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## Social inequalities & Psycho-social factors

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### Abstract

*The present study examined the contribution of psychosocial work factors to SEP (socio economic position) inequalities of psychological distress in men and women from a population based sample of Dalit villages of Muzaffarpur Division. Data were collected with the help of survey on working conditions, health and safety at work. SEP was evaluated using education, occupation and household income. Psychosocial work factors and psychological distress were assessed using validated instruments. It was found that Low education level and low household income were associated with psychological distress among men (MD, 0.56 (95% CI 0.06; 1.05) and 1.26 (95% CI 0.79; 1.73) respectively). The contribution of psychosocial work factors from the DCS and the ERI models to the association between household income and psychological distress ranged from 9% to 24% in men. Results suggested that psychosocial work factors from the DCS and the ERI models contribute to explain a part of social inequalities in psychological distress among men. Psychosocial factors at work are frequent and modifiable.*

**Keywords:** Social inequalities, Mental health problems, Job strain, Effort-reward imbalance, Psychological distress.

### Introduction

Social inequalities in the field of health are very much prominent. These social inequalities are characterized by higher risk of poor physical and mental health among people in more disadvantaged socioeconomic position (SEP). With regard to Social inequalities in mental health problems psychological distress, evidences explained that low SEP workers tend to concentrate in jobs where the prevalence of exposure to adverse psychosocial work factors is high. For measuring the effect of psychosocial work factors on health, the Demand-Control-Support (DCS) and the Effort-Reward Imbalance (ERI) models have been largely used. The DCS model explained that workers simultaneously exposed to high psychological demands and low job control, i.e. job strain, are more at risk to develop health problems. A third component, low social support from colleagues and supervisor may act directly or amplify the effect of job strain. The ERI model proposes that workers are in a state of detrimental imbalance when high efforts are accompanied by low reward (respect, esteem, and promotion prospect), and thus more susceptible to health problems. The objective of the present study was to evaluate the contribution of psychosocial work factors from the DCS and the ERI models in the SEP inequalities of psychological distress. It was also examined the additional contribution of other psychosocial work-related factors and other works-related factors in these inequalities. It was hypothesized that psychosocial work factors from the DCS and the ERI models are important contributors to social inequalities of psychological distress. The contribution was evaluated for three SEP indicators -education, occupation and household income, and for men and women separately.

## Methods

Quebec survey was used to study population and recruitment procedure. Data used in this cross-sectional analysis were collected as part of the on working conditions, employment, health and safety at work (EQCOTESST). Briefly, the study population consisted of all Quebec workers aged 15 years old or more, who were employed for at least three months and worked for at least 15 h per week. Sampling method of EQCOTESST was done in two steps. Firstly, a random digit dialling sampling was made among people on cell phone to select eligible household. Secondly, one participant per household was randomly selected among eligible workers within household. In order to ensure that the sample represented all Quebec workers, recruitment was made by strata proportionally to Quebec's administrative regions. A total of 571 workers (232 men and 239 women) participated in the survey, with a participation rate of 62%. For the purpose of the present study, self-workers were excluded from the analysis because of an elevated number of missing data on psychosocial work factors variables.

## Data collection

### Socioeconomic position

SEP was defined with three indicators, education (less than high school degree, high school degree, college degree, and university degree), occupation (unskilled workers and manoeuvres, qualified workers, office workers, overseers and first level managers, semi-professionals and technicians, professionals, senior and middle managers) and household income (0–39 999, 40 000–59 999, 60 000–99 999 and  $\geq 100\ 000$  /year).

### Psychosocial work factors from the DCS and the ERI models

The questions used to measure each component of the DCS and the ERI models originate from validated versions and their internal consistencies were measured in a representative sample of Quebec's working population. Psychological demands (PD) were evaluated with five items from the 6-item, short French version of the Job Content Questionnaire (JCQ) and one item from the 9-item version of the JCQ (Cronbach's  $\alpha = 0.72$ ) adapted from the JCQ (Cronbach's  $\alpha = 0.61$ ). Social support at work (SS) was evaluated with six items from the French version of JCQ and one question from the Copenhagen questionnaire on psychosocial factors at work (COPSOQ).

### Other work-related factors

A set of five items was used to measure other work related factors, 1- work schedule (working on day, evening or night shift; and regular, rotating or other schedule), 2- number of working hours 3- self-reported exposure to noise . 4- Self-reported exposure to solvents and 5- physical constraints. This last work factor was evaluated with nine items regarding movement, posture, physical effort and vibration exposure that are considered risk factors to musculoskeletal problems.

### Psychological distress

Psychological distress was measured with the K6, an instrument designed and validated by Kessler et al. Psychological distress measured with the K6 has been consistently shown to predict mental disorders.

### Statistical analysis

Statistical analyses were made in order to draw conclusions to the target population. First, the inverse of the probability of being selected was calculated. Second, adjustment was made for non-response observed in household and non-response observed in the selected sample of workers. Finally, the weights were corrected for the underrepresentation of private households with no cell phone. Mean differences (MD) in the score of psychological distress were modelled using ANCOVA. MD was calculated for psychological distress using each SEP indicator.

## Results

Most of the population was aged between 25 and 44 years (48.5% of men and 45.1% of women), had at low high school degree (84.7% of men and 90.4% of women) and were unskilled workers and manoeuvres (31.5% of men and 24.6% of women). The lower quartile of household income in this population which was considered the most exposed group, fell between the low income threshold for a three members family (40,000/year). The mean score of psychological distress was higher among women (4.39) than men (3.41). Women were slightly more exposed to adverse psychosocial work factors from the DCS and ERI models (PD, JC, and reward) except for SS.

### Social inequalities in psychological distress

The age-adjusted MD for psychological distress according to three SEP indicators in men and women; Household income showed the strongest association with psychological distress among men. Men in the lowest income categories (less than 40 000/year and 40 000–59 999/year) present a higher score of psychological distress, compared to men in the highest income category (MD, 1.26 (95% CI 0.79; 1.73)  $P < 0.001$  and 0.62 (95% CI 0.16; 1.07)  $P < 0.01$ , respectively). Psychological distress was also higher among

men with less than a high school degree. Furthermore, psychological distress was higher in the lowest occupation category among men and in the lowest education degree among women (MD ranging from -0.14 to 0.47, and from 0.01 to 0.32 respectively). However, these associations were not statistically significant. No clear inequalities were observed with occupation and household income among women.

### **Contribution of work-related factors to social inequalities in psychological distress**

The strongest social inequalities in psychological distress were observed among men, using household income as the SEP indicator. This particular case was retained to presents the contribution of work-described in details elsewhere. Briefly, the study population consists of all Quebec workers aged 15 years old or more, who were employed for at least eight weeks and worked for at least 15 h per week.

### **Discussion**

The aims of the present study were to examine the contributions of psychosocial work factors from the DCS and the ERI models and of other work-related factors to social inequalities in psychological distress. The strongest social inequalities were observed in men, using household income as the SEP indicator. Psychosocial work factors from the DCS and the ERI models partly explained these inequalities. This contribution was higher in magnitude for reward, JC and SS. After considering psychosocial work factors from the DCS and ERI models, other psychosocial work-related factors and other work-related factors did not further contribute. In the present study, social inequalities in psychological distress observed were of higher magnitude using household income. This is consistent with the findings of a meta-analysis which identified income as the socioeconomic indicator having the strongest inverse dose– response association with depression. Income represents the flow of economic resources available to an individual and persons with lower income are likely to have fewer resources for material needs. Poor material living conditions may affect mental health through different mechanisms including poor social networks and a decreased access to health care services. The findings of the present study indicated that psychosocial work factors are important contributors to SEP inequalities in psychological distress among men. In our study, income inequalities in psychological distress were attenuated after adjustment for reward, JC and SS, which is consistent with findings from previous studies. (The results were similar with education inequalities, The important contribution of reward found in the present study was in line with Niedhammer et al. who reported that reward contributed to explain 12.8% to 48.8% of social inequalities in depression among men. However, in the present study, this component of the ERI model had the highest relative contribution. In a recent study in older workers, the contribution of ERI exposure was found to be higher in magnitude than that of job control, which is in line with our results.

It has been hypothesized that the adverse effects could be amplify when one feels that the ‘injustice’ is attributable to ‘out of control’ conditions. Our findings suggest that insufficient reward at work could be an important pathway by which working in low-paid jobs leads to mental health problems. Studies with prospective design are needed to further test this hypothesis. The contributions of the DCS dimensions, considered separately, were comparable to those reported in previous studies. JC was found to make the greatest contribution in explaining social inequalities in well-being and depression. SS has also been shown to partly explain social inequalities in mental functioning. It is also noteworthy that previous studies have also observed an opposite effect of PD. It suggests that high PD might not be particularly prevalent among workers with low SEP. Consistent with this hypothesis; we found that PD was higher among people in the highest household income category

(36% in the >100 000\$/year category, compared to 20% in the 0–39 999\$/year category), which could likely explain the inverse contribution found for PD. In the present study, social inequalities in psychological distress were of smaller magnitude in women than in men. This finding is consistent with those of previous studies measuring SEP based on household income, occupation and/or education. A potential explanation is that the relation between SEP and mental health for men and women differ depending on the SEP indicator used. While the SEP indicators used in the current study had little or no association with women’s

Mental health, other indicators such as the experience of current or childhood economic difficulties and relative financial deprivation have been highlighted as important markers of mental health in women.



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