

A B S T R A C T

While a number of studies have documented higher period prevalence rates of depression among single as compared to married mothers, all of the data have been based upon community surveys of mental illness. In Canada, all of the published work comes from Ontario. As a result, we do not know whether these results hold true for other regions of the country. Using a nationally representative sample, we find, consistent with previous work, that single mothers have almost double the 12-month prevalence rates of married mothers (15.4% versus 6.8%). As well, there are no significant differences in rates of depression between single and married mothers by region/province of the country. Our findings are compared with other epidemiologic data on the mental health of single mothers from Ontario.

A B R É G É

Bien que plusieurs études aient fait apparaître des taux de prévalence de périodes de dépression plus élevées chez les mères célibataires que chez les mères mariées, toutes les données venaient d'enquêtes communautaires sur les maladies mentales. Au Canada, toutes les études publiées viennent de l'Ontario. En conséquence, on ne sait pas si ces résultats valent également pour les autres régions du pays. À partir d'un échantillon national représentatif, nous constatons, comme l'indiquent au demeurant les études antérieures, que les taux de prévalence sur 12 mois des mères célibataires sont près du double de ceux des mères mariées (15,4 % par rapport à 6,8 %). De même, il n'existe aucune différence significative entre les taux de dépression des mères célibataires et mariées par région et par province au pays. Nous comparons nos résultats à d'autres données épidémiologiques relatives à la santé mentale des mères célibataires en Ontario.

12-Month Prevalence of Depression Among Single and Married Mothers in the 1994 National Population Health Survey

John Cairney, MA,^{1,2} Cathy Thorpe, MA,²
John Rietschlin, MA,² William R. Avison, PhD²

Single-parent mothers and their children have become a prevalent family structure in North America since the Second World War. Commensurate with the increase in single-parent families has been an interest in the health consequences associated with this emergent family structure. Previous research has shown that single mothers are at a greater risk of both physical and mental health problems compared to married mothers.¹⁻⁶ While many different measures of health status have been used in these studies, depression has emerged as a particularly important measure to consider. This is understandable since many of the risk factors associated with depression (e.g., gender and disadvantaged socioeconomic status) are also associated with single parenthood. Studies from Canada,⁷⁻⁹ the United States,¹⁰ and Great Britain¹¹ all document elevated rates of depression among single mothers (see Table I). While the results of all these studies show single mothers to be at greater risk for affective disorders, all of the aforementioned studies were conducted using community samples. Studies in Canada, for example, are all

based upon samples drawn from Ontario. To date, there have been no published data on the prevalence of depression among single and married mothers using a sample of Canadians from different regions of the country. As a result, we do not know whether there are regional differences in the prevalence of depression among these groups.

Using data from the 1994 National Population Health Survey, we examine the 12-month prevalence of major depressive episodes among single and married mothers. This survey uses a representative sample from all 10 provinces in Canada.

METHODS

The following analyses were conducted using the 1994 National Population Health Survey (NPHS) by Statistics Canada. For a complete description of the methodology, consult the NPHS Public Use Microdata File Documentation.¹² Using a multi-stage, stratified, random sampling procedure, 19,600 households across Canada were surveyed in which one person was selected to provide detailed personal information for the longitudinal component of the survey. People living in Indian reserves, military bases, institutions, and some remote areas in Ontario and Quebec were excluded, resulting in a response rate of 96%. For the purposes of this study, a sub-sample of single and married mothers aged 15 to 54 were selected for further analyses (N=2968).

Dependent variable

Depression is derived from the UM-CIDI (Short form), a depressive diagnosis-

1. Department of Health Studies, Brock University, St. Catharines, ON

2. Centre for Health and Well-Being, The University of Western Ontario, London, ON

Correspondence: W.R. Avison, Centre for Health and Well-Being, Social Science Centre, The University of Western Ontario, London, ON, N6A 5C2

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TABLE I
12-Month Prevalence Rates per 100 for Major Depression Based on Community Surveys of Single and Married Mothers

Place	n	Clinical Measure	Single Mothers	Married Mothers	References
New Haven, United States	509	Diagnostic Interview Schedule (DIS)	13.0*	8.0*	Weissman, Leaf & Bruce ¹⁰
Islington, North London, United Kingdom	404	Present State Examination (PSE)	16.0†	7.9†	Brown & Moran ¹¹
Ontario, Canada	288 (single)	UM-CIDI	10.0	5.0	Lipman, Offord & Boyle ⁷
London, Ontario, Canada	518 (single)	UM-CIDI	19.1	4.8	Davies, Avison & McAlpine ⁸
Ontario, Canada	502 (married)	UM-CIDI	32.5	n/a	Byrne et al. ⁹

* Results for white women only. No significant differences were observed among African-American women (5.9 per 100 for single versus 3.3 per 100 for married mothers).

† Incidence rates, not prevalence estimates.

tic instrument designed to provide one-year population prevalence estimates of diagnosable depression. (For more information on this instrument, consult references 13 and 14). This instrument is a shortened version of the original CIDI and UM-CIDI which provide diagnoses of depressed mood based upon criteria from the DSM-III-R and the ICD-10. This diagnostic instrument predicts "caseness" based upon two central dimensions of depression: feeling sad, blue or depressed and/or losing interest in most things. If respondents reported experiencing either dimension at least most of the day, every day, for a period of two or more weeks in the previous 12 months, they were prompted to answer "yes" or "no" to a series of symptoms. Respondents answering "yes" to more than 4 symptoms had a probability of "caseness" greater than 0.90 and were classified as having had an episode of major depression. Field trials of the CIDI, conducted by the World Health Organization, have documented good inter-rater reliability,¹⁵ test-retest reliability,¹⁶ and validity for most diagnoses.^{17,18}

Independent variables

Single mothers were defined by Statistics Canada as single, non-married, non-cohabiting women living with at least one child under the age of 25 in the home at the time of the survey. Married mothers were married or common-law women living with a partner and at least one child under the age of 25 in the home at the time of the survey.

Age was collapsed into 10-year intervals to create four dummy variables: 15-24, 25-34, 35-44, 45-54 (reference category).

TABLE II
Sociodemographic Characteristics of Single and Married Mothers Aged 15 to 54 in the 1994 National Population Health Survey

Characteristic	Single-Parent Mothers		Married Mothers	
	n	(%)	n	(%)
Age (years)*				
15 to 24	89	(12.2)	98	(4.4)
25 to 34	290	(39.7)	841	(37.6)
35 to 44	248	(33.9)	885	(39.6)
45 to 54	104	(14.2)	413	(18.4)
Education*				
Less than High School	207	(28.3)	392	(17.5)
High School	327	(44.7)	1022	(45.7)
Post Secondary	197	(27.0)	823	(36.8)
Income Adequacy*				
Low	399	(54.6)	289	(12.9)
Middle	204	(27.9)	656	(29.3)
High	128	(17.5)	1292	(57.8)
Employment Status*				
Working	453	(62.0)	1651	(73.8)
Not working	278	(38.0)	586	(26.2)
Region/Province				
East	139	(19.0)	515	(23.0)
Quebec	130	(17.8)	336	(15.0)
Ontario	204	(27.9)	612	(27.4)
Prairies	152	(20.8)	468	(20.9)
British Columbia	106	(14.5)	306	(13.7)
Total Sample (N)	731		2237	

* Differences between single and married mothers significant $p < 0.01$

Three dummy variables were created for education: less than high school, high school and post secondary (reference category). Income adequacy is a measure of household income which also takes into account the number of individuals living in the home at the time of the interview. Households are placed into one of five categories based upon the total income from all sources during the year previous to the time of the survey, and the total number of permanent residents in the home. The five categories are lowest, lower middle, middle, upper middle and highest and are defined using the low-income cut-off criteria developed by Statistics Canada.¹⁹ From these, three dummy variables were created: low, middle and high income (reference category). A variable for employment sta-

tus (working full or part-time versus not working) was also included. Finally, five dummy variables were created for region and province of the country: east (Newfoundland, PEI, Nova Scotia and New Brunswick), Ontario (reference category), Quebec, the Prairies (Saskatchewan, Manitoba and Alberta) and British Columbia.

RESULTS

Table II shows the demographic profiles for single and married mothers. Single mothers tend to be younger, have lower levels of education, lower levels of income adequacy and are less likely to be employed compared to married mothers. There are no significant differences in the number of

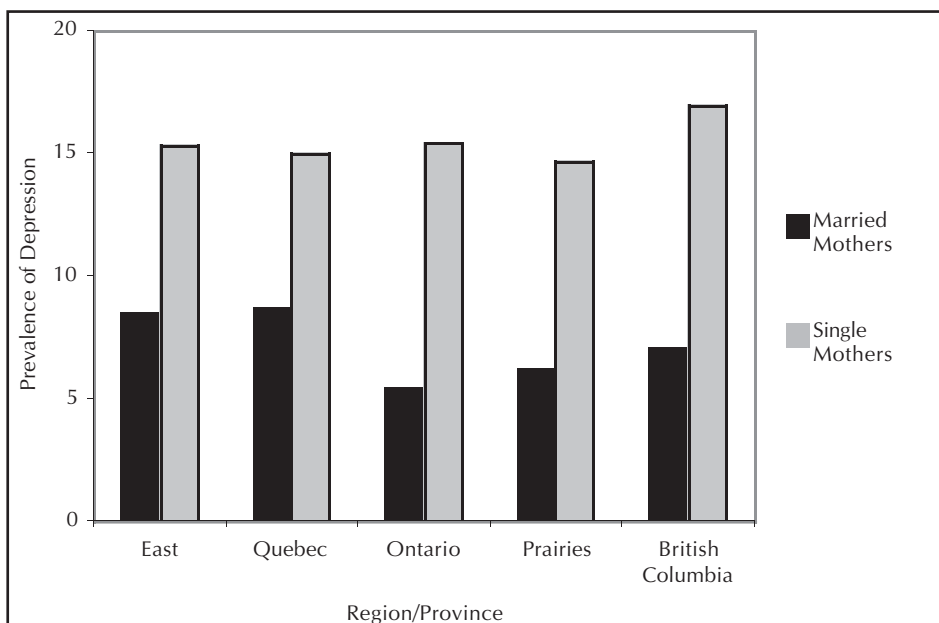


Figure 1. Prevalence of Depression Among Single and Married Mothers by Province/Region of Canada

TABLE III
Prevalence per 100 Persons of Major Depression Among Single and Married Mothers*†

	n	Prevalence
Single Mothers		
Child < 5 years	322	17.3
Child 6 to 11 years	206	16.5
Child 12 to 24 years	203	12.4
Married Mothers		
Child <25 years	2237	6.8

* Differences between single and married mothers significant at $p < 0.01$
 † Differences within single mothers not significant, $p > 0.05$

single and married mothers by region of the country.

Prevalence and regional variation in prevalence estimates of depression for single and married mothers

The period prevalence estimate of depression for single mothers is 15.4 per 100 persons compared to 6.8 per 100 persons for married mothers ($X^2=38.75$, $p=0.001$). Figure 1 shows the results of the first part of this analysis. Within each region or province, single mothers have consistently higher rates of depression compared to married mothers. Although it appears that the prevalence of depression among single mothers living on the east coast and Quebec may be slightly higher than the rest of the country, these differences are not statistically significant.

Differences in depression among single mothers based on the age of the youngest child

In this public use data set, the criteria for single parenthood includes the stipulation that at least one child under the age of 25 must live in the home at the time of the survey. This criteria is much more inclusive than other research which stipulates a much lower limit for age of child living in the home (i.e., under the age of 17⁸ or 16⁷). In the interest of testing whether or not this more inclusive definition influenced the prevalence estimates, we decided to re-run the analysis in light of this concern. Given the limitations of this public use data set, we were not able to simply select a lower cut-off age (e.g., 16 years of age). It was possible, however, to create sub-categories of single parents based upon

two indicator variables for age of the youngest child living in the home (see Table III for categories). In the second part of the analysis, we use this expanded categorical measure of family structure to estimate period prevalence differences in major depression. Bivariate results are reported in Table III. The results show that as the age of the youngest child increases, the prevalence estimates for depression among single mothers decreases. While there are significant differences in prevalence estimates between these three single-parent groups and married mothers, analyses within single-mother groups revealed that these differences were not statistically significant. In the interest of testing for similar differences in depression among married mothers, we also examined whether or not the age of the youngest child had any effect among married mothers. The prevalence estimates for depression within the married mother group ranged from 6.4 % to 7.1%. These differences were not significantly different ($X^2=0.44$, $p=0.801$).

In the final part of the analysis, we ran a multivariate model with the family structure variable controlling for other correlates of depression (see Table IV). The results were comparable with the bivariate analyses. Single mothers were more than twice as likely to report depression in the previous 12 months compared to married mothers (Odds Ratio=2.4, 95% C.I.=1.7-3.4, $p < 0.05$). The introduction of the various correlates had little or no effect on the coefficients for single-parent mothers. Thus, these variables do not account for the observed differences between single and married mothers.

DISCUSSION

Our findings are congruent with previous research conducted in Ontario. Single mothers are significantly more likely to report an episode of depression in the previous 12 months than married mothers. The period prevalence estimates between our study and the studies conducted in Ontario, however, show some variation. Our results are closest to those reported by Davies, Avison and McAlpine⁸ from their sample of single-parent mothers living in

TABLE IV
Odds Ratios for 12-Month Prevalence of Depression Among Single and Married Mothers Controlling for Selected Demographic Characteristics

Characteristics	Odds Ratio	95% Confidence Interval
Single Mothers	2.4*	1.7 - 3.4
Married Mothers	—	—
Age (years)		
15 to 24	0.7	0.3 - 1.7
25 to 34	1.2	0.8 - 1.7
35 to 44	1.4	0.9 - 2.0
45 to 54	—	—
Education		
Less than High School	1.4	0.9 - 2.1
High School	1.1	0.8 - 1.6
Post Secondary	—	—
Income Adequacy		
Low	0.9	0.6 - 1.4
Middle	0.8	0.6 - 1.2
High	—	—
Employment Status		
Working	0.8	0.6 - 1.0
Not working	—	—
Region/Province		
East	1.4	0.8 - 2.3
Quebec	1.4	1.0 - 2.0
Prairies	1.1	0.7 - 1.6
British Columbia	1.3	0.8 - 2.0
Ontario	—	—

* p<0.05

London, Ontario. Period prevalence estimates of depression among single and married mothers from the Ontario Mental Health Supplement were slightly lower than our study and the London study. None of these estimates, however, come close to the high prevalence rates reported by Byrne et al.⁹ It is important to note, however, that their sample was drawn from single mothers currently using social welfare services. While most single mothers are economically disadvantaged, not all use such services, so their sample may not be representative of single mothers in the population. Variation in prevalence estimates may be due to true prevalence differences which are captured when all 10 provinces are included rather than just Ontario. Since all of these studies used versions of the UM-CIDI, it is difficult to attribute differences in estimates to diagnostic instrumentation.

The introduction of sociodemographic variables into the full model had no appreciable effect on the coefficients for single-parent mothers. Further research is required to assess those variables that mediate or moderate the relationship between single parenthood and depression. Previous research has employed a stress process model^{20,21} to explain differences in

psychological distress between married and single mothers.⁶ Since the NPHS contains data on a variety of social stressors and psychosocial resource variables, it is possible to assess the adequacy of the stress process model with a large, nationally representative sample of Canadians. Our research team is currently investigating this question.

Finally, the findings show that there are no significant differences in rates of depression between single and married mothers based upon where they live in this country. This has important implications for policy and primary prevention. Since there are no differences in depression by region/province, no one part of this country would appear to have policies or intervention programs that are more effective in addressing the needs of single mothers. The situation, then, for single mothers is equally poor across this country. Single mothers, as evidenced by these results, are significantly disadvantaged in terms of their mental health and socioeconomically. Broad-based policies at both the federal and provincial levels are required to address the social, psychological and economic conditions in need of modification if we hope to alleviate the disadvantage faced by single mothers. The net benefit for everyone is

that such broad-based programs may improve circumstances not only for single-parent families, but for other families as well. As McLanahan and Sandefur²² and Avison²³ have noted, the problems faced by single-parent families are not different from those of other families, they are simply greater in number and intensity. Therefore, programs which address the underlying social and economic inequities that affect single-parent families will undoubtedly improve the social circumstances for all families in this country.

REFERENCES

1. Berkman P. Spouseless motherhood, psychological stress, and physical morbidity. *J Health Soc Behav* 1969;10:323-34.
2. Brown GW, Harris T. Social origins of depression: A study of psychiatric disorders in women. Free Press: New York, 1978.
3. McLanahan SS. Family structure and stress: A longitudinal comparison of two parent and female headed families. *J Marriage and Family* 1985;45:347-57.
4. Brown GW, Bifulco A, Harris T, Bridge L. Life stress, chronic sub-clinical symptoms and vulnerability to clinical depression. *J Affective Disorders* 1986;11(1):1-19.
5. Brown GW, Harris T. Aetiology of anxiety and depressive disorders in an inner-city population. *Psychol Med* 1993;23(1):143-54.
6. Avison WR. Roles and resources: The effects of family structure and employment on women's psychological resources and psychological distress. *Research in Community and Mental Health* 1995;8:233-56.
7. Lipman EL, Offord DR, Boyle MH. Single mothers in Ontario: Sociodemographic, physical and mental health characteristics. *Can Med Assoc J* 1997;156(3):639-45.
8. Davies L, Avison WR, McAlpine DD. Significant life experiences and depression among single and married mothers. *J Marriage Family* 1997;59:294-308.
9. Byrne C, Browne G, Roberts J, et al. Surviving social assistance: 12-month prevalence of depression in sole-support parents receiving social assistance. *CMAJ* 1998;158(7):881-88.
10. Weissman MM, Leaf PJ, Bruce ML. Single parent women. *Soc Psychiatry* 1987;22:29-36.
11. Brown GW, Moran PM. Single mothers, poverty and depression. *Psychol Med* 1997;27:21-33.
12. National Population Health Survey. Public Use Microdata File User Documentation, Ottawa, 1996.
13. Beaudet MP. Depression. *Health Rep* 1996;7(4):11-22.
14. Wade TJ, Cairney J. Age and depression in a nationally representative sample of Canadians: A preliminary look at the National Population Health Survey. *Can J Public Health* 1997;88(5):297-302.
15. Wittchen H-U, Robins LN, Cottler LB, et al. and participants in the Multicentre WHO/ADAMHA Field Trials. Cross-cultural feasibility, reliability and sources of variance in the Composite International Diagnostic Interview (CIDI). *Br J Psychiatry* 1991;159:653-58.

16. Semier G, von Cranach M, Wittchen H-U (Eds.), Comparison between the Composite International Diagnostic Interview and the Present State Examination. Report to the WHO/ADAMHA Task Force on Instrument Development. Geneva, Switzerland, February, 1987.
17. Janca A, Robins LN, Cottler LB, Early TS. Clinical observation of CIDI assessments: An analysis of the CIDI field trials - wave II at the St. Louis site, *Br J Psychiatry* 1992;160:815-18.
18. Farmer AE, Katz R, McGuffin P, Bebbington P. A comparison between the Present State Examination and the Composite International Diagnostic Interview. *Arch Gen Psychiatry* 1987;44:1064-68.
19. Statistics Canada. Income Distributions by Size in Canada. Ottawa: Ministry of Supply and Services, 1980.
20. Pearlin L. The sociological study of stress. *J Health Soc Behav* 1989;30:241-56.
21. Pearlin L, Lieberman M, Menaghan E, Mullen Joseph T. The stress process. *J Health Soc Behav* 1981;22:337-56.
22. McLanahan SS, Sandefur G. *Growing Up with a Single Parent: What Hurts, What Helps*. Cambridge, MA: Harvard University Press, 1994.
23. Avison WR. Single motherhood and mental health: Implications for primary prevention. *CMAJ* 1997;156(5):661-63.

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COMING EVENTS ACTIVITÉS À VENIR

To be assured of publication in the next issue, announcements should be received by **November 15, 1999** and valid as of **December 31, 1999**. Announcements received after **November 15, 1999** will be inserted as time and space permit.
Pour être publiés dans le prochain numéro, les avis doivent parvenir à la rédaction avant le **15 novembre 1999** et être valables à compter du **31 décembre 1999**. Les avis reçus après le **15 novembre 1999** seront insérés si le temps et l'espace le permettent.

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