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**Children and Lone-Mother Families:
An Investigation of Factors Influencing
Child Well-Being
W-98-11E**

by

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Executive Summary

A large and growing number of Canadian families with children are headed by lone mothers. Research undertaken in Canada, the United States and Britain have found evidence that children from lone-mother families exhibit more difficulties in the context of family life and school than children from two-parent families. For many, these difficulties continue into their adolescence and persist into early adulthood.

This paper examines the relationship between lone-mother status, mother and family characteristics, and child difficulties, through an analysis of data from children 6 to 11. The results demonstrate that lone-mother families are poorer, and their children have more difficulties in the behavioral, emotional, social and academic domains. While the analysis shows that lone-mother status on its own acts as a significant predictor of all child difficulties, the size of effect is weak. Importantly, the strength of association between lone-mother status and child outcome generally decreases when sociodemographic and personal variables are added to the model predicting child outcome. The evidence suggests that children from lone-mother families probably develop difficulties for the same reason that children from two-parent families develop difficulties, with two important exceptions. First, the presence of hostile parenting in a lone-mother family significantly increases the risk of child morbidity in a way that is not seen for two-parent families. Second, since lone-mother status remains a significant independent predictor of child outcome in the presence of other stronger predictor variables, further work needs to be done to explain the mechanisms through which lone-mother status influences child well-being.

These results suggest that policies aimed at healthy child development should be aimed at all families, and not specifically lone-mother families. Given equal access to programs, services aimed at alleviating the factors strongly associated with the child difficulties and/or problems should be aimed at the whole population and should be helpful to both lone-mother and two-parent families. The exception is in the area of parenting, where specific programs aimed at lone-mothers may be warranted. Low income, parenting problems, low maternal education and maternal depression are consistently and significantly associated with child difficulties and represent important areas for policy intervention

Sommaire

Un nombre important et toujours croissant de familles canadiennes avec enfants sont gynoparentales. Des recherches menées au Canada, aux États-Unis et en Grande-Bretagne ont révélé que les enfants issus de familles gynoparentales éprouvent plus de difficultés dans le cadre de la vie familiale et scolaire que les enfants issus de familles biparentales. Pour bon nombre, ces difficultés se poursuivent au cours de leur adolescence et persistent jusqu'au début de la vie adulte.

La présente étude analyse le lien entre le statut de mère seule, les caractéristiques de la mère et de la famille, et les difficultés éprouvées par l'enfant, à l'aide de données sur les enfants de 6 à 11 ans. Les résultats indiquent que les familles gynoparentales sont plus pauvres et que leurs enfants éprouvent plus de problèmes sur les plans comportemental, affectif, social et scolaire. Si l'analyse conclut que le statut de mère seule est en soit un prédicateur important de tous les problèmes éprouvés par les enfants, l'importance de cette incidence est faible. Il importe de noter que la force de l'association entre le statut de mère seule et les résultats observés chez l'enfant diminue de façon générale lorsque des variables sociodémographiques et personnelles sont ajoutées au modèle qui permet de prévoir les résultats chez l'enfant. Les données recueillies suggèrent que l'enfant issu de famille gynoparentale éprouve vraisemblablement des difficultés pour les mêmes raisons que les enfants issus de familles biparentales, sauf deux exceptions importantes. D'abord, la présence de pratiques parentales hostiles dans la famille gynoparentale augmente de façon importante le risque de morbidité infantile; ce risque n'est pas présent dans les familles biparentales. En deuxième lieu, puisque le statut de mère seule demeure un prédicateur important et indépendant des résultats observés chez l'enfant même lorsque d'autres variables de prédicateurs plus prononcés s'ajoutent, il importe d'entreprendre d'autres travaux en vue d'expliquer les mécanismes qui font en sorte que le statut de mère seule influe sur le bien-être de l'enfant.

Ces résultats portent à croire que les politiques axées sur le développement sain de l'enfant devraient être ciblées à toutes les familles, et non pas particulièrement aux familles gynoparentales. Étant donné un accès égal aux programmes, les services axés sur l'allègement des facteurs qui sont fortement associés aux problèmes et (ou) difficultés qu'éprouvent les enfants, devraient être ciblés à l'ensemble de la population afin que les familles gynoparentales et biparentales puissent toutes les deux en tirer profit. Il existe cependant une exception en ce qui a trait aux pratiques parentales, auquel cas des programmes précis ciblés aux mères seules pourraient être justifiés. Les revenus faibles, les problèmes reliés aux pratiques parentales, le faible niveau de scolarité de la mère et la dépression maternelle sont autant de facteurs qui sont constamment et fortement associés aux difficultés qu'éprouvent les enfants et de ce fait sont des domaines important dont il faudra tenir compte dans les interventions en matière de politique.

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1. Introduction

A large and growing population of Canadian families with children are headed by lone mothers. According to the 1996 Census, 14.5 percent of Canadian families were headed by lone parents. Of these families, 83.1 percent (945,230) were headed by lone mothers (Statistics Canada, 1996). Many Canadian children experience life in a lone-parent family at some point during their development. Estimates suggest that one quarter of Canadian teens have known life with a lone parent (Marcil-Gratton, 1993).

Children from lone-mother families are known to be at increased risk for a variety of psychosocial problems including psychiatric disorder, social problems and academic difficulties (Lipman and Offord, 1996; Lipman, Offord and Dooley, 1996). Research done internationally generally confirms these Canadian findings. In Britain, children from lone-mother families exhibit more difficulties with behaviour and in school than children in two-parent families (Ferri, 1993). In the United States, children who grow up in lone-parent families demonstrate increased difficulties in childhood, late adolescence and early adulthood than children from two-parent families (Acock and Demo, 1994; Amato and Keith, 1991; McLanahan, 1985; McLanahan, 1988, McLanahan and Bumpass, 1988, Amato, 1988, Furstenberg and Cherlin, 1991).

While lone-mother family status acts as a marker for child difficulties, a number of factors contribute to this increased risk. The majority of lone-mother families are poor, and the association between economic disadvantage and child emotional and behavioural problems is well documented (eg., Lipman and Offord, 1994; Offord, Boyle and Jones, 1987). Low income is an important factor contributing to the difficulties experienced by children from lone-mother families. However, coming from a lone-mother family in and of itself acts as a significant independent risk indicator for child psychosocial difficulties. A number of studies have demonstrated significant effects of family status on child outcome over and above the effects of low income (Brooks-Gunn and Duncan, 1996; Dodge, Pettit and Bates, 1994; Lipman and Offord, 1996; Lipman, Offord and Dooley, 1996).

There are many other characteristics that occur in both lone-mother and two-parent families that influence child health and functioning. These include factors such as low level of maternal education, maternal psychiatric status, parenting skills, family functioning, and maternal social support. Focussed intervention efforts to assist with the specific maternal and family factors strongly associated with child morbidity may be a practical method of helping children.

The aim of this work is to better understand the magnitude of influence of lone-mother status on child well-being, and the magnitude of this influence adjusting for, or controlling for, other sociodemographic and maternal and family factors. Maternal and family factors are rated by mothers (known as *personal* variables) and include variables such as maternal depression, family functioning, social support and parenting style. *Sociodemographic* variables include variables such as child age, child gender, number of children in the household, household income, maternal education and maternal employment status.

To examine the effect of family status, sociodemographic and personal variables on child well-being, the following questions will be addressed:

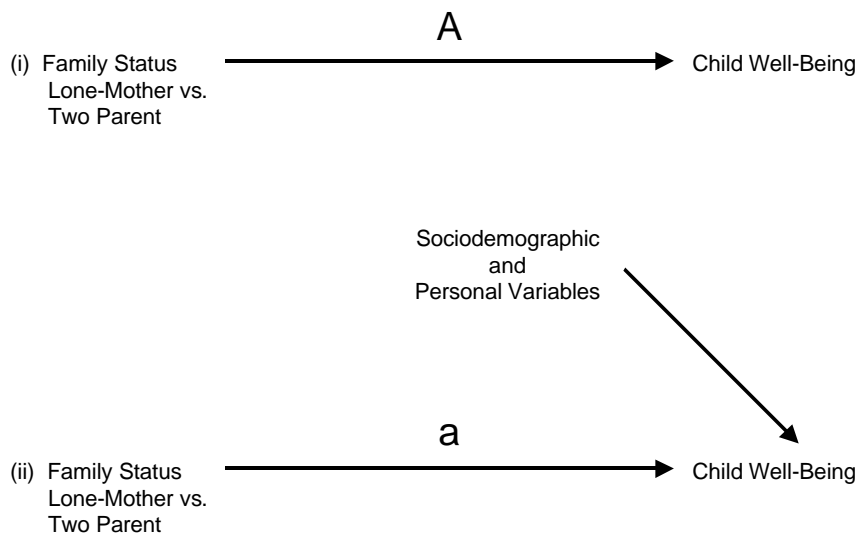
- (1) What is the strength of association between lone-mother status and child outcome?
- (2) What is the strength of association between lone-mother status and child outcome controlling for sociodemographic variables?
- (3) What is the strength of association between lone-mother status and child outcome controlling for personal variables?
- (4) What is the strength of association between lone-mother status and child outcome controlling for sociodemographic and personal variables?
- (5) Which personal variables have the greatest magnitude of association with child outcome?
- (6) Which sociodemographic variables have the greatest magnitude of association with child outcome?
- (7) Which personal and sociodemographic variables have the greatest magnitude of association with child outcome in the presence of both types of variables?

2. Methods

2.1 Theoretical Model

The theoretical model used in this paper is illustrated in Figure 1. The overall association of lone-mother status with child well-being is shown in (i) as “A.” The association of lone-mother status with child well-being adjusting for sociodemographic and/or personal variables is shown in (ii) as “a.”

Figure 1
Theoretical Model



The theoretical model allows identification of the sociodemographic and personal variables most strongly associated with child outcome. It is also possible to examine whether the variables with the strongest association, either sociodemographic or personal, change in the presence of the other type of predictor variables. If this is the case, there are important implications for the planning of appropriate interventions or policy planning.

2.2 Study Sample

Data from Cycle 1 of the National Longitudinal Survey of Children and Youth (NLSCY) are used here. The NLSCY is designed to measure child development and well-being, with the primary objective of developing a national database on the characteristics and life experiences of Canadian children as they grow. Cycle 1 of data collection was completed in 1994-1995. The methodologic details of Cycle 1 of the NLSCY are outlined elsewhere (Special Surveys Division, 1996).

2.3 Variables

All independent and dependent variables used in this paper are shown in Appendix A.

2.3.1 Independent Variables

Sociodemographic Variables

Lone-mother families and two-parent families are included in this paper. A small number of families were excluded, primarily lone-father families ($N = 175$) and families where children were not living with a parent or foster parent (e.g., living with grandparent) ($N < 27$).

The term maternal non-employment has been used here to refer to mothers not employed on either a full-time or part-time basis. Use of the term unemployment has been avoided to avoid confusion with the unemployment rate for mothers which refers to the fraction of all mothers in the labour force who are actively seeking work.

All other sociodemographic variables are self explanatory.

Personal (Mother and Family) Variables

All personal (maternal and family variables) are rated by the mother. These variables are included together as a set since they all represent characteristics that are not readily validated through other more objective sources.

2.3.2 Dependent Variables

A range of child outcomes was chosen to demonstrate functioning in the social domain (social impairment), emotional and behavioural domain (psychiatric disorder) and the academic domain

(math score). The selection of this range of child outcome was guided by knowledge about the multiple components of healthy development (Premier's Council on Health, Well-Being and Social Justice, 1994), previous research examining child psychosocial health (Boyle *et al.*, 1987; Offord *et al.*, 1992), and the availability of variables in the NLSCY. Children 6 to 11 years old are included in this paper.

The math score variable gives an age-adjusted or age-equivalent score on a standardized math test, the Mathematics Computation Test of the Standardized Canadian Achievement Tests, Second Edition. For example, for a 9-year-old, the standard score equals 9. Each 0.1 change represents one month change in math score. To follow the previous example, a 9 year old who scores 9.2 is working at a math level two months ahead of his expected level. This variable was controlled for age by calculating math score minus age. This variable is only available for a selected group of children in Grades 2, 4 and 6.

2.4 Analyses

A common data set for children 6 to 11 years of age was used for two of the child outcomes examined (problems getting along and psychiatric disorder) (n=10,238). The third child outcome examined (math score) was available for a more limited number of children (see Appendix A) (n=4,170). The information on all variables is gathered from the mother, except the math score which is derived from a standardized test.

Sociodemographic, personal and outcome variables are compared for lone mothers and mothers from two-parent families using prevalence or means and standard deviations in Appendices B and C. Correlations between child outcome variables are shown in Appendix D. Correlations between sociodemographic and personal variables are shown in Appendix E.

For the multivariate analyses, all dependent variables have been standardized by subtracting the mean, and dividing by the standard deviation. The independent variables have been centered by subtracting the mean.

Multivariate analyses done were linear regressions for the child outcomes social impairment, psychiatric disorder and math score. The standardized beta coefficient from the linear regression analyses, are presented. The standardized beta coefficient represents the amount of change in standard units of a given dependent variable associated with one standard unit of change (standard deviation) in the independent variable. All regressions were done using weighted data.

3. Results

Examination of the magnitude of association between lone-mother status and child well-being (social impairment, psychiatric disorder and math score), and the magnitude of this association adjusting for or controlling for other sociodemographic and personal factors is shown in Table 1. Row 1 of the table shows the association between lone-mother status and outcome. Rows 2, 3, and 4 show the association between lone-mother status and sociodemographic variables, lone-mother status and personal variables and lone-mother status and sociodemographic and personal variables simultaneously. Detailed information on the analyses shown in rows 2, 3 and 4 are provided in Tables 2, 3 and 4.

Each row of Table 1 shows the coefficient (standard β), standard error, and explained variance when the specified variables are included in the model. As is shown in Table 1, lone-mother status on its own (Model 1) has a significant association with all the child outcomes examined. For the social and psychiatric child outcomes and for math score, lone-mother status explains only 3 percent or less of the variance in outcome.

With the addition of sociodemographic variables to lone mother in the model (Model 2), the strength of association between lone-mother status and the child outcomes is decreased compared with Model 1 (standard β s decrease). The strength of association between lone-mother status and math score changes the most. The addition of sociodemographic variables to the analysis vs. family status alone explains only an additional 2 percent of the variance in social problems and math score, and 3 percent of the variance in psychiatric disorder.

With the addition of personal variables to lone mother in the model (Model 3), the strength of association between lone-mother status and each of the child outcomes decreases, by as much as almost half at times (e.g., standard β for psychiatric disorder = 0.16 in Model 1 and 0.09 in Model 3). The addition of personal variables to the analysis explains an additional 23 of the variance in social problems and 29 percent of the variance in psychiatric disorder. There is no additional explained variance for math score.

The inclusion of lone-mother status, personal and sociodemographic variables in the model (Model 4) further decreases the strength of association between lone-mother status and child

outcome. The addition of sociodemographic and personal variables to the analysis vs. family status alone explains an additional 24 percent of the variance in social impairment, 31 percent of the variance in psychiatric disorder and 2 percent of the variance in math score.

Table 1

Summary of Strength of Association Between Lone-Mother Status and Child Outcome

	Child Outcome		
	Social Impairment Std β^1 , (Std Error) ¹ $r^{2,2}$	Psychiatric Disorder Std β^1 (Std Error) ¹ $r^{2,2}$	Math Score Std β^1 (Std Error) ¹ $r^{2,2}$
Model 1	0.10*** (0.00) 0.01	0.16*** (0.03) 0.03	-0.07*** (0.05) 0.01
2	0.06*** (0.00) 0.03	0.12*** (0.04) 0.06	-0.01 (0.06) 0.03
3	0.05*** (0.00) 0.24	0.09*** (0.03) 0.32	-0.06** (0.05) 0.01
4	0.02* (0.00) 0.25	0.07*** (0.03) 0.34	-0.01 (0.06) 0.03
n	9,398	9,398	4,040

Variables Included:

Model 1 = Lone mother

Model 2 = Lone mother and sociodemographic variables (gender, child age, child number, household income, maternal non-employment, maternal education)

Model 3 = Lone mother and personal variables (maternal depression, family dysfunction, social support, hostile parenting, punitive parenting)

Model 4 = Lone mother, sociodemographic and personal variables (all variables included in models 2 and 3.

Key

¹ Standard β , standard error for lone-mother variable.

² r^2 for all variables in model.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

As shown in Table 2, the sociodemographic variables demonstrating the strongest association with social impairment are household income and gender. The coefficient for household income is negative, since increased income is associated with less social impairment. Similarly for psychiatric disorder the sociodemographic variable with the greatest magnitude of association is gender. For math score, the sociodemographic variable with the greatest magnitude of association is maternal education, followed by household income.

Table 2
Relationship Between Family Status And Sociodemographic Variables And Child Outcomes (Linear Regression)

Sociodemographic Variables	Child Outcome		
	Social Impairment Std β [Std Error]	Psychiatric Disorder Std β [Std Error]	Math Score Std β [Std Error]
Lone Mother	0.06*** [0.00]	0.12*** [0.04]	-0.01 [0.06]
Gender <male child>	0.09*** [0.00]	0.16*** [0.02]	-0.00 [0.04]
Child Age	0.06*** [0.00]	-0.02* [0.01]	-0.02 [0.01]
Child Number	-0.01 [0.00]	-0.02* [0.01]	-0.01 [0.02]
Household Income	-0.10*** [0.00]	-0.08*** [0.01]	0.10*** [0.02]
Maternal Education	0.00 [0.00]	-0.07*** [0.01]	0.13*** [0.02]
Maternal Non-employment	-0.05*** [0.00]	-0.04*** [0.03]	0.02 [0.04]
r^2	0.03	0.06	0.03
n	9,398	9,398	4,040

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$

As shown in Table 3, the strongest personal variable demonstrating the greatest magnitude of association with social impairment and psychiatric disorder is hostile parenting. Maternal depression is also a significant personal predictor for psychiatric disorder. The personal predictor variable demonstrating the greatest magnitude of association with math score is family dysfunction.

Table 3
Relationship Between Family Status And Personal Variables On Child Outcome (Linear Regression)

Mother-rated Variables	Child Outcome		
	Social Impairment Std β [Std Error]	Psychiatric Disorder Std β [Std Error]	Math Score Std β [Std Error]
Lone Mother	0.05*** [0.00]	0.09*** [0.03]	-0.06*** [0.05]
Maternal Depression	0.07*** [0.00]	0.15*** [0.00]	-0.02 [0.00]
Family Dysfunction	0.07*** [0.00]	0.04*** [0.00]	-0.06** [0.04]
Social Support	-0.01 [0.00]	0.01 [0.00]	0.02 [0.01]
Hostile Parenting	0.40*** [0.00]	0.46*** [0.00]	-0.01 [0.01]
Punitive Parenting	0.06*** [0.01]	0.04*** [0.01]	-0.02 [0.01]
r^2	0.24	0.32	0.01
n	9,398	9,398	4,040

- * $p < 0.05$
- ** $p < 0.01$
- *** $p < 0.001$

The magnitude of association of some sociodemographic variables with outcome decreases slightly when both sociodemographic and personal variables are included in the model (Table 4). For example, the coefficient for gender and social impairment is decreased from Model 1 (Std β = 0.09 to 0.05). Similarly, for psychiatric disorder, the magnitude of association of gender decreases (Std β = 0.16 to 0.12). For the outcome math score, the magnitude of association of the sociodemographic variables remains almost unchanged. The magnitude of association of personal variables on outcome remains almost unchanged when sociodemographic and personal variables are combined.

The magnitude of association of the independent variables with child outcome do not change substantially when sociodemographic and personal variables are combined or evaluated separately. Hostile parenting has the greatest magnitude of association with social and psychiatric problems. Maternal education and household income are also significantly associated with math score.

Examination of whether the magnitude of association between lone-mother status and child morbidity increases under certain sociodemographic or personal conditions was done also, by testing interactions between lone-mother status and all of the sociodemographic and personal variables used in the regressions (data not shown). Only the interactions where coefficients are 0.15 or greater, and where interactions are significant at $p < 0.01$ are discussed here. The choice of the cutoff for the coefficient is based on detecting a medium effect size as suggested by Cohen (1992).

Table 4
Relationship Between Family Status, Sociodemographic And Personal
Variables And Child Outcome (Linear Regression)

Sociodemographic Variables	Child Outcome		
	Social Impairment Std β [Std Error]	Psychiatric Disorder Std β [Std Error]	Math Score Std β [Std Error]
Lone Mother	0.02* [0.00]	0.07*** [0.03]	-0.01 [0.06]
Gender <male child>	0.05*** [0.00]	0.12*** [0.02]	0.00 [0.03]
Child Age	0.08*** [0.00]	-0.01 [0.01]	-0.02 [0.01]
Child Number	-0.03** [0.00]	-0.05*** [0.01]	-0.01 [0.02]
Household Income	-0.06*** [0.00]	-0.04*** [0.01]	0.09*** [0.02]
Maternal Education	0.02 [0.00]	-0.06*** [0.01]	0.12*** [0.02]
Maternal Non-employment	-0.03** [0.00]	-0.02* [0.02]	0.02 [0.04]
Maternal Depression	0.07*** [0.00]	0.15*** [0.00]	-0.01 [0.00]
Family Dysfunction	0.07*** [0.00]	0.04*** [0.00]	-0.05* [0.00]
Social Support	-0.01 [0.00]	0.02* [0.00]	0.00 [0.01]
Hostile Parenting	0.40*** [0.00]	0.45*** [0.00]	-0.02 [0.01]
Punitive Parenting	0.06*** [0.01]	0.04*** [0.01]	-0.01 [0.01]
r^2	0.25	0.34	0.03
n	9,398	9,398	4,040

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

For the outcome social impairment, children from lone-mother families where there is hostile parenting do significantly worse than children from lone-mother families where there is no hostile parenting than children from two-parent families (Std $\beta = 0.15$). The magnitude of this strength of association (coefficient) between lone-mother and hostile parenting interaction is greater than that of all other variables except hostile parenting alone (Std $\beta = 0.38$). Differences between child social impairment between two-parent and lone-mother families at various levels of hostile parenting are shown in Figure 2a. Similarly, for the outcome psychiatric disorder, children from lone-mother families where there is hostile parenting do significantly worse (Std $\beta = 0.24$). The magnitude of this strength of association (coefficient) for the interaction between lone-mother and hostile parenting is greater than that of all other main effects of variables except hostile parenting alone (Std $\beta = 0.42$) and lone-mother (Std $\beta = 0.30$). Differences in child psychiatric disorder between two-parent and lone-parent families at various levels of hostile parenting are shown in Figure 2b.

A number of additional regressions were completed to further investigate the association between income and the child outcomes (results not shown). The strength of association between lone-mother status and child outcome controlling for sociodemographic variables (Question 2 in Introduction) and the strength of association between lone-mother status and child outcome controlling for sociodemographic and personal variables (Question 4 in Introduction) were both re-examined using definitions of the income variable to elucidate possible threshold and non-linear effects. Income defined to examine possible threshold effects used five dichotomous variables with thresholds or cutoffs set between each point on 6 point scale (see Appendix A for income definition). Income defined to examine possible non-linear effects included both the income variable and the squared income variable in regressions. No clear income threshold or non-linear effect was found (results not shown).

Figure 2a
Social Impairment by Hostile Parenting for Children from Lone-Mother and Two-Parent Families

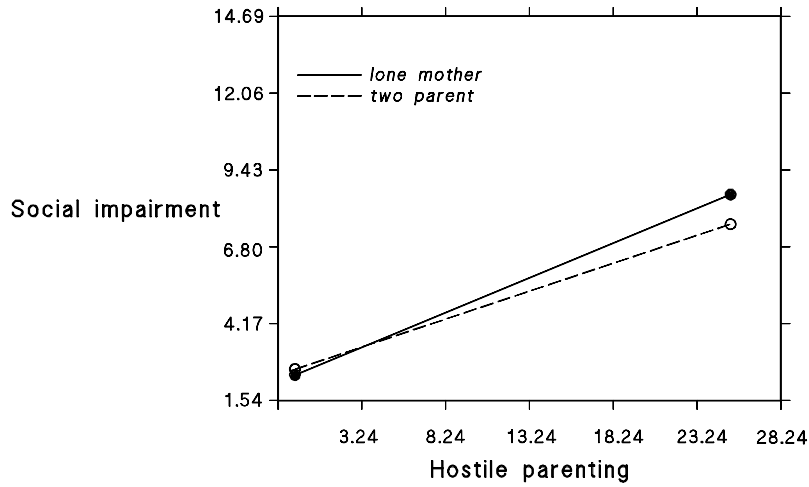
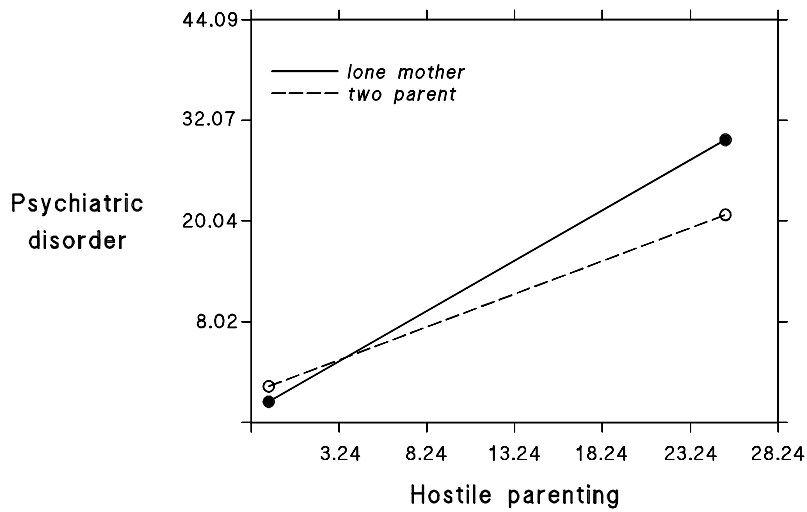


Figure 2b
Psychiatric Disorders by Hostile Parenting for Children from Lone-Mother and Two-Parent Families



4. Discussion

The aim of this work was to understand the magnitude of association between lone-mother status on its own with child well-being, and the magnitude of this association adjusting for other sociodemographic and personal factors. Although, on its own, lone-mother status is statistically significantly associated with all of the child outcomes examined, the magnitude of association is weak. The strong statistical significance of the results can be attributed to the large sample size.

The strength of association between lone-mother status and child outcome generally decreases when sociodemographic and/or personal variables are added to the model predicting child outcome. At the same time, the addition of these variables increases the explained variance of the outcome. The most substantial increase in explained variance in the outcome models for social impairment and psychiatric disorder comes with the addition of personal variables. The personal variable hostile parenting has the greatest magnitude of association with social and psychiatric difficulties. For the academic outcome math score, the addition of socio-demographic and personal variables does not substantially increase the explained variance.

Examination of the sociodemographic and personal variables with the greatest magnitude of association with child outcome reveals that hostile parenting is a consistent and significant predictor of child psychiatric and social difficulties. The combination of lone-mother status and hostile parenting is particularly noxious for child psychiatric and social outcomes. No single sociodemographic variable stands as being most strongly associated with child psychiatric, social and academic difficulties. Household income is the sociodemographic variable most consistently associated with child morbidity. The magnitude of association between the individual sociodemographic or personal variables does not change substantially when sociodemographic and personal variables are combined in the model.

4.1 Lone-Mother Status

The finding that lone-mother status on its own is consistently and significantly associated with all child outcomes examined is consistent with other research (Lipman and Offord, 1996; Lipman, Offord and Dooley, 1996). Even so, the size of effect (magnitude of coefficients) and the

explained variance of lone-mother status, on its own or combined with other variables, on child outcome is limited. This limited effect size and explained variance are also consistent with previous work examining the effect of similar markers or risk factors on child outcome using a Canadian general population sample (Lipman and Offord, 1996).

Other researchers examining similar outcomes have found larger effect sizes and levels of explained variance for similar predictor variable (e.g., Duncan, Brooks-Gunn and Klebanov, 1994) using an infant population at high risk for developmental delay. Characteristics of the data set used for analysis, such as the characteristics of the sample (e.g., general population vs inner city), age of child at data collection, number of points of data collection (e.g. cross-sectional vs longitudinal), informant and measurement issues influence the magnitude of effect (Lipman and Offord, 1996).

While children from lone-mother families are at increased risk of child difficulties, the limited effect size and variance explained by the family status variable suggests that children from lone-mother families and two-parent families probably develop difficulties for similar reasons. However, several further comments are warranted beyond this simple explanation. First, an exception to the similar factors influencing the development of child morbidity in lone-mother and two-parent families comes with hostile parenting (see Section 4.1.1). Also, since lone-mother status remains significantly independently associated with child outcome in the presence of other variables known to be strongly associated with child morbidity (e.g., income), work needs to be done to explain mechanisms through which lone-mother status might influence child well-being.

4.1.1 Lone-Mother Status and Parenting

Hostile parenting acts as a consistent and significant predictor of child psychiatric and social outcomes. In addition, there is a significant interaction between lone-mother status and hostile parenting such that the presence of hostile parenting is linked with increased psychiatric and social difficulties not seen in two-parent families. This finding is consistent with other work done associating parental stress, parenting difficulties and poor child outcomes (e.g., Patterson, 1986) but reveals an important additional specific interaction (Boyce, Frank, Jensen, *et al*, 1990). These results suggest that interventions to assist with troublesome parenting practices may be helpful to all families, but that such programs aimed specifically at lone-mother families could have an even

more powerful impact on child morbidity. There is evidence that positive parenting practices can have an important influence on child well-being for children in at-risk situations (Landy and Tam, 1996).

4.2 Association Between Income, Maternal Education, Maternal Depression and Child Morbidity

In both lone-mother and two-parent families, low income is significantly associated with all child outcomes examined. Both low maternal education and maternal depression are significantly associated with two of the three measures of child morbidity.

Household income is the sociodemographic variable most consistently associated with child morbidity, and it acts as a significant independent predictor of all child outcomes examined. As is the case for lone-mother status, the effect size is limited, and this is consistent with other Canadian work using a similar population (Lipman and Offord, 1996). As noted above, the characteristics of the data set, including measurement issues and variable specifications influence the magnitude of effect. In these analyses, income was measured using six categories (see Appendix A). In an attempt to tease out possible measurement issues with the specification of the income variable, several additional analyses were completed. The effect size of the income variable does not change substantially when a threshold effect or a non-linear effect is investigated.

While the correlation between the income and parenting variables used in these analyses is small (see Appendix E), this may reflect the cross-sectional “snapshot” nature of the data. Others have demonstrated that low income and its associated stresses can decrease the capacity for poor mothers or fathers to provide optimal parenting that is supportive and consistent due to their level of psychological distress, and this effects child well-being (McLoyd, 1990; Elder, Nguuyen and Capsi, 1985; Conger, Ge, Elder *et al*, 1994; Lempers, Clark-Lempers and Simons, 1989; Patterson, 1986). Interventions to decrease the stresses associated with economic disadvantage could be helpful to children. There is persuasive evidence that programs for socioeconomically disadvantaged children lead to improvements in school performance and cognitive functioning (Lazar, Darlington, Murray *et al*, 1982).

Maternal education is significantly associated with psychiatric disorder and math score. Increases in maternal educational status could potentially help families in a variety of ways. Interventions to increase maternal education could assist with later maternal employment and family income. Increased maternal education could also positively influence children's academic performance as documented by the association between maternal education and child academic performance demonstrated here and elsewhere (e.g., Lipman, Offord and Boyle, 1995). The mechanisms through which maternal education influences child academic performance could be biological (e.g., mothers who attain higher educational levels are smarter and have smarter children) and/or environmental (e.g., mothers who attain higher education pay more attention to providing stimulating books, toys and activities for their children which enriches a child's capacity to do well in school).

Maternal depression was found to be significantly associated with child social difficulties and child psychiatric difficulties. The finding of increased risk of a range of child difficulties associated with maternal depression has been demonstrated elsewhere (e.g., Downey and Coyne, 1990). The mechanisms through which maternal depression influences child morbidity could be biological (e.g., increased risk of depression in families where a parent is depressed) and/or environmental (e.g., mothers who are depressed are unavailable to interact appropriately with their child which may lead to poor self-esteem and social difficulties for the child). Adequate treatment of maternal mood disorders would be expected to be beneficial both to the mothers themselves and their children.

4.3 Policy Implications

The implications for policy analysts that arise from these analyses suggest that policies aimed at healthy child development should be aimed at all families and not specifically at lone-mother families. Given equal access to programs (e.g., transportation, money for registration fees, etc.), services aimed at alleviating factors consistently and significantly associated with child morbidity should be aimed at the whole population and should be helpful to both lone-mother and two-parent families. The exception to this statement is in the area of parenting, where programs aimed to encourage consistent, supportive and appropriate parenting among lone-mother families could have a specific effect on child morbidity over and above that seen in two-parent families.

The variables that are most consistently associated with child morbidity differ somewhat in quality and quantity for social or psychiatric outcomes and the academic outcome. This finding of distinct correlates for different forms of child morbidity is supported by the literature (Offord, Boyle and Jones, 1987; Rutter, 1985a, 1985b). However, even given these differences, parenting problems, low income, low maternal education and maternal depression represent difficulties associated with child morbidity on a significant and consistent basis, and potential areas of policy impact if sound interventions for these difficulties exist. With the exception of specific parenting programs for lone mothers, income support programs, programs that allow mothers to increase their education and programs aimed at alleviating depression all have the potential to increase child well-being in lone-mother and two-parent families alike. Endeavours to ensure equal access to such programs for lone-mothers and mothers from two-parent families are important.

4.3.1 Difficulties with Policy Planning

It is not possible to provide more specific suggestions for policy planning due to a number of limitations of the NLSCY data available. These difficulties include sorting out temporal relationships, sorting out causal relationships, and other measurement issues.

In terms of sorting out temporal relationships, the data used in this paper are cross-sectional, allowing only a “snapshot” view of the impact of family status, sociodemographic and personal variables on child outcome. Associations between variables such as lone-mother status and child behaviour problems are demonstrated but it is impossible to determine whether lone-parent family status preceded child behaviour problems or not. It is only when a factor associated with a specific outcome precedes an outcome that it can be called a risk factor for the outcome (Kraemer, Kazdin, Offord, *et al.*, 1997). Further, it is only when a risk factor can be changed, and that manipulation of the factor changes the outcome can it be called a causal risk factor (Kraemer, Kazdin, Offord, *et al.*, 1997). It is also important to understand the mechanism(s) through which risk factors acts to influence outcome.

An example of such difficulties follows. Low income, hostile parenting and maternal depression are all significantly associated with the child outcome psychiatric disorder. While the regression analyses suggest that each of the sociodemographic and personal variables are relatively independent of each other (since the standard β coefficients do not decrease much when all

variables are combined in the model), one might imagine that some relationship does exist between each of these three variables. Without understanding the temporal relationship between these variables, whether some variables act as risk factors or causal risk factors on others, and the mechanisms through which these factors have their effect, policy planning is difficult. One is left with multiple possible interpretations of a single result, and a given interpretation may lead to misallocation of resources.

Returning to the example, one possible interpretation of the findings is that low income influences child well-being directly (e.g., through inability to afford an adequate level of consumption) and/or indirectly (e.g., through increasing levels of parental stress leading to maternal depression). The latter relationship between low income and maternal depression is supported by the correlation between variables (see Appendix E). The policy implications arising from this interpretation would suggest that increasing income levels would be helpful. An alternative interpretation of the findings could be that hostile parenting and maternal depression are more strongly influenced by other unmeasured factors (e.g., experiences in one's family of origin such as child maltreatment or how one was parented). If this is the case, interventions other than cash transfers may be more helpful. Yet another interpretation is that income insecurity is due to parental depression since depressed parents may be unable to work. The best intervention in this case may be treatment of parental depression, which would indirectly have the likely effect of increasing income and increasing appropriate parenting behaviour. Unfortunately, available data are inadequate to assess the relative importance of each (Dooley, Curtis, Lipman *et al.*, 1998).

Other measurement issues are important to note, such as using a single point of data collection, the informant used, and the questions included in the NLSCY. A single point of measurement for some variables may not reflect the longitudinal status of the same variable. For example, children's families may move in and out of poverty or children may experience transitions between lone-mother families and families with two adult partners. Other variables not available for these analyses, such as degree of marital conflict, may act as important predictors of child outcome. With respect to informant issues, the outcome measures are largely dependent on maternal ratings (for two of three child outcomes). The same informant provides information on the sociodemographic and personal variables used. None of the measures, except math score, use

alternate methods (such as standard tests or observations). No single variable is assessed using multiple methods. Finally, no policy-oriented questions were included in the NLSCY.

Availability of such information will be of assistance to policy makers.

4.3.2 Study Strengths

The strengths of this study must also be acknowledged. The NLSCY data base provides a large nationally representative longitudinal sample of Canadian children. While the data for this paper is cross-sectional and derived from the first release of Cycle 1 of the NLSCY, information collected in future cycles of the NLSCY will allow monitoring of more refined poverty and lone parent variables, by including information about long-term vs. transient economic disadvantage and duration of time or child age in lone-parent families. In fact, although Cycle 1 of the NLSCY is a cross-sectional sample, the pending release of the rest of Cycle 1 data includes variables which may provide a historical perspective on the child and family (e.g., custody and access). Increasing refined specifications of family status, and the personal and socio-demographic variables affecting child outcome have the potential to help plan rational targeted intervention and prevention initiatives, and to support healthy child development.

4.4 Summary

Lone-mother status on its own acts as a statistically significant predictor of all child outcomes examined, although the size of effect is limited. This suggests that children from lone-mother families probably develop difficulties for the same reasons that children from two-parent families develop difficulties. Two caveats to this general statement must be acknowledged. First, the presence of hostile parenting in a lone-mother family significantly increases the risk of child morbidity in a way that is not seen for two-parent families, so specific interventions for lone-mother families may be warranted. Second, since lone-mother family status remains a significant independent predictor of child outcome even in the presence of other stronger predictors, work to further understanding of the mechanisms through which lone-mother status might influence child well-being remain important.

The policy implications that arise from these analyses suggest that policies aimed at healthy child development should be aimed at all families, and not specifically at lone-mother families. Given equal access to programs, services aimed at alleviating factors strongly associated with morbidity should be aimed at the whole population and should be helpful to both lone-mother and two-parent families. The exception is in the area of parenting, where specific programs aimed at lone mothers may be warranted.

Low income, parenting problems, low maternal education and maternal depression are consistently and significantly associated with child morbidity, and represent potential areas of policy impact if sound interventions exist. More specific policy suggestions are difficult to justify, given difficulties sorting out the temporal and causal relationships between variables and other measurement issues.

Appendix A

Definition of Variables

1. Family Status

- Lone-Mother - Child living with biological, step, adoptive or foster mother who had no spouse or common-law partner living in the house.
- Two-Parent - Child living with two parents (biological or blended family).

2. Sociodemographic Variables

- Child Age - Age in years (sample restricted to 6-to 11-year-olds)
- Gender - Male vs. female
- Child Number - Number of children living in the household between 0 and 17 years of age.
- Household Income - Household income categorized as follows: < \$10,000, \$10,000-14,999, \$15,000-19,999, \$20,000-29,999, \$30,000-39,999, \$40,000 or more (single parents only); \$40,000-49,999; \$50,000-59,999; \$60,000-79,999; \$80,000 or more (two-parent families only).
- Maternal Education - Highest level of maternal education (less than secondary school, secondary school graduation, beyond high school, college or university degree including trade).
- Maternal Non-Employment - Mother is not employed full-time or part-time

3. Personal (Mother and Family) Variables

- Social Support - Score from 0-18 on shortened version of Social Provision Scale (Cutrona and Russell, 1987) which measures perceived social support. Higher score indicates presence of increased social support.
- Family Dysfunction - Score from 0-36 on the General Functioning Subscale (Byles, Byrne, Boyle, 1988) of the McMaster Family Assessment Device (Miller, Bishop, Epstein, *et al.*, 1985). Higher score indicates increased family dysfunction.

Appendix A (Continued)

- Depression - Score from 0-36 on shortened version of Centre for Epidemiologic Studies Depression Rating Scale (CES-D) (Radloff, 1977). Higher score indicates increased presence of depressive symptoms.
- Hostile Parenting - Score from 0-25 on scale measuring hostile-ineffective parenting style. Higher score indicates increased frequency of annoyance, disapproval, anger, punishment, behaviour management problems and decreased frequency of praise (frequency measures: never, less than half the time, about half the time, more than half the time, all the time).
- Punitive Parenting - Score from 4-19 on scale measuring punitive-aversive behaviour management techniques. Higher score indicates increased frequency of raising voice, scolding, yelling or use of physical punishment and decreased frequency of calmly discussing and describing alternate acceptable behaviours (frequency measures: always, often, sometimes, rarely, never).
(Adapted by Dr. M. Boyle and Dr. K. Dodge from Strayhorn and Weidman, 1988)

4. Child Well-Being (Dependent) Variables

- Social Impairment - Sum of continuous scale scores for problems getting along with parents and/or teachers and/or peers (range 3-15).
- Psychiatric Disorder - Sum of continuous scale scores for hyperactivity, conduct disorder and emotional disorder. Briefly hyperactivity is characterized by inattention, impulsivity and motor activity; conduct disorder is characterized by either physical violence against persons or property or a serious violation of societal norms; and emotional disorder is characterized primarily by feelings of anxiety and depression. of each, scale score (range 0-50).
- Math Score - Age-adjusted score on standardized Math Computation Test (available for grades 2, 4 and 6 only).

Appendix B**Prevalence of Selected Variables in
Lone-Mother vs Two-Parent Families**

Sociodemographic Variables	Prevalence (%)	
	Lone-Mother Family (n)	Two-Parent Family (n)
Male Child	46.3 (701)	51.3 (4482)
Household Income		
< \$10,000	5.6 (84)	0.3 (23)
\$10,000-14,999	22.8 (342)	1.5 (132)
\$15,000-19,999	22.9 (343)	3.7 (325)
\$20,000-29,999	16.9 (253)	8.4 (731)
\$30,000-39,999	14.5 (218)	14.6 (1277)
≥ \$40,000	17.3 (259)	71.5 (6253)
Maternal Education		
Less than Secondary School	23.3 (349)	15.5 (1351)
Secondary School Graduation	16.6 (249)	19.2 (1680)
Beyond High School	33.4 (501)	28.3 (2473)
College or University Degree	26.6 (399)	37.0 (3236)
Maternal Non-Employment	37.2 (558)	27.4 (2397)

Appendix C

Descriptive Data for Selected Variables in Lone-Mother vs Two-Parent Families

Variable	Lone-Mother Family ¹ Mean (Standard Deviation)	Two-Parent Family ² Mean (Standard Deviation)
Sociodemographic		
Child Age	8.49 (1.72)	8.57 (1.65)
Child Number	2.15 (0.91)	2.45 (0.83)
Personal		
Social Support Score	13.97 (3.11)	14.55 (2.83)
Family Dysfunction	8.98 (5.39)	7.73 (5.06)
Depression Score	7.94 (7.42)	4.17 (5.07)
Hostile Parenting	9.47 (4.08)	8.73 (3.89)
Punitive Parenting	8.87 (2.13)	8.81 (2.03)
Outcome		
Psychiatric Disorder	10.7 (8.03)	7.81 (6.09)
Math Score ³	8.87 (1.87)	9.17 (1.82)
Social Impairment	4.89 (1.98)	4.39 (1.63)

¹ Lone-mother families n = 1,498

² Two-parent families n = 8,740

³ Math score n= 4,170 (lone-mother families n= 541, two-parent families n= 3,629)

Appendix D**Correlations Between Child Outcome Variables**

	Social Impairment	Psychiatric Disorder	Math Score
Social Impairment			
Psychiatric Disorder	0.55 **		
Math Score	- 0.09 **	- 0.13 **	

** $p < 0.01$

Appendix E

Correlations Between Independent Variables

	Lone Mother	Gender <Male Child>	Child Age	Child Number	Maternal Education	Household Income	Maternal Non-employment	Maternal Depression	Family Dysfunction	Social Support	Hostile Parenting	Punitive Parenting
Lone Mother												
Gender <male child>	-0.03**											
Child Age	-0.02	-0.00										
Child Number	-0.13**	0.00	0.02*									
Maternal Education	-0.08**	0.02*	0.02	-0.02*								
Household Income	-0.53**	0.01	0.04**	0.03**	0.28**							
Maternal Non-employment	0.08**	-0.02	-0.06**	0.12**	-0.22**	-0.33**						
Maternal Depression	0.24*	-0.01	-0.01	0.02	-0.12**	-0.27**	0.11**					
Family Dysfunction	0.09**	0.00	0.01	0.03**	-0.13**	-0.16**	0.02*	0.20**				
Social Support	-0.07**	-0.00	0.03*	-0.01	0.15**	0.17**	-0.10**	-0.20**	-0.48**			
Hostile Parenting	0.07**	0.09**	-0.03**	0.02*	-0.01	-0.05**	-0.03**	0.33**	0.23**	-0.03**		
Punitive Parenting	0.01	0.06**	-0.04**	0.06**	-0.04**	-0.03**	-0.03**	0.14**	0.26**	-0.08**	0.52**	—

* p < 0.05

** p < 0.01

*** p < 0.001

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