

# Psychosocial work environment, interpersonal violence at work and mental health among correctional officers

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## Abstract

The main purpose of this study was to present changes occurring between 2002 and 2004 in the prevalence of psychosocial constraints and interpersonal violence at work among officers working in correctional facilities in Quebec. Results suggest that in the absence of specific organizational intervention aimed at improving a deleterious work situation, exposure to low decision latitude remained similar between 2002 and 2004, while exposure to high psychological demands improved somewhat, for both men and women. In 2000, rates of exposure of correctional officers in Quebec to high psychological demands, low decision latitude and the combination of high psychological demands and low decision latitude (job strain) were significantly higher than those obtained for the entire population of workers in Quebec in contact with the public. Exposure of correctional officers in Quebec to intimidation at work increased substantially between 2002 and 2004, among both men and women. Globally speaking, rates of exposure to intimidation by colleagues and superiors practically doubled between 2000 and 2004. Rates of exposure to intimidation among correctional officers in Quebec were particularly high in 2004 (71% among men 66% among women) compared to rates in another study conducted among federal correctional officers (48%) by Samak.

The present study also showed that in 2004, correctional officers in Quebec were more likely to present signs of psychological distress linked with work when they were exposed to high psychological demands, low decision latitude, job strain and poor social support from superiors and colleagues. Psychological distress was also shown to be greater when reward at work was scarce and when there was an imbalance between effort and reward at work. Finally, in 2004, psychological distress among correctional officers was also associated with intimidation and psychological harassment at work.

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## 1. Introduction

The work environment at correctional facilities is unlike any other, with the possible exception of the environment existing at psychiatric institutions and other institutions of confinement. Although this environment recently opened its doors to the outside world, it remains poorly understood. In the Province of Quebec, as in the rest of Canada and many other nations, the correctional environment has undergone numerous transformations over the last 30 to 40 years

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(Hepburn & Albonetti, 1980; Liebling, 2006; Rostaing, 1997). More specifically, the mission of correctional facilities has changed dramatically. While the mission of traditional disciplinary prisons was to protect society from criminals by controlling them through inmate surveillance and confinement techniques, current prison philosophy is geared more towards social reinsertion. Inevitably, these ideological changes and correctional policy reforms have resulted in organizational upheaval (El Faf, 1997).

The role of correctional officers (COs) has also changed significantly (Liebling, 2006; Rostaing, 1997). The dual mission of correctional establishments has made the job of correctional officers more complex. COs must successively or concurrently keep watch over (ensure security), accompany (facilitate the rehabilitation process) and serve (provide services to clientele). Change has also affected the hiring policy of correctional staff. The profile is now different: better educated, for the most part in social sciences, and female (Rostaing, 1997). Likewise, more and more professional, non-CO employees have entered the scene (social workers, psychologists, etc.) (Lhuillier & Aymard, 1997).

At the same time, COs face difficult work conditions, particularly regarding the helping relationship with incarcerated individuals (Kommer, 1993). According to the COs, the increase in clientele and the elimination of many tasks related to social reinsertion, now redirected instead to probation officers, has limited the authority needed to perform their job (Jauvin, Vézina, Dussault, Bourbonnais, & April, 2003). This is compounded by diminished feelings of safety, due largely to the difficulty of adapting work organization to the increasing number of female staff and wide-scale hiring of young COs to replace experienced, retiring COs (Jauvin et al., 2003).

In correctional facilities in the Province of Quebec, this context appears to have had major repercussions on the absenteeism rate, stress in the workplace and the deterioration of social relationships among members of the organization. Among COs in Quebec, the number of work hours lost to employment illness and injury easily exceeds civil service averages (Direction de la santé publique de Montréal-Centre, 2001). More of these workers turn to individual help offered under the aegis of the Employee Assistance Program (EAP) than do other civil servants.

Concerned by this widespread malaise, the *Syndicat des agents de la paix en services correctionnels du Québec* (SAPSCQ) joined the Ministry of Public Security in initiating a vast evaluative research intervention in all correctional facilities in Quebec. The purpose was to mitigate adverse psychosocial factors and the incidence of interpersonal violence among organization members and improve the mental health of COs. A steering committee was set up involving representatives of the Ministry of Public Security, prison chief officers, union leaders, correctional officers and researchers.

## 2. State of knowledge

Although the health benefits of work are well known, various studies have shown that COs consider some work conditions dangerous. In their review of 43 investigations conducted in nine European and American countries, Schaufeli and Peeters (2000) reported a high incidence of work constraints and burnout among correctional officers. In these investigations, work constraints include role ambiguity (Dollard & Winefield, 1994; Triplett, Mullings, & Scarborough, 1996), role conflicts (Dollard & Winefield, 1994; Grossi & Berg, 1991; Triplett et al., 1996; Whitehead & Lindquist, 1986), lack of participation in decision-making (Lindquist & Whitehead, 1986), low decision latitude, low social support at work, work concerns, poor relations with colleagues and inmates, management problems, job pressure (Dollard & Winefield, 1994), quantitative and qualitative role overload, few opportunities for promotion, overtime demands on employees (Triplett et al., 1996), safety concerns (Grossi & Berg, 1991; Grossi, Keil, & Vito, 1996; Triplett et al., 1996; Triplett, Mullings, & Scarborough, 1999) and constantly working with the same inmates (Triplett et al., 1996, 1999). The work schedule, position held and number of years of service were other sources of job stress (Dollard & Winefield, 1994). In 2000, a study among COs in Quebec revealed an excess of adverse psychosocial factors and health problems at work among these workers when compared to a sample of Quebec workers (Bourbonnais, Malenfant, Vézina, Jauvin, & Brisson, 2005).

To study the frequency of psychosocial exposure among COs and their association with psychosocial distress, we elected to use two of the most documented job strain theoretical models. The demand-control-support (DCS) model developed by Karasek and Theorell (1990), and Johnson and Hall (1988) has dominated empirical research on psychosocial work factors since 1980. It assumes that individuals exposed to high job strain, i.e. a combination of high psychological demands (quantity of work, intellectual requirements and time pressure) and low decision latitude (use and development of skills and control over work that implies latitude at work, and participation in decisions), have a greater risk of developing health problems. The model also assumes that social support from colleagues and supervisors modifies the effect of job strain on health. Thus, employees with high job strain and low social support have

a higher risk of developing health problems, while employees with high social support are at lower risk. (Fuhrer, Stansfeld, Chemali, & Shipley, 1999; Johnson, Hall, & Theorell, 1989; Karasek & Theorell, 1990; Siegrist, Peter, Junge, Cremer, & Seidel, 1990). Job strain has in fact been associated with a series of physical (such as cardiovascular diseases) and mental health problems (such as psychological distress, psychiatric disorders) (Bourbonnais, Brisson, Moisan, & Vézina, 1996; Kristensen, 1996; Stansfeld, Fuhrer, Shipley, & Marmot, 1999). A second model – Siegrist’s effort/reward imbalance model – is centered on the imbalance between extrinsic efforts extended at work and rewards obtained (esteem, respect, job status, income, career opportunities and job security) (Marmot, Theorell, & Siegrist, 2002; Siegrist & Peter, 2000; Siegrist et al., 1990).

Adverse emotional and psychological effects of the effort/reward imbalance have also been observed (such as emotional exhaustion, psychosomatic complaints, depressive symptoms and mild psychiatric disorders) (Bakker, Killmer, Siegrist, & Schaufeli, 2000; De Jonge, Bosma, Peter, & Siegrist, 2000; Niedhammer, Goldberg, Leclerc, Bugel, & David, 1998; Peter, 2002; Siegrist, 2002). Moreover, according to Siegrist et al. (2004), intrinsic efforts modify the association between the effort/reward imbalance and health problems. Intrinsic effort translates attitudes and motivation linked to an innate need to surpass oneself, to be respected or approved, or to the self-rewarding experience of taking up challenges or controlling a threatening situation. This component, linked to the personality profile, is an addition to the concept of demand in Karasek’s model (Lavoie-Tremblay et al., 2005). Thus, there is a hypothesized association between the effort/reward imbalance and increased health problems among workers who report high intrinsic efforts (that is, individuals whose need for approval, competitiveness and latent hostility, disproportionate impatience and irritability, and inability to distance themselves from their work is high). De Jonge et al. (2000) observed these adverse effects on job satisfaction.

In studies among COs, psychological distress has been associated with high demands, low decision latitude, a combination of high demands and low latitude, low participation in decision-making and low social support at work and seniority, with the most experienced COs reporting higher levels of psychological distress (Dollard & Winefield, 1994, 1995, 1998; Goldberg, David et al., 1996; Goldberg, Landre et al., 1996; Lasky, Gordon, & Srebalus, 1986). In a previous paper, we reported that, in 2000, among COs in Quebec, high psychological demands combined with low or high decision latitude, effort/reward imbalance, low social support at work and conflicts with colleagues and superiors were associated with psychological distress independently of potential confounding factors (Bourbonnais et al., 2005).

In addition to “adverse psychosocial work factors”, recent fragmentary knowledge has begun to highlight a possible impact on the mental health of workers of an exposure to interpersonal violence in the workplace among organization members (Einarsen, 2005; Hoel, Faragher, & Cooper, 2004; Matthiesen & Einarsen, 2004; Tehrani, 2004; Zapf, Einarsen, Hoel, & Vartia, 2003). Among correctional officers, even less knowledge is available. Little is known about their exposure to interpersonal violence, except on the issue of violence from their clientele, which is far better documented (Edgar, O’Donnel, & Martin, 2003). Even today, the lack of retrospective data on the subject and the many conceptual constraints linked to the use of a range of concepts to refer to the phenomenon make it difficult to quantify (Hogh, 2005; Zapf et al., 2003). However, in a review of the literature on the subject, Zapf et al. (2003) reported rates of exposure to interpersonal violence among members of a work organization between 1 and 10%. For example, according to national European data, 9% of workers said they were victims of bullying during the year before the study (Fondation européenne pour l’amélioration des conditions de vie et de travail, 2000). Two Quebec studies revealed that the frequency of exposure to different forms of psychological harassment ranged from 7% to 9% (Brun & Plante, 2004). One fact stands out in the literature identified: some sectors of employment and certain categories of employees are particularly at risk of exposure to interpersonal violence in the workplace (Waddington, Badger, & Bull, 2005), which is especially true of employees working with a clientele (patients, clients, students, prisoners, etc.) (Ringstad, 2005). Despite the scant amount of research on correctional officers, COs are among the most highly exposed groups. Thus, the rate of exposure to interpersonal violence among COs seems considerably higher than that of the general population. A Finnish study of COs measured a 20% rate of exposure to similar behaviours (Vartia & Hyyti, 2002), while a British study measured a rate of 16% (Hoel & Cooper, 2000). To date, however, no connection has been made between these particularly high rates of interpersonal violence and their impact on health, as has been done for some other worker groups.

### 3. The aim of the study

The purpose of this study is to determine the prevalence of adverse psychosocial work factors, interpersonal violence and psychological distress in male and in female correctional officers in 2004 compared to the prevalence in 2000 and compared to an appropriate reference population. The study will also serve to determine which types of

psychosocial work factors and interpersonal violence at work are associated with psychological distress among male and among female correctional officers in 2004.

This article reports data from the developmental phase of an intervention research project. The purpose of the research is to mitigate adverse psychosocial factors and interpersonal violence at work among COs in Quebec in order to reduce mental health problems. It addresses the evolution of exposure to adverse psychosocial factors and violence at work in the absence of specific interventions to curtail them. It also contributes to filling a gap in existing literature regarding the association between interpersonal violence and health among COs.

Three research questions are addressed in this paper:

1. Has the prevalence of psychosocial risk factors, interpersonal violence at work and psychological distress among COs deteriorated between 2000 and 2004? The hypothesis is that in the absence of a direct intervention to reduce the psychosocial constraints and interpersonal violence at work, the prevalence of these factors and of health problems will be equal or greater in 2004 than in 2000.
2. Is the prevalence of psychosocial constraints, interpersonal violence and health problems greater among male COs than among female COs, and greater than among a comparable sample of male and female workers in Quebec? The hypothesis is that the prevalence will be the same among male and female COs and greater than in the reference population. This will demonstrate the empirical relevance of an intervention on the four selected adverse psychosocial factors (high psychological demands, low decision latitude, low social support and low reward) and on interpersonal violence among correctional officers (CO) to prevent mental health problems.
3. Are psychosocial factors and interpersonal violence at work associated with psychological distress among male and female COs in 2004, before the intervention? In support of the most documented models, it is hypothesized that high psychological demands, low decision latitude, a combination of the two (job strain), low social support at work, low reward and effort–reward imbalance (ERI) will be associated with higher levels of psychological distress. It is also hypothesized that social support will modify the association between job strain and psychological distress and that intrinsic efforts will modify the association between ERI and psychological distress. Finally, interpersonal violence at work is hypothesized to be associated with psychological distress.

#### 4. Study design and methods

##### 4.1. Study population

A cross-sectional risk evaluation was performed during Spring 2004 using a quantitative approach to determine the prevalence of adverse psychosocial work factors, interpersonal violence and psychological distress in all correctional facilities in Quebec, compared to two appropriate reference populations. These data constituted the pre-intervention measure for the evaluation of the effectiveness of a projected intervention on psychosocial risk factors and interpersonal violence at work to prevent mental health problems among COs. The data were also used to identify the facilities most likely to benefit from an intervention, i.e. facilities with a high prevalence of adverse psychosocial work factors, violence and/or psychological distress compared to other correctional facilities and a reference population.

All correctional officers who had direct contact with inmates and were employed in all provincial correctional facilities in the Province of Quebec in the spring 2004 were eligible for the study ( $N=1881$ ).

COs in 2004 were compared with two reference groups. The first reference group was composed of 1034 COs in Quebec who had participated in a previous study on work and health in 2000. The comparison with this population allows a description of changes in psychosocial risk factors, interpersonal violence and psychological distress among all COs in Quebec prisons between 2000 and 2004. The second reference group was composed of all workers who had participated in the last Quebec Health Survey (QHS) in 1998 (*Institut de la statistique du Québec, 2000*). This QHS was conducted in a stratified random sample of all Quebecers registered with the Quebec Health Insurance Board, which covers more than 95% of the population of Quebec. The weighted sample is representative of non-institutionalised Quebecers at the time the survey was conducted (*Institut de la statistique du Québec, 2000*). A subgroup was selected with characteristics similar to the COs under study. After excluding participants who did not hold a paying job, the sample was restricted to participants holding a college or university degree so as to be in the same educational range as the COs and who held various jobs involving contact with the public. The reference population thus included 5102 male and 4373 female workers in the Province of Quebec. In the QHS, data for comparison were gathered using the

same instruments as in the 2000 and 2004 studies among COs (Institut de la statistique du Québec, 2000). Primary data were available for both reference groups.

#### 4.2. Data collection

In May and June 2000, a specialized firm conducted telephone interviews lasting 35 min on average per questionnaire. COs telephoned interviewers during their work hours, based on a list of appointments made for each CO who had agreed to take part in the study. COs completed an identical self-administered questionnaire in 2004. It took COs an average of 30 min to complete the questionnaire during their working hours. Despite a different data collection method, the same variables were measured using tools validated for both the telephone interview and the self-administered questionnaire.

#### 4.3. Health

Psychological distress was measured using a validated 14-item version of the Psychiatric Symptom Index (PSI) (Ilfeld, 1976). The PSI measures the presence and intensity of a range of symptoms: anxiety, aggressiveness, depression and cognitive disorders during the last week. The French version of the PSI was validated in the 1992–93 Quebec Health Survey (Bellerose, Lavallée, Chénard, & Levasseur, 1995). The PSI has good concurrent validity with four other mental health measures: hospitalization for a mental health problem, suicidal thoughts, suicidal attempts and use of psychotropic medication (Préville, Boyer, Potvin, Perreault, & Légaré, 1992). The Cronbach alpha coefficient for psychological distress in this study was 0.91.

Perceived health status was measured by one validated question from the Quebec Health Survey (Bellerose et al., 1995) and the 36-item Short-Form Health Survey (SF-36) (McHorney, Ware, & Raczek, 1993). This survey assesses an individual's perceived general health compared to a person of the same age.

#### 4.4. Psychosocial factors and interpersonal violence

Psychological demands (nine items measuring quantity of work, intellectual requirements and job time constraints), decision latitude (nine items measuring opportunities to make decisions, be creative, and use and develop one's abilities at work), and social support at work, from supervisors and colleagues (eight items measuring socio-emotional support or esteem, which is of a socio-psychological or interpersonal nature; instrumental support, which measures extra resources or assistance with work tasks; and a negative level of support, hostility or conflict), were measured using 26 items from Karasek's Job Content Questionnaire (Karasek, 1985), a widely used instrument recognized for its sound psychometric properties and validated in French (Brisson et al., 1998). Job strain was defined as a combination of high psychological demands and low decision latitude. Rewards at work (salary, respect, job security and promotion opportunities) from the ERI model, were measured from Siegrist's 11-item validated instrument (Siegrist, 1996). However, since the extrinsic efforts component of the ERI model was not measured in our questionnaire, and because this construct is very close to the demands construct of the demands-control model, we calculated the ERI ratio through the ratio of psychological demands on rewards. In this study, alpha coefficients were 0.78 for psychological demands, 0.78 for decision latitude, 0.86 and 0.78 for social support from supervisor and colleagues, 0.81 for rewards.

Interpersonal violence is any type of vertical or horizontal violence among members of a work organization (individuals or groups of individuals) excluding violence from inmates since this subject is already well documented as are recommended means to prevent it (Edgar et al., 2003). Violence by or against the organization is excluded, as is interpersonal violence by individuals outside the organization (violent spouse, rapist, etc.) (Jauvin et al., 2006). Two types of interpersonal violence were retained for this study: psychological harassment and intimidation. Respondents were asked about their exposure over the past 12 months to each of these two indicators (one item each). Intimidation, which is primarily the use of threats at work (European Foundation, 2004), was measured in 2000 and 2004. The definition of psychological harassment, measured only in 2004, was provided by the *Commission des normes du travail du Québec* and retained in the wording of the question (ACCQ, 1999): "vexatious behaviour that manifests itself in the form of conduct, verbal comments, actions or gestures that are repetitive, hostile or unwanted, affect the person's dignity or psychological integrity and result in a harmful work environment, a layoff, firing or forced resignation."

#### 4.5. Potentially confounding, personal and social variables

Six items from Siegrist's validated instrument measured intrinsic effort (Siegrist & Peter, 2000). Stressful events were measured using a single question on major difficulties experienced outside the workplace over the past 12 months such as death, divorce or major financial problems. This measure was inspired by that used in the Quebec Health Survey (Bellerose et al., 1995). Social support outside of work was a six-item measure of social participation and integration, and of the nature of the social network and the satisfaction it generates. This index was developed by Santé Québec for its 1992–1993 survey (Bellerose et al., 1995). Lastly, age, gender, level of education, job status, work schedule and seniority in the correctional services sector were also documented. The Cronbach alpha coefficient in this study was 0.75 for intrinsic efforts and 0.67 for social support outside of work.

#### 4.6. Statistical analyses

The prevalence (frequency measure) of psychosocial factors at work, interpersonal violence and health problems was used (Rothman & Greenland, 1998) to describe the importance of the subject.

To determine what factors were associated with psychological distress, analyses compared the prevalence of distress in a group exposed to each risk factor to the prevalence of distress in a non-exposed group. A prevalence ratio (PR) and 95% confidence intervals (95% CI) were calculated in order to measure the strength and precision of the association (Rothman & Greenland, 1998). The prevalence ratios presented in Table 3 show the relative risk of reporting high psychological distress according to different exposures (psychosocial factors, interpersonal violence and other risk factors). The reference PR value of 1.00 is the PR value for the non-exposed group and a PR greater than 1.00 in the exposed group indicates an association between the exposure and the health problem. For example, for a specific psychosocial factor, a PR = 2.00 can be interpreted as a 2-fold risk of psychological distress among exposed COs. If the confidence interval does not include the value 1.00, the association is statistically significant at a  $p$  level  $\leq 0.05$ .

The potentially modifying effect of social support on the association between job strain and psychological distress and intrinsic efforts on the association between ERI and psychological distress were tested by a stratified analysis. Finally, a multivariate analysis was performed using binomial regression to adjust the prevalence ratios for education and age or seniority (Skov, Borg, & Orhede, 1996). All analyses were conducted with SAS software (SAS, 1990).

To determine the exposure group for each psychosocial factor, items measuring this factor were grouped to create an index. Then a total score was calculated for each index. For most psychosocial factors, the distribution of total scores among all COs was divided at the median (about 50%) in order to determine an exposed group and a non-exposed group. For psychological demands and decision latitude, exposure was determined with a threshold at the median of the distribution of the total score among COs in 2004 (psychological demands  $\geq 8$  and decision latitude  $\leq 60$ ). For the comparison with the Quebec Health Survey, the median value of the general population was used ( $\geq -2$  for demands and  $\leq 72$  for latitude) (Larocque, Brisson, & Blanchette, 1998). This method is the one suggested by Karasek (1985) for a dichotomic analysis. The effort/reward imbalance was determined by a ratio of the psychological demands sum score divided by the reversed reward sum score multiplied by a correction factor to adjust for unequal numbers of items included in the nominator and the denominator, as recommended by Siegrist (2001). For intrinsic efforts, exposed individuals have scores equal to or greater than the upper tertile of the distribution among COs. For social support outside work, exposed individuals are in the bottom quintile of the distribution among COs. Other questions on specific risks for COs were each handled as a dichotomic variable based on the presence or absence of a factor, or on whether the subject agreed or disagreed with the statement. Psychological distress is high if the score is in the upper quintile of the distribution of scores observed among workers in the Quebec population ( $\geq 28.57$  for women and  $\geq 23.81$  for men) (Bellerose et al., 1995).

## 5. Results

The mean response rate for both surveys among COs was 76% in 2000 ( $n=1034$ ) and 80% in 2004 ( $n=1502$ ). A comparison of the socio-demographic characteristics of the study population with those of the working Quebec population in contact with the public revealed several significant differences. There were fewer female COs than there are females in the reference population ( $p < .01$ ), who were younger ( $p < .01$ ) and better educated ( $p < .01$ ). Male COs were representative for age and also better educated ( $p < .01$ ) than workers who had participated in the 1998 QHS (Table 1). Furthermore, the population of COs had changed somewhat over time. For most characteristics studied, there

Table 1

Socio-demographic characteristics of male and female correctional officers (COs) in 2000 end 2004 compared to a sample of Québec workers in 1998 (QHS<sup>a</sup>)

Socio-demographic Data <sup>b</sup>	Male (%)		Female (%)	
	98 QHS	CO 2000/CO 2004	98 QHS	CO 2000/CO 2004
	<i>n</i> =5102	<i>n</i> =668/897	<i>n</i> =4373	<i>n</i> =366/605
Gender	53.8	64.6/59.7	46.2	35.4/40.3
Age				
18–34 years	34.7	24.6/33.3	38.2	54.0/54.2
35–44 years	30.2	33.1/31.5	32.4	28.4/29.7
45 years and +	35.1	42.3/35.2	29.4	17.6/16.1
Education				
Elementary–Secondary	52.2	34.4/27.1	46.5	13.8/8.3
College	25.7	44.4/45.5	30.2	43.4/53.4
University	22.1	21.2/27.4	23.3	42.8/38.3
Seniority in correctional services				
<1 year	–	5.7/5.9	–	15.8/6.3
1–6 years	–	16.5/38.8	–	29.9/55.3
6–12 years	–	25.3/9.5	–	33.2/14.8
>12 years	–	52.5/45.8	–	21.1/23.6
Job status				
Full-time	–	69.0/62.5	–	38.8/53.3
Part-time	–	31.0/37.5	–	61.2/47.7
Schedule				
Day	–	37.4/31.2	–	19.9/28.5
Evening	–	7.8/8.6	–	9.0/4.1
Night	–	8.3/12.1	–	2.8/14.0
Variable	–	46.5/48.1	–	68.3/53.4

– Data not available in the 1998 Québec Health Survey.

<sup>a</sup> Workers in contact with the public in the 1998 Québec Health Survey (Québec).

<sup>b</sup> Statistically significant difference ( $p < 0.0001$ ) for all variables between male and female COs and between the 1998 QHS and COs (Chi-Square test).

was a significant difference between male and female COs and between COs in 2000 and 2004. Firstly, the proportion of female COs in provincial establishments increased from 35% of respondents in 2000 to 40% in 2004. Male COs were now younger ( $p < .01$ ), while female COs were not. In fact, the proportion of male COs between the ages of 18 and 34 rose from 25% in 2000 to 33% in 2004, while those aged 45 and over accounted for 42% of COs in 2000 and only 35% in 2004. However, male COs were still significantly older ( $p < .01$ ) and had more years of seniority in 2004 than female COs ( $p < .01$ ). Similarly, the level of education of male and female COs increased considerably between 2000 and 2004 ( $p < .01$  for men and  $p < .01$  for women). The number of COs with a college or university diploma rose from 66% in 2000 to 73% in 2004 for men and from 86% to 92% for women. Lastly, the distribution of job status changed, with more part-time<sup>1</sup> male COs in 2004 than in 2000 ( $p < .01$ ; 38% vs. 31%), and women holding more full-time<sup>2</sup> positions in 2004 ( $p < .01$ ; 53% vs. 39%), even though women were still under-represented in this category compared to men ( $p < .01$ ). Although work schedules were very different for men and women in 2000, with more than two-thirds of the women working flextime, and although this difference was still significant ( $p < .01$ ), the gap narrowed considerably in 2004, as almost half the men and women now had a flexible work schedule.

The prevalence ratios in Table 2 compare psychosocial work constraints and health problems reported by COs in 2000 and 2004 to those reported by the reference group, by gender. Prevalence was adjusted for age and education to consider the difference in socio-demographic characteristics among COs and the reference population. In 2000, the prevalence of constraints was higher among male and female COs than for the reference population regarding high psychological demands (PR=1.2 for men and 1.3 for women), low decision latitude (PR=1.2 and 1.1) and a combination of high demands and low latitude (job strain) (PR=2.6 and 2.2). Although psychological demands decreased significantly in 2004 from 57% to 46% for men ( $p < .01$ ) and from 58% to 50% for women ( $p = .01$ ), they

<sup>1</sup> These COs are generally on call and guaranteed 1248 h of work per year, for a weekly average of 24 h.

<sup>2</sup> These COs have a stable, 40-hour workweek.

Table 2

Prevalence of psychosocial work factors and health problems among correctional officers in 2000 and 2004 compared to a representative sample of workers from Québec

	Male			Female		
	QHS <sup>a</sup> <i>n</i> =5102	CO <i>n</i> =668 <i>n</i> =897	PR <sup>b</sup> (CI 95%)	QHS <i>n</i> =4373	CO <i>n</i> =366 <i>n</i> =605	PR (CI 95%)
<b>Psychosocial work factors</b>						
High psychological demands						
2000	46.7	57.3	1.2 (1.1–1.4)	43.2	57.7	1.3 (1.2–1.5)
2004		45.7	1.0 (0.9–1.1)		49.7	1.2 (1.0–1.3)
Low decision latitude						
2000	71.9	85.5	1.2 (1.1–1.2)	77.2	87.4	1.1 (1.1–1.2)
2004		88.2	1.2 (1.2–1.3)		90.6	1.2 (1.1–1.2)
Job strain <sup>c</sup>						
PD– DL+						
2000	25.1	6.4	0.3 (0.2–0.4)	20.7	4.9	0.2 (0.1–0.4)
2004		3.7	0.2 (0.1–0.4)		1.4	0.1 (0.0–0.2)
PD– DL–						
2000	27.9	34.7	1.2 (1.1–1.5)	34.9	35.4	1.0 (0.8–1.2)
2004		48.2	1.7 (1.5–1.9)		46.4	1.3 (1.2–1.5)
PD+ DL+						
2000	29.3	11.9	0.4 (0.3–0.5)	19.9	9.5	0.5 (0.3–0.7)
2004		7.8	0.3 (0.2–0.4)		5.5	0.3 (0.2–0.4)
PD+ DL–						
2000	16.7	43.7	2.6 (2.3–3.0)	22.1	48.2	2.2 (1.8–2.6)
2004		36.6	2.2 (1.9–2.6)		44.7	2.0 (1.7–2.4)
Intimidation						
2000	18.1	71.2	3.9 (3.5–4.4)	21.2	60.6	2.9 (2.5–3.3)
2004		84.8	4.7 (4.3–5.2)		82.4	3.9 (3.5–4.3)
Psychological harassment						
2004		71.4			66.1	
<b>Health problems</b>						
Psychological distress						
2000	22.5	37.8	1.7 (1.4–2.0)	22.5	37.9	1.7 (1.4–2.1)
2004		40.2	1.8 (1.6–2.1)		37.5	1.7 (1.4–2.0)
Health average or poor						
2000	5.1	12.9	2.5 (1.8–3.4)	5.2	9.0	1.8 (1.1–3.0)
2004		7.8	1.5 (1.0–2.2)		8.7	1.7 (1.1–2.7)

<sup>a</sup> Male and female workers in contact with the public in the 1998 Québec Health Survey (Québec).

<sup>b</sup> All prevalence ratios (PR) are adjusted for age and education (men and women). CI 95%=Confidence Interval at 95%. The reference value 1.00 is the value of the PR in the reference group (QHS) and a PR greater than 1.00 for COs indicates a greater prevalence among them, whereas a PR lower than 1.00 indicates a lower prevalence among COs. For example, for any factor, a PR=2.00 can be interpreted as a 2-fold prevalence in COs compared to the reference population. If the 95% confidence interval does not include the value 1.00, the difference is statistically significant at a  $p \leq .05$  level.

<sup>c</sup> PD = Psychological Demands; DL = Decision Latitude; – = low; + = high.

remained significantly higher than for the reference population among women only (PR=1.2). Decision latitude did not change significantly for men from 86% to 88% of subjects exposed to low latitude ( $p=0.06$ ), nor for women from 87% to 91% ( $p=0.08$ ). Decision latitude was lower among all COs than for the reference population (PR=1.2 for both men and for women COs). High job strain fell significantly for men (from 44% to 37%) ( $p<.01$ ) but not for women (from 48% to 45%) ( $p=0.29$ ) in 2004, and more COs remained exposed to high job strain than did workers of the reference population (PR=2.2 for men and 2.0 for women), who often hold jobs with a high decision latitude, irrespective of the demand level.

Social relationships between correctional personnel were also more distressing. In the reference population, the prevalence of intimidation was 18% for men and 21% for women, while it was reported by 71% of male COs and 61% of female COs in 2000 (PR=3.9 for men and 2.9 for women). Furthermore, intimidation increased in 2004, as it was

Table 3  
Variables associated with psychological distress (PSI) among male and female COs in 2004

Variables	Male COs			Female COs		
	PSI + <sup>a</sup>	PR <sup>b</sup>	CI 95% <sup>c</sup>	PSI +	PR	CI 95%
Job strain model variables						
Psychological demands						
Low	31.8	1.0		30.2	1.00	
High	46.6	1.5	(1.2–1.8)	44.5	1.5	(1.2–1.9)
Decision latitude						
High	35.6	1.0		34.4	1.0	
Low	44.8	1.3	(1.1–1.5)	42.2	1.2	(1.0–1.5)
Job strain						
Low demand, high latitude	27.1	1.0		20.9	1.0	
Low demand, low latitude	35.3	1.3	(1.0–1.8)	34.3	1.6	(1.0–3.3)
High demand, high latitude	39.4	1.5	(1.1–1.9)	40.3	1.9	(1.1–3.3)
High demand, low latitude	54.2	2.0	(1.5–2.7)	48.6	2.3	(1.4–3.9)
Social support at work (superiors)						
High	26.5	1.0		32.6	1.0	
Low	49.1	1.8	(1.5–2.3)	45.0	1.4	(1.1–1.7)
Social support at work (colleagues)						
High	29.7	1.0		30.9	1.0	
Low	44.9	1.5	(1.2–1.9)	43.1	1.4	(1.1–1.8)
Effort/reward imbalance model variables						
Reward						
High	22.3	1.0		29.8	1.0	
Low	48.6	2.2	(1.7–2.8)	44.3	1.5	(1.2–1.9)
Effort/reward						
Balance	24.3	1.0		28.5	1.0	
Imbalance	51.0	2.1	(1.7–2.6)	46.0	1.6	(1.3–2.0)
Intrinsic efforts						
Low	26.0	1.0		29.0	1.0	
High	68.3	2.6	(2.2–3.1)	61.1	2.1	(1.7–2.6)
Interpersonal violence at work						
Intimidation						
No	19.0	1.0		18.7	1.0	
Yes	43.5	2.3	(1.6–3.3)	42.7	2.3	(1.4–3.6)
Psychological harassment						
No	23.1	1.0		22.7	1.0	
Yes	46.1	2.0	(1.6–2.6)	47.3	2.1	(1.6–2.8)
Other work-related factors						
Superior's influence on management						
Agree	29.1	1.0		37.1	1.0	
Disagree	44.1	1.5	(1.2–1.9)	39.9	1.1	(0.9–1.3)
Ministerial concerns about occupational health and safety						
Agree	24.3	1.0		21.6	1.0	
Disagree	41.5	1.7	(1.1–2.6)	40.4	1.9	(1.1–3.3)
Personal variables						
Stressful events						
No	30.6	1.0		29.1	1.0	
Yes	53.9	1.8	(1.5–2.1)	45.3	1.6	(1.3–2.0)
Social support outside work						
High	34.6	1.0		35.7	1.0	
Low	66.3	1.9	(1.6–2.2)	56.8	1.6	(1.3–2.0)

<sup>a</sup> PSI +: High psychological distress.

<sup>b</sup> PR: Prevalence ratios adjusted for education and seniority in correctional services. The reference value 1.00 is the PR value in the non-exposed group for each exposure and a PR greater than 1.00 indicates an association between the exposure and psychological distress, whereas a PR lower than 1.00 indicates a protective factor. For example, for a specific psychosocial factor, a PR=2.00 can be interpreted as a 2-fold risk of psychological distress among exposed COs.

<sup>c</sup> Confidence interval at 95%. If the 95% confidence interval does not include the value 1.00, the difference is statistically significant at a  $p \leq .05$  level.

reported by 85% of male COs and 82% of female COs (PR=4.7 and 3.9). The main source of intimidation reported by both male and female COs was from inmates (78% in 2004 compared to 60% in 2000), but a substantial proportion of both male and female COs reported intimidation from organizational sources: from supervisors (18% in 2000 vs. 36% in 2004), colleagues (17% in 2000 vs. 35% in 2004) and subordinates (6% in 2000 vs. 14% in 2004) (data not shown but available from the researchers). A new question added to the 2004 questionnaire revealed that 71% of male COs and 66% of female COs indicate being victims of psychological harassment at work over the past year. The main source of psychological harassment for both male and female COs was from inmates (58%), followed by colleagues (35%), supervisors (33%) and subordinates (13%) (data not shown).

As for health indicators, the rate of psychological distress in 2000 was similar for both male and female COs (38%). However, COs reported a high level of psychological distress more often than did the reference population (PR=1.7 for men and for women). There was no significant change in the level of psychological distress among COs in 2004, as there were still significantly more COs who reported a high level of distress than did the reference population (PR=1.8 and 1.7). As well, more COs felt that their health was average or poor in 2000 and 2004 compared to the reference population (PR=2.5 and 1.5 for male COs; 1.8 and 1.7 for female COs).

Table 3 shows the factors associated with psychological distress among COs by gender in 2004. All prevalence ratios are adjusted for education and seniority in correctional services. COs reported a high level of psychological distress more often when their work involved high psychological demands (PR=1.5 for men and for women), low decision latitude (PR=1.3 for men and 1.2 for women), high job strain, a combination of high demands and low latitude (PR=2.0 and 2.3), low social support at work from superiors (PR=1.8 and 1.4) and colleagues (PR=1.5 and 1.4). Furthermore, when reward at work was low (PR=2.2 and 1.5) and there was an effort/reward imbalance (PR=2.1 and 1.6), COs were at greater risk of psychological distress. Intimidation (PR=2.3 for male and female COs) and harassment at work (PR=2.0 for men and 2.1 for women) were also associated with psychological distress among COs.

Other job factors associated with psychological distress reported by COs include a superior's weak influence on establishment management (for men only PR=1.5), absence of employer concerns about occupational health and safety (PR=1.7 for men and 1.9 for women). Intrinsic efforts (PR=2.6 for men and 2.1 for women), having experienced a stressful event in the past year (PR=1.8 for men and 1.6 for women) and low social support outside work (PR=1.9 for men and 1.6 for women) were also associated with psychological distress.

There was no modifying effect of social support at work on the association between job strain and psychological distress (interaction test:  $p=0.36$  and  $0.71$  for social support from supervisors and colleagues). Moreover, there was no modifying effect of intrinsic efforts on the association between ERI and psychological distress (interaction test  $p=0.08$ ).

## 6. Discussion

The distribution of COs by gender, age or seniority and level of education accurately reflects the hiring criteria that have prevailed in the correctional services sector in Quebec in recent years. Furthermore, the number of years of work as a CO explains the gap between men and women with respect to regular part-time status and the flexible schedule, far more frequent among women. However, the gap narrowed considerably between 2000 and 2004. We included seniority in the regression analyses, as did Dollard and Winefield (1995).

The prevalence of high psychological demands and low decision latitude, as well as a combination of both constraints and intimidation, were higher among COs than among male and female workers in contact with the public in Quebec. This over-exposure of COs is not due to the fact that they were relatively older and more educated than the reference population, since the prevalence ratios were adjusted for these factors.

The harassment rate measured in our 2004 study (71% in men and 66% in women) was particularly high when compared to the harassment rate obtained in the Samak (2003) study of COs in the federal public service: 48% over the past five years.

As for health indicators in 2000 and 2004, the COs rate of psychological distress, similar for men and women, was much higher than it was for the reference population. Furthermore, more COs than members of the reference population considered their health average or poor when compared to people of the same age. A study by Goldberg et al. (1996) on work conditions and mental health among prison staff in France also states that prison personnel reported more depressive symptomatology than did two reference populations made up of male and female workers in the electricity industry and at a nuclear power plant. Dollard and Winefield (1995) also reported that COs had the highest rate of claims for job stress-related problems of all public sector employees in South Australia and that they reported more psychological distress than a national Australian sample.

Our results showed that men and women were affected by the same sources of psychological distress. In prisons in Quebec, male and female COs generally performed the same tasks, regardless of gender. Most of the studies reviewed did not highlight significant differences between male and female COs in terms of job stress levels and psychological distress reported (Goldberg, David et al., 1996; Goldberg, Landre et al., 1996; Gross, Larson, Urban, & Zupan, 1994; Triplett et al., 1999). However, Triplett et al. (1999) reported that sources of stress differ significantly by gender. Work and personal life balance, the number of contacts with inmates and the dangerous nature of their work were the main sources of stress reported by female COs, while male COs mainly reported quantitative work overload and the dangerous nature of their work (Triplett et al., 1999). These authors also mentioned that differences between male and female COs did not seem to be due to a different task assignment.

Moreover, our study results showed an association between psychological distress and high psychological demands, low decision latitude, a combination of these two constraints and low social support at work. This corresponds to the results of a study by Dollard and Winefield (1998). Social support did not modify the association between psychological distress and job strain in our study. According to a study conducted by Dollard and Winefield (1995) among 419 COs, social support has direct benefits in terms of worker autonomy and their involvement in decision-making processes, rather than acting as a modulator by reducing the adverse effects of significant job demand. Our study also showed an association between low reward at work and an effort/reward imbalance and psychological distress. We had already reported this association among COs in 2000 (Bourbonnais et al., 2005). Intrinsic efforts were also associated with psychological distress, but did not modify the association between ERI and psychological distress. De Jonge et al. (2000) observed that a high level of intrinsic efforts has adverse effects on job dissatisfaction ( $p < 0.01$ ) and an insignificant effect on emotional burnout ( $p < 0.10$ ) among workers in eight different sectors, including healthcare, transportation and clerical work. Interpersonal violence at work measured by intimidation and psychological harassment in our study were also associated with the psychological distress of COs. No other study has reported this association before. Other job factors associated with a high level of psychological distress reported by COs in 2004 included the perceived low level of influence of a superior and the absence of management concerns regarding occupational health and safety. Triplett et al. (1996) also observed that concerns related to correctional officers' security significantly contributed to job-related stress.

### 6.1. Study strengths

Our study has strengths that surpass the limits of previous studies. 1) It relied on a sound theoretical background insuring a choice of targets based on psychosocial work factors known to have an impact on workers' health and the use of validated instruments to measure them. 2) A prior risk evaluation showed the empirical relevance of an intervention on the four selected adverse psychosocial factors (high psychological demands, low decision latitude, low social support and low reward), and interpersonal violence among correctional officers (CO) to prevent mental health problems. 3) The number of subjects was sufficiently high to allow the presentation of results by gender and comparisons with reference populations. 4) Data gathered in 2000 and 2004 made it possible to measure the change in constraints in a context where there is no specific intervention to improve them. 5) This study highlighted the association between an effort/reward imbalance and high psychological distress, a theoretical model that until now has been poorly documented in the literature on correctional officers. 6) It also documented for the first time the association between interpersonal violence and psychological distress among COs.

### 6.2. Study limitations

Some methodology-related factors may have introduced biases: study design, a potential selection bias, and information and confounding biases. 1) Since the study design is cross-sectional, it measures exposure to occupational variables and correctional officers' health simultaneously. Although the study design allows the measurement of the association between these work variables and health, causal relationships cannot be concluded between them, as it cannot eliminate two sources of potential bias. The first source is reverse causation due to the fact that it is not known if exposure preceded psychological distress or if psychological distress resulted in exposure being over-reported. However, prospective studies have documented an association between psychosocial factors and psychological distress (Niedhammer et al., 1998; Stansfeld et al., 1999), which reduces the likelihood of reverse causation. The second source of bias is related to the self-reporting of exposure to constraints, violence and distress (common method variance). Indeed, cross-sectional studies often produce good results in terms of risk values that may be the result of a reporting bias that this type of study cannot eliminate. A

longitudinal analysis of absenteeism data for certified sick leave over a 24-month period based on the risk factors measured in this cross-sectional component of the study will be conducted and should support the results presented herein. 2) A selection bias may have resulted in the selection of COs who answered the questionnaire but did not represent all COs eligible in the study. This bias may have led to an over- or under-estimation of the prevalence of health problems and work constraints measured. However, an excellent participation rate was obtained (76% in 2000 and 81% in 2004), which minimizes the likelihood of a selection bias. In addition, only one correctional facility in the province did not take part in the study in 2000 following a joint finding by management and union that the study was not feasible in that facility at the time and because of its non-comparability with the other correctional facilities (Bourbonnais et al., 2005). In 2004, all the facilities in the province were included in the study. 3) An information bias may be linked to the self-reporting of occupational variables based on perception rather than the use of objective measures of constraints. However, the perception of work constraints is probably more important for the development of health problems and mental health problems in particular, than objective constraints that may not be perceived as such (Lindström, 1994). 4) A confounding bias is also possible because several factors that contribute to the development of mental health problems are work-related. This study attempted to examine most factors documented in scientific literature and cited most often by COs. Personal and social factors were also included in the study and taken into account in the analyses. However, other unmeasured factors in the study may have affected the results presented.

## 7. Conclusion

This study is part of the development phase of an intervention research project. It is a prior risk evaluation that documents the high prevalence of adverse psychosocial factors at work, interpersonal violence and health problems among COs in Quebec prisons in comparison to an appropriate reference population. The comparison of 2000 and 2004 data among COs showed that psychosocial risk factors, violence and health problems are unlikely to decline significantly in the absence of intervention aimed at reducing them. This study also determined what factors are associated with psychological distress in this population. These results support the relevance of a participative intervention aimed at reducing four theory-grounded and empirically supported adverse psychosocial work factors (high psychological demands, low decision latitude, low social support, and low reward), and interpersonal violence (intermediate effects), in order to reduce their effects on mental health (final effects). The next phase of this research will document the implementation of the intervention and the evaluation of the effectiveness of the intervention.

Future research should also investigate the possibility that interpersonal violence at work is determined by adverse psychosocial factors and could be an intermediate factor in the development of psychological distress. Interventions aimed at reducing adverse psychosocial factors by targeting the work organization rather than individuals could result in a reduction of interpersonal violence and, consequently, contribute to a reduction of health problems among COs.

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