Self-assessment of stress in the workplace: a misleading health indicator

L’autoévaluation du stress au travail : un indicateur de santé trompeur
La auto-evaluación del estrés en el trabajo : un indicador engañoso de salud

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AUTHOR’S NOTE

The information presented in this article is from analyses of the Canadian Community Health Survey (cycle 1.2) carried out by the article’s authors and published by the Institut de la statistique du Québec (ISQ) under the title « Stress et santé mentale chez les adultes Québécois. » www.stat.gouv.qc.ca/publications/sante/stress_travail.htm

In recent decades, work has undergone profound changes in content as well as in its organization and in working conditions (Parent-Thirion et al., 2007). Growth in the services sector and the development of new technologies have led to new physical and cognitive constraints, mainly related to computerization and automation, thus modifying the content of work (Marmot et al., 1999). The changes in work organization and employment conditions have been marked mainly by work intensification and job precarity; these became established through new methods of management which have led to an increase in work pace and rate and which are characterized mainly by tighter control of individual and group productivity and by the objective of optimum functioning with minimum personnel (Gollac and Volkoff, 1996). American surveys have shown, for example, that between 1977 and 1997 the proportion of workers who reported that they had to “work very fast” increased from 55% to 68%. Also, during the same period, the proportion of those who mentioned that they “never had enough time to complete their work” went from 40% to 60% (Bond et al., 1998). In Europe, time constraints also increased considerably. Thus, the fact of having “to work very fast” or of having “tight schedules”
for at least one fourth of their work time increased respectively from 48% to 60% and from 50% to 62% between 1990 and 2005 (Eurofound, 2006).

2 At the same time that these working changes were taking place, short and long-term disabilities related to psychological injuries increased (Stansfeld et al., 1995). Analysis of the results of the three general surveys conducted between 1987 and 1998 on the Québec population’s health and well-being clearly shows that disability due to mental health problems in Québec almost doubled during this period, increasing from 7% to 13%, that women were more affected than men, and that the average number of days of disability per person for these problems more than tripled from 1992 to 1998 (Vézina and Bourbonnais, 2001).

3 Furthermore, the results of the scientific research indicate that there are direct links between certain aspects of work organization and mental health problems (Marchand et al., 2005 and 2006). Referring to the model of Karasek (Karasek and Theorell, 1990), high psychological demand and low decision-making autonomy have been associated with problems of depression, psychological distress, burnout and increased consumption of psychoactive drugs (Bourbonnais et al., 1996, 1998; Niedhammer et al., 1998; Moisan et al., 1999; Stansfeld et al., 1999; Godin et al., 2005; Ylipaavalniemi et al., 2005; Rugulies et al., 2006). A work situation that is characterized by a combination of high effort and low recognition is also associated with psychological health problems (Niedhammer et al., 1998; Peter, 2002; Siegrist, 1996; 2002).

4 In this context and considering the lack of recent Québec-wide data on the subject, it seemed relevant to document the links between these work-related psychosocial constraints and some mental health problems, based on data of cycle 1.2 of the Canadian Community Health Survey (CCHS) on mental health and well-being conducted in 2002 (Gravel et al., 2004).

1. Methodological aspects

5 The studied population was that of people from 15 to 75 years of age who, during the seven days preceding the survey, worked as paid employees or as self-employed workers. In total, 2,877 workers answered the survey for a participation rate of 78%. Data were collected in person from May to November 2002 by means of computer-aided interviews.

1.1 Methods of analysis

6 Bivariate analyses were used to study the association between psychosocial constraints, occupational and personal characteristics, and each of the mental health problems retained. The Khi^2 test was used to compare proportions between different subgroups based on a weighted frequency table.

7 Multivariate logistic regression models were also used to study the relationship between each of the mental health indicators and the work-related psychosocial constraints by taking into account variations in occupational and personal characteristics. Odds ratios (ORs) were used as an association measurement in these models. The OR is a measurement of the association between an independent variable (an exposure) and a dependent variable (effect on health). This association is positive when the OR is greater than 1; it means that the people exposed to the constraint have the measured health
problem more often. However, if an OR is less than 1, this means that exposure to the constraint is protective for this health problem. For the associations to be considered as significant, the 95% confidence interval (CI) that is presented under the ORs and between parentheses in the table must not include the number 1.00: ex. (1.11-2.20). If the CI contains the number 1, this means that the association observed between a constraint and a health problem is not significant.

1.2 Definition of the indicators

1.2.1 Mental health problems

The mental health problems retained were evaluated using the following indicators: psychological distress and self-assessment of stress at work. Psychological distress was measured using the K6 scale (Kessler et al., 2002), which establishes at what frequency, during the last month, the person felt nervous, hopeless, restless, depressed, worthless, or lastly, that everything was an effort. A score equal to or greater than 5 indicates a high level of psychological distress. Self-assessment of stress at work, related to the primary job, in the last twelve months, was documented by the question: Would you say that most of your workdays are stressful? The choices of response were: not stressful at all, not really stressful, slightly stressful, quite stressful and extremely stressful. Those individuals who answered that most of their workdays were quite or extremely stressful were considered as being exposed to high stress.

1.2.2 Occupational characteristics

The following variables were measured:

- decision latitude in two dimensions, namely skill discretion in the workplace (Your work required the acquisition of new knowledge; Your work required a high level of competence; Your work consisted of always repeating the same things) and decision authority (You were free to decide on your way of working; You had your say about the evolution of your work);
- psychological demand (Your work was hectic; You didn’t have to respond to conflicting demands);
- social support (You were exposed to your coworkers’ hostility or conflicts; Your supervisor facilitated execution of the work; Your coworkers facilitated execution of the work).
- job security (You had good job security)
- physical effort (Your work required a lot of physical effort).

For low decision latitude, high psychological demand and low social support, the people exposed were those whose score was greater than the median of the population.

For job insecurity, the people exposed were those who disagreed or totally disagreed with the statement, while for physical efforts, they were those who agreed or totally agreed with the statement.

Other occupational characteristics recognized as being related to work-related psychosocial constraints were also measured. These were the number of hours worked per week, the number of weeks employed during the year, having more than one employer, and being self-employed.
1.2.3 Personal characteristics

Besides gender and age, the fact of living alone or not, household income and educational level were considered among the important personal characteristics, as well as the presence of chronic health problems.

2. Results

2.1 Work-related psychosocial constraints

Figure 1 shows that 46% of Québec workers are exposed to a low use of their competencies at work, and 41% to low decision-making authority. Also, 40% of the workers reported having to deal with a high psychological demand at work, and 45% to low social support. Also noted is that a larger proportion of women seemed exposed to most of the psychosocial constraints measured; however, the difference is statistically significant only for low decision authority.

Figure 1. Prevalence of work-related psychosocial constraints, population from 15 to 75 years of age, employed, Québec, 2002

2.2 Mental health problems

Figure 2 indicates that 25% of all of the workers reported a high level of psychological distress in the month preceding the survey and that 39% of the people working estimated that most of their workdays were quite stressful or extremely stressful. It should be noted that these two problems have a higher prevalence in women.
Figure 2. Prevalence of mental health problems, population from 15 to 75 years of age, employed, by gender, Québec, 2002

Source: ISQ, 2008; Statistics Canada, Canadian Community Health Survey, Mental Health and Well-Being, cycle 1.2, share file - Québec.
Compilation: Institut de la statistique du Québec.

Figure 3 presents the evolution in low skill discretion and low decision authority, low social support and the self-assessment of stress in the workplace (high) in Québec from 2000-2001 to 2005. While low skill discretion in the workplace and low decision authority remained relatively stable during this period, a significant increase in low social support was noted, going from 45% in 2002 to 49% in 2005. Self-assessment of stress in the workplace improved significantly between 2000-2001 and 2005, going from 42% to 38%.

Figure 3. Evolution in work-related psychosocial constraints in the population from 15 to 75 years of age, employed, Québec, from 2000-2001 to 2006

a. Significant difference at the 0.05 threshold between 2002 and 2005.
b. Significant difference at the 0.05 threshold between 2000-2001 and 2005.

Source: Statistics Canada, Canadian Community Health Survey, Mental Health and Well-Being, cycle 1.2, share file - Québec.
Compilation: Institut de la statistique du Québec

The results of the multivariate analyses (Tables 1 and 2) reveal that low skill discretion in the workplace is associated with a lower probability of assessing one’s work as stressful with women, and in a limited way with men (Table 2). Furthermore, low decision authority is significantly associated with psychological distress (Table 1) and with a
greater probability of assessing one’s own work as stressful (Table 2), when the analyses are done for all of the population. This association does not differ by gender but it is not detected in men or women separately. High psychological demand is associated with a high level of psychological distress with women, and with a greater probability of assessing one’s own work as stressful, in both men and women. Low social support at work is associated with an increased risk of psychological distress in both genders, and of assessing one’s own work as stressful in women, and in a limited way with men.

Table 1. Logistic regression model of the links between psychological distress (K6) and work-related psychosocial constraints and occupational and personal characteristics, population from 15 to 75 years of age, employed, Québec, 2002

<table>
<thead>
<tr>
<th>Work-related psychosocial constraints</th>
<th>Men (n = 1,425)</th>
<th>Women (n = 1,299)</th>
<th>Total (n = 2,724)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR adjusted (95% CI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill discretion in the workplace (low)</td>
<td>1.17 (0.77-1.77)</td>
<td>1.45 (0.98-2.14)</td>
<td>1.29 (0.99-1.67)</td>
</tr>
<tr>
<td>Decision authority (low)</td>
<td>1.43 (0.98-2.09)</td>
<td>1.27 (0.85-1.89)</td>
<td>1.38 (1.06-1.79)</td>
</tr>
<tr>
<td>Psychological demand (high)</td>
<td>1.02 (0.69-1.49)</td>
<td>1.66 (1.14-2.41)</td>
<td>1.28 (1.00-1.64)</td>
</tr>
<tr>
<td>Social support (low)</td>
<td><strong>1.89 (1.29-2.78)</strong></td>
<td><strong>1.68 (1.15-2.46)</strong></td>
<td><strong>1.81 (1.41-2.33)</strong></td>
</tr>
<tr>
<td>Physical effort (intense)</td>
<td>1.38 (0.95-2.00)</td>
<td>1.24 (0.83-1.86)</td>
<td><strong>1.33 (1.02-1.72)</strong></td>
</tr>
<tr>
<td>Job insecurity (presence)</td>
<td>1.24 (0.79-1.94)</td>
<td>1.32 (0.83-2.07)</td>
<td>1.30 (0.96-1.76)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupational characteristics</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of hours worked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 20 hours</td>
<td>1.00 (...)</td>
<td>1.00 (...)</td>
<td>1.00 (...)</td>
</tr>
<tr>
<td>21 to 34 hours</td>
<td>0.55 (0.22-1.38)</td>
<td>1.20 (0.65-2.20)</td>
<td>0.95 (0.58-1.55)</td>
</tr>
<tr>
<td>35 to 40 hours</td>
<td>1.05 (0.52-2.09)</td>
<td><strong>2.02 (1.15-3.56)</strong></td>
<td>1.53 (1.00-2.34)</td>
</tr>
<tr>
<td>41 hours or more</td>
<td>1.18 (0.58-2.40)</td>
<td>1.18 (0.52-2.68)</td>
<td>1.42 (0.88-2.27)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of weeks employed</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 26 weeks</td>
<td>1.07 (0.56-2.04)</td>
<td>1.88 (1.04-3.40)</td>
<td>1.50 (0.97-2.32)</td>
</tr>
<tr>
<td>27 to 51 weeks</td>
<td>0.88 (0.54-1.43)</td>
<td>0.83 (0.44-1.60)</td>
<td>0.87 (0.59-1.29)</td>
</tr>
<tr>
<td>52 weeks</td>
<td>1.00 (...)</td>
<td>1.00 (...)</td>
<td>1.00 (...)</td>
</tr>
</tbody>
</table>
1. The OR of each of the variables in the model is adjusted for all the others, as well as for personal characteristics including age and household income. When the overall test of a variable (adjusted Khi 2) is significant at the 0.05 threshold, the significant ORs are indicated in bold.

Source: Statistics Canada, Canadian Community Health Survey, Mental Health and Well-Being, cycle 1.2, share file - Québec.

Compilation: Institut de la statistique du Québec.

Table 2. Logistic regression model of the links between self-assessment of stress in the workplace (high) and work-related psychosocial constraints and occupational and personal characteristics, population from 15 to 75 years of age, employed, Québec, 2002

<table>
<thead>
<tr>
<th></th>
<th>Men (n = 1,427)</th>
<th>Women (n = 1,299)</th>
<th>Total (n = 2,726)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work-related psychosocial constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill discretion in the workplace (low)</td>
<td>0.68 (0.47-1.00)</td>
<td>0.40 (0.27-0.58)</td>
<td>0.53 (0.41-0.68)</td>
</tr>
<tr>
<td>Decision authority (low)</td>
<td>1.25 (0.87-1.79)</td>
<td>1.25 (0.89-1.76)</td>
<td>1.31 (1.02-1.68)</td>
</tr>
<tr>
<td>Psychological demand (high)</td>
<td>2.89 (2.03-4.11)</td>
<td>2.75 (1.86-4.07)</td>
<td>2.81 (2.18-3.64)</td>
</tr>
<tr>
<td>Social support (low)</td>
<td>1.42 (1.00-2.00)</td>
<td>1.91 (1.34-2.70)</td>
<td>1.62 (1.27-2.07)</td>
</tr>
<tr>
<td>Physical effort (intense)</td>
<td>0.76 (0.54-1.07)</td>
<td>1.42 (1.00-2.03)</td>
<td>1.03 (0.80-1.32)</td>
</tr>
<tr>
<td>Job insecurity (presence)</td>
<td>1.40 (0.80-2.45)</td>
<td>1.26 (0.76-2.08)</td>
<td>1.33 (0.93-1.90)</td>
</tr>
<tr>
<td>Occupational characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of hours worked</td>
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<td>1 to 20 hours</td>
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<td>1.00 (...)</td>
<td>1.00 (...)</td>
</tr>
<tr>
<td>21 to 34 hours</td>
<td>0.83 (0.27-2.60)</td>
<td>0.99 (0.53-1.85)</td>
<td>0.98 (0.57-1.72)</td>
</tr>
<tr>
<td>35 to 40 hours</td>
<td>1.12 (0.46-2.75)</td>
<td>1.02 (0.57-1.83)</td>
<td>1.06 (0.67-1.70)</td>
</tr>
<tr>
<td>41 hours or more</td>
<td>1.72 (0.72-4.12)</td>
<td>1.45 (0.74-2.86)</td>
<td>1.61 (1.00-2.59)</td>
</tr>
<tr>
<td>Number of weeks employed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 26 weeks</td>
<td>0.59 (0.25-1.36)</td>
<td>0.79 (0.42-1.48)</td>
<td>0.71 (0.45-1.12)</td>
</tr>
<tr>
<td>27 to 51 weeks</td>
<td>0.89 (0.56-1.42)</td>
<td>0.91 (0.54-1.52)</td>
<td>0.88 (0.63-1.23)</td>
</tr>
<tr>
<td>52 weeks</td>
<td>1.00 (...)</td>
<td>1.00 (...)</td>
<td>1.00 (...)</td>
</tr>
</tbody>
</table>
The variable relating to intense physical effort shows an association with psychological distress only when the analyses are done for the entire population, and this association does not differ with gender, as it does with low decision authority. Working 35 to 40 hours per week is associated in women with psychological distress, while working 41 hours or more per week is associated with a tendency to assess one's own work as stressful when the analyses are done for men and women combined. Finally, being self-employed is associated in women with a greater probability of assessing one's own work as stressful.

Regarding personal characteristics, when psychosocial constraints and occupational characteristics are present, the fact of living alone is associated in men with psychological distress. Moreover, the presence of a chronic health problem is related, in men and in women, with psychological distress and a greater probability of assessing one's own work as stressful. An older age is a protection factor against psychological distress in men and in women, but is a risk factor for assessing one's own work as stressful in women. Finally, the fact of being a woman increases the risk of assessing one's stress in the workplace as high, when the other variables are taken into account. However, although psychological distress is higher in women, it does not differ significantly from that of employed men in the adjusted model.

### 3. Discussion

Regarding psychosocial constraints, low social support appears to be significantly associated with the mental health indicators used, while high psychological demand is associated with psychological distress in women and with the perception of having stressful workdays in both genders. Low decision authority is also related to psychological distress and to the perception of having stressful workdays in men and women combined. Also, in the entire population, the probability of observing a high level of psychological distress and of assessing stress in the workplace as being high increases in the presence of high psychological demand and low decision authority.

Self-assessment of stress in the workplace is difficult to interpret due to the imprecise nature of this concept. In fact, it is not known whether this variable measures the cause (constraint) or the effect (mental health disorder). If this variable measures the constraint, it is normal for it to be correlated with the other targeted work-related constraints, and since these constraints affect psychological distress, it is also normal that the assessment of stress in the workplace is also related to psychological distress (data not shown). Furthermore, due to the ambiguous nature of the concept of stress in the workplace (positive stress is even mentioned), the favourable evolution of the latter, between 2000-2001 and 2005, could indicate a normalization or resignation in dealing with stressful work and not an actual reduction in work-related psychosocial constraints.
which on the contrary increased during this period if one refers to the low social support in the workplace in Québec or to the intensification of the work in Europe (Parent-Thirion et al., 2007). The hypothesis can then be made that faced with these constraints, exposed people would have adopted individual protection strategies, such as withdrawal (which can reduce the social support available in the work environment) or even disinvestment in the occupational arena, as suggested by the results of some qualitative studies (Saint-Arnaud et al., 2004). These strategies possibly reduce the perception of stress, but to the detriment of the meaning of work or the fulfilment of fundamental needs, such as personal accomplishment or the feeling of belonging to a network or to a group. This indicator could also be misleading because, in addition to the doubts raised regarding the significance of its favourable evolution between 2000 and 2005 when social support deteriorated, it is important to emphasize that low skill discretion in the workplace (i.e., repetitive, monotonous, and rather unqualified work) appears here as a protective aspect of stress in the workplace, while this dimension of work organization is known to be pathogenic, both physically and mentally (Karasek and Theorell, 1990).

In general, mental health indicators are more unfavourable to women than to men, which is consistent with the results of many investigations that show a higher prevalence of several mental health problems in women than in men. This difference can be attributable to the combination of family and professional responsibilities, but also to the fact that women often hold less-qualified or underpaid jobs and that some workstations differ according to gender, even for jobs with the same title (Messing et al., 2003). Also, women are more exposed than men to low decision authority in the context of their work.

Surprisingly, low skill discretion in the workplace seems to be a protection factor regarding the probability of assessing workdays as stressful. This observation has also been made by Blackmore et al. (2007), Canada wide, for severe depression. Could it perhaps be a consequence of the use of certain strategies by women, such as accepting degraded work, in order to be better able to deal with family constraints? These results could also be explained by the existence, with women, of different values (ex.: solidarity, mutual assistance), which are less compatible with the obligation of competition linked to executive positions or to greater responsibilities, as well as by a greater weight assigned, for example, to the social usefulness of one’s work in relation to its repetitive or monotonous character.

Finally, it is appropriate to mention certain limitations of the CCHS. First, regarding the measuring instruments used, it is important to state that the questionnaire included a limited number of questions compared to the one initially validated for measuring the constraints of work organization. Its validity can be affected by this deficiency, which is particularly evident in the measurement of psychological demand, where only two of the nine questions were used (Brisson and Larocque, 2001). Next, it is important to mention that, since it is a cross-sectional study, none of the associations can be considered as causal, particularly because the person’s mental health condition may have affected his/her self-assessment of the dependent variables (health problems) as well as the explanatory variables (work constraints).
4. Conclusion

While it might be tempting to want to assess the issue of mental health in the workplace by means of a single question, namely a synthesis question analogous to the one on general health condition, self-assessment of stress in the workplace is not only not very useful in this regard, but also seems to be a misleading indicator concerning the measurement of aspects known as pathogenic for mental health in the workplace. In popular understanding, it seems that the concept of stress refers mainly to the impression of living time pressure (Pilgrim, 2006). By referring to validated models to identify pathogenic work situations (Karasek and Theorell, 1990; Siegrist, 1996), it is known that it is not just time constraints that represent the main risk factor in the workplace, but also aspects that are so-called antidotes to the toxicity of overload, namely decision latitude, social support or even recognition in the workplace. Self-assessment of stress therefore seems of little use for identifying intervention parameters from the standpoint of work-related psychosocial constraints from a perspective of primary prevention in mental health.

Furthermore, the results of the analyses allowed us to achieve the objective established at the start, namely of documenting for Québec the links between certain aspects of work organization known to be pathogenic and some mental health problems. Also, the content of this type of investigation would benefit from being improved in order to properly cover all of the employment or working conditions known to be pathogenic, such as a lack of recognition, psychological harassment, or even some situations of social concern, as for example the problems associated with work-family balance. The Étude québécoise sur les conditions de travail, d’emploi, de santé et de sécurité du travail (EQCOTESST, the Québec study on working, employment and occupational health and safety conditions), carried out in Québec in 2007-2008, aimed to fill these gaps.

BIBLIOGRAPHY


ABSTRACTS

The purpose of this study is to document the relationships between some psychosocial constraints in the workplace and some mental health problems based on data for Québec from Cycle 1.2 of the Canadian Community Health Survey. From 2002 to 2005, results indicate a significant increase in weak social support from 45% to 49%, while for the same period, the number of persons indicating being stressed at work decreased significantly, dropping from 42% to 38%. However, while less autonomy in the workplace is associated with less stress at work, this dimension is also recognized as pathogenic for mental health. Therefore, self-assessment of stress in the workplace appears to be a misleading health indicator, since it fails to assess dimensions recognized as pathogenic for mental health.
mientras que el número de personas indicando estar estresadas en el trabajo a disminuido de forma significativa entre 2000-01 y 2005 pasando de 42 % a 38 %. A pesar de que menos autonomía en el trabajo es asociada a menos estrés, esta dimensión es reconocida patógena para la salud mental. La auto-evaluación del estrés en el trabajo aparece como un indicador engañoso de salud porque no evalúa las dimensiones reconocidas patógenas para la salud mental.

INDEX

**Mots-clés:** organisation du travail, évaluation, santé mentale, santé des femmes  
**Palabras claves:** organización de trabajo, evaluación, salud mental, salud de las mujeres  
**Keywords:** work organization, evaluation, mental health, women’s health

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