 - 4) promise

70. Unusual circumstances
- 1) procedures
 - 2) conditions
 - 3) results
 - 4) experiences

71. Strive for victory
- 1) hope
 - 2) plan carefully
 - 3) work hard
 - 4) yearn

72. Stood mute
- 1) steadfast
 - 2) silent
 - 3) together
 - 4) aside

73. Increased velocity
- 1) speed
 - 2) distance
 - 3) curiosity
 - 4) capacity

74. A victorious triumph
- 1) promising
 - 2) fortunate
 - 3) powerful
 - 4) triumphant

75. To signify approval
- 1) indicate
 - 2) withdraw
 - 3) expect
 - 4) seek

76. The urge to impulse
- 1) ability
 - 2) impulse
 - 3) skill
 - 4) luck

77. Flimsy excuse
- 1) reasonable
 - 2) crafty
 - 3) unconvincing
 - 4) genuine

78. Concentrate our effort
- 1) extend
 - 2) encourage
 - 3) focus
 - 4) conserve

79. A worthwhile invention
- 1) purpose
 - 2) suggestion
 - 3) experiment
 - 4) invention

80. Effective argument
- 1) serious
 - 2) forceful
 - 3) disputed
 - 4) violent

Make no marks in this booklet

Make no marks in this booklet

Level 12 



11. Precise measure

- 1) constant
- 2) exact
- 3) simple
- 4) approximate

2. To cease studying

- 1) delay
- 2) forego
- 3) discontinue
- 4) consider

3. A remarkable resemblance

- 1) similarity
- 2) discovery
- 3) performance
- 4) appearance

i. An agile acrobat

- 1) awkward
- 2) entertaining
- 3) over-anxious
- 4) easy-moving

i. The crowd emerged

- 1) came into view
- 2) assembled
- 3) moved suddenly
- 4) disappeared

Still under warranty

- 1) quarantine
- 2) arrest
- 3) repair
- 4) guarantee

A parched garden

- 1) diseased
- 2) weedy
- 3) dried out
- 4) broken up

Verify a rumour

- 1) begin
- 2) confirm
- 3) spread
- 4) squelch

A vague recollection

- 1) memory
- 2) gathering
- 3) proposal
- 4) fantasy

Make no marks in this booklet

90. Beneficial result

- 1) predicted
- 2) peculiar
- 3) favourable
- 4) shocking

91. Apprehend the fugitive

- 1) surrender
- 2) pursue
- 3) release
- 4) capture

92. The correct sequence

- 1) amount
- 2) result
- 3) reason
- 4) order

93. The immense forest

- 1) dark
- 2) huge
- 3) dense
- 4) ancient

94. To suppress information

- 1) distort
- 2) seek out
- 3) distribute
- 4) hold back

95. A quest for knowledge

- 1) search
- 2) thirst
- 3) need
- 4) respect

96. Escalate the effort

- 1) motivate
- 2) disrupt
- 3) increase
- 4) suspend

97. To speak confidentially

- 1) privately
- 2) quietly
- 3) truthfully
- 4) confidently

98. Perpetual confusion

- 1) frantic
- 2) never-ending
- 3) sudden
- 4) minor

99. A desolate land

- 1) bountiful
- 2) vast
- 3) barren
- 4) rocky

100. Abort the launch

- 1) monitor
- 2) describe
- 3) prepare for
- 4) call off

101. A test of stamina

- 1) patience
- 2) endurance
- 3) speed
- 4) knowledge

102. A gallant knight

- 1) handsome
- 2) decorated
- 3) courageous
- 4) guarded

103. To exceed the limit

- 1) surpass
- 2) increase
- 3) assess
- 4) announce

104. To win by fraud

- 1) mistake
- 2) deception
- 3) determination
- 4) chance

105. An interesting voyage

- 1) journey
- 2) holiday
- 3) hobby
- 4) occupation

106. Salvage discarded

- 1) search for
- 2) reclaim
- 3) destroy
- 4) collect

107. A grudging admission

- 1) shameful
- 2) damaging
- 3) reluctant
- 4) disturbing

Make no marks in this booklet

Level 13



Here

Level 14



SELF-DESCRIPTION QUESTIONNAIRE - I



Your Name: _____

Circle one: Boy Girl

School: _____

Grade: _____ Age: _____

Teacher: _____

Date: _____

This is a chance to look at yourself. It is not a test. There are no right answers, and everyone will have different answers. Be sure that your answers show how you feel about yourself. PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE. We will keep your answers private and not show them to anyone.

When you are ready to begin, please read each sentence and choose an answer. (You may read quietly to yourself as I read aloud.) There are five possible answers for each question: "True," "False," and three answers in between. There are five boxes next to each sentence, one for each of the answers. The answers are written at the top of the boxes. Choose your answer to a sentence and make a check mark in the box under the answer you choose. DO NOT say your answer out loud or talk about it with anyone else.

Before you start, there are three examples below. A student, Bob, has already answered two of these sentences to show you how to do it. In the third example you must choose your own answer and put in your own check mark.

EXAMPLES

		FALSE	MOSTLY FALSE	SOME- TIMES FALSE/ SOME- TIMES TRUE	MOSTLY TRUE	TRUE	
1. I like to read comic books	1	☐	☐	☐	☐	☒	1

Bob checked the box under the answer "True." This means that he really likes to read comic books. If Bob did not like to read comic books very much, he would have answered "FALSE" or "MOSTLY FALSE."

2. In general, I am neat and tidy	2	☐	☐	☒	☐	☐	2
---	---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	---

Bob answered "SOMETIMES FALSE, SOMETIMES TRUE," because he is not very neat, but he is not very messy either.

3. I like to watch TV.	3	☐	☐	☐	☐	☐	3
-----------------------------	---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	---

For this sentence you have to choose the answer that is best for you. First you must decide if the sentence is "TRUE," or "FALSE," or somewhere in between. If you really like to watch TV, a lot, you would answer "TRUE" by making a check mark in the last box. If you hate watching TV, you would answer "FALSE" by making a check mark in the first box. If your answer is somewhere in between, then you would choose one of the other three boxes.

If you want to change an answer you have marked, you should cross out the check mark and put a new check mark in another box on the same line.

For all the sentences be sure that your check mark is on the same line as the sentence you are answering. You should have one answer and only one answer for each sentence. Do not leave out any of the sentences. Once you have started, PLEASE DO NOT TALK. Turn over the page and begin.

		FALSE	MOSTLY FALSE	SOME- TIMES FALSE/ SOME- TIMES TRUE	MOSTLY TRUE	TRUE	
1. I am good looking	1	☐	☐	☐	☐	☐	1
2. I'm good at all SCHOOL SUBJECTS	2	☐	☐	☐	☐	☐	2
3. I can run fast	3	☐	☐	☐	☐	☐	3
4. I get good marks in READING	4	☐	☐	☐	☐	☐	4
5. My parents understand me	5	☐	☐	☐	☐	☐	5
6. I hate MATHEMATICS	6	☐	☐	☐	☐	☐	6
7. I have lots of friends	7	☐	☐	☐	☐	☐	7
8. I like the way I look	8	☐	☐	☐	☐	☐	8
9. I enjoy doing work in all SCHOOL SUBJECTS	9	☐	☐	☐	☐	☐	9
10. I like to run and play hard	10	☐	☐	☐	☐	☐	10
11. I like READING	11	☐	☐	☐	☐	☐	11
12. My parents are usually unhappy or disappointed with what I do	12	☐	☐	☐	☐	☐	12
13. Work in mathematics is easy for me	13	☐	☐	☐	☐	☐	13

		FALSE	MOSTLY FALSE	SOME- TIMES FALSE/ SOME- TIMES TRUE	MOSTLY TRUE	TRUE	
14. I make friends easily	14	☐	☐	☐	☐	☐	14
15. I have a pleasant looking face	15	☐	☐	☐	☐	☐	15
16. I get good marks in all SCHOOL SUBJECTS	16	☐	☐	☐	☐	☐	16
17. I hate sports and games	17	☐	☐	☐	☐	☐	17
18. I'm good at READING	18	☐	☐	☐	☐	☐	18
19. I like my parents	19	☐	☐	☐	☐	☐	19
20. I look forward to MATHEMATICS	20	☐	☐	☐	☐	☐	20
21. Most kids have more friends than I do	21	☐	☐	☐	☐	☐	21
22. I am a nice looking person	22	☐	☐	☐	☐	☐	22
23. I hate all SCHOOL SUBJECTS	23	☐	☐	☐	☐	☐	23
24. I enjoy sports and games	24	☐	☐	☐	☐	☐	24
25. I am interested in READING	25	☐	☐	☐	☐	☐	25
26. My parents like me	26	☐	☐	☐	☐	☐	26

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
27. I get good marks in MATHEMATICS	27	☐	☐	☐	☐	☐	27
28. I get along with kids easily	28	☐	☐	☐	☐	☐	28
29. I do lots of important things	29	☐	☐	☐	☐	☐	29
30. I am ugly	30	☐	☐	☐	☐	☐	30
31. I learn things quickly in all SCHOOL SUBJECTS ..	31	☐	☐	☐	☐	☐	31
32. I have good muscles	32	☐	☐	☐	☐	☐	32
33. I am dumb at reading	33	☐	☐	☐	☐	☐	33
34. If I have children of my own, I want to bring them up like my parents raised me	34	☐	☐	☐	☐	☐	34
35. I am interested in MATHEMATICS	35	☐	☐	☐	☐	☐	35
36. I am easy to like	36	☐	☐	☐	☐	☐	36
37. Overall, I am no good	37	☐	☐	☐	☐	☐	37
38. Other kids think I am good looking	38	☐	☐	☐	☐	☐	38
39. I am interested in all SCHOOL SUBJECTS	39	☐	☐	☐	☐	☐	39

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
40. I am good at sports	40	☐	☐	☐	☐	☐	40
41. I enjoy doing work in READING	41	☐	☐	☐	☐	☐	41
42. My parents and I spend a lot of time together	42	☐	☐	☐	☐	☐	42
43. I learn things quickly in MATHEMATICS	43	☐	☐	☐	☐	☐	43
44. Other kids want me to be their friend	44	☐	☐	☐	☐	☐	44
45. In general, I like being the way I am	45	☐	☐	☐	☐	☐	45
46. I have a good looking body	46	☐	☐	☐	☐	☐	46
47. I am dumb in all SCHOOL SUBJECTS	47	☐	☐	☐	☐	☐	47
48. I can run a long way without stopping	48	☐	☐	☐	☐	☐	48
49. Work in READING is easy for me	49	☐	☐	☐	☐	☐	49
50. My parents are easy to talk to	50	☐	☐	☐	☐	☐	50
51. I like MATHEMATICS	51	☐	☐	☐	☐	☐	51
52. I have more friends than most other kids	52	☐	☐	☐	☐	☐	52

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
53. Overall I have a lot to be proud of	53	☐	☐	☐	☐	☐	53
54. I'm better looking than most of my friends	54	☐	☐	☐	☐	☐	54
55. I look forward to all SCHOOL SUBJECTS	55	☐	☐	☐	☐	☐	55
56. I am a good athlete	56	☐	☐	☐	☐	☐	56
57. I look forward to READING	57	☐	☐	☐	☐	☐	57
58. I get along well with my parents	58	☐	☐	☐	☐	☐	58
59. I'm good at MATHEMATICS	59	☐	☐	☐	☐	☐	59
60. I am popular with kids of my own age	60	☐	☐	☐	☐	☐	60
61. I can't do anything right	61	☐	☐	☐	☐	☐	61
62. I have nice features like nose, and eyes, and hair ..	62	☐	☐	☐	☐	☐	62
63. Work in all SCHOOL SUBJECTS is easy for me ..	63	☐	☐	☐	☐	☐	63
64. I'm good at throwing a ball	64	☐	☐	☐	☐	☐	64

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
65. I hate READING	65	☐	☐	☐	☐	☐	65
66. My parents and I have a lot of fun together	66	☐	☐	☐	☐	☐	66
67. I can do things as well as most other people	67	☐	☐	☐	☐	☐	67
68. I enjoy doing work in MATHEMATICS	68	☐	☐	☐	☐	☐	68
69. Most other kids like me	69	☐	☐	☐	☐	☐	69
70. Other people think I am a good person	70	☐	☐	☐	☐	☐	70
71. I like all SCHOOL SUBJECTS	71	☐	☐	☐	☐	☐	71
72. A lot of things about me are good	72	☐	☐	☐	☐	☐	72
73. I learn things quickly in READING	73	☐	☐	☐	☐	☐	73
74. I'm as good as most other people	74	☐	☐	☐	☐	☐	74
75. I am dumb at MATHEMATICS	75	☐	☐	☐	☐	☐	75
76. When I do something, I do it well	76	☐	☐	☐	☐	☐	76

Self-Report Family Inventory: Version II

For each question, mark the answer that best fits how you see your family now. Answer the questions keeping your relationship with your mother in mind. If you feel that your answer is between two of the labeled numbers (the odd numbers), then choose the even number that is between them.

YES: Fits our family Very Well		SOME: Fits our family some		NO: Does not fit our family			
1	2	3	4	5			
1.	We pay attention to each other's feelings.		1	2	3	4	5
2.	We would rather do things together than with other people.		1	2	3	4	5
3.	We both have a say in family plans.		1	2	3	4	5
4.	Grownups in this family understand and agree on family decisions.		1	2	3	4	5
5.	Grownups in the family compete and and fight with each other.		1	2	3	4	5
6.	We're close but each person is allowed to be special and different.		1	2	3	4	5
7.	We accept each other's friends.		1	2	3	4	5
8.	There is confusion in our family because there is no leader.		1	2	3	4	5
9.	We touch and hug each other.		1	2	3	4	5
10.	We put each other down.		1	2	3	4	5
11.	We speak our minds no matter what.		1	2	3	4	5
12.	In our home we feel loved.		1	2	3	4	5
13.	Even when we feel close, we are embarrassed to admit it.		1	2	3	4	5
14.	We argue a lot and never solve problems.		1	2	3	4	5
15.	Our happiest times are at home.		1	2	3	4	5

YES SOME NO

16.	My mother is a strong leader in this family.	1	2	3	4	5
17.	The future looks good to us.	1	2	3	4	5
18.	We usually blame one person in our family when things aren't going right.	1	2	3	4	5
19.	We go our own way most of the time.	1	2	3	4	5
20.	We are proud of being close.	1	2	3	4	5
21.	We are good at solving problems together.	1	2	3	4	5
22.	We easily express warmth and caring towards each other.	1	2	3	4	5
23.	It's okay for us to fight and yell.	1	2	3	4	5
24.	My mother has a favourite child in this family.	1	2	3	4	5
25.	When things go wrong we blame each other.	1	2	3	4	5
26.	We say what we think and feel.	1	2	3	4	5
27.	We would rather do things with other people than together.	1	2	3	4	5
28.	We pay attention to each other and listen to what is being said.	1	2	3	4	5
29.	We worry about hurting each other's feelings.	1	2	3	4	5
30.	The mood between us is usually sad and blue.	1	2	3	4	5
31.	We argue a lot.	1	2	3	4	5
32.	My mother controls and leads our family.	1	2	3	4	5
33.	We are happy most of the time.	1	2	3	4	5
34.	We each take responsibility for our own behavior.	1	2	3	4	5

35. On a scale of 1 to 5, I would rate my relationship with my mother as:

1

2

3

4

5

Functioning very
well together

Not functioning
well together
at all

36. On a scale of 1 to 5, I would rate the independence of our relationship as:

1

2

3

4

5

We are not independent.
-There are no open
arguments.
-We rely on each other
for satisfaction rather
than on outsiders.

We are sometimes
independent
-There are some
disagreements.
-We find satisfaction
both within and
outside of the family.

We usually go
our own way.
-Disagreements
are open.
-We look
outside of the
family for
satisfaction

Self-Report Family Inventory: Version II

For each question, mark the answer that best fits how you see your family now. Answer the questions keeping your relationship with your father in mind. If you feel that your answer is between two of the labeled numbers (the odd numbers), then choose the even number that between them.

	YES: Fits our family Very Well		SOME: Fits our family some		NO: Does not fit our family	
	1	2	3	4	5	
1. We pay attention to each other's feelings.				1	2	3 4 5
2. We would rather do things together than with other people.				1	2	3 4 5
3. We both have a say in family plans.				1	2	3 4 5
4. Grownups in this family understand and agree on family decisions.				1	2	3 4 5
5. Grownups in the family compete and and fight with each other.				1	2	3 4 5
6. We are close but each person is allowed to be special and different.				1	2	3 4 5
7. We accept each other's friends.				1	2	3 4 5
8. There is confusion in our family because there is no leader.				1	2	3 4 5
9. We touch and hug each other.				1	2	3 4 5
10. We put each other down.				1	2	3 4 5
11. We speak our minds no matter what.				1	2	3 4 5
12. In our home we feel loved.				1	2	3 4 5
13. Even when we feel close, we are embarrassed to admit it.				1	2	3 4 5
14. We argue a lot and never solve problems.				1	2	3 4 5
15. Our happiest times are at home.				1	2	3 4 5

	YES	SOME			NO
16. My father is a strong leader in this family.	1	2	3	4	5
17. The future looks good to us.	1	2	3	4	5
18. We usually blame one person in our family when things aren't going right.	1	2	3	4	5
19. We go our own way most of the time.	1	2	3	4	5
20. We are proud of being close.	1	2	3	4	5
21. We are good at solving problems together.	1	2	3	4	5
22. We easily express warmth and caring towards each other.	1	2	3	4	5
23. It's okay for us to fight and yell.	1	2	3	4	5
24. My father has a favourite child in this family.	1	2	3	4	5
25. When things go wrong we blame each other.	1	2	3	4	5
26. We say what we think and feel.	1	2	3	4	5
27. We would rather do things with other people than together.	1	2	3	4	5
28. We pay attention to each other and listen to what is being said.	1	2	3	4	5
29. We worry about hurting each other's feelings.	1	2	3	4	5
30. The mood between us is usually sad and blue.	1	2	3	4	5
31. We argue a lot.	1	2	3	4	5
32. My father controls and leads our family.	1	2	3	4	5
33. We are happy most of the time.	1	2	3	4	5
34. We each take responsibility for our own behavior.	1	2	3	4	5

35. On a scale of 1 to 5, I would rate my relationship with my father as:

1	2	3	4	5
Functioning very well together				Not functioning well together at all

36. On a scale of 1 to 5, I would rate the independence of our relationship as:

1	2	3	4	5
We are not independent. -There are no open arguments. -We rely on each other for satisfaction rather than on outsiders.		We are sometimes independent -There are some disagreements. -We find satisfaction both within and outside of the family.		We usually go our own way. -Disagreements are open. -We look outside of the family for satisfaction

Appendix D

Consent Forms

CONSENT FORM FOR MOTHERS

**Dr. Valerie Whiffen
Veronica Kallos
School of Psychology
University of Ottawa
Ottawa, Ontario
K1N 6N5
564-9461 or 564-9463**

Researchers from the University of Ottawa are conducting a study on family relationships. Written consent is requested from all participants in order to ensure that they are aware of the nature of the study, and that they are fully informed about their rights as research participants. Your participation in this research project is completely voluntary. The decision you make regarding whether or not to take part in this study will in no way affect the psychological services you are presently receiving. If you would like to participate in this research, please complete two copies of this form, one for your own purposes, and one to be retained by the researchers.

Dr. Valerie Whiffen and Ms. Veronica Kallos from the University of Ottawa are conducting a study on the nature of family relationships (i.e., marital and parent-child relationships). Participation in this study consists of three main components. The first component involves completing a computer administered interview about how you are currently feeling. The interview takes from 45 to 90 minutes to complete and a clinical psychology intern will be available to answer any questions that may arise during the administration. In the second component, you will be asked to complete questionnaires regarding your background, as well as your perceptions of yourself, your child, and your marital relationship. A similar questionnaire package will be distributed to your spouse, provided that he is also interested in participating in the study. These inventories require about 45 minutes to complete and can be filled out at home and returned at a later date. The questionnaires include:

- 1. the Demographic Information Questionnaire**
- 2. three questionnaires concerning how you feel and interact in close relationships, including:**
 - the Checklist of Interpersonal Transactions**
 - the Miller Social Intimacy Scale**
 - the Relationship Questionnaire**
- 3. the Beck Inventory, a questionnaire pertaining to how you feel about various aspects of yourself and your life.**
- 4. the Child Behavior Checklist, a checklist of behaviours or symptoms commonly experienced by children.**

The final component involves bringing your child into the laboratory on three occasions, 6 months apart. At each of these time points you will be administered an interview about how you are feeling in various areas of your life. At the same time, your child will be asked to fill out questionnaires pertaining to perceptions of him/herself, as well as his/her social and family relationships. Additionally, he/she will be asked to work through some questions relating to mathematical concepts and vocabulary. These instruments will be administered by a clinical psychology intern and should take approximately 2 hours to complete. The instruments include:

1. the Self-Description Questionnaire, a questionnaire designed to assess how children feel about themselves in regard to several domains of their lives.
2. the Mathematical Concepts and Vocabulary sections of the Canadian Tests of Basic Skills, a test of academic achievement.
3. the Self-Report Family Inventory, a measure of family interactions and parent-child relationships.

All the information provided by you and your child will be held confidential, such that only the investigators involved with this study will have access to it. Your name will not be disclosed, nor will you be identified in any way in connection with the results of the study. You may withdraw from the study at any time, or refuse to complete any part of it without this affecting any psychological services you may currently be receiving.

Your family will be compensated in graduated payments of \$5.00 for each component of the study. Therefore, you will receive \$10.00 for the first interview with your child, \$15.00 for completing the computer interview, \$20.00 for completing the take-home questionnaire package, \$25.00 for the second interview with your child, \$30.00 for the second interview with you, and so on, up to a total of \$175.00. If you have any questions or concerns at any time during the study please call Dr. Valerie Whiffen or Veronica Kallos at 564-9461 or 564-9463. If you would like to receive the final results of the study please check the box on the next page and provide your address.

I, _____ agree to participate and I would

like my son/daughter _____ to take part

in the study that is described above.

Date: _____

Signature of participant/parent: _____

Signature of investigator: _____

I would like to receive information about the results of this study:
() yes () no

Address:

Thank you for your time and cooperation.

CONSENT FORM FOR FATHERS

**Dr. Valerie Whiffen
Veronica Kallos
School of Psychology
University of Ottawa
Ottawa, Ontario
K1N 6N5
564-9461 or 564-9463**

Researchers from the University of Ottawa are conducting a study on family relationships. Written consent is requested from all participants in order to ensure that they are aware of the nature of the study, and that they are fully informed about their rights as research participants. If you would like to participate in this study, complete two copies of this form, one for your own purposes, and one to be retained by the researchers.

Dr. Valerie Whiffen and Ms. Veronica Kallos from the University of Ottawa are conducting a study on the nature of family relationships (i.e., marital and parent-child relationships). As you may know, your spouse and child have already agreed to participate in this study. Your participation would involve completing questionnaires regarding your background, and your perceptions of yourself and your marital relationship. These questionnaires include:

- 1. the Demographic Information Questionnaire**
- 2. three questionnaires concerning how you feel and interact in close relationships, including:**
 - the Checklist of Interpersonal Transactions**
 - the Miller Social Intimacy Scale**
 - the Relationship Questionnaire**
- 3. the Beck Inventory, a questionnaire pertaining to how you feel about various aspects of yourself and your life.**

Completion of the questionnaires will take approximately half an hour. An envelope and postage will be provided for you to return the completed questionnaire package. All the information that you provide will be held confidential, such that only the investigators (Dr. Valerie Whiffen and Veronica Kallos) will have access to it. Your name will not be disclosed, nor will you be identified in any way in connection with the results of the study. You may withdraw from the study at any time, or refuse to complete any part of it. If you have any questions or concerns at any time during the study please call Dr. Valerie Whiffen or Veronica Kallos at 564-9461 or 564-9463. If you would like to receive the final results of the study please check the box on the next page and provide your address.

I, _____ agree to participate in the study that is described above.

Date: _____

Signature of participant: _____

Signature of investigator: _____

I would like to receive information about the results of this study:
☐ yes ☐ no

Address:

Thank you for your time and cooperation.

INTRODUCTION FOR INTERVIEW WITH CHILDREN

As your mother may have told you, you're here today because we are trying to find out about families. In order to find out as much as we can about families we get information from different people in the family. If you want to take part in this study, you and I will go into another room and have a private talk. Do you understand what I mean by "private"? (Explain word if child does not understand and then continue). I won't be telling your mother or anyone else what you say except if you tell me something that makes me worry about you. Then I'll have to talk to one of your parents or to your therapist. For everything else, in order to keep it private, I'm going to ask your mother not to even ask you what we talked about. I'll be asking you some questions about how you feel about yourself and your family. I'll be asking you a lot of different questions, but there are no right or wrong answers. All I really want to know is what you think, so just try and be truthful. If you don't want to answer a question then just tell me. Afterwards, I'll ask you to work through some math problems and questions about vocabulary. It will probably take about 2 hours to finish everything. Six months from now we will ask you to come back and do the exact same things you'll do today.

Remember that our talk will be kept private. Do you understand everything we've talked about so far? Do you have any questions about what I've said? Are you ready to begin?

Appendix E

Demographic Information Questionnaire

and

Instructions for Completing the Questionnaire Package

DEMOGRAPHIC INFORMATION QUESTIONNAIRE

Male () Female ()

Age: _____

Number: _____

1. How long have you been in your present marriage? _____
2. Have you been married before? yes () no ()
3. Do you have any children? yes () no ()
4. Are you the biological parent of the child who agreed to participate in this study? yes () no ()
5. How many children are living at home with you? _____
6. Have you ever sought marital counselling during this relationship? yes () no ()
7. Have you ever sought individual counselling? yes () no ()
8. Please place a check mark next to the item which best describes your level of education:

 _____ Grade 12 or less
 _____ Completed secondary education
 _____ 2 years of post secondary education or less
 _____ Community college completed
 _____ University education completed
 _____ Graduate program completed
 _____ Ph.D. or equivalent completed
9. What is your current occupation?

10. Please place a check mark next to the item that describes your gross family income:

_____ Under \$15,000
_____ \$15,000 to \$25,000
_____ \$25,000 to \$35,000
_____ \$35,000 to \$45,000
_____ \$45,000 to \$55,000
_____ Over \$55,000

Thank You

INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE PACKAGE

There are a couple of things we would like you to keep in mind while filling out the questionnaires. Try to find a quiet place where you will not be interrupted. It shouldn't take you more than about 30-45 minutes to complete all the questionnaires in the package. Even though you and your spouse will be completing the same questionnaires, it is important that you work independently from each other. Specific instructions are provided for each questionnaire. When answering the questions, we ask that you try to be as accurate and sincere as possible. There are no right or wrong answers, we are simply interested in your honest opinions. Although we encourage you to answer all the items on the questionnaires, you are certainly not obliged to answer any questions that you feel uncomfortable responding to. If you experience any disturbing thoughts or emotions while completing the questionnaire package, we strongly encourage you to contact us.

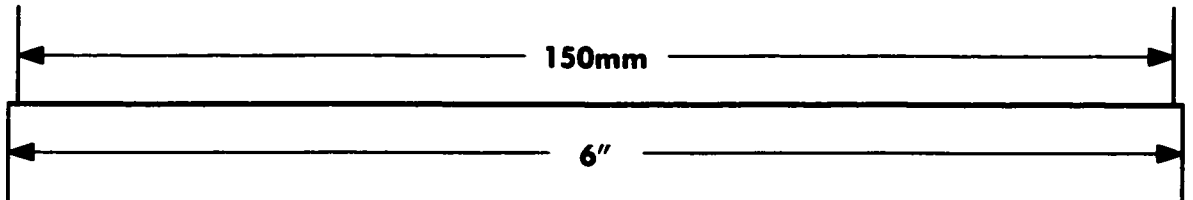
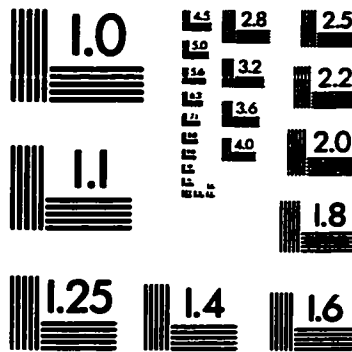
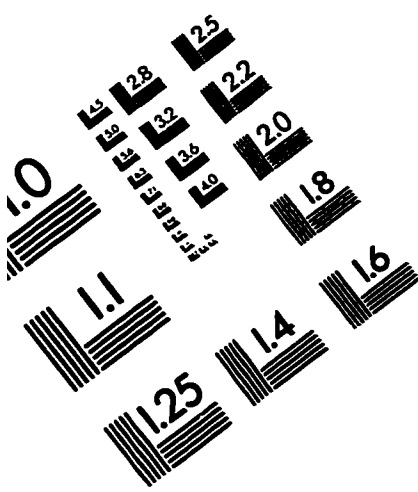
Once you have completed all the questionnaires we ask that you return them to the researchers when you bring your child into the laboratory or place them in the postage-paid envelope and mail them to the University of Ottawa. If you have any questions about the study, please contact Dr. Valerie Whiffen or Ms. Veronica Kallos at 564-9461 or 564-9463.

We would like to extend our appreciation for your co-operation in this research project.

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IMAGE EVALUATION TEST TARGET (QA-3)



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