THE MENTAL HEALTH OF SINGLE PARENTS IN CANADA: DO GENDER AND GEOGRAPHY MATTER?

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ABSTRACT

The economic and health disadvantage of Canadian single parents relative to the general population is well documented. Most studies, however, have not considered the effects of gender or urban/rural residence on the mental well-being of single parents. These gaps are important to address given that: 1) single father families are growing at a faster rate than single mother families; and 2) 13% of families residing in rural Canada are headed by single parents. Three research questions guided the study: 1) Does the mental health of single parents vary by gender and/or urban- rural residence? 2) Do single parents' demographic, socioeconomic, and psychosocial characteristics vary by gender and/or urban- rural residence? and 3) Do the demographic, socioeconomic, and social correlates of single parents' mental health vary by gender and/or urban- rural residence?

Data from Statistics Canada's 2007-2008 Canadian Community Health Survey (Master file) was used, with analyses focused on a subsample of 18-64 year old single parents. The primary dependent variable was self-rated mental health (fair/poor vs. good/very good/excellent). The other dependent variables were the prevalence of anxiety disorders, mood disorders and binge drinking. The primary independent variables were gender and urban/rural residence; the Metropolitan Influenced Zone (MIZ) classification was used to measure residence. Additional independent variables were included to reflect single parents' demographic characteristics (age, marital status, Aboriginal identity, number and ages of children), socioeconomic position (e.g. household income, education, income assistance home ownership, food security), and psychosocial characteristics (e.g. sense of community belonging). Bivariate and multiple logistic regression analyses were the main statistical techniques applied. Sampling weights and bootstrapping were used to calculate accurate estimates and associated confidence intervals.

Results indicated that the proportion of single parents who rated their mental health as "fair or poor" did not differ significantly by gender or urban-rural residence. Single mothers were more likely to report mood and anxiety disorders in comparison with single fathers, though the prevalence did not vary by residence. However, single mothers and single fathers living in Strong/Medium MIZ regions of the nation were more likely to report higher proportions of binge drinking compared to their more urban counterparts.

Compared to single fathers, a greater proportion of single mothers resided in urban Canada, were less than 45 years of age, never married, self-identified as Aboriginal, had two or more children, and had a child under or equal to five years of age in the household. On most indicators of socioeconomic position, single mothers were significantly more disadvantaged than single fathers but did not differ significantly on psychosocial measures. Demographically, a greater proportion of rural than urban single mothers were of Aboriginal origin had two or more children, and at least once child under the age of 6 years in the household. Regarding socioeconomic characteristics a higher percentage of rural than urban single mothers indicated receiving social assistance, working part-time and having an annual household income of less than $20,000. No significant differences emerged by residence with respect to employment status, food security, home ownership or perceptions of life stress; however, single mothers living in more rural locals were more likely to rate their sense of community belonging as "somewhat or very strong" When data on single fathers was analyzed (Table 4.6), relatively few differences emerge. However, a greater proportion of urban than rural single fathers had a university education and owned their own home. Single fathers in rural regions were more likely than their urban counterparts to report most days as "quite a bit or extremely" stressful. No other statistically significant differences by residence emerged.

The results of the multiple logistic regression analyses found the following variables to be associated with increased odds of fair/poor self-rated mental health: older age, low household income, being unemployed, being food insecure, experiencing higher levels of life stress and a weaker sense of community belonging. The relationship between demographic, socioeconomic and psychosocial characteristics and self-rated mental health was not modified by gender or urban-rural residence. Thus, the findings of this study will help policy makers identify the factors that adversely affect the mental health of single parents in Canada.

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CHAPTER 1:

INTRODUCTION

Marked changes have occurred in the family structure of Canadians over the last thirty years, with the traditional two-parent family structure becoming much less prominent. In 2011, the number of families headed by single parents was estimated at 16.3 % of all census families, the highest proportion ever in Canada (1). Although recent Canadian data suggests that families headed by single fathers are increasing at a faster rate than those headed by single mothers, single mothers still comprise the vast majority of single parent households: in 2011, the number of single parent households headed by women (1.2 million) was over three times that of the number of single parent families headed by men (327,545) (1, 2).

Studies have consistently reported single mothers to have poorer mental health compared to partnered mothers (3-7). Much of this literature suggests that this health disparity is largely due to single mothers' greater exposure to a range of stressful life experiences, particularly economic in nature (5, 8, 9) but also challenges related to parenting, work and a lack of social support (10,11). Similarly, a small but growing body of literature has also pointed to poorer mental health status among single fathers compared to partnered fathers, with similar economic and social determinants postulated (12, 13).

Much less research, however, has focused on understanding variability in mental health *among* single parents. Single parents, like any social group, vary in their life circumstances and access to health-enhancing resources such as education, income and social support (4, 14, 15). Some evidence suggests that young single mothers and fathers with limited educational attainment and poor quality employment may be particularly vulnerable to experiencing chronic

stress and thus impaired mental well-being (14), as may single mothers who have been divorced, compared to those who have never married (16, 17).

Gender may also be associated with the mental health of single parents. Gender is defined as socio-culturally ascribed attributes and roles allotted to the biological groups of male and female, and the associations between them (18). Gender as a social determinant of mental health has been explored previously (18-21); with most of the studies attributing differences in health status to women's disadvantaged socioeconomic status. Single fathers are more disadvantaged economically than partnered fathers, but compared to single mothers, they are not (14,15). That is, compared to single fathers, single mothers are more likely to live below the poverty line and reside in rented housing, both of which, in turn, are associated with a greater likelihood of poorer mental health (3, 22). Unfortunately, few studies have directly compared the mental health of single mothers with single fathers, and those which have, have produced conflicting findings (23). In addition to gender, the mental health of single parents may be influenced by where they live. Despite the fact that approximately 13.3% of rural families in Canada in 2006 were headed by a single parent (24) most studies examining the mental health of single parents completely fail to consider whether those parents reside in urban or rural environments (25-27), or focus exclusively on urban dwellers (28). This gap is important to address, given the growing body of research that points to "place" as an important determinant of health (29). For example, compared to urban dwellers, some limited evidence suggests that rural residents are more likely to have a strong sense of belonging to their local community and are more likely to know and trust their neighbors (30) which are characteristics that have been linked with positive mental health outcome (31). On the other hand, socioeconomic factors are also important determinants of health (32) and some research suggests that gainful employment, an adequate household

income, and higher educational attainment are less common in rural than urban contexts (33, 34). Several studies have documented the social and economic challenges that single mothers experience in rural environments and the health implications of those challenges (35, 36). However, to this researcher's knowledge, no research has examined whether the mental health of single parents, or the economic and psychosocial determinants of single parents' mental health, varies in regard to urban/rural residence. Published research on the mental health of rural single fathers compared to urban is non-existent.

To address the gaps mentioned above, the purpose of this study was to examine the mental well-being of single mothers and fathers residing in diverse geographical settings in Canada. More specifically, using data from the 2007-2008 Canadian Community Health Survey (CCHS), (37) and drawing upon the Commission on Social Determinants of Health conceptual framework (18) to inform variable selection, three primary research questions guided this research:

1. Does the mental health of single parents vary by gender and/or urban-rural residence?
2. Do single parents' demographic, socioeconomic, and psychosocial characteristics vary by gender and/or urban-rural residence?
3. Do the demographic, socioeconomic, and social correlates of single parents' mental health vary by gender and/or urban-rural residence?

CHAPTER 2:

LITERATURE REVIEW

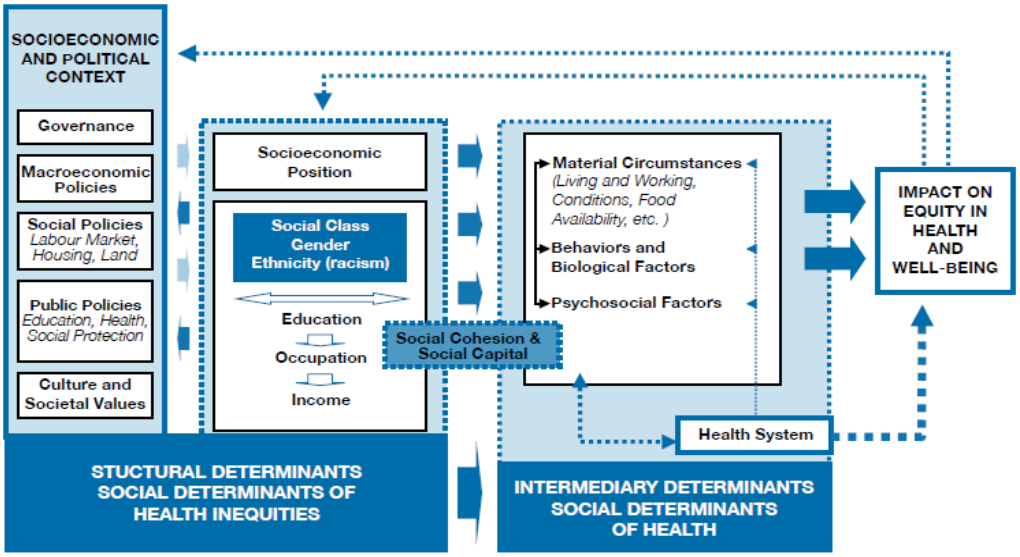
This chapter will begin with a description of the conceptual framework informing the study, followed by a section outlining the socioeconomic context of single mothers and fathers in Canada. Key concepts and research regarding the complex relationship between gender and mental health is then presented and followed by a discussion concerning urban-rural residence and mental health. When available, research focusing specifically on single parents, gender, residence and mental health is presented, but when absent, relevant findings from research with general population samples is presented.

2.1: Conceptual Framework

To better understand the potential determinants of variability in mental health among single parents in Canada, this study draws upon the Commission on Social Determinants of Health (CSDH) conceptual framework (18). Appointed by the World Health Organization in 2005, the task of the CSDH was to synthesize the research evidence concerning the social determinants of health inequity and to recommend how to address those inequities. Figure 2.1 shows the conceptual framework that was developed for the Commission, depicting how distal political, social and economic characteristics lead to the development of power hierarchies based on gender and other socioeconomic factors. Grounded in their stratified position in society, individuals and populations are differentially exposed and vulnerable to myriad life stressors and have varied access to potentially health enhancing material, social, behavioral and psychological resources. Also depicted in the framework is the notion of reverse causation whereby comprised health can in turn impact one's position in social and economic hierarchies.

Gender, an important determinant of health outcomes within the CSDH framework (38), can be defined, as: ‘the socially prescribed and experienced dimensions of "femaleness" or "maleness" in a society, and is manifested at many levels…. The experience of gender is always linked to the social and political context. As such, gender is also intimately connected to social and economic status in systems where maleness is almost universally preferred over femaleness.' (p.3). Place or residence as a determinant of health, though not explicitly mentioned in the framework, is present more subtly by the inclusion of social capital and social cohesion as cross-cutting influences on well-being; that is, both concepts can be viewed as community-level resources characterized by norms of reciprocity, social trust, sense of belonging, and cohesiveness (18). Consistent with the CSDH framework, it is the perspective of this study that both gender and urban-rural residence serve to structure single parents’ access to various economic and social resources and/or exposures to life stressors, which in turn influences their mental health.

Figure 2.1: Commission on Social Determinants of Health: conceptual framework (18, p. 6)



2.2: Sociodemographic Profile of Single Parents in Canada

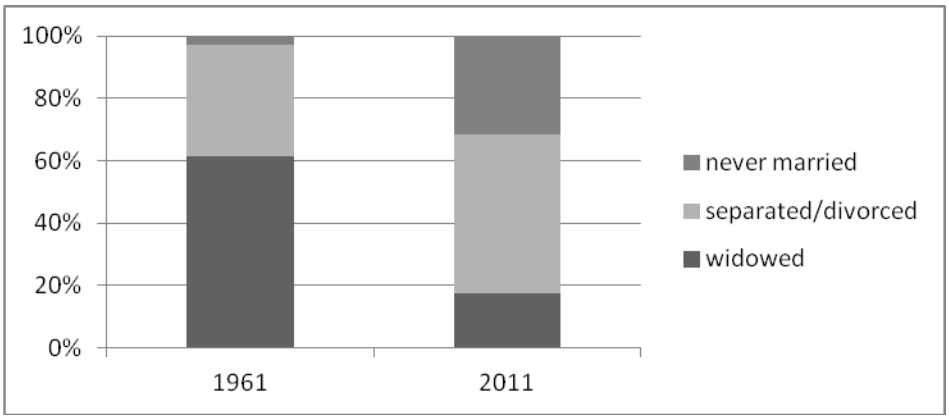
Single parent families comprised 16.3% of all Canadian families in 2011, an increase of 8% since 2006 and nearly double the proportion reported in 1961 (8.4%) (24). Of the approximately 1.5 million Canadian single parent families in 2011, the vast majority, approximately 80%, were headed by single mothers. Metis, Inuit, and First Nations women in Canada are more likely to be single mothers than non-Aboriginal women (39).

In addition to comprising a larger share of Canadian families over time, the sociodemographic profile of single parents in Canada has evolved. Single father–headed households have become more prevalent over the past several decades and are growing at a faster rate than that of single mother households; between 2006 and 2011, single father families increased by 16.3% and single mothers, by 6% (24).[1] Also evolving over time is the pathway to single parenthood (Figure 2.2), with widowhood accounting for a decreasing proportion of single

[1] This trend is likely due in part to the increase in joint custody arrangements following the breakdown of a relationship (2)

parent families and separation/divorce and never being married accounting for an increasing proportion (40).

Figure 2.2: Legal marital status of single parents in Canada, 1961 versus 2011 (40):



Compared with 1981, single parents in 2001 were older and had fewer children living in the household, though the changes were more pronounced among single mothers (14). The educational attainment of single parents also advanced between these two time periods, with the percentage of single mothers graduating high school, for example, increasing by more than 7 times in 2001 compared to 1981 (1.95 vs. 14.2%). Between 1996 and 2009, the employment rate of single parents increased along with a corresponding decrease in the incidence of low income (15, 41, 42). It is important to keep in mind, however, that single parents are a heterogeneous group and some of the positive socioeconomic trends observed over time may not apply to all subgroups of single parents. For example, between 1981 and 2001, the gains in educational attainment, employment, and income levels were considerably less marked for younger, less educated single mothers compared with their older counterparts (43). Younger single mothers are also more likely than their older counterparts to work part-time, occupy lower skilled and lower paying jobs, and to live in a low income household; young single fathers with limited educational attainment may be in a similar economically vulnerable position. Aboriginal single mothers are

more likely to be teenagers than their non-Aboriginal counterparts, adding further to the social and economic challenges they already face because of their ethnicity and gender (39, 44).

Despite the (overall) positive sociodemographic trends over the last several decades described above, it is important to recognize that single parents in general, and single mothers in particular, are currently at a significant socioeconomic disadvantage when compared with their partnered counterparts. As shown in Table 2.1, a higher proportion of partnered than single parents in 2001 had a university degree.

Table 2.1: Educational attainment of Canadian parents by gender and family structure, 2001 (43):

	Mothers		Fathers	
	Partnered (%)	Single (%)	Partnered (%)	Single (%)
Less than high school diploma	16.6	21.9	19.4	26.4
High school diploma	17.2	14.2	13.9	14.0
Postsecondary, completed or not	46.8	52.3	46.8	46.9
Bachelor's or higher	19.4	11.6	19.9	12.6

Regarding employment, although relatively similar overall proportions of single (68.9%) and partnered mothers (73.8%) were employed in Canada in 2009, employment rates vary considerably by the age of children in the household: among mothers with children under the age of 3, 45.9% of single mothers were employed compared to 66.5% of partnered mothers (45).

Displayed in Table 2.2 are additional indicators of socioeconomic well-being according to family structure. Compared to two-parent households, single mother households are more likely to: have a lower annual household income, report a greater percentage of income from

government transfers, be classified as a low income household, report a lower net worth (i.e., assets minus debts), report renting their home, and to be spending more than 30% of their income on shelter costs (indicating greater difficulty in being able to afford their housing). Table 2.2 also shows that single father households are socioeconomically disadvantaged compared to two-parent households, though not to the same extent as that observed for single mothers. On most indicators, single fathers are in an economically better position than single mothers.

Table 2.2: Socioeconomic indicators by family structure, various years (15):

	Partnered Parents	Single Mothers	Single Fathers	All Households
Average total family income (2008)	$100,200	$42,300	$60,400	--
Percentage of household income from (2008):				
Wages and salaries	80.9%	63.5%	79.9%	--
Government transfers	6.4%	22.9%	8.6%	--
Percentage in low-income (after tax) (2008)	6.0%	20.9%	7.0%	--
Average net worth (2009)	$442,300	$119,100	$134,600	--
Own home (2006)	--	52.5%	64.9%	68.4%
Owner households spending 30% or more of income on shelter (2006)	--	29.5%	20.6%	18.8%

Gender and family structure in Canada are also associated with food insecurity, defined as 'the inability to acquire or consume an adequate diet quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so'(46). According to the results of analyses of various cycles of the Canadian Community Health Survey women in Canada are more likely than men to experience food insecurity, as are single parent households compared to couple households (47-49). In turn, among single parent families, female headed households are much more likely than male headed households to report food insecurity. In 2006, over one-half of Canadian Aboriginal women living off-reserve and heading a single-parent household were food insecure (49).

2.2: Single Parents and Urban-Rural Residence

The proportion of Canadian families led by single parents varies by geography, with Census Metropolitan Aggregates (CMAs) having a higher proportion of single parent families (16.5%) than rural areas (13.3%) (2). Unfortunately, not much else is known about single parents living in rural versus urban environments. There is certain socio-demographic information however that we can glean from the data available on general population samples of urban and rural residents. Compared to urban populations, rural populations in Canada tend to be older and have a greater dependency ratio—that is, a smaller proportion of working-age residents relative to the proportion of children and seniors (50). Rural areas also have comparatively higher proportions of Aboriginal people and lower proportions of recent immigrants to Canada respectively; individuals from both groups have been recognized as socio-economically vulnerable groups (51).

Low levels of educational attainment (33), unskilled occupations (52) and higher unemployment rates (53) are more prevalent in rural than urban areas of Canada. Compared to

their urban counterparts, rural youth are particularly disadvantaged when it comes to employment opportunities, as are rural females (34, 54). On average, household incomes are lower in rural than in urban Canada (55, 56). However, given that the cost of living is generally lower in rural areas, the lower incomes of rural residents do not necessarily translate into higher poverty rates. In fact, poverty rates in rural Canada depend on the type of measure used: when Statistics Canada's low income cut-off (LICO) is applied, the proportion of families classified as impoverished is greater in more urban than rural areas; in contrast, when low income measures (LIM) are used, there is a higher incidence of poverty in rural areas compared to urban areas (55).[2] Households with children in urban Canada experience higher rates of food insecurity than those in rural Canada (47, 49). According to Evans (47):

> 'These high rates may be linked to urban food deserts, a phenomenon in which socially-distressed neighbourhoods with low household income have limited access to sources of affordable, healthy food. Food deserts have been identified in some Canadian concentration of food retailers in the suburbs. Large supermarkets with lower prices are typically located in higher-income suburban areas, while urban neighbourhoods are left with high-cost small corner stores, fast-food outlets and restaurants.'(p. 123).

Unfortunately, there is a dearth of information concerning the socioeconomic conditions of sub- populations in rural Canada, including single mothers and fathers (57, 58). A notable exception is a study of single mothers published in 2000 by Young and Woodrow (59) , based on

[2] LICOs are income cut-offs below which it is believed that a household will likely devote 20% or more of its income on basic necessities (i.e., food, shelter and clothing) compared to the average Canadian family; calculations incorporate both family size and community size (55) . According to LIMs, a family is considered deprived if their household income is less than 50% of the median Canadian household income (adjusted for family size).

1991 Canadian census data. These authors found considerable variability in the sociodemographic profile of single mothers according to urban-rural residence that were quite consistent with general population comparisons. As shown in Table 2.3, compared to single mothers in more urban areas, a greater proportion of single mothers living in rural Canada were 35 years of age or older and had children over the age of 6 years. Regarding indicators of socioeconomic well-being, although rural single mothers were less likely to be living below low-income cut-offs, a greater proportion of rural than urban mothers did not complete high school, were unemployed, and relied on government transfer payments as a main source of income. Unfortunately, single father families were not included in the study. In the above study, an urban area was defined as any community with a population greater than 10,000 individuals. Semi-town was defined as any area outside the above mentioned "urban" areas with a population density more than 400 individuals per sq. km and less than 10000 individuals in the community. Rural areas were those areas with a population less than 400 individuals per sq. km and less than 1000 individuals in the community.

Table 2.3: Sociodemographic characteristics of Canadian single mothers, by residence 1991(59):

	Rural	Small Town	Urban
Age of mother			
% 35 years old or older	74.1	64.7	68.1
Age of children			
% younger than 6 years	20.7	25.3	24.1
Number of children			
Mean number in household	1.6	1.6	1.6
Incidence of low income			
% below the low income cut-off (LICO)	38.2	46.4	45.7
Labour force participation			
% full-time	42.3	42.1	51.0
% part-time	15.0	16.1	13.2
% unemployed	42.8	41.9	35.8
Education			
% completed high school	46.7	51.0	62.9
Main income source			
% wages	40.9	41.8	52.4
% transfer payments	50.5	51.3	39.9

2.3: Gender and Mental Health

The relationship between gender and mental health is complex and scholarly discourse on the topic has evolved considerably during the last several decades. Research in the 90s and into the new millennium focused on attempting to explain women's apparently greater mental health morbidity compared to men, focusing primarily on depression and on its non-clinical counterparts, psychological distress and/or depressive symptomatology (60). One of the most robust findings in the mental health literature is the greater observed prevalence and incidence of depression and depressive symptomatology in women compared to men (61-63). Biological theories to explain these findings have included genetics, reproductive functioning, and sex differences in neurotransmitter, neuroendocrine and circadian rhythms (64). Sociological explanations have focused on two main mechanisms, the differential exposure hypothesis and the differential vulnerability (65), both of which are consistent with the CSDH framework in the previous section. The differential exposure hypothesis suggests that women report higher levels of depression because of their greater exposure to material and social stressors which emanate from their disadvantaged economic position relative to men. Despite many gains in employment and education over the last four decades, women in Canada are still more likely to work part-time than men, receive less pay than men for similar work, and are over-represented in lower prestige occupations (15, 45, 66). In turn, lower socioeconomic position is consistently associated in the literature with poorer mental health outcomes, including depression and psychological distress (65, 67). The differential exposure hypothesis also claims that women encounter additional stressors due to the recalcitrance of traditional gendered social roles whereby women still remain primarily responsible for caregiving and unpaid domestic work, even when employed full-time (65).

The differential vulnerability hypothesis (60) suggests that women report higher levels of depression, not because of greater exposure to various stressors, but because of greater reactivity or responsiveness to stressors, a reactivity which 'is located in a generalized female disadvantage in social roles and coping resources that affects the nature and meaning of stressors and, ultimately, harms health' (p.549). Finally, artefactual explanations suggest that rather than there being genuine differences in rates of depression between men and women, observed differences may in reality be a function of gender-role related differences in help-seeking behaviour, recognizing and reporting of symptoms, and gender bias on the part of those studying and diagnosing mental health problems (64).

More recent research on gender and mental health has turned their focus on attempting to explain not only women's higher levels of depression relative to men, but also, men's higher prevalence of substance abuse and antisocial behaviors compared to women (60). According to the differential expression hypothesis (60), the overall prevalence of mental health problems do not differ by gender; rather, men and women express their internal conflicts and pain in gendered ways, with women tending to turn their angst inward and men outward:

> '..gendered mental health problems mirror gender disparities in power that are translated into basic assumptions about the self, the world and social relations. The greater institutional power of men and cultural valuation of male activities tell us that men are of higher personal worth than women, that they are in control of their world and that they need others less than others need them. This facilitates the development of a sense of entitlement, control and separateness that enables men to blame others for their difficulties, and may lead to psychological disorders whose behavioral manifestations are turned outward. In contrast, attending to others' feelings, dispositions that women are

likely to have more often than men, may preclude acting on one's own behalf and predispose individuals to feelings of helplessness and hopelessness, some of the key features of "internalizing" disorders like depression and anxiety.' (p. 2-3).

Research does suggest that although the overall prevalence of mental health problems is similar for men and women, women are more likely than men to have mood and anxiety disorders, while men more often experience substance use problems and antisocial personality conditions (63). Similar gendered patterns of expression hold true for the non-clinical counterparts of depression and substance use disorders, with men reporting more alcohol use and heavy drinking than women and women reporting higher levels of psychological distress, depressive symptoms and poor self-rated mental health (68). Regarding the cause of this differential expression of mental health problems, a social causation hypothesis is supported by some research suggesting that gender differences in rates of depression and alcohol abuse have decreased over time in countries where women and men's economic and social roles have been converging (63, 69). However, current scholarly writings propose that gender differences in depression and substance use are most likely the result of a complex interplay between biological, psychological and social factors (70).

2.4: Single Parents, Gender and Mental Health

The vast majority of research on the mental health of single parents has focused on comparisons between single and partnered mothers; very few studies in comparison have studied variability in mental health among single parents and the role of gender as a potential determinant of health. However, given single mothers' socioeconomic disadvantage, it is somewhat reasonable to hypothesize that single mothers would experience poorer mental health than single fathers (at least on indicators of depression, anxiety, and/or depressive

symptomatology); that is, as presented in a previous section of this thesis, compared to single father households, single mother families in Canada are more likely to: have a lower annual household income, report a greater percentage of income from government transfers, be classified as a low income household, report a lower net worth (i.e., assets minus debts), be renting their home, and to be spending more than 30% of their income on shelter costs (15). In addition, single mothers are more likely than single fathers to have younger and more children living with them, and perform more hours of unpaid domestic work, a situation that can potentially increase caregiver strains (71). Some research also suggests that among employed single parents, single fathers report less work-to-family conflict and more support from extended family than single mothers (72, 73), potentially enhancing their mental well-being.

However, research examining differences in mental health between single mothers and fathers has produced inconclusive findings. In a recently published Canadian study using data from the Canadian Community Health Survey: Mental Health and Well-being, Wade and colleagues (4) found that single mothers were significantly more likely than single fathers to meet the criteria for an anxiety disorder and "any mood or anxiety disorder" in the previous year; however, no statistically significant gender differences were reported for substance abuse, any of the individual mood/anxiety disorders, or in the overall prevalence of a mental disorder. In another study, this time in New Zealand, Tobias *et al*. (23) analyzed data from the nationally representative New Zealand Mental Health Survey. Indicators of mental distress in the study included the lifetime, one-month and twelve-month prevalence of the following disorders: anxiety, mood, substance abuse, eating disorders and suicidal tendencies. The results indicated no statistically significant differences between single mothers and fathers in the prevalence of any mental disorder, any serious mental disorder (i.e., mental disorder plus role impairment or

impaired functioning), a mood disorder or a substance use disorder. Finally, another Canadian study conducted by Avison and Davies (74), used data from the 1994 cycle of the National Population Health Survey. There were two indicators of mental health in this study: psychological distress and binge drinking (i.e. the number of times a respondent consumed more than five drinks on a given occasion). Although gender differences in psychological distress among single parents were not formally tested, the authors point out that for the youngest age group (20-34 years), the psychological distress levels were almost akin. For alcohol consumption however, at all ages, single fathers reported more incidents of binge drinking than single mothers; unfortunately, confidence intervals were not provided thus preventing the reader from determining statistical significance. Thus, the results thus far are inclusive regarding the relationship between gender and mental health among single parents indicating the need for more elaborate study.

2.4.1: Urban-Rural Residence and Mental Health

A growing body of epidemiological research over the last two decades has studied place of residence as a potentially important determinant of health. Unfortunately, much of the research studying place and health has been conducted in urban settings and the research which has included rural contexts often lack explicit conceptual frameworks to inform research questions (75). Also, within the rural health literature, much has focused (albeit understandably) on health care use and accessibility with much less research attention directed at other determinants of rural residents' health. As noted by Pong and colleagues (76) , the concept of "place" in relation to health is extremely complex as it '… embodies many things, including the physical environment, population, socioeconomic conditions, occupational activities, culture, customs, community structure and social relationships…thus, we are talking about how health is

shaped by an aggregate of interacting factors encapsulated in specific geographic locations.' (p. 26).

Research suggests that many of the potential social and economic determinants of mental health vary according to urban-rural residence, though not always in a consistent matter. Although urban-rural differences in poverty rates vary depending on the measures used (55), rurality in Canada is associated with more limited educational attainment, lower household incomes, and fewer employment opportunities (33, 53) characteristics which are in turn associated with poorer mental health (61, 67). Poorer physical health, less physical activity, greater physical isolation, less access to mental health services, and greater stigma about mental health treatment are additional factors that might increase rural residents' risk of mental health problems compared with urban dwellers (29, 77, 78).

On the other hand, residents of rural compared to more urban environments may have greater access to certain social resources that may be protective of mental health such as a better sense of community belonging (78, 79) . Although definitions are varied (and contested) social capital (80) can be generally thought of as 'the ability of actors to secure benefits by virtue of membership in social networks or other social structures' (p.24). Social capital is comprised of both behavioral (e.g. community participation) and psychosocial (e.g. perceptions of trust of community, sense of belonging) components. A growing body of research has correlated higher levels of social capital with a variety of positive mental health outcomes, including reductions in the risk of psychological distress (81) and major depression (82). Research suggests that the psychosocial components of social capital (e.g. trust) may be more strongly associated with mental health than the behavioral aspects (83). Although the precise mechanisms remain unclear, both direct and indirect pathways between social capital and mental health outcomes have been

postulated, including a potential stress buffering role for individuals exposed to adverse life conditions (84).

Do rural communities have higher levels of social capital than more urban locals as is commonly perceived? Several Canadian studies using data from different cycles of the Canadian Community Health Survey (58, 78). Both reported that perceptions of life stress decreased with increasing rurality and sense of community belonging increased. In addition, Romans et al. found perceptions of social support, both emotional and instrumental, to be greater in rural compared to urban dwellers. Somewhat contradictory findings, however, were reported by Turcotte (30) when using a more conceptually complex measure of social capital as measured on Statistics Canada 2003 cycle of the General Social Survey on Social Engagement using the same urban-rural classification as in this thesis. On the one hand, urban Canadians, similar to the previous two studies, were more likely to report a weaker sense of community belonging and in addition, were less likely than their more rural counterparts to know and trust their neighbors. On the other hand, few differences emerged by residence in the extent to which respondents said that they would help or receive help from a neighbor, in their feelings of trust towards others in general, in their level of political involvement, or in their perceptions of social isolation.

Evidence concerning the impact of rurality on mental health outcomes is also inconclusive; integration of this body of research is made more difficult given considerable variation across studies in how both urban/rural residence and mental health outcomes are measured, as well as which potential confounders are adjusted for. A somewhat consistent finding that has received considerable research attention in recent years has been the greater risk of suicide among rural than urban men (85-86) including in Canada. DesMeules *et al* (58), using Canadian annual mortality data from Statistics Canada, found rural men of all ages, particularly

those living in the most rural areas of Canada, were at a greater risk of suicide compared to their urban counterparts. However, the results of studies looking at mental health indicators other than suicide by residence (e.g. depression, anxiety, psychological distress) show either no geographical differences or a tendency toward more positive mental health in rural than urban locations. For example, in Canada, DesMeules *et al*. (58) reported no statistically significant differences between urban and rural areas in the prevalence of mental disorders (i.e., agoraphobia, major depressive episode, mania, panic disorder), although there was a (non-significant) trend toward increasing prevalence with increasing urbanity. This study (58) is particularly important as they had used the same urban- rural classification as in this thesis. In another Canadian study, Romans *et al*. (78) examined geographical differences in the prevalence of depression and three anxiety disorders including panic disorder, agoraphobia and social phobia. Rates of depression were higher in urban than rural residents; however there were no differences by geography in the prevalence of anxiety disorders. Wang (87) used data from the 1998-1999 cycle of the Canadian National Population health survey and found that rural residents had a statistically significant lower prevalence of major depressive episode; this was in contrast to Parikh *et al*. (88) in their study of Ontario residents, who found no difference between urban and rural dwellers in the rate of depression, manic episode, or dysthymia. None of the above mentioned studies (87-89) had looked has urban-rural differences using the MIZ classification, as in this study. Research in other countries (e.g. United States, Great Britain, and Norway) has similarly found either no differences in mental health according to residence or a marginally increased prevalence in more urban locales (89-91). Peen et al (92) conducted a recent meta-analysis of international published studies on urban-rural differences in mental health in developed countries, ensuring that all included studies were based on standardized

interviews to assess mental health. The results of the study indicated pooled prevalence for 'any disorder', mood disorder, and anxiety disorder to be 38% higher, 39% higher, and 21% higher, respectively, in urban compared to rural areas. Thus, overall there seems to be some evidence that urban dwellers experience somewhat poorer mental health, on average, than their rural counterparts; the reasons for this pattern, however, remain unclear (93):

> 'These findings run contrary to the widely held belief that mental illnesses are more prevalent in rural regions in Canada as a consequence of factors such as poor transportation systems, physical isolation, spatial distribution of populations, poverty, unemployment, lack of mental health specialists, less developed health services, and greater stigma.....findings may be, in part, a reflection of migration, where people who are most in need of mental health treatment may move to urban areas where there are greater opportunities for access to specialized services, temporary housing, job training and employment opportunities, as well as networking opportunities with other individuals having similar conditions. In part, they may also reflect the higher prevalence of known risk factors for depression in urban areas such as street drug use, deficits in social support, unemployment, and life events.' (p. 364).

2.4.1.1: Single Parents, Urban-Rural Residence, and Mental Health

Very little is known about the mental health of single parents, or the determinants of mental health according to urban-rural residence, particularly in Canada. Published research on the mental health of rural-dwelling single fathers does not exist. Although no studies could be found that directly compares the mental well-being of single parents by gender and urban-rural location, several studies from the United States have focused on the health and living conditions of rural single mothers (36, 94). Although these studies did not include an urban-dwelling

comparison group, the authors do speculate that rural single mothers may face more stressors than their urban counterparts, and by implication, poorer mental well-being, due to greater challenges in transportation, availability of child care, social isolation, and availability of meaningful employment that pays a living wage and includes family friendly benefits. Thus, the present study, by systematically examining the mental health of single mothers *and* fathers by urban-rural residence, as well as the distribution of economic and psychosocial resources, is addressing an important gap in the research literature.

CHAPTER 3:

METHODOLOGY

This chapter details the source of data for this study, followed by a description of the variables and data analyses conducted, according to research question.

3.1: Data Source and Participants

This study used Master data file from Statistics Canada's 2007-2008 Canadian Community Health Survey (CCHS) (37). The CCHS is a cross-sectional survey that collects information on the health status and health determinants of Canadians aged 12 and older living in private households in the 10 Canadian provinces and 3 territories. Individuals excluded were those living on Indian Reserves, full-time members of the Canadian Armed Forces, institutional residents, and residents of some remote areas. Statistics Canada employs a complex sampling strategy to ensure that the estimates produced are representative of the covered population, not just of the persons interviewed. For the 2007-2008 CCHS cycles, data were collected between January 2007 and December 2008 using a combination of computer assisted personal interviewing (CAPI) and computer assisted telephone interviewing (CATI). For the whole of Canada, the unweighted and weighted sample sizes were 131,061 and 28,017,372, respectively and the overall response rate was 77.6% (37). In this study, the sample was restricted to 18-64 years old with no resident partner and living with at least one child under the age of 25 years in the household.[3]

This study was exempt from obtaining a formal ethics approval from the Research and Ethics Board, University of Saskatchewan as the study involved secondary analysis of Statistics

[3] Due to Statistics Canada data release guidelines, researchers cannot publish unweighted numbers. Therefore, the number of single parents upon which this analysis is based is estimated to be 1,014,084 (823,233 single mothers and 190,851 single fathers).

Canada data. However, this study was subject to the various guidelines adopted by Statistics Canada in order to respect the confidentiality of the respondents on the CCHS. A formal application to access the data was submitted through the Social Sciences Health Research Council and Statistics Canada website (95) in August 2011 and a formal approval to access the 2007-2008 cycle of the Canadian Community Health Survey was granted in October 2011. A summary of the rules adopted by Statistics Canada is explained in Appendix A.

3.2: Variables

The variables used in this study are listed in Table 3.1 and described in greater detail in text below.

3.2.1: Dependent Variables

Four indicators of mental health were used: 1) self-rated mental health; 2) the presence of a mood disorder; 3) the presence of an anxiety disorder; and 4) binge drinking behavior. Self-rated mental health (SRMH) was based on the question, 'In general, would you say your mental health is (Excellent, very good, good, fair, or poor)?' The categories were collapsed to form two groupings: 1) excellent/very good/good; and 2) fair/poor. Previous research suggests that self-ratings of fair/poor mental health are associated in the expected direction with multi-item, standardized measures of mental morbidity; however, a sizeable portion of individuals who meet standardized criteria for a mental disorder do not rate their mental health as fair/poor (68) . Thus, although it may be appropriate for researchers to consider SRMH a valid and reliable measure of general mental health, 'for specific morbidities, SRMH cannot be used to monitor trends, investigate etiology, predict the need for treatment, or determine if those who need treatment are receiving it' (68). Additional measures of mental health included the self-reported presence (yes/no) of a mood disorder ('Do you have a mood disorder such as depression, bipolar disorder,

mania or dysthymia, diagnosed by a health professional?') or an anxiety disorder ('Do you have an anxiety disorder such as phobia, obsessive compulsive disorder or panic disorder diagnosed by a health professional?'). Finally, binge drinking behavior (yes/no) was assessed with the question 'How often in the past 12 months have you had 5 or more alcoholic drinks on one occasion…(never, less than once/month, once/month, 2-3 times/month, once/week, more than once/week?'). Based on previous research (96, 97), participants who indicated consuming 5 or more alcoholic drinks at least once a month were categorized as having engaged in binge drinking.

3.2.2: Independent variables

3.2.2.1: Primary independent variables

Gender (male/female) and residence were the primary independent variables in this study. Residence (i.e., rural-urban continuum) was based on the Statistical Area Classification framework which combines information on both population density and commuting patterns (77) . Within this framework, urban locations consist of census metropolitan areas (CMAs; 100,000 or more residents in the urban core and encompasses surrounding areas where 50% or more of the workforce commutes to the urban core) and census agglomerations (CAs; between 10,000 and 99,999 people in the urban core and includes surrounding areas where 50% or more of the workforce commutes to the urban core). Rural areas are those with a population of less than 10,000 and which have fewer than 50% of its population commuting to an urban local. Rural areas are further disaggregated according to Metropolitan Influence Zones (MIZs), based on the proportion of residents who commute to an urban destination for employment purposes: strong MIZ (30% to <50% commute); moderate MIZ (5% to <30% commute); weak MIZ (>0% to <5% commute); and no MIZ (no commuters) (77). The original CCHS residence variable

(GEODSTAT) consisted of 7 categories: 1) CMA; 2) CA[4] (tracted); 3) CA (non-tracted); 4) strong MIZ; 5) moderate MIZ; 6) weak MIZ; 7) no MIZ. Due to sample size constraints, these categories were collapsed to form three types of residences: 1) urban (CMA/CA); 2) strong/moderate MIZ; and 3) weak/no MIZ.

3.2.3: Other independent variables

The remaining independent variables, described below, were categorized into one of three groups: demographic, socioeconomic and psychosocial. Demographic characteristics (6 variables) included parents' age (18-29 years, 30-44 years, 45-64 years), marital status (married/common-law, separated/divorced/widowed, single), the number of children <16 years of age (none, one, two or more) and the number of children <6 years of age (none, one or more). Aboriginal identity (yes, no) was determined in response to the question: 'Are you an Aboriginal person that is, North American Indian, Metis or Inuit?'(37).

Eight variables assessed socioeconomic characteristics including current employment status (employed/not employed), whether the respondent was a multiple job holder (yes/no), the number of hours worked each week (less than 30 hours/30+ hours) and home ownership (yes/no). Household income (<$20,000, $20,000-$59,999, ≥$60,000) was based on participants' estimate of their total income, before taxes and deductions, of all household members in the past year. Respondents were considered to be recipients of social assistance (yes, no) if they indicated having received any income in the previous year from provincial/municipal assistance or welfare. Educational attainment of the respondent was measured with 4 categories: 1) less than high school; 2) high school graduate; 3) diploma; and 4) university degree.

[4] Tracted refers to the presence of a small, relatively stable geographic area that has a population between 2,500 and 8,000 persons within a Census Agglomerate.

Food insecurity assesses the extent to which participants report uncertain, insufficient or inadequate food access, availability and usage. On the CCHS's derived food insecurity measure, based on responses to 18 individual questions on food insecurity, participants were categorized into one of four groupings: 1) food secure; 2) food insecure without hunger; 3) food insecure with moderate hunger; and 4) food insecure with severe hunger. To meet Statistics Canada's data release guidelines, the categories in this study were collapsed into two groups: 1) food secure and 2) food insecure.

Two variables were used to assess psychosocial characteristics. Sense of community belonging was measured by the question, "How would you describe your sense of belonging to your local community? Would you say it is very strong, somewhat strong, somewhat weak, very weak?" The responses were recoded into two groups: 1) very strong/somewhat strong and 2) very weak/ somewhat weak. Life stress was measured by responses to the question, "Thinking about the amount of stress in your life, would you say most days are: not at all stressful, very stressful, a bit stressful, quite stressful or very stressful"? For the purpose of this study, the variable was collapsed into three categories: 1) not at all/not very stressful; 2) a bit stressful; and 3) quite a bit/extremely stressful.

Table 3.1: List of variables in the study

Variables	CCHS variable name
Dependent	
Self-rated mental health	GENDMHI
Mood disorder	CCC_280
Anxiety disorder	CCC_290
Binge drinking	ALC_3
Independent	
Primary	
Gender	DHH_SEX
Residence	GEODSTAT
Demographic	
Parents' age	DHH_AGE
Marital status	DHH_MS
Aboriginal identity	SDC_41
Number of children <16 yrs	DHHDYKD
One or more children ≤5 yrs	DHHDLE5
Socioeconomic	
Educational attainment	EDUDR10
Household income	INCDHH
Home ownership	DHH_OWN
Employment status	LBS_01
Multiple job holder	LBS_03

Variables	CCHS variable name
Receiving social assistance	INC_1J
Full-time/part-time working status	LBSDPFT
Food security	FSCDHFS
Psychosocial	
Sense of community belonging	GEN_10
Life stress	GEN_07

3.3: Data Analysis

Univariate, bivariate and multivariable data analyses were performed to address the research questions and are described in more detail below. STATA © version 11 and SPSS version 19.2 were the statistical programs used. As the confidentiality rules adopted by Statistics Canada do not allow researchers to release the unweighted number of respondents, all analyses were conducted using the weight variable (WTS_M) provided by Statistics Canada. The CCHS employs multi-stage sampling to collect health related information (98). Multi-stage sampling is a complex procedure which involves a number of procedures, including stratification, clustering, and random sampling of households with the probability of unequal inclusion, and the selection of individuals within a particular household. Thus, the three most important feature of a multi-stage survey are: stratification, clustering and unequal inclusion probabilities (99). The first stage of sampling, stratification, is obtained by stratifying the probability samples which aids in reducing sampling design effect and making the population subgroups more akin statistically to the overall population that it represents (100, 101). Thus, stratification enhances statistical efficiency. The second stage of sampling, clustering, produces a more stable parametric estimate

than if collected by simple random sampling, but results in larger standard design effects and variances (100, 101). The third stage of sampling, weighting, accounts for unequal inclusion probabilities and non-response but is responsible for larger sampling design effects especially if the variance of the sampling weights is large enough (100, 101).

In order to account for the design effects that may arise due to these multi-stage sampling procedures, bootstrapping was used. Bootstrap variance estimation is a technique in which multi-stage sampling data is converted into artificial simple random sampling data (102). This bootstrap procedure was extended for complex survey data to take into account the design effects arising due to stratification and clustering (103). Bootstrapping was used to derive estimates of standard design effects and confidence intervals and to check the stability of defect errors (104).

3.3.1: Research Question 1: Does the mental health of single parents vary by gender and/or urban-rural residence?

Participants' responses for each of the four dichotomous measures of mental health (i.e. SRMH, anxiety disorder, mood disorder, and binge drinking) were analyzed using crosstabs first by gender and then, within each gender, by residence. Proportions were presented along with their bootstrapped 95% confidence intervals. Chi-square (χ^2) tests for proportions were used to test for statistical significance.

3.3.2: Research Question 2: Do single parents' demographic, socioeconomic, and psychosocial characteristics vary by gender and/or urban-rural residence?

Chi-square tests were performed to examine the demographic, socioeconomic, and psychosocial characteristics of single parents according to gender and residence.

3.3.3: Research Question 3: Do the demographic, socioeconomic, and social correlates of single parents' mental health vary by gender and/or urban-rural residence?

To address the third research question, the multivariable logistic regression approach suggested by Kleinbaum (105) was applied. Variables were selected as candidates for the multivariable logistic regression model based on their relevance to the study's conceptual framework, their theoretical/biological significance, multicollinearity concerns, and previous research.

In the first stage, a series of univariate logistic regressions were conducted with SRMH as the dependent variable and variables with p-values ≤ 0.20 became candidates for multivariable modelling. In the second stage, the variables that met the selection criterion at the first stage were simultaneously entered into the multivariable logistic regression model, along with variables which were of primary interest and/or theoretical importance. Variables with p-values of ≤ 0.05 (and those of primary interest/theoretical importance) were retained to form the preliminary main effects model. Each excluded variable from stage one was then re-entered into the preliminary main effects model and retained if its p-value was ≤ 0.05. The variables remaining after this step formed the main effects model. In the third sta*ge*, effect modification was assessed by individually entering product terms into the main effects model. Theoretically meaningful interactions were chosen for testing: gender × all retained 'main effect' variables; and residence× all retained 'main effect' variables. Interaction terms were retained in the model if the p-value was ≤ 0.05. The combination of variables and interactions after this step formed the final model.

CHAPTER 4:

RESULTS

In this chapter, the main results are presented according to research question.

4.1: Research Question 1: Does the mental health of single parents vary by gender and/or urban-rural residence?

Table 4.1 describes the mental health status of single parent participants according to gender. No statistically significant difference emerged in the proportion of single mothers and single fathers who rated their mental health as fair/poor. However, a significantly higher proportion of single mothers than single fathers reported having been diagnosed with a mood disorder or anxiety disorder. Conversely, a greater percentage of single fathers compared to mothers reporting having engaged in binge drinking.

Table 4.1: Single parents' mental health by gender

	Single Mothers	Single Fathers	p
	% (Bootstrap 95% CIs)		
Self-rated mental health			
Excellent/very good/good	90.75 (88.99, 92.20)	92.98 (89.16, 95.52)	
Fair/poor	9.28 (7.80, 11.01)	7.02 (4.48, 10.84)	0.24
Mood disorder			
Yes	14.68 (12.52, 17.14)	8.17 (5.48, 12.02)	
No	85.32 (82.86, 87.48)	91.83 (87.98, 94.52)	<0.01
Anxiety disorder			
Yes	12.20 (10.42, 14.24)	2.16 (1.29, 3.60)	
No	87.80 (85.76, 89.58)	97.84 (96.4, 98.71)	<0.01

	Single Mothers	Single Fathers	p
	% (Bootstrap 95% CIs)		
Binge drinking			
Yes	13.05 (11.33, 14.99)	33.83 (27.78, 40.45)	<0.01
No	86.95 (85.01, 88.67)	66.17 (59.55, 72.22)	

The next two tables display measures of single mothers' (Table 4.2) and single fathers' (Table 4.3) mental health according to residence. No statistically significant difference by residence emerged for SRMH, or the presence of a mood or anxiety disorder among mothers or fathers; however, a significantly higher proportion of single mothers and single fathers living in strong/medium MIZ areas reported binge drinking compared to their counterparts residing in other areas.

Table 4.2: Single mothers' mental health by residence

	CMA/CA	Strong/Moderate MIZ	Weak/no MIZ	p
		% (Bootstrap 95% CIs)		
Self-rated mental health				
Excellent/very good/good	90.54 (88.66, 92.14)	92.09 (87.43, 95.12)	91.78 (87.91,94.49)	
Fair/poor	9.46 (7.86, 11.34)	7.90 (4.87, 12.57)	8.21(5.50, 12.09)	0.61

	CMA/CA	Strong/Moderate MIZ	Weak/no MIZ	p
		% (Bootstrap 95% CIs)		
Mood disorder				
Yes	14.32 (12.37,16.51)	18.82 (12.39,27.55)	15.10 (10.96,20.44)	
No	85.68 (83.49,87.63)	81.18 (72.45,87.61)	84.90 (79.56,89.04)	0.31
Anxiety disorder				
Yes	12.54 (10.61,14.75)	9.36 (6.13,14.05)	10.51 (7.14,15.21)	
No	87.46 (85.25,89.39)	90.63 (85.95,93.86)	91.27(84.79,92.86)	0.28
Binge drinking				
Yes	12.39 (10.55,14.51)	18.59 (13.58,24.92)	15.83(11.69,21.10)	
No	87.61 (85.49,89.45)	81.41 (75.08,86.42)	84.17(78.90,88.31)	<0.01

Table 4.3: Single fathers' mental health by residence

	CMA/CA	Strong/Moderate MIZ	Weak/no MIZ	p
		% (Bootstrap 95% CIs)		
Self-rated mental health				
Excellent/very good/good	93.31 (89.66, 95.73)	89.02 (71.54, 96.32)	95.40 (88.45,98.25)	
Fair/poor	6.69 (4.27, 10.34)	10.98(3.68, 28.46)	4.60 (1.74,11.55)	0.41

	CMA/CA	Strong/Moderate MIZ	Weak/no MIZ	p
		% (Bootstrap 95% CIs)		
Mood disorder				
Yes	6.84 (4.42, 10.47)	13.01 (4.89, 30.28)	15.08 (7.46, 28.10)	
No	93.15 (89.53, 95.59)	86.99 (69.72, 95.1)	84.92 (71.90, 92.53)	0.11
Anxiety disorder				
Yes	N/A	N/A	N/A	
No	N/A	N/A	N/A	0.88
Binge drinking				
Yes	29.39 (23.25, 36.38)	66.90 (48.33, 81.38)	33.16 (20.61, 48.67)	
No	70.61 (63.62, 76.75)	33.10(18.62, 51.67)	66.84 (51.33, 79.39)	<0.01

NA: Data suppressed according to Statistics Canada guidelines due to low unweighted numbers.

4.2: Research Question 2: Do single parents' demographic, socioeconomic, and psychosocial characteristics vary by gender and/or urban-rural residence?

Table 4.4 shows the distribution of single parents' demographic, socioeconomic and psychosocial characteristics by gender. Compared to single fathers, a greater proportion of single mothers resided in urban Canada, were less than 45 years of age, never married, self-identified as Aboriginal, had two or more children, and had a child under or equal to five years of age in the household. Single mothers and fathers did not differ in terms of educational attainment; however,

higher percentage of single fathers than single mothers: were employed, worked full time, owned their own home, and reported an annual household income which was equal/greater than $60,000. Single mothers were also more likely than fathers to report having received social assistance and being food insecure. No statistically significant differences by gender were found for life stress or sense of community belonging.

Table 4.4: **Single parents' demographic, socioeconomic and psychosocial characteristics, by gender**

	Single Mothers	Single Fathers	p
	%		
Residence			
CMA/CA	87.50	81.10	
Strong/moderate MIZ	7.20	11.30	
Weak/no MIZ	5.30	7.60	<0.01
Demographic			
Age (yrs)			
18-29	13.05	2.68	
30-44	43.94	34.47	
45-64	43.01	62.85	<0.01
Marital status			
Married/common-law	5.92	6.20	
Divorced/separated/widowed	62.13	76.15	
Single	31.95	17.65	<0.01
Aboriginal identity			
Yes	7.00	2.50	

Table 4.4

	Single Mothers	Single Fathers	p
	%		
No	93.00	97.50	<0.01
Number of children ≤ 15 yrs			
None	35.82	50.42	
One	34.00	27.84	
Two or more	30.17	21.75	<0.01
Number of children ≤ 5 yrs			
None	76.96	88.38	
One or more	23.04	11.62	<0.01
Socioeconomic			
Educational attainment			
Less than high school	11.48	14.74	
High school	26.59	22.77	
Diploma	41.63	37.93	
University	20.30	24.56	0.17
Employment status			
Employed	68.17	75.25	
Not employed	31.83	24.75	0.03
Work hours			
Full-time	85.86	96.97	
Part-time	14.14	3.03	<0.01

Table 4.4

	Single Mothers	Single Fathers	p
	%		
Multiple job holder			
Yes	10.28	9.73	
No	89.72	90.27	0.81
Home ownership			
Yes	45.50	61.00	
No	54.50	39.80	<0.01
Household income			
<$20,000	24.68	8.89	
$20,000-$59,999	54.47	46.03	
=>$60,000	20.85	45.08	<0.01
Receiving social assistance			
No	71.70	64.60	
Yes	24.50	11.60	<0.01
Food insecurity			
No	74.50	87.85	
Yes	25.40	12.04	<0.01
Psychosocial			
Life stress			
Not at all/not very	21.60	22.40	
A bit	42.30	46.90	
Quite a bit/extremely	36.10	30.70	0.46

	Single Mothers	Single Fathers	p
	%		
Sense of community belonging			
Somewhat/very strong	57.50	58.30	
Somewhat/very weak	42.50	41.70	0.82

Table 4.5 displays single mothers' demographic, family, socioeconomic and psychosocial characteristics by rurality. Demographically, a greater percentage of rural than urban single mothers were of Aboriginal origin, had two or more children, and at least once child aged 5 years or less than in the household; conversely, a greater proportion of urban than rural single mothers were in the oldest age group (i.e., between 45 and 65 years of age). Regarding socioeconomic characteristics, a higher percentage of rural than urban single mothers indicated they were receiving social assistance, working part-time and having an annual household income of less than $20,000. No significant differences emerged by residence with respect to employment status, food security, home ownership or perceptions of life stress; however, single mothers living in more rural locals were more likely to rate their sense of community belonging as 'somewhat or very strong'.

Table 4.5: **Single mothers' demographic, family, socioeconomic and psychosocial characteristics by residence.**

	CMA/CA	Strong/moderate MIZ	Weak/no MIZ	p
		%		
Demographic				
Age (yrs)				
18-29	12.38	17.02	18.64	
30-44	42.80	55.03	47.73	
45-64	44.81	27.95	33.62	<0.01
Marital status				
Married/common-law	NA	NA	NA	
Divorced/separated/widowed	NA	NA	NA	
Single	NA	NA	NA	0.01
Aboriginal identity				
Yes	6.10	3.70	14.70	
No	91.60	95.10	81.00	<0.01
Number of children ≤15 yrs				
None	36.97	25.80	30.43	
One	33.66	36.60	36.17	
Two or more	29.37	37.61	33.40	0.03

Table 4.5

	CMA/CA	Strong/moderate MIZ %	Weak/no MIZ	p
Number of children ≤ 5 yrs				
None	77.78	69.58	73.36	
One or more	22.22	30.42	26.64	<0.01
Socioeconomic				
Educational attainment				
Less than high school	11.02	12.79	17.29	
High school	26.34	27.53	29.62	
Diploma	41.61	45.42	36.63	
University	21.03	14.26	16.46	0.06
Employment status				
Employed	68.78	63.41	64.50	
Not employed	31.22	36.59	35.50	0.20
Work hours				
Full time	NA	NA	NA	
Part time	NA	NA	NA	<0.01
Multiple job holder				
Yes	9.49	16.00	15.94	
No	90.51	84.00	84.06	0.06
Home ownership				
Yes	45.92	53.34	50.07	

Table 4.5

	CMA/CA	Strong/moderate MIZ %	Weak/no MIZ	p
No	54.08	46.66	49.93	0.12
Household income				
<$20,000	23.50	29.86	37.30	
$20,000-$59,999	54.67	55.48	49.58	
=>$60,000	21.82	14.66	13.12	<0.01
Receiving social assistance				
Yes	16.82	25.50	20.19	
No	83.18	74.50	79.81	0.02
Food insecurity				
No	74.47	74.65	74.98	
Yes	25.53	25.35	25.02	0.99
Psychosocial				
Life stress				
Not at all/not very	21.60	20.50	22.70	
A bit	42.40	38.30	45.20	
Quite a bit/extremely	35.90	41.20	32.00	0.93
Sense of community belonging				
Somewhat/very strong	56.20	66.80	66.90	
Somewhat/very weak	43.80	33.20	33.10	<0.01

NA: Data suppressed according to Statistics Canada guidelines due to low unweighted numbers.

When data on single fathers was analyzed (Table 4.6), relatively few differences emerged. However, a greater proportion of urban than rural single fathers had a university education and owned their own home. Single fathers in rural regions were more likely than their urban counterparts to report most days as "quite a bit or extremely" stressful. No other statistically significant differences by residence emerged.

Table 4.6: Single fathers' demographic, family, socioeconomic and psychosocial characteristics, by residence

	CMA/CA	Strong/moderate MIZ	Weak/no MIZ	p
		%		
Demographic				
Age (yrs)				
18-29	2.57	3.17	3.19	
30-44	32.89	40.29	42.64	
45-64	64.54	56.54	54.16	0.49
Marital status				
Married/common-law	NA	NA	NA	
Divorced/separated/widowed	NA	NA	NA	
Single	NA	NA	NA	0.27
Aboriginal identity				
Yes	2.10	2.70	5.70	
No	97.90	97.30	94.30	0.10

Table 4.6

	CMA/CA	Strong/moderate MIZ %	Weak/no MIZ	p
Number of children ≤15 yrs				
None	52.18	40.89	45.63	
One	26.53	33.11	33.93	
≥Two	21.28	26.00	20.44	0.61
Number of children ≤5 yrs				
None	87.60	92.33	90.89	
One or more	12.40	7.67	9.11	0.23
Socioeconomic				
Educational attainment				
Less than high school	11.92	31.07	21.07	
High school	23.58	14.55	26.22	
Diploma	36.63	48.02	37.03	
University	27.88	6.36	15.68	<0.01
Employment status				
Employed	75.73	73.26	72.91	
Not employed	24.27	26.74	27.09	0.88
Work hours				
Full-time	NA	NA	NA	0.05
Part-time	NA	NA	NA	

Table 4.6

	CMA/CA	Strong/moderate MIZ %	Weak/no MIZ	p
Multiple job holder				
Yes	9.28	7.52	18.90	
No	90.72	92.48	81.10	0.25
Home ownership				
Yes	59.20	76.60	75.30	
No	40.80	23.40	24.70	0.02
Household income				
<$20,000	8.16	10.38	14.51	
$20,000-$59,999	45.84	49.59	42.82	
=>$60,000	46.00	40.03	42.67	0.74
Social Assistance				
Yes	11.35	6.31	4.03	
No	88.65	93.69	95.97	0.12
Food insecurity				
No	86.80	91.10	94.80	
Yes	13.20	8.90	5.20	0.17
Psychosocial				
Life stress				
Not at all/not very	20.20	32.00	30.70	
A bit	50.50	26.40	38.60	

Table 4.6

	CMA/CA	Strong/moderate MIZ %	Weak/no MIZ	p
Quite a bit/extremely	29.30	41.60	30.70	0.04
Sense of community belonging				
Somewhat/very strong	56.90	61.80	67.90	
Somewhat/very weak	43.10	38.20	32.10	0.49

NA: Data suppressed according to Statistics Canada guidelines due to low unweighted numbers.

4.3: Research Question 3: Do the demographic, socioeconomic, and social correlates of single parents' mental health vary by gender and/or urban-rural residence?

A series of univariate logistic regressions were performed on the independent variables of age, marital status, sense of belonging, life stress, aboriginal status, food security, employment status, household income, highest level of education achieved, number of children less than 15 years and 5 years in the same household, full /part time job status, multiple job status, home ownership, receiving social assistance in the previous year with self-rated mental health as the outcome variable. All variables with the exception of marital status, number of children less than 15 years of age, and being a multiple job holder were found to have p-values < 0.2 and hence, included in the next model-building stage (105).

Table 4.7: **Univariate logistic regression results of single parents self-rated mental health on demographic, socioeconomic and psychosocial characteristics**.

	Odds Ratio	95% CI	p
Gender			
Single fathers	1.00		
Single mothers	0.91	0.52, 1.60	0.25
Residence			
CMA/CA	1.00		
Strong/moderate MIZ	0.98	0.49, 1.93	0.92
Weak/no MIZ	0.98	0.58, 1.64	0.32
Demographic			
Age (yrs)			
18-29	1.00		
30-44	1.45	0.91, 2.39	0.12
45-64	1.48	0.92, 2.38	0.11
Aboriginal identity			
Yes	1.00		
No	0.61	0.34, 1.09	0.10
Socioeconomic			
Home Ownership			
Yes	1.00		
No	1.72	1.19, 2.45	<0.01

Table 4.7

	Odds Ratio	95% CI	p
Educational Attainment			
Less than High School	1.00		
High School	0.69	0.38, 1.27	0.24
Diploma	0.65	0.37, 1.14	0.14
University Degree	0.47	0.24, 0.91	0.02
Marital Status			
Married/common-law	1.00		
Divorced/separated/widowed	0.91	0.30, 2.76	0.87
Single	0.83	0.27, 2.55	0.75
Number of children ≤15 yrs			
None	1.00		
One	0.32	0.57, 1.29	0.46
≥ Two	0.81	0.53, 1.26	0.36
One or more children ≤5 yrs			
None	1.00		
≥ One	0.79	0.56, 1.10	0.17
Household income			
<$20,000	1.00		
$20,000-$59,999	0.65	0.44, 0.97	0.04
=>$60,000	0.27	0.16, 0.45	<0.01

Table 4.7

	Odds Ratio	95% CI	p
Employment status			
Employed	1.00		
Not employed	2.18	1.56, 3.03	<0.01
Type of employment			
Full-time	1.00		
Part-time	2.17	1.24, 3.78	<0.01
Multiple jobs			
Yes	1.00		
No	1.01	0.52, 1.93	0.99
Food insecurity			
No	1.00		
Yes	3.35	2.38, 4.75	<0.01
Psychosocial			
Life stress			
Not at all/not very	1.00		
A bit	2.01	0.81, 5.05	0.14
Quite a bit/extremely	8.33	3.49, 19.86	<0.01
Sense of community belonging			
Somewhat/very strong	1.00		
Somewhat/very weak	2.11	1.49, 2.97	<0.01

Multivariable logistic regression was performed with self-rated mental health as the primary outcome variable and 13 independent variables: sense of belonging, home ownership, life stress, aboriginal status, food security, employment status, household income, educational attainment, work hours (part-time/full-time), receiving social assistance in the previous year, age of respondent, gender and residence. Variables with p-values ≤ 0.05 were retained in the final model. This kept sense of belonging, life stress, food security, age of respondent, gender, and residence in the model. A sequential process was carried out in order to assess the meaningful changes in beta coefficients due to confounding. Using the principle of theoretical/biological significance, residence, gender, and aboriginal status were retained in the model. Thus, our main effects model consisted of 9 variables: sense of belonging, life stress, aboriginal status, food security, employment status, household income, age of respondent, sex and residence of respondents.

Each of the variables which were included in the final model were analyzed to note if there was an interaction between gender and geography (each of these were analyzed separately) and the concerned independent variable. In total, there were 14 interactions tested but none of them were noted to be statistically significant. Thus, the best model to predict the self-rated mental health of single parents was the main effects model.

The final model (Table 4.8) indicated that sense of belonging, quantum of stress in one's life, age of the single-parent, food security, being unemployed, having an income of less than $20000 per annum are all significant predictors of fair/poor self-rated mental health. Neither gender nor urban/rural residences were significant predictors of poor self-rated mental health but they were retained in the model because these variables were of primary focus in the study and also because of their theoretical importance. A single parent whose sense of belonging to the

community was labeled to be somewhat or very weak were 1.85 times more likely to self-rate their mental health as fair/poor compared to a single parent whose sense of community belonging was rated to be somewhat or very strong. Similarly a single parent with a bit or extremely high stress in his/her life was 6.9 times more likely to self-rate his/her mental health as fair/poor in contrast to a single parent with no/very little life stress. In comparison with single parents in the age group 18-29 years, those in the age group 30-44 years were 2.28 times more likely and those in the age group 45-64 years were 3.18 times more likely respectively to self-rate their mental health as fair/poor. Heading a food insecure household was a significant predictor of fair/poor self-rated mental health. Those single-parents who headed a food insecure household were 2.51 times more likely to self-rate their mental health as fair/poor in comparison to food secure households. Unemployed single parents were 1.89 more likely to poorly self-rate their mental health in comparison to those single parents who were in employment. Similarly those single parents who earned less than $20000 per annum were 55 % more likely to rate their mental health as fair/poor in comparison to those single parents whose household income was more than $60000 per annum.

Table 4.8: Final multiple logistic regression model of single parents self-rated mental health on demographic, socioeconomic and psychosocial characteristics.

	Odds Ratio	95% CI	p
Gender			
Single fathers	1.00		
Single mothers	1.35	0.81, 2.27	0.25
Residence			
CMA/CA	1.00		
Strong/moderate MIZ	0.97	0.53, 1.76	0.92
Weak/no MIZ	0.81	0.52, 1.24	0.32
Demographic			
Age (yrs.)			
18-29	1.00		
30-44	2.28	1.25, 4.13	<0.01
45-64	3.22	1.77, 5.80	<0.01
Aboriginal identity			
Yes	1.00		
No	0.60	0.29, 1.22	0.16
Socioeconomic			
Household income			
<$20,000	1.00		
$20,000-$59,999	0.96	0.62, 1.55	0.88
=>$60,000	0.45	0.22, 0.94	0.03

Table 4.8

	Odds Ratio	95% CI	p
Employment status			
Employed	1.00		
Not employed	1.89	1.19, 2.97	<0.01
Food insecurity			
No	1.00		
Yes	2.51	1.63, 3.80	<0.01
Psychosocial			
Life stress			
Not at all/not very	1.00		
A bit	1.80	0.69, 4.68	0.23
Quite a bit/extremely	6.90	2.83, 17.11	<0.01
Sense of community belonging			
Somewhat/very strong	1.00		
Somewhat/very weak	1.86	1.25, 2.70	<0.01

CHAPTER 5:

DISCUSSION

The purpose of this exploratory, cross-sectional study was to examine the mental well-being of single mothers and single fathers residing in diverse geographical settings in Canada. More specifically, using data from the 2007-2008 CCHS (37), three primary research questions guided this research: 1) Does the mental health of single parents vary by gender and/or urban-rural residence? 2) Do single parents' demographic, socioeconomic, and psychosocial characteristics vary by gender and/or urban-rural residence? and 3) Do the demographic, socioeconomic, and social correlates of single parents' mental health vary by gender and/or urban-rural residence? This chapter commences with a discussion of the main findings of the study, according to research question, and integrates the results with the findings of previous research. This chapter also details the main strengths and limitations of the study and concludes with a discussion of unanswered questions and directions for future research.

5.1: Research Question 1: Does the mental health of single parents vary by gender and/or urban-rural residence?

Four indicators of mental health were used to assess the mental well-being of single parents: 1) self-rated mental health (SRMH); 2) the presence of a mood disorder; 3) the presence of an anxiety disorder; and 4) binge drinking behavior.

5.1.1: Gender and Mental Health

Regarding gender difference in mental health, single mothers in this study were *not* significantly more likely than single fathers to rate their mental health as fair/poor, a finding which is inconsistent with other research with general population samples in Canada (68, 106). It is important to note, however, that the results did show a greater percentage of single mothers

(9.3%) than single fathers (7%) with fair/poor SRMH, but the gender difference did not reach statistical significance. The use of SRMH as a general measure of psychological morbidity is a fairly recent addition to the epidemiological literature; although self-ratings of poor/fair mental health are correlated with more comprehensive measures of mental disorders and psychological distress (68, 107), the relationship is not perfect and SRMH may, in addition, be capturing something yet undetermined (68) 'beyond the presence of mental disorder or high distress.' (p. 6).

Similar unadjusted estimates were obtained for partnered parents. No statistically significant differences emerged when differences in the prevalence of fair/poor self-rated mental health were analyzed between partnered mothers and fathers. Partnered mothers were also more likely to suffer from mood and anxiety disorders in comparison to partnered fathers. However partnered fathers were more likely to report a higher prevalence of binge drinking in comparison to partnered mothers.

On the other hand, the remaining results for the first research questions are generally in sync with the "gendered expression of angst" hypothesis which suggests that, on average, women are more likely than men to express distress inwardly (e.g. depressed mood) and men are more likely than women to express it outwardly (i.e. behaviorally) (60). In this study, single mothers were significantly more likely than single fathers to report having been currently diagnosed by a health professional with an anxiety and/or mood disorder, a finding consistently reported among general samples of adults in Canada (61, 63, 69, 108, 109). Though few studies have systematically compared single mothers and fathers on health measures, the findings of this study are also consistent with those recently reported by (4) Wade et al. who similarly reported a

greater prevalence of mood and anxiety disorders among Canadian single mothers compared to single fathers.

Binge drinking, or sometimes termed "heavy drinking" in the research literature, typically defined as a high intake (e.g. five drinks) of alcohol in one sitting, is associated with an number of adverse health effects, including an increased risk of unintentional injuries (e.g. motor vehicle crashes, falls, drowning) and may increase the risk of cardiovascular diseases (110). In this study, although single mothers were more likely than fathers to report an anxiety and/or mood disorder diagnosis, a significantly greater proportion of single fathers (21.3%) than single mothers (6.4%) reported having engaged in binge drinking behavior in the previous year. The greater use of alcohol by men than women in general population samples, including binge drinking, has been consistently reported (111). In Canada, men are significantly more likely than women to binge drink, exceed Canadian guidelines for low risk drinking[5], drink hazardously[6] and meet standard psychiatric criteria for alcohol dependence (109, 112, 113). Although no study has formally tested the hypothesis of gender differences in binge drinking among single parents, a study (74) presented Canadian data that was very suggestive of more heavy drinking among single fathers than single mothers; that is single fathers reported consuming more than five drinks on a single occasion an average of 14 times in the year previous to the survey, compared to an average of four times among single mothers. In contrast, two studies comparing single mothers and single fathers on the prevalence of substance dependence disorder failed to find any statistically significant gender difference (4, 23).

[5] Canadian guidelines for low-risk drinking suggest that weekly alcohol intake should not be greater than 14 drinks for men and 9 drinks for women; on a daily basis, both men and women should not consume more than two drinks (113).
[6] The determination of "hazardous drinking" is based on The Alcohol Use Disorders Identification Test, which consists of a 10-item questionnaire assessing a variety of alcohol-related behaviors and cognitions (e.g. frequency of heavy drinking, feeling guilty, interpersonal consequences of alcohol use); a score of at least 8 is indicative of hazardous drinking and may also indicate alcohol dependence(121).

A combination of genetic, social, and psychological explanations have been posited to explain gender differences in alcohol use and abuse, as succinctly summarized by Nolen-Hoeksema (114):

> 'Women may drink less than men and may be less likely to develop alcohol-related problems because they are less likely to carry several risk factors for these behaviors or these risk factors are less potent for women than for men. Specifically, a genetic predisposition to alcoholism may have a weaker effect among women than among men, although studies are not completely consistent. The few existing studies of alcohol sensitivity suggest that women are less likely than men to manifest low alcohol sensitivity, which is a risk factor for the development of alcoholism. Women appear less likely than men to manifest undesirable personality traits associated with heavy drinking (aggressiveness, behavioral under-control, sensation-seeking) and to be less motivated to drink to reduce distress (at least among social drinkers) and less likely to expect alcohol consumption to have positive outcomes. On the other hand, women may carry certain protective factors against the development of alcohol-related problems more than men, such as perceiving greater social sanctions for drinking and being more nurturing toward others. Significant inconsistencies exist in the literatures on each of these risk factors, however.' (p. 998-999).

Support for a social-causation explanation (at least in part) of gender differences in alcohol use comes from research suggesting that the magnitude of the difference varies by culture, and that men and women in some countries are becoming more similar in their drinking behavior (111). As Holmila & Raitasalo (115) explain:

> ‘When women have started to work outside the home, they have adopted male values and behaviour patterns, and their freedom as individual consumers has increased. Various social mechanisms mediate the connection between these general changes and women’s drinking: the stress caused by women’s dual role, the effect of contagion occurring between men and women working together, changes in male-female drinking companionship, and changes in alcohol’s position as a symbol of gender roles.’ (p. 1767).

5.1.2: Urban-Rural Residence and Mental Health

In this study, for both single mothers and single fathers, no statistically significant differences emerged by urban-rural residence for SRMH, the presence of a mood disorder, or the presence of an anxiety disorder. There are no published studies specifically comparing the mental health of single parents according to urban-rural residence. However, general population studies of inequalities in mental health between rural and urban settings have produced mixed results, depending on the country under study, the operationalization of urban and rural, and the particular measure of mental health used (89-91). Inconsistent results have also been reported within Canada, with some studies finding no differences by urban-rural residence on mental health indicators (50, 116) and others suggesting a greater prevalence of mental health problems among urban than rural Canadians (78, 87). In general, it appears that if differences by urban-rural residence do emerge, they tend to point to urban residents as being at greater risk of mental morbidity than rural dwellers, even though the magnitude of the difference is generally small (92, 117).

In contrast to the lack of urban-rural variation in SRMH and the presence of mood and/or anxiety disorders, geographical variation in binge drinking behavior was present in this study.

That is, for both single mothers and single fathers, a significantly lower proportion of those living in urban compared to more rural locals reported engaging in binge drinking behavior in the last year; parents living in strong/moderate MIZs reported the highest prevalence of binge drinking. Although this pattern held true for both genders, the proportion of single fathers living in strong/moderate MIZs who reported binge drinking (70%) was much greater than single mothers (19%) in strong/moderate MIZs.

Unfortunately, no previous research has examined the relationship between urban-rural residence and binge drinking among single parents. Although there is a body of research examining geographical patterns in excessive alcohol use in general population samples, the results of these studies do not shed much light on this issue, as many contradictory results have been reported, both within and between countries. Studies in Australia have found some evidence suggesting that binge drinking behavior may be more prevalent in rural compared to urban locations, particularly among men (118, 119). In the United States, a recent national study reported significantly higher rates of binge drinking among residents of urban compared to rural locales; however, between 1995/1997 and 2003, a more pronounced increase in the prevalence of heavy drinking was observed among rural than urban dwellers (120). In Canada, Desmeules (50) using Canadian Community Health survey data found residents of strong MIZ areas to be more likely than those residing in other locals to be a regular drinker or a daily drinker; unfortunately, the prevalence of binge drinking behavior was not examined in this study. Results from the 2004 Canadian Addiction Survey (121) indicated some variation in binge drinking behavior by urban-rural residence; however, the nature of the relationship varied (inconsistently) by gender and measure of alcohol use. For example, rural women were significantly more likely to drink five or more drinks on a single occasion, whereas no such difference emerged for men. On the other

hand, urban men were more likely than rural men to drink heavily on a monthly basis; among women, the prevalence of heavy monthly drinking did not differ by residence. Finally, urban women were more likely than rural women to drink hazardously[7], whereas urban-rural residence was not associated with hazardous drinking among men. Another Canadian study (112), using data from the CCHS (cycle 1.2) found urban-rural residence to be unassociated the likelihood of a substance dependence diagnosis – results which were consistent with a recent meta-analysis of international studies examining the relationship between rurality and mental disorders, including substance use disorders (92). This study did not use the MIZ classification to examine rurality but used the "Fringe" classification.

Thus, previous research, both nationally and internationally, does not provide a consistent picture regarding the geographic patterning of binge drinking behavior, though there does seem to be a slight tendency toward more problematic drinking in urban compared to rural populations – which is inconsistent with the results of this study; that is, of a greater proportion of rural (especially strong/moderate MIZ dwellers) than urban single parents engaging in binge drinking behavior in year previous to the survey. This finding takes on even more significance given that *both* single mothers and single fathers demonstrated the same urban-rural pattern, albeit more pronounced among single fathers. In addition, to examine whether this result extended beyond single parents, supplementary analyses were conducted with partnered parents. As shown in Appendix B (Tables A2 and A3), similar to the results for single parents, a significantly lower proportion of urban than rural dwelling partnered mothers and fathers reported binge drinking

[7] The determination of "hazardous drinking" is based on The Alcohol Use Disorders Identification Test, which consists of a 10-item questionnaire assessing a variety of alcohol-related behaviors and cognitions (e.g. frequency of heavy drinking, feeling guilty, interpersonal consequences of alcohol use); a score of at least 8 is indicative of hazardous drinking and may also indicate alcohol dependence (121).

behavior (although the difference was not as pronounced and the prevalence of binge drinking was greatest among weak/no MIZ dwelling partnered parents).

Although the results are provocative and certainly deserve follow-up study, it is important to note that these results were based on simple descriptive analyses with no adjustment made for potential confounders. However, it is still possible to speculate as to what might explain the greater prevalence of binge drinking behavior among rural than urban dwelling single parents. Previous research suggests that the determinants of binge drinking behavior are complex and likely the result of myriad interacting psychological, social, cultural and economic factors occurring throughout the life course (122, 123). In this study, few statistically significant differences in single fathers' demographic, socioeconomic, or psychosocial characteristics by urban-rural residence emerged (Table 4.6); notable exceptions included lower educational attainment and greater perceived life stress for single fathers in strong/moderate MIZ areas compared to other locations. For single mothers, more differences emerged according to urban-rural location, particularly in regard to demographic characteristics and socioeconomic indicators (Table 4.5), suggesting greater economic disadvantage for rural compared to urban single mothers. Further research, with more sophisticated data analyses is needed to tease out whether any of the observed differences in demographics and/or socioeconomic circumstances according to single parents' residence are associated with variation in binge drinking behavior.

5.2: Research Question 2: Do single parents' demographic, socioeconomic, and psychosocial characteristics vary by gender and/or urban-rural residence?

Demographically, single mothers and single fathers differed significantly on a number of characteristics. Similar to the results of previous research (14, 71) single mothers in this study were younger than single fathers, and were more likely to have younger and more children in the

household. In addition, a greater proportion of single mothers than single fathers resided in urban areas, were single/never married, and self-identified as being of Aboriginal origin. The socioeconomic disadvantage of single mothers compared to single fathers, consistently reported in other Canadian research (15, 45, 48) was repeated in this study. Compared to single mothers, a greater proportion of single fathers indicated being employed, being employed full time, owning their home, and a household income in the highest income grouping (i.e., $60,000 or more a year). Conversely a greater proportion of single mothers in comparison to single fathers indicated having received social assistance in the previous year and being food insecure. Regarding psychosocial characteristics, no statistically significant difference emerged by gender with regard to sense of community belonging. Although there are no research among single parents, research in general populations samples of Canadians also failed to find any gender differences on sense of community belonging (124, 125). In contrast, women generally report greater life stress than men (126) in this study, although a greater proportion of single mothers (36%) than single fathers (31%) reported most days as "extremely or quite a bit stressful", the difference was not statistically significant.

Very little is currently known regarding the characteristics of single parents living in non-metropolitan areas of Canada, particularly of single fathers. In this study, the urban-rural distribution of demographic, socioeconomic and psychosocial characteristics of single parents was examined, and reported separately for single mothers and single fathers. Among single mothers, numerous statistically significant differences emerged. Compared with single mothers in urban Canada, those in more rural locals tended to be younger, of Aboriginal origin, and to have more and younger children in the household. Socioeconomically, a greater proportion of urban than rural single mothers indicated being employed full time, a university education

(p=0.06), and an annual household income of $60,000 or more. Conversely, rural single mothers were more likely than urban single mothers to report being the recipient of social assistance. No statistically significant difference was reported for food security, though there was a non-significant trend towards greater food insecurity among urban than rural single mothers, consistent with previous research (47, 49). Although no statistically significant difference emerged in perceived life stress, a lower proportion of urban than rural single mothers reported having a strong or somewhat strong sense of community belonging. The results of this study, which suggest that single mothers in rural Canada experience greater economic hardships than those in metropolitan areas, but at the same time, a stronger sense of community belonging, are consistent with the findings of previous research (59, 79).

Compared to single mothers in this study, fewer differences emerged by urban-rural residence among single fathers. A greater proportion of urban than rural single fathers reported a university education, though rural single fathers were more likely than urban single fathers to report owning their own home. Interestingly, no statistically significant differences were found by residence concerning single fathers' household income, employment status, food security, or receipt of social assistance. However, single fathers living in intermediate rural locations (strong/moderate MIZ) reported the highest level of life stress.

5.3: Research Question 3: Do the demographic, socioeconomic, and psychosocial correlates of single parents' mental health vary by gender and/or residence?

The final research question examined whether the nature of the relationship between demographic, socioeconomic and psychosocial characteristics and SRMH differed according to gender and urban-rural residence. With regard to gender, research in general population samples indicate that the impact of a particular determinant of mental health may vary as a function of the

person's gender (65). In other words, given the same level of exposure to a particular risk factor, single mothers and single fathers may be differentially vulnerable because of their gender. For example, Orpano (67) *et al*. found that job-related stressors were stronger predictors of psychological distress among men than women; conversely, women's level of psychological distress was more strongly influenced than men's by stressors involving their children. Urban-rural residence may also have effect modifying influences on health. For example, a recent Canadian study examining the relationship between social and economic characteristics and older women's health reported much weaker associations for rural than urban women – even for some of the most established risk factors for poorer health, such as low income and food insecurity (127).

In this study, the results of the multiple logistic regression analyses indicated that several demographic, socioeconomic and psychosocial variables were statistically significantly associated with SRMH: age, household income, food security, employment status, level of life stress, and the perceived degree of belonging to one's community. Consistent with the results of the unadjusted analyses (Tables 4.1-4.3) gender and urban-rural residence were not associated with SRMH. The limited or lack of association between mental health outcomes and urban-rural residence is consistent with other research, as is the finding that other "determinants" of mental health, such as disadvantaged economic circumstances, may be more important predictors of health than urban-rural residence (50, 92, 116, 117). In addition, neither gender nor urban-rural residences were effect modifiers. Thus, barring measurement errors (including of SRMH) and/or limited power to detect statistical interactions, the results of this study suggest that the relationship between the statistically significant predictors and SRMH was similar among single parents, regardless of their gender or where they live.

5.3.1: Correlates of single parents' mental health

Older age was associated with increased odds of fair/poor SRMH among single parents in this study. Some previous literature had suggested that young single parents may be particularly at risk of poorer health in the face of more constrained educational and employment opportunities (43, 128). However, the results of empirical research reporting on the relationship between age and mental health problems among single parents have not shown consistent age patterns, often varying according to the type of mental health outcome studied (74, 129, 130). In general population samples, the relationship between age and mental health is also complex; there is some evidence that the prevalence of anxiety-related problems decreases with age, whereas depression may follow a U-shaped pattern, whereby young adults and older adults reported the highest prevalence (131). If the relationship between age and mental health problems are condition/disorder specific, the use of SRMH as an indicator of general mental health morbidity poses some interpretative challenges. The greater odds of fair/poor self-rated mental health among older than younger single parents in this study is consistent with those reported in a Canadian validation study of SRMH (68). These authors also found that the proportion of Canadians who rated their mental health as fair or poor increased with age – an age pattern which was inconsistent with the more comprehensive/rigorous measures of mental health morbidity they had also included in their study. As noted by Mawani and Gilmour (68) :

> 'The contradictory age pattern may…indicate that SRMH is capturing something beyond the presence of mental disorder or high distress, and that other factors that change with age are associated with self-rating of mental health. The age pattern of fair/poor SRMH may also result from different frames of reference and sources of comparison used by people of different ages. Respondents apply complex and

multilayered criteria when they rate their general health and different age groups use different referents. No work has determined, however, if referents for self-rated mental health also differ by age group. Nor has research examined respondents' sources of comparison for their mental health. It is not known whether people compare their current mental health status with their mental health status when younger, with the mental health status of others in their age groups, families, or communities, or if these sources differ by age.'(p. 6).

Consistent with the results of an extensive international body of population health research (132), indicators of socioeconomic disadvantage in this study, that is, low household income, unemployment, and food insecurity, were also associated with poorer SRMH among single parents. Although low household income has been consistently reported as a risk factor for poorer mental and physical health among single mothers, particularly when compared to their partnered counterparts (3, 5), employment status has shown a somewhat more variable relationship with single mothers' well-being. That is, while a number of studies have found employment beneficial to the physical and mental health of single mothers (133, 134), others have not (135), particularly among the most economically disadvantaged single parents. For example, in a longitudinal study of mothers living in low income in Ontario, single mothers who were unemployed at the onset of the study and who went on to find employment during the course of the study, failed to show any improvement in their mental health (74), suggesting that 'women who move in or out of paid work occupy more marginal jobs that are unlikely to yield the same economic or psychosocial rewards as the jobs of stably employed women.'(p. 358). According to several researchers (36, 94), the generally positive effects of employment on mental well-being may be even more attenuated

for single mothers living in rural locations who likely have to contend with even greater challenges related to childcare, transportation, and fewer opportunities for meaningful employment. However, the results of our study, which found *the lack* of employment to be associated with poorer SRMH, is consistent with most of the research in the area suggesting, that even for single parents, employment seems to be beneficial for mental health (133, 134), including those living in rural areas (36, 136).

Food insecure single parents in this study were also significantly more likely than their food secure counterparts to report fair/poor SRMH. Previous research has similarly found food insecurity to be associated with a greater likelihood of depression, psychological distress, and having been diagnosed with a mental disorder (137-140). Similar results have been reported in studies focused specifically on rural single mothers (141, 142). Heflin and colleagues speculate on the potential nature (and direction) of the relationship between food insecurity and mental well-being (138):

> 'Although the possible bi-directionality in the relationship between household food insufficiency and mental health must be considered, it is quite plausible that household food insufficiency could adversely affect the mental health of welfare recipients. First, household food insufficiency may be subjectively experienced as stressful, and its presence or persistence could initiate or maintain feelings of self-blame and the perception that one is not efficacious. An individual's sense of mastery is largely a consequence of experiencing oneself as efficacious… and exposure to stressful life experiences can erode one's sense of mastery… Second, food insufficiency could impair mental health through the direct effect of nutritional shortfalls on psychological

functioning and behavior. Even the early stages of nutrient deficiency can adversely affect behavior and mental performance.'(p. 1973-74).

Finally, perceptions of life stress and community belonging were associated with single parents' mental health in this study; more specifically, higher levels of perceived stress and community belonging were associated with a greater odds and lower odds of poor SRMH, respectively. Regarding the former relationship, a large body of research has similarly linked perceptions of life stress with a variety of adverse mental health outcomes, including anxiety, depression, and substance abuse (143-145). Stress can generally be defined as 'a state of arousal resulting either from the presence of socio-environmental demands that tax the ordinary adaptive capacity...or from the absence of the means to attain sought-after ends.'(146). Although in this study, the particular sources of stress were not defined, in general, the research literature points to three main types of stressors: recent negative life events, chronic/ongoing strains, and childhood traumas. Further, research suggests that rather than being random occurrences, these types of life stressors, particularly those of a chronic nature, are systematically patterned according to one's location in the social structure (147). Further, as described by (148) , the social stress perspective argues that '…stress proliferation – multiple and intersecting stressors – impacts psychological well-being directly and indirectly by depleting those psychosocial resources (i.e., coping, mastery, self-esteem, resilience) needed to manage those stressful situations.'(p. 491). Consistent with these perspectives, a considerable body of research has amassed suggesting the much of single parents' (particularly single mothers') greater mental health morbidity compared to partnered parents is due to their greater exposure to life stressors; in particular, those stressors arising from chronic economic challenges, caregiving difficulties, conflict between work and family life, and poor psychosocial job quality (11, 147, 149). Turner

in her rural New England study (36), found parenting stress among single mothers to be strongly associated with higher levels of psychological distress, Similarly, Son and Bauer, in their qualitative study of rural, employed low-income single mothers in the United States(94), reported challenges related to balancing the duel-demands of work and family life as extremely stressful for these mothers, particularly when employed in low-wage jobs characterized by inflexible schedules, nonstandard work hours and a lack of benefits.

A greater sense of community belonging was also associated with lower odds of fair/poor SRMH among single parents in this study. Previous Canadian research with general population samples has similarly found a relationship between sense of belongingness and more positive mental and physical health outcomes (125, 145). The health protective nature of social relationships has been extensively studied in the health sciences, though the precise mechanisms linking these constructs remain unclear (150). A sense of community belonging is considered an important cognitive component of social capital (80), defined as 'the ability of actors to secure benefits by virtue of membership in social networks or other social structures.'(p. 24). A growing body of research has correlated higher levels of social capital with a variety of positive mental health outcomes, including reductions in the risk of psychological distress (81) and major depression (82). Kawachi and Berkman (2001) speculate as to the potential salutary effect of feeling that one belongs to a broader community:

> 'Human relations consist of multiple layers that extending out from the ego. These layers extend from the most intimate relations (e.g., marital ties), outward to social networks (e.g., connections to close relatives and friends), and to "weak" ties consisting of involvement in community, voluntary, and religious organizations. Participation in the last set of ties does not necessarily impose intense person-to-

person interactions. Nonetheless, it provides a sense of belongingness and general social identity, which sociological theorists have argued as being relevant for the promotion of psychological well-being.'(150).

5.4: Study strengths and limitations

To date, the epidemiological literature on family structure and mental health has focused primarily on single mothers combined with an almost complete disregard for location of residence. To this researcher's knowledge, this is the first study that has examined both gender and urban-rural residence as potential determinants of single parents' mental health in Canada. In addition to focusing on the mental health of both single mothers and single fathers, an attempt was made in this study to go beyond the simple urban-rural dichotomy and use a more nuanced representation of location of residence (ie., MIZ). An additional strength is the data source for this study, the 2007-2008 CCHS, a large-scale national epidemiological survey with careful random sampling, reliable data collection techniques, and a strong response rate. Analyzing data from the Master files of the CCHS allowed access to bootstrapping weights, making it possible to account for errors arising due to the complex survey design. Variable selection and data analyses were informed by previous research and the Commission on Social Determinants of Health conceptual framework (18).

Limitations were also present, both in study design and measurement. Being cross-sectional in nature, the proposed temporal relationship of independent and dependent variables in this study (e.g. disadvantaged socioeconomic position → fair/poor SRMH) could not be determined. Due to sample size restrictions, particularly when single parents' gender and urban/rural status was considered simultaneously, this researcher was forced to collapse categories (e.g. MIZ) so that the data release requirements laid by Statistics Canada could be

met. The sample size of single fathers was considerably smaller than that of single mothers and perhaps there was a lack of power to detect statistically significant associations, if present.

Limitations in measurement were perhaps the most challenging. Being a self-reported survey, including determination of mental well-being, all participants' responses were prone to recall bias; the chances of under-reporting are particularly pronounced on topics of a socially sensitive nature (e.g. alcohol use, mental health diagnoses) (151) . Although the conceptual framework which informed the study explicitly incorporated distal economic and political determinants of well-being, analyses were constrained by data availability and thus restricted to more proximate mental health determinants. There were other omissions from the data set, including information regarding how long an individual was residing in the location in which he/she was classified to be a resident of and the length of time an individual had spent as a single parent. Detailed questions on mental health care access and utilization was also lacking on this version of the CCHS. This study indicated statistically significant associations of SRMH with life stress and a sense of community belonging; however, a more meaningful and nuanced interpretation of these results are limited by the crude (i.e., single-item) representation of these multidimensional constructs on the CCHS (79, 152). Further, the prevalence of binge drinking behavior among single mothers in this study could have been underestimated. On the CCHS, binge drinking is defined as consuming five or more alcoholic drinks at least once a month; however, recent research suggests that, because of physiological differences in alcohol absorption between women and men, a more appropriate drink cut-off for women is four rather than five drinks, potentially increasing the prevalence of such behavior among women by as much as 50% (47).

5.5 Conclusion and study implications

Single parent households, particularly single father headed, are increasing in Canada (1, 40). However, few studies to date have considered the effects of gender and urban/rural residence on the mental well-being of single parents. In this study, the proportion of single parents who rated their mental health as "fair or poor" did not differ significantly by gender or urban-rural residence. Single mothers were more likely to report mood and anxiety disorders in comparison with single fathers, though the prevalence did not vary by residence. However, single mothers and single fathers living in Strong/Medium MIZ regions of the nation were more likely to report higher proportions of binge drinking compared to their more urban counterparts. Further research, with more sophisticated data analyses and a longitudinal design is needed to determine whether the association observed in this study can be replicated and in addition, to shed light on the potential mechanisms linking "place" with an increased risk of binge drinking.

Results of the multivariable logistic regression analyses indicated that associations between parents' demographic, socioeconomic and psychosocial characteristics and self-rated mental health did not differ by gender or urban-rural residence. For all single parents, an increased odds of fair/poor mental health was associated with a weaker sense of community belonging, greater life stress, food insecurity, unemployment and a lower household income. These findings, in combination with previous research, suggest a need for provincial and federal policies designed to enhance the socioeconomic well-being of single parents in Canada. Improving single parents' access to higher education, affordable child care, and economical transportation costs may make it easier for single parents to attain and maintain stable employment. Affordable rent and childcare should be provided to single parents who intend to pursue higher education. Post-secondary educational institutions should be more generous in

terms of offering scholarships and bursaries to this group of individuals. Greater availability of community kitchens and community gardens could be used to combat food insecurity in vulnerable single-parent households. The development of community-level interventions aimed at increasing single parents' access to formal (e.g. mental health services) and informal social supports within their community is also needed.

APPENDICES:

APPENDIX A

Ethics Approval Form

Mitigation of Risk to Respondents of Statistics Canada's Surveys

Research Data Centres Program, Statistics Canada,

June 2010

Statutory Protection:

The Statistics Act (1985) prescribes the mandate of the Agency, its role in the federal government, its powers and responsibilities, and its operating structure. Central to the Act's provisions is an implicit social contract with respondents under which the Agency may burden respondents with requests for information, and in some cases demand response, in order to provide information that is clearly of broad public benefit, but with an absolute undertaking to protect the confidentiality of identifiable individual responses.

Any disclosure of information that identifies an individual, business or organization is a punishable offense.

The confidentiality provisions of the Statistics Act are not affected by either the Access to Information Act or any other Legislation.

Consent:

The Privacy Act (1983) applies not only to the activities of Statistics Canada but to all federal government organizations. The Privacy Act requires that personal information must only be collected if it "relates to an operating program or activity of the institution". In the case of Statistics Canada, his would include surveys collected under the provisions of the Statistics Act. The Privacy Act requires that the individual be informed of the purpose for which the personal

information is being collected. It includes the right for an individual to know of, and have access to, their personal information. Informed consent is not a component of the Privacy Act.

However, informed consent is utilized by Statistics Canada as part of certain activities. With the exception of the Census of Population and the Labour Force Survey, all Statistics Canada household surveys are voluntary. Implicitly, participation in a voluntary survey requires consent. Respondents are informed of the voluntary nature of the survey through a notice prior to the start of the data collection, such as the one below. Interviewers are also instructed to permit respondents to refuse to answer any question or to terminate an interview at any time.

> 'Your answers will be kept strictly confidential and used only for statistical purposes. While participation is voluntary, your cooperation is important to ensure that the information collected in this survey is as accurate and as comprehensive as possible'.

Measures to protect the identity of respondents:

Data collection and nature of data files available for access:

- The majority of the data collected by Statistics Canada use sampling frames in which households are randomly sampled. Within selected households, sometimes all persons are requested to participate in the survey. In many cases, a random selection of a person within the household is done by the interviewer. The Census of Population and the Labour Force Survey are the only mandatory surveys due to the key role they play in the informing political and business decisions in the country.
- Background survey material explaining the data to be collected and the reasons for the data collection is provided to survey participants.
- Any microdata accessed by a researcher will have all personal identifiers, such as name, address, SIN, and personal health number removed from the record.

- Researchers may only access those data that are required for their particular project.

Procedures to access data:

- As required by the Policy on Government Security, researchers must obtain Reliability Status from the STC Departmental Security before having access to the data in the RDC. Security checks are conducted by the RCMP for each researcher accessing data in the RDC.
- As required by the Statistics Act, each researcher accessing data in the RDCs has deemed employee status and swears a legally binding oath to protect the confidentiality of Statistics Canada data utilized in the RDC. This oath is binding for life.
- Each researcher is required to attend an orientation session during which a RDC Analyst explains the researchers' legal responsibilities to protect the confidentiality and all the security measures in place within the RDC.
- There is a Statistics Canada employee on site to ensure the above measures are clearly understood and adhered to by all researchers participating in the RDC program.

Physical protection of data:

- Each RDC is a secure physical environment where the only people permitted entry are researchers working on active approved projects and Statistics Canada staff.
- Doors to the facility are opened with secure swipe cards assigned to each researcher.
- Researchers are prohibited from having any electronic devices, such as laptop, PDAs or cell phones in the vicinity of their workstation
- The computing environment inside an RDC cannot be linked externally, in particular to the internet.
- The file structures and permissions are created to ensure that researchers have access only

to the data for which they have received permission to use.

Control of released results:

- The RDC Analyst is the only person who can release analytical output from a RDC.
- All analytical output, including programs and compiled results, are vetted for confidentiality using rules developed by Statistics Canada methodologists.

Where confidentiality is at risk, the researcher and Analyst work together to eliminate the risk of disclosure and release the necessary information to answer the research question but at the same time, protect the confidentiality of respondent data.

APPENDIX B

Table A1: Partnered parents' mental health by gender

	Partnered Mothers	Partnered Fathers	P
	% (Bootstrap 95% CIs)		
Self-rated mental health			
Fair/poor	3.70 (3.22, 4.25)	3.16 (2.63, 3.79)	
Excellent/very good/good	96.30 (95.75, 96.78)	96.84 (96.21, 97.37)	0.17
Mood disorder			
Yes	6.67 (6.05, 7.33)	3.30 (2.84, 3.80)	
No	93.33 (92.67, 93.94)	96.70 (96.18, 97.16)	<0.01
Anxiety disorder			
Yes	6.21 (5.57, 6.92)	3.26 (2.81, 3.77)	
No	93.79 (93.08, 94.43)	96.74 (96.23, 97.19)	<0.01
Binge drinking			
Yes	8.30 (7.54, 9.11)	25.26 (23.97, 26.60)	<0.01
No	91.7 (90.89, 92.45)	74.74 (73.4, 76.03)	

Table A2: Partnered mothers' mental health by residence

	CMA/CA	Strong/Moderate MIZ	Weak/no MIZ	P
		% (Bootstrap 95% CIs)		
Self-rated mental health				
Fair/poor	3.86 (3.30,4.52)	2.77 (1.92,3.98)	3.15 (2.25,4.40)	
Excellent/very good/good	96.14 (95.47, 96.70)	97.23 (96.02, 98.08)	96.85 (95.60, 97.75)	0.14
Mood disorder				
Yes	6.61 (5.91, 7.39)	6.88 (5.50, 8.89)	6.97 (5.39, 8.97)	
No	93.39 (92.61, 94.09)	93.11 (91.41, 94.5)	93.03 (91.03, 94.62)	0.90
Anxiety disorder				
Yes	6.1 (5.37, 6.9)	6.88 (5.46, 8.26)	6.44 (4.96, 8.33)	
No	93.9 (93.08, 94.63)	93.12 (91.37, 94.53)	93.56 (91.67, 95.04)	0.60
Binge drinking				
Yes	7.70 (6.87, 8.61)	10.84 (8.95, 13.07)	11.12 (9.14, 13.46)	<0.01
No	92.3 (91.38, 93.13)	89.16 (86.93, 91.05)	88.88 (86.54, 90.86)	

Table A3: Partnered fathers' mental health by residence

	CMA/CA	Strong/Moderate MIZ	Weak/no MIZ	P
		% (Bootstrap 95% CIs)		
Self-rated mental health				
Fair/poor	3.10 (2.51, 3.83)	3.70 (2.48, 5.49)	3.10 (2.13, 4.48)	
Excellent/very good/good	96.9 (96.17, 97.49)	96.30 (94.51, 97.52)	96.9 (95.52, 97.87)	0.64
Mood disorder				
Yes	3.30 (2.80, 3.90)	3.55 (2.40, 5.22)	2.81 (1.87, 4.20)	
No	96.7 (96.11,97.2)	96.45 (94.78, 97.60)	97.19 (96.18, 97.16)	0.73
Anxiety disorder				
Yes	3.19 (2.70, 3.76)	3.72 (2.30, 5.98)	3.51 (2.40, 5.09)	
No	96.81 (96.24, 97.3)	96.28 (94.02, 97.70)	96.49 (94.91, 97.60)	0.70
Binge drinking				
Yes	23.90 (22.46, 25.41)	31.2 (28.07, 34.50)	34.28 (30.86, 37.87)	<0.01
No	76.10 (74.59, 77.54)	68.8 (65.50, 71.93)	65.72 (62.13, 69.14)	

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