The health of lone mothers

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Abstract

Objectives

This article focuses on differences in the health status and health care utilization patterns of mothers in two-parent families, women who recently became lone parents, and women who had been lone parents for a longer period. Changes in the health of these women and their health care use over time are also explored.

Data source

The findings are based on the longitudinal component of the first two cycles (1994/95 and 1996/97) of the National Population Health Survey (NPHS). The sample analyzed consisted of 1,805 women in the 10 provinces who had at least one child younger than 18 at home.

Analytical techniques

Measures of self-reported health status and health care use for the three types of mothers were compared, using unadjusted and adjusted means. Multiple regression models were used to determine if lone motherhood was significantly associated with measures of health status and health care utilization after accounting for selected factors.

Main results

Lone mothers generally had poorer health status than mothers in two-parent families, as measured by self-reported health, happiness, and distress scores. Between the first two cycles of the NPHS, the health status of longer-term lone mothers did not improve significantly. No differences were found on measures of health care utilization.

Key words

single parent, longitudinal studies, self-perceived health, health care utilization, happiness, distress

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The number of lone-parent families in Canada has risen steadily in past decades. In 1995, lone-parent families numbered over 1.1 million, an increase of 60% from 1981[1]. Women headed the vast majority of these families.

Even if the transition to lone parenthood is a choice, it can be stressful.[2-8] Depending on their path to lone parenthood, lone mothers may feel pressure brought on not only by the loss of a partner, but also by changes such as a move, a decrease in financial and emotional support, the loss of a job or the start of a new one, and perhaps even the departure of one or more children from the household.

The advent of one or more of these stressful circumstances can affect physical and psychological health, and may result in increased health care utilization. It is expected, therefore, that when they become lone parents, such women will not be as healthy as those who live with a partner.

The health status of longer-term lone mothers is more difficult to anticipate. Over time, lone mothers may learn to cope, their health may improve, and their use of health

services may decrease. Some studies have reported that after a two- or three-year adjustment period, the health of many lone mothers recovers to levels comparable with mothers in two-parent families.[11,12]

But it can also be argued that prolonged exposure to the difficult circumstances typical of lone

Methods

Data source

This article is based on Statistics Canada's National Population Health Survey (NPHS). The NPHS, which began in 1994/95, collects information about the health of the Canadian population every two years. It covers household and institutional residents in all provinces and territories, except persons living on Indian reserves, Canadian Forces bases, and in some remote areas. The NPHS has a longitudinal and a cross-sectional component. Respondents in the longitudinal component will be followed for up to 20 years.

NPHS data consist of socio-demographic and some health information obtained for each member of participating households. These data are found in the General file. In addition, in-depth health information was collected for one randomly selected household member. The in-depth health information, as well as the information in the General file pertaining to that individual, is found in the Health file.

Among individuals in the longitudinal component in 1996/97, the person providing in-depth health information about himself or herself for the Health file was the randomly selected person for the household in cycle 1 (1994/95) and was usually the person who provided information on all household members for the General file in cycle 2.

The 1994/95 provincial, non-institutional sample consisted of 27,263 households, of which 88.7% agreed to participate in the survey. After the application of a screening rule, 20,725 households remained in scope. In 18,342 of these households, the selected person was aged 12 or older. Their response rate to the in-depth health questions was 96.1%, or 17,626 respondents. Of these 17,626 randomly selected respondents, 14,786 were eligible members of the NPHS longitudinal panel, along with 468 persons for whom only general information was collected. And 2,022 of the 2,383 randomly selected respondents under age 12 were also eligible. Thus, 17,276 respondents were eligible for re-interview in 1996/97.

A response rate of 93.6% was achieved for the longitudinal panel in 1996/97. Of these 16,168 respondents, 15,670 provided full information; that is, general and in-depth health information for both cycles of the survey. More detailed descriptions of the NPHS design, sample, and interview procedures can be found in published reports.[9,10]

This analysis is based on longitudinal data from the household component of the 1994/95 and 1996/97 cycles of the NPHS for the 10 provinces. It focusses on 1,805 women who, in 1996/97, had at least one child younger than 18 at home and who were living with a partner or who were lone parents: 1,374 women in two-parent families, 367 longer-term lone mothers, and 64 new lone mothers (see *Definitions*).

Analytical techniques

Average scores for self-perceived health, happiness and distress and for average number of consultations with selected health care professionals were estimated and compared for mothers living with a partner and all lone mothers. Averages were also calculated and compared between these two groups after controlling for their 1994/95 health status or health care utilization scores on the respective indicators (Tables 1 and 3).

Repeated measures analysis of variance was used to compare self-perceived health status and health care utilization among mothers in two-parent households, new lone mothers, and longer-term lone mothers (Tables 2 and 4). This approach uses the individual as her own control.

Multiple linear regression was used to examine whether lone motherhood was significantly associated with selected health status and health care use measures, after accounting for other factors believed to be associated with these variables.

Data were weighted to represent the target population in 1994/95, the first cycle of NPHS data collection. The significance level was set at $p = 0.05$. The bootstrap technique was used to account for the design effect of the survey in variance estimations and significance tests.[13,14] When pairwise comparisons of means were performed for more than two categories (Tables 2, 4 and 5), the significance level was adjusted to take into account multiple comparisons.

Distributions of the number of consultations with health care professionals are often not normal. They tend to peak at zero and to be positively skewed. With this type of distribution, the mean is a poor indicator of central tendency, so results from the multivariate analysis may be distorted. A common approach to correct this problem is to add 1 to the values when the distribution includes zero and transform these to the natural log. However, results based on scores that were transformed to their natural log equivalent are difficult to conceptualize. In the case of consultations about emotional or mental health, where the distribution was positively skewed, the two extreme values were capped at the next-highest score. Multiple linear regression analysis with the recoded values and with scores that were transformed to their natural log equivalent yielded similar results.

parenthood may threaten health and increase the use of health services. Therefore, it is expected that the health of women who have been lone parents for a longer time will differ from that of women who live with a partner or who have recently become lone parents. It is unclear, though, which group of lone parents will be in relatively better or worse health and which will use health care services more frequently.

Many studies have reported overall poorer levels of mental or physical health and higher levels of health care utilization among lone mothers than among women who live with a partner.[4,6,8,15-20] However, relatively little research has traced changes in the health of lone mothers over time. Longitudinal data from cycles 1 (1994/95) and 2 (1996/97) of the National Population Health Survey (NPHS) offer an opportunity to examine such changes and to explore some of the factors associated with them (see *Methods* and *Limitations*).

Lone mothers less healthy

In 1996/97, lone mothers did not rate their overall health as favourably as did mothers in two-parent families (Table 1) (see *Health characteristics*). It has been suggested that some less healthy women "select" themselves into lone parenthood, since their poorer health could strain their relationships.[16,19] To partially account for this possibility, 1996/97 health ratings were compared after they were adjusted for the women's 1994/95 standing.

Table 1
Mothers' average scores on selected health status indicators, by family type, Canada excluding territories, 1996/97

	Mothers in two-parent families (T)	All lone mothers (A)	Significant differences
Self-perceived health	7.35	6.57	T>A*
Adjusted for 1994/95 score	7.27	6.79	T>A*
Happiness	9.62	8.94	T>A*
Adjusted for 1994/95 score	9.56	9.11	T>A*
Distress	1.11	1.93	T<A*
Adjusted for 1994/95 score	1.20	1.65	T<A*

***Data source**: 1994/95 and 1996/97 National Population Health Survey, longitudinal sample, Health file*
***Note**: All variables were coded from low to high and rescaled from 0 to 10.*
** p = 0.05, two-tailed test*

Even when lone mothers' 1994/95 self-perceived health scores were taken into account, their average rating in 1996/97 was lower than that of mothers

Limitations

To ensure that new lone mothers were not new to parenting, but in fact, new to *lone* parenting, only respondents who were mothers in both cycles were considered. Consequently, all new lone mothers had previously lived with a partner (that is, in cycle 1). Longer-term lone mothers, however, include women who had never lived with a partner, since it was not possible to distinguish between these two groups (in 1995, almost one in four female lone parents was single and had never married).[1,21] This inconsistency must be kept in mind when comparing new and longer-term lone mothers, since different paths to lone parenthood may have different effects on health.

The definitions of new lone mothers, longer-term lone mothers and mothers in two-parent families are based on the household composition at the time of data collection for cycles 1 and 2 of the National Population Health Survey (see *Definitions*). No information is available on the living arrangements of respondents before cycle 1 or between cycles 1 and 2. Thus, changes in household composition (including a change in partner or the presence of an interim partner) in those periods would not be detected. The duration of the living arrangements is also unknown.

The multiple regression models were not constructed as forecasting tools, but rather to examine if new or longer-term lone mother status was significantly associated with health after controlling for other variables believed to be associated with health status. Causality cannot be inferred.

Since the number of women who become lone mothers over a two-year period is likely to be small, so is the sample size of new lone mothers (64), resulting in some loss of statistical power.

Attrition may be high for new lone mothers, because their change in circumstances may affect their willingness to participate in subsequent survey cycles. And if those who participated in cycle 2 have different health outcomes than those who did not, this may bias the results.

In addition to income adequacy in cycle 2, it would have been desirable to explore the associations between a *drop* in income between cycle 1 and 2 and health indicators. However, household income is only available in broad categories, and it was not possible to derive a sensitive "change of income" variable.

The extent of the overlap in the reporting of physician consultations and consultations for mental or emotional health cannot be determined.

Health characteristics

Respondents to the National Population Health Survey were asked about their *self-perceived health*. Interviewers read the question and recorded one response. The scores were re-scaled from 0 to 10. "In general, would you say your health is:

- excellent?" [score 4; rescaled to 10.0]
- very good?" [score 3; rescaled to 7.5]
- good?" [score 2; rescaled to 5.0]
- fair?" [score 1; rescaled to 2.5]
- poor?" [score 0]

A *happiness* rating (re-scaled from 0 to 10) was obtained from the question, "Would you describe yourself as being usually ...

- happy and interested in life?" [score 4; rescaled to 10.0]
- somewhat happy?" [score 3; rescaled to 7.5]
- somewhat unhappy?" [score 2; rescaled to 5.0]
- unhappy with little interest in life?" [score 1; rescaled to 2.5]
- so unhappy that life is not worthwhile?" [score 0]

Interviewers read the responses and marked only one.

To measure psychological *distress*, respondents answered six questions related to symptoms of depression and anxiety, ranked on a five-point scale from "none of the time" to "all the time": "During the past month, that is, from (one month ago) to yesterday, about how often did you feel:

- so sad that nothing could cheer you up?"
- nervous?"
- restless or fidgety?"
- hopeless?"
- worthless?"
- that everything was an effort?"

The responses to all items were summed (final score re-scaled from 0 to 10); higher scores indicated more distress. Cronbach's alpha for the entire NPHS sample was estimated at .77 in 1994/95 and .80 in 1996/97.

The number of *physician consultations* was obtained from the question: "[Not counting when you were an overnight patient] In the past 12 months, how many times have you seen or talked on the telephone with (a/an/any) [fill category] about your physical, emotional or mental health?" Two categories were combined for physician consultations: family doctor/general practitioner and other medical doctor (surgeon, allergist, gynecologist or psychiatrist, for example).

To measure the number of *consultations for mental or emotional health*, respondents were asked: "In the past 12 months, have you seen or talked on the telephone to a health professional about your emotional or *mental health*?" Those who answered "yes" were then asked: "How many times (in the past 12 months)?" Respondents who answered "no" were coded 0 consultations.

who lived with a partner. This pattern also holds for happiness and distress: lone mothers had significantly lower self-perceived happiness and higher distress in 1996/97, even after the scores were adjusted for 1994/95 levels.

Gap persists

Dividing lone mothers into new (became a lone mother since 1994/95) and longer-term (lone mother in both 1994/95 and 1996/97) provides insight into how their health status may change over time.

The average self-perceived health scores of longer-term lone mothers were significantly lower than those of mothers in two-parent families in both 1994/95 and 1996/97. As well, the averages for

Table 2
Mothers' average scores on selected health status indicators, by family type, Canada excluding territories, 1994/95 and 1996/97

	Average scores			
	Mothers in two-parent families (T)	New lone mothers† (N)	Long-term lone mothers (L)	Significant differences
Self-perceived health				
Cycle 1 (1994/95)	7.33	7.27	6.62	T1 > L1*
Cycle 2 (1996/97)	7.35	6.72	6.53	T2 > L2*
Across cycles	...	...	...	n.s.
Happiness				
Cycle 1 (1994/95)	9.42	9.15	8.57	T1 > L1*
Cycle 2 (1996/97)	9.62	9.21	8.86	T2 > L2*
Across cycles	...	...	...	T1 < T2*
Distress				
Cycle 1 (1994/95)	1.34	2.25	2.27	T1 < N1* T1 < L1*
Cycle 2 (1996/97)	1.11	1.75	1.99	T2 < L2*
Across cycles	...	...	...	T1 > T2*

***Data source**: 1994/95 and 1996/97 National Population Health Survey, longitudinal sample, Health file*
***Note**: Comparisons are done using repeated measures analysis of variance. All variables were coded from low to high and rescaled from 0 to 10.*
† Became lone mother after their cycle 1 interview.
T1 – average cycle 1 score for mothers in two-parent families
T2 – average cycle 2 score for mothers in two-parent families
N1 – average cycle 1 score for new lone mothers
N2 – average cycle 2 score for new lone mothers
L1 – average cycle 1 score for long-term lone mothers
L2 – average cycle 2 score for long-term lone mothers
** p = 0.05; two-tailed test with adjustment for multiple comparisons*
··· Not applicable
n.s. Not significant

these two groups did not change significantly during that two-year period (Table 2).

The average self-perceived health score of new lone mothers was close to that of mothers in two-parent families at cycle 1 when their living arrangements were similar; by cycle 2, the average score of new lone mothers resembled that of longer-term lone mothers. However, this apparently substantial decrease in self-rated health was not statistically significant. The drop in the average score of this group (that is, after becoming lone mothers) contrasts with the stability observed among the other two groups. The lack of significance may be due to the lack of statistical power resulting from the small sample of new lone mothers.

The average happiness score of mothers in two-parent families was higher than that of longer-term lone mothers in both 1994/95 and 1996/97. As well, by 1996/97, mothers in two-parent families were the only group whose happiness score had risen significantly.

A comparison of cycle 1 respondents who participated in cycle 2 with those who did not participate revealed significantly higher happiness scores among the former (data not shown). Therefore, attrition cannot be discounted as an explanation for the increase in happiness scores of mothers in two-parent families.

At both cycles, longer-term lone mothers had higher distress scores than did mothers in two-parent families. And in cycle 1, the distress level of new lone mothers was significantly higher than that of mothers in two-parent families. At that time, the women who would become new lone mothers were still living with a partner. Their high distress levels may reflect problems that existed before the dissolution of their relationship.

By 1996/97, there was a significant drop in average distress scores for mothers in two-parent families, but not for longer-term lone mothers. The significant decrease in distress scores among the former may reflect the likelihood that such families would be best positioned to benefit from the improved economic conditions[22] in that period. An attrition effect for distress scores could not be detected.

The moderate stability coefficients of these health status measures (Appendix Table A) indicate that the overall averages mask substantial intra-individual change (across cycles). In addition, these three indicators may differ in their reliability and validity (for example, the happiness score is based on one item and may be highly influenced by mood). However, one observation persists. At cycle 1, on all three measures, the health of longer-term lone mothers was consistently worse than that of mothers in two-parent families and remained so at cycle 2.

Health care use similar

It might be expected that the poorer health of lone mothers would be associated with greater use of health care services, yet the average number of self-reported physician consultations did not differ significantly between lone mothers overall and mothers in two-parent families (Table 3). And while statistical differences were found between these two groups for the average number of consultations for mental or emotional health, the differences disappeared when the number of consultations reported in cycle 1 was taken into account.

When the results for new and longer-term lone mothers were examined separately, no significant differences in average number of physician consultations were detected among the three groups (Table 4). However, by 1996/97, mothers in two-parent families and longer-term lone mothers reported a significant drop in consultations.

Table 3
Mothers' average number of health care consultations, by family type, Canada excluding territories, 1996/97

	Mothers in two-parent families (T)	All lone mothers (A)	Significant differences
Physician consultations	5.81	4.73	n.s.
Adjusted for 1994/95	4.90	5.29	n.s.
Consultations for mental or emotional health	0.54	1.88	T<A*
Adjusted for 1994/95	0.65	1.15	n.s.

***Data source**: 1994/95 and 1996/97 National Population Health Survey, longitudinal sample, Health file*
***Note**: All variables coded from low to high*
** p = 0.05; two-tailed test*
n.s. = difference not statistically significant

Definitions

Three types of mothers are analyzed: (1) *new lone mothers,* who shared a household with their partner and one or more children younger than 18 in 1994/95, but lived only with one or more children in 1996/97; (2) *longer-term lone mothers,* who lived only with one or more children at both collection periods; and (3) *mothers in two-parent families,* who lived with a partner and one or more children at both collection periods. A fourth group—women who had been lone parents in cycle 1, but by cycle 2 were members of two-parent families—comprised too few respondents (46) to include in the analysis. The exact duration of the living arrangements of any group is unknown, as no information is available about the starting time of their current situation. Respondents were excluded from the analysis if their household contained someone other than the respondent, her children and, if applicable, her partner.

Respondents were classified as having *inadequate income* if they were in either of the two lowest income quintiles, defined according to total household income and household size, as follows:

Household Income group	Persons in household	Household income
Lowest	1 to 4	Less than $10,000
	5 or more	Less than $15,000
Lower-middle	1 or 2	$10,000 to $14,999
	3 or 4	$10,000 to $19,999
	5 or more	$15,000 to $29,999
Middle	1 or 2	$15,000 to $29,999
	3 or 4	$20,000 to $39,999
	5 or more	$30,000 to $59,999
Upper-middle	1 or 2	$30,000 to $59,999
	3 or 4	$40,000 to $79,999
	5 or more	$60,000 to $79,999
Highest	1 or 2	$60,000 or more
	3 or more	$80,000 or more

Respondents were classified as receiving *social assistance* if they reported that one of their sources of income was provincial or municipal social assistance or welfare.

A respondent was classified as having *low education* if she had secondary graduation or less.

Labour force status was divided into: *full-time employed* (normally works 30 hours per week or more for all current jobs combined), *part-time employed* (normally works less than 30 hours per week for all current jobs combined), *unemployed* (not currently working because of temporary seasonal or non-seasonal layoff, permanent layoff, resignation, or stated that she is looking for work), *not in labour force* (not working because of illness, pregnancy, caring for own children, caring for elder relative, other personal/family responsibilities, school or education leave, retired, disabled or recovering from illness, or "other"). Respondents not currently working because of a labour dispute, or on unpaid or partially paid leave are considered employed. A fifth category, *missing,* was created if number of hours currently working or if reason for not working was unknown. A respondent was flagged as having a *new employer* only if she was working at both cycles, and her employer in 1996/97 was different from her employer in 1994/95.

Marital status was not considered in this analysis, as the interest lies in household composition, not the legal status of the mother's relationship. However, "separated" marital status was included in the multivariate models, as it may indicate further instability not experienced by mothers in two-parent families or lone mothers who are divorced or widowed.

A respondent was flagged as experiencing a *loss of one or more children* if the number of children in the household decreased (for any reason) between 1994/95 and 1996/97.

Movers were respondents who had a change of postal code between 1994/95 and 1996/97.

Four "yes/no" questions measured emotional support. Respondents were asked if they had someone they could confide in, count on, who could give them advice, and who made them feel loved. A score of 1 was given to each "yes" answer. A higher score indicates greater perceived emotional support. Change in emotional support was defined as the difference between 1994/95 and 1996/97 scores.

NPHS asked respondents if they had "long-term chronic conditions that have lasted or are expected to last 6 months or more." The interviewer read a list that included a wide range of specific *chronic conditions.*

Respondents who stayed in bed or cut down in activities at least one day in the two weeks before the interview because of illness or injury were considered to have had *disability days in the last 2 weeks.*

Respondents were asked if they were limited in the kind or amount of activity they could do at home, at school, or at work because of a long-term physical or mental condition or a health problem, or if they were limited in activities such as transportation to or from work or leisure time activities. They were also asked if they had any long-term disabilities or handicaps. Those who answered "yes" to any of those were classified as having *activity restrictions*.

Table 4
Mothers' average number of health care consultations, by family type, Canada excluding territories, 1994/95 and 1996/97

	Average number of consultations			
	Mothers in two-parent families (T)	New lone mothers† (N)	Long-term lone mothers (L)	Significant differences
Physician consultations				
Cycle 1 (1994/95)	5.40	6.06	8.07	n.s.
Cycle 2 (1996/97)	4.73	7.71	5.28	n.s.
Across cycles	...	...	...	T1 > T2* L1 > L2*
Consultations for mental or emotional health				
Cycle 1 (1994/95)	0.60	2.36	3.07	T1 < L1*
Cycle 2 (1996/97)	0.55	2.86	1.59	n.s.
Across cycles	...	...	...	n.s.

***Data source**: 1994/95 and 1996/97 National Population Health Survey, longitudinal sample, Health file*
***Note**: Comparisons are done using repeated measures analysis of variance.*
† Became lone mother after their cycle 1 interview.
T1 – average cycle 1 score for mothers in two-parent families
T2 – average cycle 2 score for mothers in two-parent families
N1 – average cycle 1 score for new lone mothers
N2 – average cycle 2 score for new lone mothers
L1 – average cycle 1 score for long-term lone mothers
L2 – average cycle 2 score for long-term lone mothers
** p = 0.05; two-tailed test with adjustment for multiple comparisons*
··· Not applicable
n.s. Not significant

The only significant difference in consultations for mental or emotional health was in 1994/95 when mothers in two-parent families reported fewer consultations, on average, than did longer-term lone mothers.

Socioeconomic status and health

To understand the relatively poorer health of lone mothers, a number of other variables related to physical and mental well-being were examined (see *Definitions*).

The association between poor health and low socioeconomic status has been documented repeatedly.[23-25] It is also well known that families headed by lone mothers are often economically disadvantaged,[3,5,6,8,15,26-33] and conversely, that people with low socioeconomic status have a greater risk of becoming lone parents.[34] It is not surprising, then, that NPHS data show that both new and longer-term lone mothers were more likely than mothers in two-parent families to live in households with inadequate income (Table 5).

Having a job may relieve financial stress, and it may also promote feelings of self-sufficiency. Both usually contribute to better psychological and physical health. At the same time, people in better physical and psychological health are more likely to find or keep employment.

Although the proportions working full time did not differ, the proportion of longer-term lone mothers working part time was smaller than that of mothers in two-parent households. For lone mothers, part-time work may be impractical. For instance, the income from a part-time job might not offset the expenses associated with working.

New lone mothers had the highest probability of moving, a stressful experience that may be associated with their recent transition to lone parenthood.

Between the two survey cycles, mothers in two-parent families experienced, on average, a slight positive change in emotional support, and longer-term lone mothers, a significantly higher increase than all other mothers. By contrast, new lone mothers experienced, on average, a decrease in emotional support. It is widely acknowledged that social networks are disrupted when partners decide to live apart.[2,3] In addition, a break-up may enhance feelings of being alone and not having someone on whom to rely.[5,30] Over time, the feeling of a lack of emotional support may lessen, or lone mothers may be able to reconstruct networks that provide such support.

The association of each of these factors with self-perceived health status and health care utilization cannot be examined in isolation, as many of these characteristics are interrelated. For instance, full-time employment tends to be associated with higher levels of education. And moving may entail a loss of emotional support. However, with multivariate analysis, it is possible to assess the contribution of each factor, and various combinations of these factors, to health status and the use of health care services.

After the effects of other variables were controlled, as expected, chronic conditions, activity

restrictions and recent disability days were significantly associated with self-perceived health, distress and happiness (Appendix Table B). As well, these three variables were the only ones related to increased physician consultations (Appendix Table C). And only activity restrictions were associated with increased consultations for mental or emotional health.

Table 5
Selected characteristics of mothers, by family type, Canada excluding territories, 1996/97

	Mothers in two-parent families (T)	Lone mothers New (N)	Lone mothers Longer-term (L)	Significant pairwise comparisons
Personal characteristics				
Mean age of mother (years)	38	34	37	T>N*
Socioeconomic characteristics				
Inadequate household income (%)	9	46	49	T<N* T<L*
Social assistance (%)	4	40†	45	T<N* T<L*
Low education (%)	33	43†	36	n.s.
Full-time employed (%)	47	48†	50	n.s.
Part-time employed (%)	27	--	16	T>L*
Unemployed (%)	3†	--	--	--
Not in labour force (%)	22	24†	29	n.s.
Family characteristics				
Legally separated (%)	···	58	22	N>L*
Mean number of children in household (%)	2.1	1.8	1.8	T>L* T>N*
Child aged 5 or younger in household (%)	40	49†	29	T>L*
Changes§				
Child loss (%)	4†	--	--	--
Moved (%)	16	64	39	T<N* T<L* N>L*
New employer (%)	20	21‡	19	n.s.
Mean change in emotional support	.04††	- .11††	.20††	T<L* N<L*
Health indicators				
Chronic conditions (%)	56	72	64	n.s.
Disability days in last two weeks (%)	13	--	18	n.s.
Activity restrictions (%)	13	--	19	n.s.

***Data source**: 1994/95 and 1996/97 National Population Health Survey, longitudinal sample, Health file*
***Note:** All variables coded " no/yes" except age of mother, number of children in household, and change in emotional support.*
† Coefficient of variation between 16.6% and 25.0%
‡ Coefficient of variation between 25.1% and 33.3%
§ Based on data from cycle 1 (1994/95) and cycle 2 (1996/97)
†† Coefficient of variation greater than 33.3% because of small magnitude of estimates (within-group differences between cycle 1 and 2 averages are close to 0)
-- Coefficient of variation greater than 33.3%
** p = 0.05; two-tailed test with adjustment for multiple comparisons*
··· Not applicable
n.s. Not significant

Education, income crucial

Even after health ratings on each indicator in 1994/95 were taken into account, low education significantly contributed to lower self-perceived health, decreased happiness and increased distress levels in 1996/97. Receiving social assistance was associated with lower self-perceived health, and inadequate household income contributed to higher distress levels. While this suggests that, to a great degree, lone mothers' poorer health is attributable to low education and inadequate income, it would be an oversimplification to conclude that these factors "explain away" the poorer health experienced by this group. A substantial amount of the variance explained by the model is accounted for solely by the respondents' health status at cycle 1, and most of the variance remains unexplained.

Neither low education nor inadequate income was significantly associated with health care utilization. For physician consultations, this is not surprising, given Canada's universal health care system. The lack of such a relationship for consultations about mental or emotional health is more puzzling, because such services are often provided on a fee-for-service basis. However, for low-income individuals, these services may be available along with other social assistance.

Lone parenting and health

When other determinants of health and 1994/95 health status were taken into account, being a lone parent per se was not a significant factor for any of the three health indicators (Appendix Table B).

Unexpectedly, being separated was associated with lower distress levels overall. But for new lone mothers who were separated, distress levels were increased. Thus, the instability of being separated seems to be particularly distressing for new lone mothers, but seems not to affect this group's self-perceived health or happiness level.

In the self-perceived health status model, the positive coefficient associated with the interaction of being both a longer-term lone mother and having inadequate income is counterintuitive. In this model, it serves to correct the strong negative main effect associated with being a longer-term lone mother only, which, in conjunction with inadequate income, underestimates the average self-perceived health of this group.

Concluding remarks

According to the National Population Health Survey, lone mothers reported consistently worse health status than did mothers in two-parent families. As well, longitudinal data indicate that between 1994/95 and 1996/97, the self-perceived health of longer-term lone mothers did not improve. Nor was the health of longer-term lone mothers significantly different from that of women who had recently become lone parents. These findings suggest that prolonged exposure to the circumstances typical of lone parenthood threatens self-perceived health status. No significant difference was found in health care utilization, except for consultations about mental or emotional health in cycle 1, which was higher for longer-term lone mothers than for mothers in two-parent families.

Lone parenthood alone was not a significant predictor of health outcomes. However, a combination of many explanatory variables, such as low education and inadequate household income, reduced the contribution of type of mother in these models. Assessing all of the factors that tend to be associated with lone parenthood, including those that occur over time, may be a crucial starting point in dealing with the health issues that lone mothers are likely to confront. ●

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Appendix

Table A
Stability coefficients between cycle 1 and cycle 2 for selected health status and health care consultation indicators

		Mothers in two-parent families	Lone mothers		
	Total		Total	New	Longer-term
Self-perceived health	.56	.56	.55	.43	.58
Happiness	.44	.40	.43	.46	.52
Distress	.40	.31	.48	.06	.48
Physician consultations	.34	.39	.23	.01	.32
Consultations for mental or emotional health	.43	.51	.34	.50	.30

Data source: *1994/95 and 1996/97 National Population Health Survey, longitudinal sample, Health file*

Table B
Adjusted regression coefficients of selected characteristics for health status of mothers, Canada excluding territories, 1996/97

	Self-perceived health†			Happiness‡			Distress§		
	B	se	beta	B	se	beta	B	se	beta
Rating in 1994/95	0.42*	0.03	0.43	0.28*	0.04	0.34	0.34*	0.04	0.36
Personal characteristics									
Age	-0.01	0.01	-0.04	-0.01	0.01	-0.06	0.01	0.01	0.04
Socioeconomic characteristics									
Inadequate household income	-0.24	0.24	-0.04	-0.22	0.25	-0.07	0.67*	0.25	0.17
Social assistance	-0.62*	0.23	-0.09	0.03	0.19	0.01	-0.31	0.19	-0.07
Low education	-0.32*	0.12	-0.07	-0.21*	0.08	-0.08	0.25*	0.09	0.09
Full-time employed††	...	...	...	...	...	...	...	...	...
Part-time employed	-0.05	0.13	-0.01	0.08	0.09	0.03	-0.19	0.09	-0.06
Unemployed	0.32	0.36	0.02	0.07	0.15	0.01	0.12	0.23	0.02
Not in labour force	-0.03	0.17	-0.01	-0.01	0.11	-0.003	-0.11	0.11	-0.03
Family characteristics									
Mother in two-parent family††	...	...	...	...	...	...	...	...	...
New lone mother	-0.16	1.01	-0.01	0.05	0.66	0.01	0.16	0.96	0.02
Longer-term lone mother	-0.58	0.43	-0.09	-0.12	0.32	-0.03	0.28	0.28	0.07
Legally separated	-0.23	0.31	-0.02	-0.02	0.27	-0.005	-0.56*	0.27	-0.09
Number of children in household	0.07	0.09	0.02	0.03	0.05	0.02	-0.03	0.06	-0.02
Child aged 5 or younger in household	-0.12	0.16	-0.03	-0.13	0.11	-0.06	0.19	0.11	0.07
Changes									
Child loss	-0.52	0.28	-0.04	0.26	0.14	0.04	0.32	0.25	0.04
Moved	-0.11	0.14	-0.02	-0.13	0.09	-0.04	-0.04	0.10	-0.01
New employer	0.24	0.15	0.04	-0.06	0.09	-0.02	0.09	0.10	0.02
Change in emotional support	0.04	0.08	0.01	0.04	0.06	0.03	-0.03	0.08	-0.02
Health indicators									
Chronic conditions	-0.39*	0.11	-0.08	-0.13*	0.06	-0.06	0.23*	0.07	0.08
Disability days in last two weeks	-0.67*	0.19	-0.10	-0.21*	0.12	-0.06	0.42*	0.12	0.11
Activity restrictions	-1.14*	0.18	-0.17	-0.24*	0.14	-0.07	0.28*	0.13	0.07
Selected interactions									
New lone mother and number of children	-0.59	0.44	-0.10	-0.14	0.37	-0.04	-0.40	0.60	-0.11
Longer-term lone mother and number of children	0.08	0.21	0.02	-0.05	0.19	-0.03	0.02	0.18	0.01
New lone mother and child aged 5 or younger in household	1.04	0.61	0.06	0.01	0.44	0.001	-0.34	0.67	-0.03
Longer-term lone mother and child aged 5 or younger in household	-0.18	0.33	-0.02	0.30	0.33	0.05	0.16	0.39	0.02
New lone mother and inadequate household income	0.66	0.63	0.04	0.22	0.44	0.02	0.31	0.68	0.03
Longer-term lone mother and inadequate household income	0.97*	0.37	0.11	-0.43	0.31	-0.09	0.22	0.34	0.04
New lone mother and change in emotional support	-0.06	0.67	-0.003	0.09	0.50	0.01	0.33	0.46	0.03
Longer-term lone mother and change in emotional support	0.33	0.20	0.05	0.004	0.17	0.001	0.15	0.19	0.04
New lone mother and legally separated	0.92	0.66	0.06	-0.03	0.47	-0.003	1.67*	0.66	0.18
Intercept	5.39			7.55			-0.01		

***Data source**: 1994/95 and 1996/97 National Population Health Survey, longitudinal sample, Health file*
***Notes:** Standard errors were estimated using the bootstrap technique, which fully accounts for the design effect. Respondents with a missing value for one or more variables were excluded from the analysis (listwise deletion). Variables for missing labour force status, income, and social assistance were included in the model to maximize the sample size, but their contribution is not shown. When not noted, reference category is absence of characteristic; for example, reference category for inadequate income is adequate income.*
†R^2 = .43; Adj. R^2= .42; F = 39.7 df = 32, 1702; p = .0001
‡R^2 = .22; Adj. R^2= .21; F = 15.0 df = 32, 1702; p = .0001
§R^2 = .30; Adj. R^2= .29; F = 22.6 df = 32, 1695; p = .0001
†† Reference category
** $p \leq 0.05$*
··· Not applicable

Table C
Adjusted regression coefficients of selected characteristics for number of health care consultations of mothers, Canada excluding territories, 1996/97

	Doctor consultations†			Consultations for mental or emotional health‡		
	B	se	beta	B	se	beta
Consultations in 1994/95	0.25*	0.09	0.27	0.36*	0.13	0.42
Personal characteristics						
Age	-0.002	0.04	-0.002	0.03	0.02	0.05
Socioeconomic characteristics						
Inadequate household income	1.10	1.13	0.05	0.41	0.58	0.03
Social assistance	0.21	1.06	0.01	-0.55	0.51	-0.04
Low education	0.43	0.48	0.03	0.24	0.25	0.02
Full-time employed§	...	...	...	...	...	...
Part-time employed	-0.42	0.44	-0.02	-0.25	0.25	-0.02
Unemployed	-0.75	1.36	-0.02	-1.36	0.97	-0.05
Not in labour force	0.46	0.92	0.02	-0.04	0.39	-0.004
Family characteristics						
Mother in two-parent family§	...	...	...	...	...	...
New lone mother	-0.68	3.66	-0.02	5.20	3.50	0.23
Longer-term lone mother	0.11	1.34	0.005	1.77	1.37	0.14
Legally separated	-0.09	1.08	-0.003	0.65	0.82	0.03
Number of children in household	-0.27	0.41	-0.03	-0.09	1.58	-0.01
Child aged 5 or younger in household	1.24	0.71	0.08	0.46	0.36	0.05
Changes						
Child loss	0.38	0.75	0.01	0.65	0.66	0.03
Moved	0.75	0.60	0.04	0.30	0.33	0.03
New employer	0.28	0.51	0.01	-0.04	0.30	-0.004
Change in emotional support	-0.56	0.43	-0.05	0.04	0.16	0.01
Health indicators						
Chronic conditions	1.09*	0.35	0.07	0.14	0.20	0.02
Disability days in last two weeks	1.64*	0.77	0.08	0.08	0.35	0.01
Activity restriction	3.24*	0.88	0.15	1.26*	0.48	0.10
Selected interactions						
New lone mother and number of children	0.35	1.88	0.02	-2.97	1.76	-0.25
Longer-term lone mother and number of children	-0.28	0.73	-0.02	-1.36	0.82	-0.20
New lone mother and child aged 5 or younger in household	1.83	3.57	0.03	-1.05	2.29	-0.03
Longer-term lone mother and child aged 5 or younger in household	1.45	1.49	0.04	-0.43	1.00	-0.02
New lone mother and inadequate household income	-2.35	3.65	-0.04	1.73	2.16	0.05
Longer-term lone mother and inadequate household income	-2.81	1.71	-0.09	1.42	1.13	0.08
New lone mother and change in emotional support	0.55	2.72	0.01	0.38	2.77	0.01
Longer-term lone mother and change in emotional support	-0.19	0.68	-0.01	0.37	1.12	0.03
New lone mother and legally separated	1.70	3.25	0.03	1.39	2.42	0.05
Intercept	1.61			-1.17		

***Data source**: 1994/95 and 1996/97 National Population Health Survey, longitudinal sample, Health file*

***Notes:** Standard errors were estimated using the bootstrap technique, which fully accounts for the design effect. Respondents with a missing value for one or more variables were excluded from the analysis (listwise deletion). Variable for missing labour force status, income, and social assistance were included in the model to maximize the sample size, but their contribution is not shown. When not noted, reference category is absence of characteristic; for example, reference category for inadequate income is adequate income.*

† R^2 = .21; Adj. R^2= .19; F = 14.0 df = 32, 1697; p = .0001

‡ R^2 = .23; Adj. R^2= .22; F = 15.9 df = 32, 1700; p = .0001

§ Reference category

** $p \leq 0.05$*

··· Not applicable