

The Relationship Between Maternal Depression and Child Outcomes in a Child Welfare Sample: Implications for Policy and Treatment¹

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Abstract

Maternal depression has been identified as an extremely important parenting variable in relation to child outcomes. The purpose of this research study was to address the issue of maternal depression as it relates to the lives of children who are being seen by child protection authorities. Maternal depression was reviewed in the context of the increasing referrals and admissions to care of children coming to the Children's Aid Society (CAS) of London and Middlesex. A variety of child outcomes including those of particular relevance to child protection, specifically disorders of attachment and neglect and physical abuse, school related variables, conduct disorder and psychological distress were investigated. The relative contribution of maternal depression along with measures of socioeconomic status and social isolation to childhood risk was examined. Results indicated that the rate of maternal depression doubled during the years 1995-2001. Maternal depression was related to children being admitted to CAS care. Additional poor child outcomes such as attention deficit disorder, conduct disorder and emotional adjustment were also related to maternal depression. The findings are discussed in terms of treatment and policies that can lower the risk to children through effective intervention with depressed mothers.

KEYWORDS: Maternal depression, child protection, treatment, policy

Introduction

There is considerable evidence of a relationship between maternal depression and poor outcomes for children (Lee & Gotlib, 1989; Jacob & Johnson, 1997). Wolfe (1999) has suggested that rates of maternal depression may influence the extent to which families are referred to mental health and children services organizations.

Since the mid-1990s, there has been a dramatic increase in both referrals to the province's child protection agencies as well as admissions to children's aid society (CAS) care. The number of children who were suspected of being abused or neglected and were investigated by CASs increased by 44% between 1993 and 1998 across fifty-two children's aid societies in Ontario. The number of substantiated investigations of neglect doubled between 1993 and 1998 rising from 4,400 to 8,900. The number of children admitted to CAS care increased from 10,419 in 1996 to 15,792 by 2001 (Rivers, Trocme, Goodman & Marwah, 2002). Our own review of changes in Ontario's child welfare policy suggests that 1995 was a critical year for assessing the impact of subsequent changes to child welfare practice (King, Leschied, Whitehead, Chiodo & Hurley, 2003). The year 1995 coincided with a change in government policy that influenced the delivery of a range of social services that influence client groups who are likely to be consumers of the child welfare system.

Mothers who experience depression constitute a risk to the well-being of their children. This study reports on data from the CAS of London and Middlesex at two time periods, 1995 and 2001, and examines the variability in the number of mothers who are depressed. Evidence is reported on the comparative rates of maternal depression for children who were considered to be in need of protection and admitted to CAS care compared to those children who were considered to be in need of protection but received services through the CAS and other community agencies while living in their own homes. The following sections present research relating maternal depression to child outcomes that are of specific concern to the child welfare system. The mechanisms by which depression affects parenting styles and outcomes in children's adjustment are reviewed.

1.1 Evidence for the Extent of Parents Diagnosed with Depression

The Canadian Mental Health Association (1995) reports that one out of twenty Canadian adults suffers from depression. Willms (2002) notes that many of this 5% are also parents so the depression impacts on their children as well:

Even feelings of mild discouragement experienced in everyday life which are enough to make a parent absent-minded and irritable, can be sensed by a child. Consequently, the more severe symptoms of depression can have a considerable effect on a child's development (p. 211).

1.1.2 Focus on maternal depression

While the rate of clinical depression in the general population is about 5%, studies indicate that there are sizeable gender differences (Kornstein et al., 2000). Arean, McQuaid & Munoz (1997) indicate that females are diagnosed with depression at a rate of 7% to 21% compared to males who are diagnosed at a rate of between 4% and 8%. Mothers in the general population are the primary or sole parent in families to a greater extent than are fathers, and the difference is even greater for families involved in the system of child welfare (Wolfe, 1999). Studies have examined the differential effects of depressed mothers versus depressed fathers on the adjustment of their children. Jacob and Johnson (1997) showed that depressed mothers and fathers both contribute to poor outcomes in children. Depressed mothers account for greater negativity and poorer communication within the family. Connell and Goodman (2002) note that maternal depression affects younger children whereas paternal psychopathology (e.g., alcoholism and depression) is more closely related to emotional and behaviour problems in older children.

1.2 Aspects in Depressed Parenting that Influence Child Adjustment

Coiro (1998) reports that maternal depression is related to child risk in cognitive, social, emotional and physical development with parenting that is less responsive resulting in greater hostility than parenting by non-depressed mothers. There are three primary areas of research in the literature on maternal depression. The first situates mothers who are diagnosed with depression within a broader social context. Variables related to maternal

depression reflect the influence of poverty and social isolation. The second examines how maternal depression influences family organization and child-rearing practices. The third reports correlates of maternal depression with a variety of outcomes that involve child adjustment.

1.2.1 Relationship of maternal depression with comorbid social factors

Studies relating the effects of maternal depression to child outcomes view depression in the context of social factors that, if not triggering depression, exacerbate the condition. Many of these co-morbid features to maternal depression increase the risk to a child's well-being.

1.2.2 Maternal depression and poverty

Harnish, Dodge & Valente (1995) note that within the challenges that face depressed mothers, the stress associated with a lack of financial resources, "significantly influences the ability of mothers and children to enjoy and participate effectively in interaction" (p. 749). Low socioeconomic status within a group of depressed mothers has been associated with a lack of maternal warmth, non-nurturant parenting, and an increase in coercive parental interactions (Dodge, Pettit & Bates, 1994). Support for the relationship between maternal depression, socioeconomic status and child outcomes is reflected in a rigorous evaluation of welfare reform in the state of Minnesota. In a randomized clinical trial, depressed single mothers who experienced increased rates of employment and decreased poverty reported fewer behaviour problems and more positive school performance in their children (Gennetian & Miller, 2002).

1.2.3 Maternal depression and social isolation

Social isolation with parenting is typically reported in the context of marital status or a co-parent relationship with another caregiver. Lipman et al. (2002) indicate that "single family status on its own is a significant predictor of all child difficulties" (p. 75). The strength of this relationship is influenced by the presence of maternal depression and hostile parenting. Mothers who are both depressed and without social support appear to be less available to positively interact with their child and report increasing rates of aggressive or hostile parent-child interactions (Lee & Gotlib, 1989; Downey & Coyne, 1990; Kalil & Kunz, 2002).

1.3 Child Outcomes in the Context of Maternal Depression Related to Specific Child Protection Concern

Evidence relating maternal depression and child outcomes identifies the complex nature of the parenting practices of mentally ill mothers that influence the adjustment of children and the possibility of significant biological transmission in mental health disorder (Oyserman, Bybee & Mowbray, 2002). The biological influence is stronger for bipolar disorder and schizophrenia than for depression (Beardslee, Versage & Gladstone, 1998). Wolfe reported that the vast majority of mothers within a child welfare sample reflect depression rather than other affective or cognitive mental health disorders (Wolfe, 1999).

1.3.1 Disorders of attachment with children

Attachment disorders with children involve insecurity, cognitive disorganization and the inability to form secure attachments (Carter et al., 2001). The combination of these risk factors for children and adolescents coincide with school avoidance, academic underachievement and conduct disorder (Leschied, Burton, Finlay, Tingley & Wrath, 2003). Goodman (1992) reported that the child management strategies used by depressed mothers are associated with lower rates of responsiveness and inactivity, helplessness, increasing rates of hostility, parental disengagement and disorganization. Brennan et al. (2000) identified that the extent of attachment disorder with children is reflected in increasing rates of behaviour problems and poor cognitive development (e.g., lower scores on vocabulary tests). It is also related to the child's stage of development at the time the mother was diagnosed as depressed. Brennan, also reported the interaction of severity and chronicity of symptoms with higher levels of behaviour problems in children.

1.3.2 Child neglect

The neglect of children appears more closely related to the diagnoses of prenatal and postpartum depression (Buist, 1998). It would appear that the combination of an inability of mothers to form close, nurturant bonds with their infant, and a preoccupation with personal well-being related to their depression, sets the stage for on-going and chronic maternal disregard for the well-being of the child (Brennan et al., 2000). Evidence suggests that the disregard for the child's welfare can be manifested as exaggerated

maternal identification of childhood psychopathology, having the effect of further alienating the child from the primary caregiver (Luoma et al., 2001).

1.3.3 Child abuse

Buist (1998) states that while the literature is consistent in establishing the relationship between maternal depression and poor child outcomes, the specific type of child outcome is not as well established. For example, whether maternal depression results in an attachment disorder, neglect or abuse is reported by Carter et al. (2001) as related to the complex interaction of the severity and timing of the depressive symptoms.

Depression in adults often produces cognitive deficits that include strong negative perceptions of self and others along with an inability to process complex information and an inability to relate to others in ways that are open and honest. These deficits and distortions impair the ability of mothers who are depressed to effectively manage their children by lowering their threshold for frustration and reducing their ability to regulate themselves. Strassburg (1995) suggests that depressed mothers who experience such impairments harbour a variety of negative beliefs about the child and their own ability to cope that can result in harsh physical discipline.

1.4 General Risk for Child Outcomes

Research in the field of child protection has led to the development of measures that estimate the level of risk to which the child is exposed. These measures are used to include specific concerns related to child protection such as abuse and neglect within a broad framework that integrates the nature and degree of the risk that is present (Leschied, Chiodo, Whitehead, Hurley & Marshall, 2003). The results of such assessments provide direction for case planning and administrative decisions as they relate to child welfare. The literature on maternal depression suggests that difficulties with parenting may contribute to higher scores on risk relative to neglect and abuse.

1.5 Predictions

1. The likelihood of a child admitted to CAS care is positively associated with the severity of maternal depression.

The predictions related to child outcomes are:

1. Children with depressed mothers compared to non-depressed mothers will have higher scores on child outcomes related to diagnoses of psychopathology, school related risk, attachment disorders, neglect and physical abuse.
2. Children with depressed mothers will have higher overall risk scores compared to children with non-depressed mothers.
3. The social context variables related to maternal depression that are examined are socioeconomic status and social isolation.

Method

2.1 Participants

A retrospective file review of child protection cases seen at the CAS of London and Middlesex from the years 1995 and 2001 was conducted. Participants in this study consist of 853 mother-child dyads. This study is part of a larger investigation of factors addressing the increase in referrals and admissions to care to the CAS of London and Middlesex, Ontario. The initial sample consisted of 1,042 child protection cases. This sample was randomly selected from a total of 2,316 child-protection cases selected from 1995 and 2001. Cases from 1995 and 2001 were chosen representing two points in time that would allow for comparisons to address whether changes had taken place that might contribute to a greater frequency of children being admitted to CAS care. To capture sufficient cases of our sub-groups of interest (e.g., children in CAS care), we over-sampled from these groups. That is, we included a larger proportion of cases in the sample than would have been found in the population of cases in the given year. To adjust for over-sampling, we applied a mathematical correction, referred to as a statistical weight, to each case, to allow for population inferences to be made from these samples.

For the purpose of the current study, 853 cases were included where the biological mother was identified as the primary caregiver. The sub-sample in 1995 consisted of 376 children, of whom 138 (36.8%) children were considered to be in need of protection and admitted to CAS care and 237 (63.2%) children were considered to be in need of protection, but received services from the CAS and other community agencies while living in their own homes. This latter type of intervention could range from investigation or protection service, which could include individual or family counselling. The sub-

sample in 2001 consisted of 478 cases where 300 (62.9%) children were considered to be in need of protection and admitted to CAS care and 177 (37.1%) children were considered to be in need of protection, but received services from the CAS and other communities agencies while living in their own homes. A chi-square analysis confirmed the almost two-fold increase in CAS admissions to care in 2001 (63.3%) compared to 1995 (36.8%) ($\chi^2 = 57.22$; $df = 1$; $p < .001$). There were no statistically significant differences in age or gender of the children admitted to CAS care between the two years ($p > .1$).

Maternal depression was defined as a psychiatric diagnosis documented in medical records. In some instances, maternal depression was coded as being present in the absence of a formal diagnosis, based on sufficient evidence in multiple sources of information such as CAS worker's case notes, case history information, or other mental health professionals suggesting the mother was experiencing depression to an extent that interfered with parenting. The rationale for including these additional cases is that maternal psychiatric and medical records are not commonly present in child protection files; excluding these cases would under-represent the range of maternal depression. The groups did differ significantly on the proportion of maternal depression between years with more cases present in 2001 compared with 1995 ($\chi^2 = 22.355$; $df = 1$; $p < .001$). Child protection cases in 2001 had 29% ($n = 136$) of mothers with depression contrasted with 15% ($n = 56$) in 1995. Subsequent analyses presented are performed on the 2001 data ($n = 477$).

2.2 Materials

Child protection files from the CAS of London and Middlesex were reviewed. A standardized coding instrument was created by the authors to guide the extraction of information from each case file. Information recorded about the family included current and historical family information, as well as the history of the family's mental health, the family's history with the CAS, family violence and access to social services. Information on children included past and present access to mental health, young offender, educational, and developmental services, as well as outcomes related to psychological, behavioural, developmental, and academic concerns. The sample is of cases opened in 1995 or 2001. Data are collected as of the time in the year that the child/family received

the most intensive CAS intervention that year. A manual was created that detailed the inclusion and exclusion criteria for each item to be recorded.

The coding instrument contained the *Risk Assessment Tool*, an instrument currently in use by Ontario's CASs (Ontario Association of Children's Aid Societies, OACAS, 2000). The *Risk Assessment Tool* is part of the revised Risk Assessment Model for Child Protection in Ontario (ORAM) (OACAS, 2000) that was developed as part of the Ministry's standards for the management of child protection cases. *The Risk Assessment Tool* is used by all CASs in Ontario and is a standardized, comprehensive approach to the assessment of risk to children (Figure 1).

The *Risk Assessment Tool* includes five assessment categories called *influences*, related to the caregiver, child, family, intervention, and abuse/neglect. Within each of these influences are elements that relate to risk. There are 22 risk elements examined by the *Risk Assessment Tool*. Each element includes five scales of severity ranging from zero (0) to four (4). The Risk Assessment Scales are further defined by descriptions called *anchors*. The anchors help assign a rating by providing a narrative description that defines the status or functioning of a child, caregiver, or family.

A risk analysis was completed for all cases randomly selected in 1995 and 2001. Six trained researchers completed a risk assessment form and risk analysis independently from the risk analysis completed by the CAS worker in the child protection file. For each case, the risk elements were assessed on a scale of 0 to 4, with a score of 0 being the absence of risk and a score of 4 being maximum severity. For the purpose of the current study, a risk analysis is based on a 'cumulative risk assessment score' comprised of a total score of the 22 individual risk elements. Each case could, therefore, receive a cumulative risk assessment score between 0 - 88. It is important to note that the application of Risk Assessment by Ontario CASs does not include a cumulative risk assessment score.

The Ontario *Risk Assessment Tool* was not developed and is not used across all CASs in Ontario as an outcome measure. Given that this scale was not designed as an outcome measure, the authors tested the predictive validity of the *Risk Assessment Tool*. The cumulative risk assessment scores within each area of risk form a reliable scale: Cronbach's alpha ranges from .71 - .79. The cumulative risk assessment scores are

consistent with clinical judgment (i.e., the decision to admit a child to CAS care) ranging from 74 to 81 per cent of all cases. A detailed review on the empirical basis of the *Risk Assessment Tool* appears in Leschied, Chiodo, Whitehead, Hurley & Marshall (2003).

Figure 1

Summary of Areas for Risk Assessment

1. Caregiver Influence
 - Abuse – Neglect
 - Alcohol/Drug Use
 - Expectations of child
 - Acceptance of child
 - Physical capacity to care for child
 - Mental/Emotional/Intellectual Capacity

 2. Child's Influence
 - Child's vulnerability
 - Child's response to caregiver
 - Child's behaviour
 - Child's mental health and development
 - Physical health and development

 3. Family Influence
 - Family violence
 - Ability to cope with stress
 - Availability of social supports
 - Living conditions
 - Family identity and interactions

 4. Intervention Influence
 - Caregiver's motivation
 - Caregiver's cooperation with intervention

 5. Abuse/Neglect
 - Access to child by perpetrator
 - Intention and acknowledgement of responsibility
 - Severity of abuse/neglect
 - History of abuse/neglect/Neglect committed by present caregivers
-

2.3 Procedure

Five trained researchers working under the supervision of a project manager collected the data. To enhance reliability, the researchers received training prior to the beginning of data collection. Senior managers of the CAS of London and Middlesex and the research team met on a weekly basis to review concerns related to the file information, risk assessment analysis, or data collection procedures to ensure consistency in data interpretation and collection.

The CAS workers do not compute or document a cumulative risk assessment score based on their ratings of the 22 risk elements of the Risk Assessment Tool when completing a Risk Analysis for child protection cases. The CAS worker's ratings of the individual risk elements are, however, recorded in the child protection files. Thus, it is possible to compute a cumulative risk assessment score from the ratings of the CAS worker. A reliability analysis of the cumulative risk assessment scores rated by the researchers and the cumulative risk assessment scores by the CAS workers was performed for 253 cases. Inter-rater reliability between the cumulative risk assessment scores rated by the researchers and the cumulative risk assessment scores derived from the ratings of CAS workers is high (Cronbach's alpha = .86).

Results

3.1 Participant Characteristics

Depressed mothers did not differ significantly in current age or in age at the time of their first-born child from non-depressed mothers (Table 1). Children of these mothers averaged 6.9 years of age (S.D. = 5.01). Depressed mothers were more likely than non-depressed mothers to be unemployed ($\chi^2 = 6.756$; $df = 2$; $p < .04$) and to be receiving welfare/social assistance ($\chi^2 = 6.875$; $df = 2$; $p < .04$). Depressed mothers were no more likely to be single mothers ($\chi^2 = .246$; $df = 1$; ns) than were non-depressed mothers. There were no significant differences in ethnicity between depressed and non-depressed mothers. Depressed mothers were more likely to have been involved (i.e., placement or non-placement service) with a CAS as a child ($\chi^2 = 4.601$; $df = 1$; $p < .04$) than were non-depressed mothers.

Table 1*Demographic Characteristics of Depressed and Non-Depressed Mothers (n = 477)*

Characteristic	Depressed Mothers (n = 136)	Non-Depressed Mothers (n = 341)
Mother's Current Age	23.9 (5.57)	24.4 (5.98)
Age at time of first born child	20.7 (3.93)	20.8 (4.37)
Single Motherhood		
Yes	38%	35%
No	63%	65%
Ethnicity		
Canadian	85.8%	79.3%
Native	5.2%	8.8%
Other	9.0%	11.9%
Employment outside the home*		
Yes	22%	32%
No	59%	46%
Unknown	19%	22%
Welfare/Social Assistance*		
Yes	58%	46%
No	34%	47%
Unknown	8%	7%
Mother's Previous Involvement with a CAS as a Child*	44%	34%

*Standard deviations in parentheses***p < .05*

3.2 Child Psychopathology Outcomes

Two behavioral outcomes and one psychological outcome are considered: an attention deficit hyperactivity disorder (ADHD), conduct disorder, and the primary psychological (emotional) concern of the child. Information also exists on whether the child was currently (or previously) on medication for an adjustment-related disorder.

The association between maternal depression and the child adjustment variable was assessed using chi-square (χ^2) analyses. As expected, a larger proportion of children of depressed mothers were more likely to be diagnosed with ADHD ($\chi^2 = 8.150$; $df = 1$; $p < .005$), and on medication for an adjustment-related disorder ($\chi^2 = 7.728$; $df = 1$; $p < .006$), compared to those children living with non-depressed mothers. Additionally, a larger proportion of children living with depressed mothers were identified with a primary psychological (emotional) concern ($\chi^2 = 5.09$; $df = 1$; $p < .04$), in contrast to children of non-depressed mothers. Mothers identified as depressed and non-depressed

did not differ significantly on the proportion of their children who were diagnosed with conduct disorder ($\chi^2 = 2.021$, $df = 1$; *ns*).

Table 2

Means and Standard Deviations of Child Outcomes for Depressed and Non-Depressed Mothers

Outcome	Depressed Mothers (n = 136)	Non-Depressed Mothers (n = 341)
Child Psychopathology		
ADHD**	25. %	14.1 %
Conduct Disorder	10.9 %	7. %
Psychological Concern*	10.3 %	5. %
Medication**	22.1 %	12. %
Child Abuse/Neglect^a		
Severity of Abuse/Neglect	1.66 (1.16)	1.58 (1.29)
History of Abuse/Neglect	1.26 (1.1)	1.24 (1.18)
Risk Assessment^b		
Cumulative Risk Assessment Score**	33.15 (10.92)	27.98 (13.19)
School History^c (N=259)		
Repeated Grade	9.3 %	7.6 %
Chronic Absence	21.3 %	21.3 %
Expelled	0	.6 %
Suspensions (last 12 months)	2.43 (1.12)	1.64 (.82)
Access To Mental Health Services^d		
Currently Being Seen by an Agency**	73.5 %	60.7 %
Waiting List*	10.9 %	5.6 %
Multiple Services Accessed**	2 (1.0)	1.5 (.69)

Note: ^a = mean risk assessment rating of Abuse/Neglect risk element; higher score indicates greater severity of risk; minimum 0, maximum 4; standard deviations in parentheses;

^b = mean cumulative risk assessment score; higher scores indicates greater intensity and nature of risk; standard deviations in parentheses;

^c = suspensions are presented as the mean number (standard deviation in parentheses) of suspensions in 2001;

^d = multiple services accessed are presented as the average number of multiple services accessed (standard deviations in parentheses)

3.3 Maternal Depression Related to the Child Outcomes of Abuse and Neglect

We turn next to the effects of maternal depression on child outcomes related to child abuse and neglect. Two variables are considered: 1) severity of abuse/neglect; and 2) history of child abuse/neglect committed by the present caregivers. Both variables are measured by one risk element of the Risk Assessment Tool. Abuse/Neglect is defined by the Risk Assessment Tool as any type of violence towards a child, either physical or verbal. The severity of abuse/neglect risk element (to the most recent child protection investigation) is measured on a five-point scale of severity ranging from a score of 0 (minor harm or substantial danger of minor harm) to 4 (extreme harm or substantial danger of extreme harm). The history of child abuse/neglect committed by the present caregivers risk element is measured on a five-point scale of severity ranging from a score of 0 (no history of abuse/neglect) to a score of 4 (severe or escalating pattern of abuse/neglect). Since specific hypotheses were tested, one-tailed contrast analyses were employed. This approach is far more powerful than traditional omnibus ANOVAs (or MANOVAs) whose effects are then explored with post hoc tests (Rosenthal & Rosnow, 1985). Indeed, ANOVA is suboptimal for detecting genuine effects when one has specific, directions predictions to test.

Table 2 shows the mean (SD) scores of the severity and history of child abuse/neglect of children of depressed and non-depressed mothers. Contrary to the hypothesis, there was no evidence that children of depressed mothers differed in severity of child abuse/ neglect [$t(471) = .472, ns$], or in the history of child abuse/neglect committed by the present caregivers [$t(473) = .193, ns$], from children of non-depressed mothers.

3.4 Child Outcomes Related to the Intensity and Nature of Risk

In addition to the Abuse/Neglect Influence scale of the *Risk Assessment Tool* (Ontario Association of Children's Aid Societies, 2000), the instrument yields four other areas for assessment to assist child protection workers in determining whether families will require further intervention. A cumulative risk assessment score, comprised of a total score of the 22 risk elements was used as a measure of risk to which the child is exposed.

The results indicate that children of depressed mothers score higher on cumulative risk [$t(476) = 4.06, p < .001$], compared to children of non-depressed mothers (Table 2).

3.5 Child Outcomes Related to Academic Concerns

To determine whether maternal depression was related to the child's school history, three variables were used to characterize the child's academic experience: 1) evidence that the child has repeated a grade; 2) chronic truancy from school; and 3) whether the child was ever expelled from school. School history information was obtained from school records in the child protection files. Results are presented in Table 2. Chi square analyses were used to test the dichotomous variables related to the child's school experience and maternal depression; a one-tailed t-test was employed to test the number of the child's school suspensions between depressed and non-depressed groups. Children younger than 6 years of age were excluded from this analysis because they were not attending school. Thus, chi-square analyses below reflect a sub-sample of 258 school-aged children.

In contrast to predictions, no significant differences in the proportion of children living with depressed or non-depressed mothers emerged, with no increased likelihood of the child having repeated a grade ($\chi^2 = .213, df = 1, ns$), experiencing chronic absence from school ($\chi^2 = .001; df = 1, ns$), or the child being expelled from school ($\chi^2 = .826, df = 1; ns$). The results of the t-test indicated that children of depressed mothers were suspended more often in the last 12 months [$t(18) = 1.81, p < .05$], than were children of non-depressed mothers.

3.6 Access to Mental Health Services

Given the overwhelming challenges that face depressed mothers and the stress associated with such a condition, it was expected that a greater proportion of mothers diagnosed with depression would currently be involved in community-based agencies that served both the child(ren) and the family. It was expected that a greater proportion of depressed mothers would be seeking access to services defined as being on a waiting list concurrent with CAS involvement. Data examined whether the families of depressed and non-depressed mothers were seen by a family agency or whether they were on a waiting list for such agencies (where both current and waiting list agencies included child and parent focused services). Since families associated with CAS are often involved in multiple

mental health services, we were further interested in determining whether the two groups of mothers – depressed and non-depressed – differed in the number of mental health services accessed.

As predicted, a greater proportion of families of depressed mothers were currently being seen by a family/child agency ($\chi^2 = 9.72$; $df = 1$; $p < .01$), and on a waiting list for an additional family/child service ($\chi^2 = 4.277$; $df = 1$; $p < .05$), compared with families of non-depressed mothers (Table 2). Depressed mothers are more likely to be involved in multiple family/child services [$t(287) = 2.40$, $p < .02$] than were non-depressed mothers (Table 2).

3.7 Relationship of Maternal Depression within a Broader Social Context

The relationship of depressed mothers who are of low socioeconomic status and socially isolated was examined. The analysis used was logistic regression. Logistic regression was utilized for several reasons. First, the dependent variable (being a depressed mother) was binary. Second, logistic regression represents an analysis that has assumptions consistent with the outcome measures utilized in this project. The purpose of this logistic analysis was to suggest inferences about the relationship between the independent variables (i.e., socioeconomic and social isolation variables) and the dependent variable (being a depressed mother) and to see how well the resulting model predicted group membership.

Socioeconomic variables were coded as follows: 1) source of income (welfare/social assistance); 2) single parenthood; and 3) availability of social supports. Source of income and single parenthood were measured as dichotomous (yes/no) variables. Availability of social supports was measured by one risk element of the *Risk Assessment Tool* (Figure 1). Availability of social support was measured as a continuous variable (range 0 to 4). A score of 4 indicated that the family was alienated and socially isolated from community supports whereas a score of 0 indicated that the family had multiple sources of reliable and useful support.

Socioeconomic variables were tested for entry in the model, one-by-one, based on a significant Wald statistic. The final model classified 71.5% of the mothers as either depressed or not, 71% of those who were not depressed were correctly classified and 72% of those who were depressed were correctly classified. The chi-square for this

model was significant $\chi^2 (2, n = 480) = 3.99, p < .05$). The availability of social support was the only variable to discriminate group membership (Table 3). That is, being socially isolated from community supports is related to being diagnosed depressed in this sample.

Table 3

Logistic regression model of depressed mothers in 2001

Variable	Coefficient	Standard Error	Odds Ratio	95% CI	<i>p</i>
Availability of social support		.09	1.2	1.002, 1.428	< .05
Constant	-1.335	.19			

Discussion

These findings indicate that there are higher rates of maternal depression in the sample of children seen at the CAS of London and Middlesex in 2001 compared to children seen in 1995. In addition, children with depressed mothers are more likely to be admitted to CAS care and present with a variety of individual concerns reflected in higher risk scores, diagnoses of attention deficit and emotional disorder. Depressed mothers and their children are more likely to be accessing treatment services and to be more socially isolated than non-depressed mothers. The relevance of these findings for treatment and policies for the CAS delivery system are discussed in the following sections.

4.1 Treatment Implications

The effectiveness of treatment for depression has been well established. The majority of studies suggest both pharmacological and psychotherapeutic intervention, or a combination of both, can reduce symptoms in the majority of sufferers (Clark, Beck & Alford, 1999). Velamoor et al. (2002) indicate that in the catchment area served by the children's aid society from which these data were generated, low availability of primary care givers is the norm. This study finds that a high proportion of depressed mothers were on waiting lists to access treatment for both themselves and their children. Increasing access to service and improving on-going support and communication to

maintain treatment compliance is the major challenge facing these clients in their treatment for depression.

The literature suggests a high incidence of intergenerational transmission of depression within high-risk families (Oyserman, Bybee & Mowbray, 2002). Service providers need to be aware that treating a mother's depression may have the added benefit of reducing the potential for a child's depressive disorder as well.

Wolfe (1999) suggests that parents with depression not only are preoccupied with their own well-being, but display lowered self regulation and poor judgement that results in higher rates of inadequate parenting. A comprehensive intervention strategy for depressed mothers should include not only individual treatment, but also support for developing more adequate parenting strategies. In light of findings from this study, if early intervention is not provided, there is a likelihood that these children will be more challenging due to the higher incidence of attention deficit disorder, concern for anxiety and depressive disorder and generally higher rates of overall risk.

4.2 Policy Implications

There are at least three important areas for policy development in recognition of the importance of maternal depression in child outcomes relative to child welfare.

4.2.1 Early screening for maternal depression

Recognition of the importance of maternal depression in early screening with children is an important consideration. The United States recently proclaimed the *Early Intervention Improvement Act* (2002) to underscore the importance of funding clinically relevant child treatment programs for young children that include programs for maternal depression. Ontario's *Early Years Report* (Mustard, 1999) highlighted a number of important factors related to improving outcomes for young children. Noteworthy, while general parenting was acknowledged in this report as important in promoting early child development, the mental health of mothers was not mentioned as a relevant area of concern. With an increasing number of single mothers bearing the lone burden for child rearing, and with a near doubling of the rate of depression in the 2001 child welfare sample compared to 1995, support for mothers with mental health needs needs to be acknowledged. This could assist in furthering the development of appropriate programs.

4.2.2 Parent visitation programs that acknowledge maternal depression

Public health involvement in screening for high-risk parenting is now a standard intervention in many jurisdictions, including Ontario. All new-borns and their parents who wish to have this support, are visited for a period of six sessions as a part of a standard of care. Such public health intervention is promoted as a means of identifying and responding effectively to high-risk parenting situations. This initiative needs to be supported specifically to assist home visitor's identification of maternal depression. There are positive evaluations of programs emphasizing early screening for high risk parenting with depressed mothers such as The Prenatal/Early Infancy Project (Olds et al., 1997). Cook (1997) summarizes a variety of parent education initiatives. Cook identified that these successful programs are characterized by the degree to which they are integrated within a broad network of community services that can be activated for families in a timely manner to benefit high risk children and their parents. Ontario's *Better Beginnings* demonstration programs are examples of primary prevention initiatives that target many of these factors (Pancer, S.M. et. al. in press). It may be that some of the ingredients of these services could be tailored to a child welfare client group as a secondary prevention effort to reduce the necessity of more intensive services such as wardship.

4.2.3 Mental health status of mothers seeking employment

Back to work programs for mothers in poverty have been implicated both positively and negatively with maternal depression. The Minnesota welfare project was noted earlier as an example of a program that targeted the mental health of participants during the course of increasing their employment status. The outcomes from this evaluation were positive both for the mothers involved as well as improving the behavioural and educational outcomes reported for their children. Reviews in welfare reform note that most of these programs do not acknowledge the high incidence of depression in parents who are working toward improving their employment status. Kagan & Fuller (2000) noted that among their participating mothers who were seeking support to return to work, depression was three times higher than the national average for all women. This is an important factor in reviewing welfare reform in Ontario Works programs that may be affecting parents. Though it is beyond the scope of this report to review the degree to

which Ontario Works addresses the mental health status of its participants, it is important to acknowledge that 58% of the mothers in the current sample were on government assistance at the time of their involvement with the child welfare system.

4.3 Limitations of the Current Study

1. The absence of evidence supporting differentiation between depressed and non-depressed mothers with respect to childhood abuse may reflect the restricted range overall as represented by the high rate of abuse in the sample.
2. As a reminder, the causal relationships between outcomes cannot be established with cross-sectional data. Hence, we cannot make statements with respect to which came first, ADHD or maternal depression. However, clinicians know all too well that caretakers' circumstances cannot be ignored if a child's difficulties are to be addressed.
3. Inconsistent with previous literature, there was an absence of confirming data with respect to our educational variables and maternal depression. In part this may reflect the age of our sample (mean = 6.9 years) and the fact that the variables investigated, namely repeating a grade, suspension and expulsion rates, tend not to differentiate children at the younger grades.

4.4 Conclusion

This study has highlighted the importance of maternal depression in the lives of children served at a children's aid society. The rate of depression in this sample has doubled over the previous six years. There is also a higher rate of children admitted to CAS care who have mothers assessed as being depressed. It should be a priority for service providers to insure that policies for screening and providing treatment services for depressed mothers in high risk parenting situations is provided.

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