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Ali Muhammad
St. Mary's University, ali.muhammad@smu.ca

Alain Gagnon
University of Western Ontario, agagnon4@uwo.ca

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Ali Muhammad, Ph.D.
Assistant Professor
Department of Sociology and Criminology
St. Mary's University,
Halifax, NS B3H 3C3
ali.muhammad@smu.ca

Alain Gagnon
Population Studies Centre, Department of Sociology,
& Department of Epidemiology and Biostatistics,
University of Western Ontario,
London, Ontario, N6A 5C2
agagnon4@uwo.ca

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Populations Studies Centre
University of Western Ontario
London Ontario CANADA N6A 5C2

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Abstract

Based on the Canadian Community and Health Survey (2000), this study examines the stress perceived by parents and non-parents across marital statuses, adjusting for for age, education, work, income, and sense of community belonging. Results show that fatherhood increases perceived stress in all marital statuses, particularly among singles. Motherhood does not affect perceived stress among married or cohabitating women but single and post-married mothers endure appreciably higher levels of stress. Interactions between working and parental or marital statuses are also observed. The sense of community belonging appears as an important coping mechanism lowering stress levels. Results are discussed in the context of changing familial roles.

Key words: self-perceived stress, marriage, divorce, parenthood, mental health

STRESS is well-known for its negative impact on health. There is substantial disagreement about the meaning of the term (Sheldon Cohen, Kessler, & Gordon, 1995) but most would agree that stress can induce mild to serious mental health disorders. There are many reasons why people may feel stress. Having a child, for a long time the natural course of events for most people, is now often seen as a stressful event that may precipitate post-partum depression. With women's intensifying labor force participation and the redefinition of roles, the presence of young children at home accentuates time pressures (Beaujot & Andersen, 2007), with potential repercussions on mental health. Some argue that, unlike other major social roles, parenthood does not confer a mental health advantage since parents with children at home report significantly higher levels of depression (Evenson & Simon, 2005).

As marriage instability has increased over the last decades, there has been a concomitant increase in the proportion of the population living in single parent households (Beaujot, 2000). This living arrangement may be associated with higher levels of stress than the more traditional family type (Avison, Ali, & Walters, 2007), raising the possibility of a general increase in mental and physical health issues in families. Along with marital disruption, a multiplicity of factors is likely to affect or mediate parental stress. This study aims at examining the extent of parental stress by marital statuses adjusting for age, income, educational level, work status and sense of belonging to community.

Background

Despite certain well-known negative features of married life – sometimes codified in researchers' questionnaires as 'the frequency with which one's spouse gets on nerves' – the social support network in which married people are embedded ensures better mechanisms to cope when problems arise (Barrett, 2000; Cotten, 1999; Simon & Marcussen, 1999). The

evidence for an association between parenthood and health outcomes is largely inconclusive. Various results have been reported, including negative relationships (Evenson & Simon, 2005; Hughes, 1989), positive relationships (Aneshensel, Frerichs, & Clark, 1981; Burton, 1998) or no relationships at all (C. E. Ross, Mirowsky, & Goldsteen, 1990; Umberson & Gove, 1989). Varying data collection and research protocols may account for these discrepancies, although it seems clear that the positive impact of children (if any) appears only after the children leave home (Evenson & Simon, 2005; Kandel, Davies, & Raveis, 1985).

If marriage acts as a protective factor with regard to stress, marriage dissolution often leads to deteriorating health outcomes, particularly if children are involved. Although marriage dissolution may involve a welcomed relief from a conflicting union (Umberson, Wortman, & Kessler, 1992), it is generally harmful and likely to produce vulnerability to role-mediated stress (Aseltine & Kessler, 1993; Barrett, 2000), resulting in loss of emotional support and hardship (Gove & Shin, 1989; Horwitz, White, & Howell-White, 1996b). Widowers may be better off in this regard than divorced individuals, as they often continue benefiting from the social networks created through their marriage (Cotten, 1999).

If psychological and medical sciences have devoted a fair amount of work to the measure of ‘self-perceived stress,’ sociology has remained relatively silent on the matter, focusing instead on acute mental health in families with specific living circumstances. Considerable efforts were devoted to explain psychological distress or depression among *single young mothers* (Avison & Davies, 2005), but little research has addressed the health outcomes associated with ‘self-perceived stress’ in various types of living arrangements in a population-based sample. Further, many studies focused on women without include fathers in

their samples. Notable exceptions are the recent works of Evenson &Simon (2005), Helbig et al. (2006), and Williams & Dunne-Bryant (2006), but these studies were mostly concerned with acute manifestations such as depression, distress, or substance abuse.

It is clear that psychological distress, depression, or substance abuse convey much relevant information about mental illness. For instance, distress can be taken as a strong signal for the likely appearance of psychopathology and, consequently, the social and economic conditions that lead to this outcome have need to be surveyed and identified. Such emphasis on mental health in specific conditions, however, might have overshadowed the research on apparently milder forms of stress that take place on a day-to-day basis throughout the whole society but that are not readily seen as serious health hazards. Many view themselves as living under stress because of overwhelming home or work responsibilities without experiencing serious consequences such as depression.

Yet, when sustained, stress may lead to a wide range of life threatening conditions, including cardio-vascular, coronary heart disease, cancer, or upper respiratory illness (S. Cohen, Hamrick, Rodriguez, Feldman, Rabin *et al.*, 2000, 2002). Cortisol, which is often used as a marker of stress, is well-known for raising blood pressure and cholesterol and to suppress the immune system. Cortisol levels were shown to correlate strongly with self-perceived stress, which in turn was correlated with disadvantageous anthropometric, endocrine, and hemodynamic factors (Rosmond, Dallman, & Bjorntorp, 1998). Adding to the physiological consequences of stress, behavioral changes occurring as coping responses to stressors also increase the risks for diseases that develop over the years. Persons experiencing chronic stress tend to engage in poor health practice such as smoking, drinking, and poor diet

(Conway, Vickers, Ward, & Rahe, 1981) – a series of risk factors that add to an already long list of psychologically-induced health hazards.

Research questions

This paper seeks to analyze the effects of parenthood on appraised stress over the whole society, throughout the whole range of marital and parental statuses (and not only in specific contexts such as in single mother households or in families with impaired children). In other words, does living with a child at home entail a larger amount of appraised stress? If so, to what extent? Would "parentally-induced stresses" vary according to marital status and gender? Results are adjusted for age education, work status, income, and sense of belonging to community. In summary, we test the following hypotheses:

> *Hypothesis 1*:
> Non-parents, who have no obligation of devoting time in taking care of children, are likely to be less stressed in different marital statuses than parents.
>
> *Hypothesis 2:*
> Since children entail large amounts of time and care, formerly married parents (widowed, divorced, separated) and single parents perceive higher levels of stress than married parents or parents forming a common-law union.
>
> *Hypothesis 3*:
> Since women are the principal care providers of children, the level of self-perceived stress of mothers will be more affected by marital status than that of fathers.

Data and Methods

This study uses the Canadian Community and Health Survey (CCHS) 2000 Cycle 1.1 (Statistics Canada), which covers 130,880 individuals aged 12 and over. Excluded from the sampling frame are institutional residents, members of the Canadian Forces and individuals living on Indian Reserves, Crown lands, or in certain remote

regions. The response rate varied from 82% in Ontario to 89.5% in Manitoba for a national average 84.7%.

The analysis is based on a selected sample of 29,527 men and 34,308 women aged 20-64[1] to whom the following question was asked:

'Thinking about the amount of stress in your life, would you say that most days are:

1. Not at all stressful?
2. Not very much stressful?
3. A bit stressful?
4. Quite a bit stressful?
5. Extremely stressful?'

It is important to note that although high levels of self-perceived stress could be indicative of mental health disorders, it should not be interpreted as a diagnosis tool for such disorders. Measures of perceived stress correlate with measures of depression but the two have independent predictive validities (S. Cohen, Kamarck, & Mermelstein, 1983). High levels of perceived stress can be viewed, for the most part, as a state that places persons at risk and not as actual signs of disease – albeit many people with extreme levels may already experience symptoms. This study seeks to identify the familial conditions (as embodied in parental and marital statuses and roles) that are "precursors" of health problems.

Another scale measuring appraised stress such as Cohen et al.'s (1983) 14 items "global measure of perceived stress" was shown to perform very well in predicting both depressive and physical symptoms. Alternative measures such as life-event scores often present the drawback of content contamination between the predictors and the outcome variable (Schroeder & Costa, 1984). Our measure is arguably much less elaborated than

[1] There would be no relevance to study parental stress outside this interval since teenage parents are likely to be stressed due to unwanted or early pregnancies and children of parents over 64 are mostly grown-up.

Cohen et al.'s scale, but we believe that if the objective is to measure appraised stress, the most appropriate strategy is perhaps to directly ask people if they feel stressed. As most people have a fair understanding of the meaning of "stress", this allows for an analysis at the national level, cutting across all strata of society, with little potential for content contamination.

For statistical modeling purposes, self-perceived stress also performs very well, at least in comparison with other self-assessed measures such as 'self-perceived health,' which are often left-skewed. As shown in Figures 1 and 2, the distributions of the answers on self-perceived stress appears normal for both mothers and fathers and are hard to distinguish from one another. Because the sample is very large, the difference between the two means is statistically significant ($p<0.001$). Practically, however, this difference is very small (see Table 1). This scale offers the additional advantage of not being gender-specific like substance abuse and depression scales (usually respectively applied to males and females).

(Figures 1 and 2 about here)

In order to improve statistical modeling, we recoded the outcome variable into a binary response variable by combining the first three and the last two categories, assuming that the individuals who have reported being "quite a bit" or "extremely" stressed are likely to experience a sizable level of stress, thereafter termed as a "high level of stress". Previous analyses with the original five-category classification (or with a three-category classification) did not produce fundamentally different results, but these ordinal specifications resulted in

the violation of the proportionality of odds assumption; hence the choice of a binary logistic regression.

The two key independent variables of the present study are the parental and marital statuses. Since there was no direct question on parental status in the questionnaire, information on this variable was derived from a question on living arrangements. The latter identifies individuals as living alone or with other individuals, spouse or partner, with siblings or with children. Parents were defined as individuals living with their children. Marital status was coded in three categories: 1) married or in common-law union, 2) widowed, divorced or separated, and 3) single. Note that by combining separated, divorced and widowed parents, we may underestimate the stress prevalent in separated and divorced parents (who are more vulnerable to stress than widowed).

The other covariates included in our analysis are age, education, working status, household income, and sense of community belonging. Initially, the first three of these covariates had each three categories, while the other two had four. The results from an initial model did not show any significant differences between ‘secondary’ and ‘lower’ educational attainments. Thus, these two categories were merged, resulting in a dichotomous response for educational attainment, namely ‘secondary or lower’ and ‘higher level’ of education. Similarly, no significant differences were observed for those answering ‘not working’ and ‘working part time’ and were thus regrouped. Following the same principle, household income was coded into three categories: low (< $30,000), middle ($30,000 – $79,999) and high ($80,000 or more). Sense of belonging to the community was used and interpreted as a coping factor that could approach the notion of social support. A strong, positive association of community belonging with ‘self-perceived health’ has already been shown (N. Ross,

2002), and we suspect that it is also associated with perceived stress. We regrouped the first three categories to form a binary variable with “somewhat weak to very strong” sense of belonging coded as ‘0’, and “very weak” coded as ‘1’. Table 1 presents the number of individuals involved in the various categories of the independent variables. Also presented are the mean and the standard deviation (s.d.) of self-perceived stress, as well as the percentage of “high levels” (i.e., those who declared “quite a bit” and “extremely stressful”).

(Table 1 about here)

Results

Before turning to multivariate analyses, we briefly glance over the descriptive results of Table 1. As seen at the bottom, overall, women declared higher levels of stress than men (the means are, respectively, 3.01 and 2.92). Women’s level of stress also appears to be more affected by marital status than men’s are, with a notable 39% percent of widows, separated, or divorced (WSD) declaring ‘quite a bit’ or ‘extreme’ levels (the corresponding figure is 34% for men). In contrast, parental status seems to be more consequential for men than it is for women, although the difference is not as important as for marital status. Thirty percent of fathers and 26% of non-fathers perceived high levels of stress. The corresponding figures for females are 30% and 29%. The latter difference is significant ($t=3.25$; $p=0.001$) only because the sample is very large. Note also the importance, for both genders, of the sense of community belonging, with rather important percentages of high perceived stress among those in the category “very weak” (38% and 35%, respectively, for females and males). Since all these results may partly result from coincidental associations involving other variables, we now turn to a multivariate analysis.

We used binary logistic regression to estimate the log odds of declaring high levels of stress separately for each sex (Tables 2 and 3). The odds ratios are easily obtained by exponentiating the reported parameter estimates. When combining both genders in the same multivariate analyses, the likelihood of reporting higher levels of stress was higher for females than for males, but the difference was relatively small (odds ratio = 1.056, $p = .034$; not shown here). We present three models for each sex. Model 1 includes the age groups as well as the two main variable of interest (parental and marital status) and their interaction. The effect of age is n-shaped, with the highest perceived stress in the middle age-group. The odds of declaring higher levels of stress for females aged 35-49 are 24% higher in comparison with women from the youngest age-group ($e^{.216}=1.24$; $p<0.0001$). Men from the middle age-group are also more likely to declare high levels of stress but to a lesser extent than their female counterparts.

Concerning our main variables of interest, it can be seen that parenthood itself does not entail significantly higher amounts of stress for women (the main effect of parental status is small and not significant). The importance of parental status for women has to be interpreted along with its interaction with marital status since perceived stress increases in a dramatic way for women who are single or WSD (widow, separated, or divorced): the odds of declaring a higher level of stress for WSD mothers are about twice the odds of mothers who live with their husband or partner (i.e., $e^{.438 +.309} = 2.11$). The corresponding odds ratio for single mothers is $e^{.207+.286} = 1.64$. Note that contrarily to parental status, marital status has a significant effect on its own (a main effect) for women.

The results are quite different for males, hinting on fundamentally divergent role mediated stress processes between genders. For men, being a parent incurs higher levels of

perceived stress, whatever the marital status (the parameter for “Parent” in Model 1 is .224 and is highly significant). In contrast with their female counterparts, singlehood does not seem to matter to men since the coefficient for “Single” is not significant. Singlehood appears quite problematic, however, for a father who is living with children (the odds ratio is $e^{.224+.470}$ =2.03), although such instances are relatively rare (n=913 or 3.1% of the sample). When considering the main effects of marital status, rupture of unions would appear as equally problematic for males and females, but while the interaction with parenthood is significant for females, it is not for males. Hence, if union disruption is more critical for a woman who has children, it bears no additional stress to a father than to a man who has no children.

(Tables 2 and 3 about here)

Turning to Model 2, we note that if the addition of control variables improves model fit substantially (especially for men, as seen from the increase in chi-square from Model 1 to Model 2 in the bottom of the tables), it does not fundamentally alter the results concerning marital and parental statuses. In other words, education, working status, income, and particularly sense of belonging to community are all important predictors of self-perceived stress but these factors do not mediate or suppress the effects of parental and marital statuses.

Education appears to increase rather than to decrease the level of self-perceived stress. The odds of declaring higher levels of stress are, respectively, 25 and 22 percent higher among female and males with post-secondary education than among their less educated counterparts. Working status also offers a sharp contrast with regards to appraised stress among males and females, with a negative effect for the formers and a positive for the

latter. We will come back to the interpretation of this factor as it significantly interacts with both marital and parental statuses (Model 3 below). As expected, people within the lowest income bracket perceived higher levels of stress than those within the middle income bracket (30,000 – 79,999). Unexpectedly, however, the latter perceive lower stress compared to persons with the highest income (more than 80,000). The contrast between these two groups is even stronger among men.

Our last control variable, the sense of community belonging, has a consistent and strong effect on self-perceived stress. The odds of being stressed, for both females and males, are appreciably higher for persons with a very weak sense of community belonging. The odds ratios are, respectively for females and males, 1.52 and 1.59. Given its importance, we suspected the presence of interactions of this variable with both parental and marital statuses but these interactions proved non significant.

Model 3 adds the interactions of both parental and marital statuses with working status. Other interactions with other control variables, including the three-way interaction parental/marital/working status, were tested but these did not produce significant results either and are therefore not presented. The model reveals that if being unemployed is associated with a *decrease* in perceived stress among married or cohabitating women (the odds ratio is $e^{-.407}$=.569), not working is to the contrary associated with a slight *increase* of perceived stress among those who are WSD. Among WSDs, the odds of being stressed are 13% higher (i.e., $e^{-.407+.525} - 1$=13%) for those who are not employed in comparison with those who have an employment. Not working has a stronger impact for men who are single or WSD. Noting that working status is no longer significant as a main effect in Model 3 (p=0.0928, a relatively high figure considering the sample size), we find that the

corresponding odds ratios for men are $e^{.415} = 1.51$ and $e^{.401} = 1.49$. Men's levels of perceived stress are also influenced by an interaction parental × working statuses, again to the advantage of those who work. Parental status does not interact with working status for women, for whom the most critical factor in most analyses is marital status.

To summarize, the covariate pattern associated with low appraised stress is for a woman to be living with her husband or partner, with or without children, and without an employment. At the other end of the spectrum, we find the widely cited cases of lone mothers who are not employed. Among women who are not employed, the odds of declaring high levels of stress are $e^{.318 + .330 + .525} = 3.23$ times for WSD than for married or cohabitating mothers (see Model 3). In contrast, men who are single seem to enjoy the lowest stress if they are working. Singlehood, however, has a diametrically opposed effect on stress for them when it is associated with parenthood, with odds of declaring high levels of stress that are $e^{.208-.075+.477} = 1.84$ time the odds of married or cohabitating men.

Discussion

This study implicitly followed a program established a few decades ago by Pearlin (1989; Pearlin & Schooler, 1978), who proposed that the sociology of stress ought not to be concerned exclusively with unusual problems impinging on exceptional people in rare situations but with "people engaged in very ordinary – indeed, required – pursuits." This study also presupposes that the social determinants of health are to be found in general life conditions rather than revealed by harmful life events (Menaghan & Parcel, 1994). Accordingly, we used a measure allowing for a wide scan of the levels of stress over the whole population, as it is experienced by most people in their most important social roles and statuses (family, work, etc.). Admittedly, this measure is not without drawbacks (discussed

below), nor is the cross-sectional nature of the data without seriously limiting our ability to infer causality. Despite these problems, however, we feel that our study has produced new results with notable implications for public health.

A long tradition of research on gender, marriage and health has pushed forward and carried the idea that marriage benefits men more than women. According to Bernard (1973): “marriage introduced such profound discontinuities into the lives of women as to constitute genuine emotional health hazards.” Others have argued that because the adult roles of married women are less valued than those of married man, the former are at a higher risk of mental illness than the latter (Gove & Tudor, 1973). Many demographic studies on longevity have also shown that marital status is more important for men’s survival than for women’s survival (Hu & Goldman, 1990).

Recent research has questioned these conclusions – which largely rests on theoretical and empirical foundations established in the 70s – and showed that marriage had similar effects on both men and women’s psychological well-being (Williams, 2003). Our results also offer a contrast with the traditional view, but with notable differences. In our study, single men with no children did not appreciably differ from their married or cohabitating counterparts (see Models 1 and 2); only if they had no employment were the singles with no children declaring significantly higher levels of stress in comparison with men living with a spouse or cohabitating (Model 3).This contrasts with the trend noted for women, for whom singlehood always implies higher perceived stress than married life or cohabitation. Further research will be needed to know whether the difference in results comes from the use of a different measure (Psychological Well-being versus self-perceived stress) with different research protocols (longitudinal versus cross sectional study) on different data (US versus

Canada), or if marriage has truly recently began to benefit women more than men, a tendency that appraised stress would appropriately capture and reflect.

A century of transitions in social and familial norms have also brought upon new sources of strains upon men in their roles within the family. Demographers believe they have deciphered a considerable decline of the cultural significance of parenthood during the second part of the 20th century. This change would have progressively narrowed the social value and esteem formerly attached to parenthood (Preston, 1986), especially for men (Mintz, 1998). Evenson and Simon (2005) argued that "… a consequence of our cultural indifference to parenthood is that we currently lack institutional supports that would help ease the social and economic burdens and subsequent stressfulness and emotional disadvantages associated with the parental role, especially when children are dependent." The two authors found that parenthood had more negative than beneficial effects on mental health and that the association did not differ for men and women. They interpreted this convergence in the context of the decline of the cultural significance of parenthood.

The findings of our study also challenge the usual assumption "that parenthood is more consequential for the emotional well-being of women than of men." We do not pretend that parenthood is more stressful for men than it is for women: in our multivariate models excluding non-parents, the difference between fathers and mothers was not significant (not shown here). Rather, our results indicate that in comparison with their childless counterparts, fathers systematically declared higher stress levels while mothers did not. This is a striking result, especially with regard to the usual contention, noted above, that women's well-being is more sensitive to parental status because of their greater involvement in childrearing.

Concomitantly with the decline of the cultural significance of parenthood, fathers have been increasingly prompted to be further involved in childrearing. Perhaps these two conflicting trends have engendered a role confusion among fathers that has some relationship to the “paternal stress” reported here. Women continue to take on the bulk of work within the home (Beaujot & Liu, 2005; Hochschild & Machung, 2003) but it is as if men were not prepared for the increasing demands and constraints associated with fatherhood. Of course, the high level of appraised stress they endured in their parent role is not as consequential for mental illness as the hardship endured by single mothers. Studies continue to confirm the high prevalence of distress among these mothers (Ali & Avison, 1997; Avison, Ali, & Walters, 2007; Davies, Avison, & McAlpine, 1997), and although we take note of a recent study that hinted on the possibility of distress among younger fathers (Avison & Davies, 2005), we do not have much evidence that “paternal stress” represents a critical mental health issue. Yet, paternal stress certainly has implications for public health. High levels of perceived stress (that are not necessarily associated with immediate mental health consequences), when sustained over the long run, will often lead to life-threatening health hazards. A father absorbing professional and home responsibilities but with no signs of distress whatsoever may very well be spared of mental health problems for most of his life, but he may not avoid a heart attack in his 60s, after accumulating stress for a long period of time on the workplace and at home. At the opposite hand of the social ladder, concerns to provide sufficient and appropriate subsistence for the family – a role that is in line with what was always expected from fathers – would most likely drive the stress process for unemployed fathers.

Although we feel that we have extracted some interesting results from the data at hand, our analysis is not without limitations. We have already alluded to the problem of cross-sectional settings, which limits the ability to infer the causality between the stress process and family structure. For example, the elevated levels of appraised stress among lone parents could possibly result from selection bias. As shown by Horwitz et al. (1996b): "depressed people are less likely to get married and, if they do marry, may have their marriage dissolve because of their mental health problems." The sequences of events unfolding during the life-course can only be captured by a longitudinal setting. Similarly, only a longitudinal study such as that of Ali and Avison (1997) can bring strong evidence that job loss is more consequential to single than to married mothers (i.e., that the event itself is the cause of an increase in psychological distress). Of course the direction of causality between parental status and appraised stress is less problematic. It is difficult to imagine how stress itself could affect in any ways the probability of having a child. But we still have to be very cautious in inferring causality with cross-sectional data.

Another limitation is the use of a self-declared measure of stress. This is perhaps best illustrated in some specific results concerning the control variables of this study. The finding that education increases stress is contrary to expectations, as many studies have reported higher depressive symptoms among the less educated (for instance Barrett, 2000). Our analysis does not specifically address the various natures of stress. The educated may perceive stress differently than the less educated, who would not be plagued with high expectations. The high level of perceived stress in the top income group also comes as a notable contrast with a previous study from Horwitz et al. (1996a), who found that less income was associated with more depression. Although differences in perception of stress

may account for this somewhat odd result, there might be some rationale behind it. Individuals with high income tend to have greater work responsibilities, longer working days, and less time for leisure. As argued by Cappell et al. (2001), the benefits of education and income could be offset by the associated high demands and strains that come with these resources, which would not help very much in lowering the stress levels. Yet, the benefits from highly prized resources such as income, education and prestige can easily compensate for the stress emanating from these sources. Not wondering if there will be enough for all the family in the days ahead certainly makes a great difference.

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Table 1., Sample sizes and descriptive statistics of self-perceived stress for each sex, Canadian Community and Health Survey (2000)

Variable	**Women**				**Men**			
	N	**Mean**	**s.d.**	**% high**	**N**	**Mean**	**s.d.**	**% high**
Age								
20-34	11,091	3.00	0.93	28%	8,279	2.89	0.97	25%
35-49	10,749	3.10	0.95	32%	9,332	2.98	0.99	29%
50-64	12,468	2.94	1.03	29%	11,916	2.88	1.06	28%
Parental status								
Non-parent	16,266	2.95	1.01	29%	16,746	2.85	1.04	26%
Parent	18,042	3.06	0.94	30%	12,781	3.00	0.97	30%
Marital status								
Married or Common law	22,166	2.95	0.95	27%	19,155	2.92	0.99	27%
Single	6,233	3.07	0.97	32%	6,692	2.83	1.02	24%
Widow, Separated, or Divorced	5,509	3.19	1.04	39%	3,680	3.04	1.07	34%
Level of education								
Secondary or less	12,664	2.94	1.00	27%	11,428	2.85	1.04	25%
Post secondary	21,644	3.05	0.96	31%	18,099	2.96	0.99	29%
Work status								
Working	28,002	2.89	1.06	30%	27,329	2.92	1.00	27%
Not Working	6,306	3.04	0.95	27%	2,198	2.85	1.17	30%
Household income								
Less than $30,000	10,052	3.08	1.02	33%	6,349	2.89	1.08	28%
$30,000 – $79,999	17,574	2.96	0.96	28%	15,819	2.88	0.99	25%
$80,000 or more	6,682	3.04	0.94	31%	7,359	3.01	0.99	31%
Sense of belonging to the community								
Weak to very strong	29,958	2.99	0.96	29%	25,711	2.90	0.99	26%
Very Weak	4,350	3.15	1.08	38%	3,816	3.02	1.14	35%
Total	34,308	3.01	0.99	29,7%	29,527	2.92	1.03	27,4%

Table 2. Parameter estimates of the log odds of declaring high levels of stress for ***women*** in the Canadian Community and Health Survey (2000)

	Model 1		Model 2		Model 3	
Variable	Estimate	P-value	Estimate	P-value	Estimate	P-value
Age						
20-34	Ref.		Ref.		Ref.	
35-49	0.216	<0.0001	0.221	<0.0001	0.221	<0.0001
50-64	0.054	0.0937	0.091	0.0053	0.095	0.0038
Parental status						
Non-parent	Ref.		Ref.		Ref.	
Parent	0.020	0.5493	0.035	0.2994	0.033	0.3472
Marital status						
Married or Common law	Ref.		Ref.		Ref.	
Single	0.207	<0.0001	0.155	0.0004	0.103	0.0227
Widow, Separated, or Divorced	0.438	<0.0001	0.423	<0.0001	0.318	<0.0001
Interaction Marital and Parental statuses						
Single Parent	0.286	<0.0001	0.337	<0.0001	0.293	<0.0001
Widow, Separated, or Divorced Parent	0.309	<0.0001	0.311	<0.0001	0.330	<0.0001
Level of education						
Secondary or less			Ref.		Ref.	
Post secondary			0.227	<0.0001	0.231	<0.0001
Work status						
Working			Ref.		Ref.	
Not Working			-0.192	<0.0001	-0.407	<0.0001
Household income						
Less than $30,000			Ref.		Ref.	
$30,000 – $79,999			-0.112	0.0004	-0.088	0.0056
$80,000 or more			0.078	0.0569	0.081	0.0509
Sense of belonging to the community						
Weak to very strong			Ref.		Ref.	
Very Weak			0.418	<0.0001	0.410	<0.0001
Interaction Parental & Working statuses						
Parent Not working					0.030	0.6512
Interaction Marital & Working statuses						
Single Not working					0.453	<0.0001
Widow, Separated, or Divorced Not working					0.525	<0.0001
Constant	-1.120	<0.0001	-1.261	<0.0001	-1.246	<0.0001
Total number of cases	34,308		34,308		34,308	
Degrees of freedom	7		12		15	
Model Chi-square	491.973		794.796		850.497	

Table 3. Parameter estimates of the log odds of declaring high levels of stress for ***men*** in the Canadian Community and Health Survey (2000)

	Model 1		Model 2		Model 3	
Variable	Estimate	P-value	Estimate	P-value	Estimate	P-value
Age						
20-34	Ref.		Ref.		Ref.	
35-49	0.124	0.0005	0.123	0.0006	0.124	0.0005
50-64	0.104	0.0026	0.096	0.0068	0.097	0.0059
Parental status						
Non-parent	Ref.		Ref.		Ref.	
Parent	0.224	<0.0001	0.233	<0.0001	0.208	<0.0001
Marital status						
Married or Common law	Ref.		Ref.		Ref.	
Single	-0.034	0.4126	-0.041	0.3427	-0.075	0.0072
Widow, Separated, or Divorced	0.385	<0.0001	0.383	<0.0001	0.345	<0.0001
Interaction Marital and Parental statuses						
Single Parent	0.470	0.0049	0.507	0.0026	0.477	0.0049
Widow, Separated, or Divorced Parent	-0.050	0.5896	-0.020	0.8262	-0.016	0.8640
Level of education						
Secondary or less			Ref.		Ref.	
Post secondary			0.202	<0.0001	0.203	<0.0001
Work status						
Working			Ref.		Ref.	
Not Working			0.136	0.0107	-0.167	0.0928
Household income						
Less than $30,000			Ref.		Ref.	
$30,000 – $79,999			-0.113	0.0023	-0.102	0.0060
$80,000 or more			0.158	0.0003	0.162	0.0002
Sense of belonging to the community						
Weak to very strong			Ref.		Ref.	
Very Weak			0.461	<0.0001	0.460	<0.0001
Interaction Parental & Working statuses						
Parent Not working					0.325	0.0111
Interaction Marital & Working statuses						
Single Not working					0.415	0.0015
Widow, Separated, or Divorced Not working					0.401	0.0028
Constant	-1.200	<0.0001	-1.247	<0.0001	-1.534	<0.0001
Total number of cases	29,527		29,527		29,527	
Degrees of freedom	7		12		15	
Model Chi-square	194.056		482.192		496.416	

Figure 1: Distribution of Self-perceived Stress among Fathers, Canadian Community and Health Survey (2000)

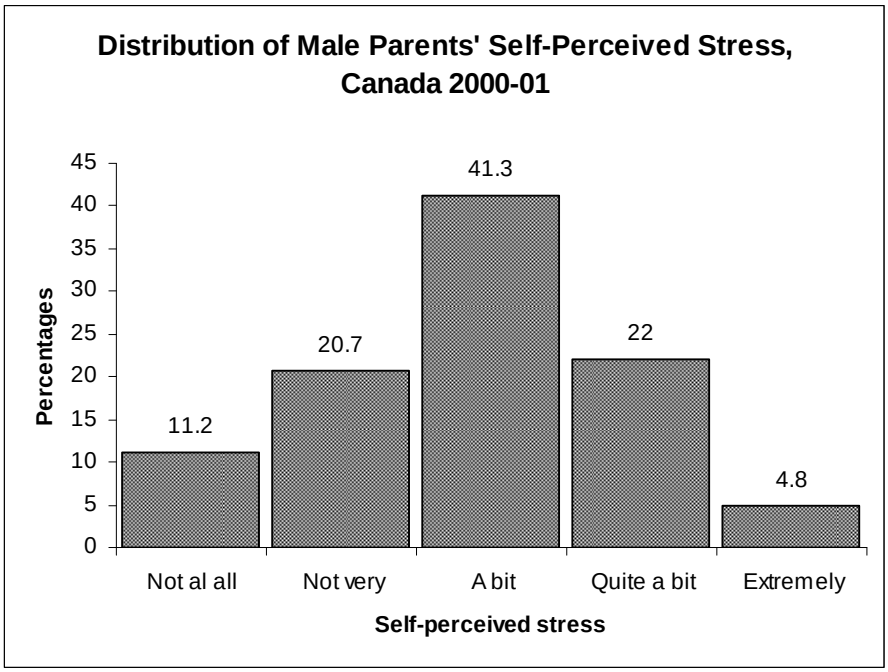
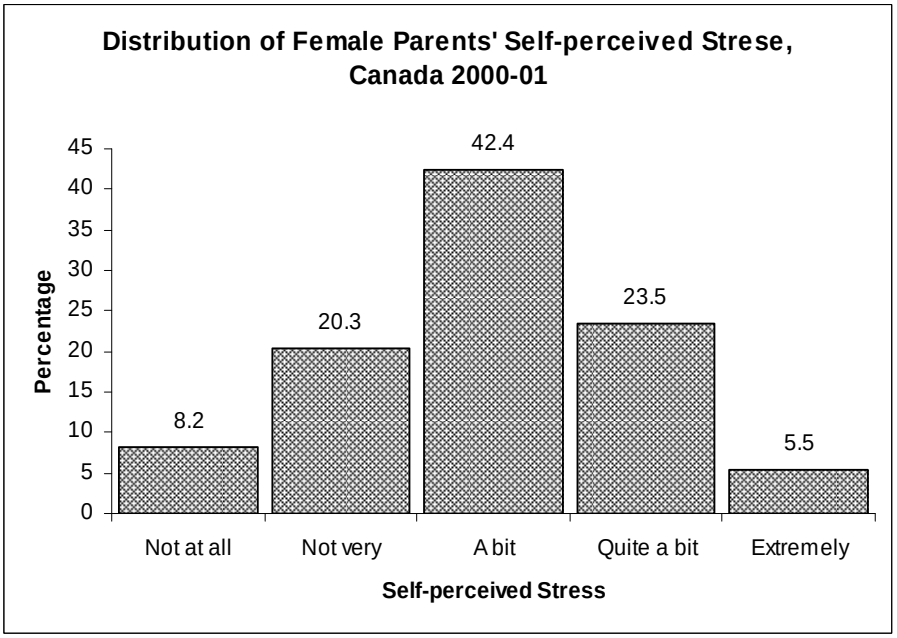
Figure 2: Distribution of Self-perceived Stress among Mothers, Canadian Community and Health Survey (2000)