

« Taking account of gender differences when designing interventions in occupational health?
Lessons from a study of the “Healthy Enterprise” standard in Québec »

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Abstract

The literature shows substantial differences in occupational exposure between men and women, both between and within occupations, but remains very sparse on whether interventions are tailored to gender differences in the workplace.

Our objective was to determine whether gender differences are taken into account when designing prevention interventions.

This study is part of a project on the evaluation of interventions implemented in the framework of the “Healthy Enterprise” standard in Quebec organizations. Three sets of quantitative and qualitative data were collected in seven organizations and triangulated.

Our results show that in the process of elaborating and implementing activities, the main objectives were to reach a maximum number of workers and meet the needs identified in the health and risk diagnosis. Not distinguishing men’s and women’s situations in this diagnosis might play a role in intervention design. Activities were not tailored to the needs of specific subgroups of employees, such as gender or age.

Introduction

Differences in occupational exposures between men and women

Gender differences in occupational exposures have been documented in the literature and systematic disparities have been observed. It is common knowledge that men are more present in the construction, manufacturing, and agricultural sectors while women are more likely to work in education, community services and health. Moreover, within the same sector, women have a higher probability to be employed as clerks, and men as machine operators and assemblers for example^{1, 2}. As a result, these differences in the distribution of men and women among sectors and jobs contribute to substantial occupational exposures differences between genders. According to Eng et al.² in a study conducted in New Zealand, male workers were two to four times more likely than women to be exposed to dust, chemical substances, loud noise, irregular hours, night shifts, and vibrating tools. Women were 30% more likely than men to experience repetitive tasks, working at high speed, and to be exposed to specific types of chemicals such as disinfectants and hair dyes. The segregation of men and women between and within job titles and hierarchical levels also contributes to differences in exposures to psychosocial constraints at work. In a study including 31 European countries,³ women were more likely to report low skill discretion, low decision authority, workplace violence and low job promotion than men, but men were more likely to report high psychological demand, low support, and effort-reward imbalance. Similarly, results from the Québec Survey on Working Conditions, Employment and Occupational Health (EQCOTESST) show significant differences between men and women in exposure to the same dimensions of psychosocial risk.⁴

What is less widely acknowledged among decision-makers is the fact that men and women working under the same job description, with the same mandate and hierarchical level, may have

different exposures at work. This may be due to different factors. First, because of male-female differences in anthropometric measurements, tool design, working surface height, and equipment dimensions may be more or less adaptable to men and women.^{5, 6} For example, in a study by Laperrière et al.⁷, women in a restaurant tended to walk faster and do more steps per sequence, in part because women were shorter on the average and had to compensate for their height in order to cover the same distance as men. Second, the gendering of tasks within jobs may play an important role in exposure differences. Several ergonomic studies have shown that, within the same work team, with identical job descriptions and mandates, men and women can perform different tasks, the differences being systematic in nature.^{8, 9} In several jobs, such as cleaning in hospitals⁸⁻¹⁰ or clothing production for example,¹¹ work assignments are sometimes divided between ‘light work’ for women and ‘heavy work’ for men. This gendering of tasks is related to the perception of natural abilities of men and women relative to the perception of the requirements of each type of work activity.⁸ Studies have shown that ‘light work’ is often more repetitive with a static posture, whereas ‘heavy work’ is less repetitive and characterized by more extreme physical effort.⁸ Therefore, what is called ‘light work’ does not mean easy work, given the accumulation of repetitive movements and work intensity^{8, 11}. As a result, job task analysis unmask differences in exposures between men and women working in identical occupational sectors. This explains male-female differences in carpal tunnel syndrome injuries, for example, which appear to be due to job task attributes and not sex-related biological attributes.¹²

Differences in exposure between men and women within the same occupation are also documented in the literature on psychosocial risk factors. An ergonomic study by Riel et al.¹³, conducted among trainers in predominantly masculine trades in a vocational training school, shows

that women teachers had to face specific difficulties not experienced by men: a greater need to prove their competence and establish credibility, more difficulties in ensuring discipline, several situations of psychological harassment. According to this study, men and women may have different exposures to psychosocial work constraints within the same job titles, work team *and* task assignment.

In summary, the literature shows that there are differences between men and women regarding job exposures. These differences are due to the fact that men and women do not work in the same sectors and occupations. They are also due to a gendering of tasks that may occur within the same job description and mandates within the same team of a given organization. Moreover, male-female differences in physical and psychosocial constraints may occur within the same job titles and within the same task assignments.

Implications for intervention design and implementation

These findings raise the question of intervention design. When the management of an organization makes the decision to implement an intervention composed of several activities intended to improve health at work, to what extent are these differences between men and women taken into account? The literature on the process of implementation of interventions in occupational safety and health (OSH) does not investigate this issue, nor does the literature on the evaluation of prevention interventions. However, WHO guidelines explicitly recommend taking account of gender differences in OSH interventions, with the implementation of “gender-sensitive interventions based on information from gender-sensitive research”.⁶ In Québec, a guideline was published by the Minister of Family, Seniors, and Women’s Affairs in 2007 about how to take

gender-based analysis into account when implementing a program, an action or a regulatory policy. The effects of such a program on men and women can be different given that they have different needs, and this should be integrated into the implementation process from program design to follow-up ¹⁴.

The concepts underlying gender-based analyses for gender-sensitive interventions underlined in these two guidelines require applying these notions to OSH interventions and to the practical context of organizations.

The aim of this study is to determine how gender differences are taken into account when designing preventive interventions composed of several activities. This objective can be broken down into two different research questions since “taking into account gender differences” can be understood in several ways.

First (Q1), given the fact that occupational exposures tend to be different between men and women within the same team in the same organization, the question was whether activities were targeted differently toward men and women when these two groups were exposed to different risks. In this study we investigated whether this appeared to be a preoccupation or a concern for those who were in charge of conceiving, designing and implementing preventive activities inside organizations.

Second (Q2), those who design activities may be concerned with employees’ participation and involvement in prevention activities developed in different departments of the organization. However, men and women may have different interests, capabilities, and availabilities to participate in such activities. For instance, it might be more difficult to participate in activities after working hours for parents who take care of children after their working day. And this constraint might concern women more often than men. ¹⁵ Therefore, favoring participation may require

choosing activities that would be more adapted (or attractive) to women or men according to the gender composition of departmental staff. Hence, the second question was whether the choice of activities was intended to be more adapted to men or to women in order to encourage employees' participation in activities. This gender orientation of activities could be related to the nature of the activity itself or to the time of day when the activity was available to employees.

To answer these questions, we analyzed the implementation process of preventive activities put in place within the framework of the 'Healthy Enterprise' standard in a sample of enterprises in Québec, Canada.

Method

This study was part of a broader project aimed at evaluating implementation process and effects (on employees' health, on exposure and on cost-benefit ratios) of interventions in the framework of the "Healthy Enterprise" standard (*Norme Entreprise en Santé*)¹⁶ in Quebec.

Setting

Seven organizations were the intervention sites. They were located in different regions of Québec, Canada and belonged to several economic sectors: one in health care, one in banking, one in federal government public administration, one in provincial public administration and three in municipal public administration. The seven organizations represented a total of 2344 employees at baseline (before intervention), with various organization sizes: one organization below 100 employees, four between 100 and 200, one between 500 and 600 and one around 1000 employees.

Description of the intervention

The “Healthy Enterprise” certification program aims to recognize organizational practices that promote a healthy workplace and certification goes through an auditing process by the Bureau de Normalisation du Québec [Bureau of Standards of Québec] (<http://www.bnq.qc.ca/en/standardization/health-and-work/healthy-enterprise.html>). The certification is granted when a series of requirements are completed, among which are : (1) Explicit involvement of the company management in a policy that promotes health and wellness in the workplace; (2) Creation of an active “Health and Wellness committee” (HW) composed of employees, to lead and follow up on interventions ; (3) Data collection to assess employees’ health and to measure risk factor exposures at work ; (4) Implementation of actions to improve employees’ health ; (5) Evaluation of implemented activities. For the seven organizations in the sample, the assessment of employees’ health and risk exposure (criterion 3 above) had been previously performed by the National Institute for Public Health in Québec (Institut National de Santé Publique du Québec, INSPQ). Health and risk assessment was carried out as part of a diagnosis of the organization’s needs. It was intended to help each HW committee to identify priorities for interventions. Changes were thus specific to each organization.

To get the “Healthy Enterprise” certification, a company had to implement actions in at least two of the following areas, the “healthy life habits” area being mandatory: (1) Healthy life habits (physical activity, nutrition, alcohol and tobacco use), (2) Management competencies and psychosocial constraints, (3) Physical environment, (4) Work-life balance.¹⁶ As a result, preventive activities implemented in the framework of the Healthy Enterprise framework could be very diverse, such as a series of lectures on physical activity, or training for managers to improve reward and recognition in the management of team work, or creation of a time bank to improve work-life balance. The time frame between health and risk assessment (before intervention) and data

collection for the present study (after the intervention) ranged from 25 to 54 months with an average of 35 months. Implementation of interventions (as composed of preventive activities) in the seven organizations lasted between 25 and 39 months (32 months on the average).

Data collection

Data were collected through a mixed method approach (qualitative and quantitative). Three sets of data were analyzed.

1. A focus group interview with the ad-hoc HW committee in charge of the design and implementation of activities was conducted in all seven organizations. The duration of the focus group varied from 55 to 100 minutes, with an average of 84 minutes. The interview plan involved questioning the participants about the following main themes: organizational context; implementation of the standard (e.g. “How do you choose the activity to implement?” and “For which workers are the activities intended? ”) or the activities that have been conducted and their effects (e.g. “what has been done for this activity?”, “who participated”). A specific question on whether gender was taken into account when choosing activities was asked of organizations D, E, F, G but not of organizations A, B and C. In organizations A and B (pretest organizations), we only asked a question about the consistency of activities implemented with the action plan. In organization C we asked a broad question about which criteria had been used to choose activities, without questioning specifically on whether gender acted as a specific criterion.

2. A short description of implemented activities was collected from a key informant. We collected data for each activity implemented in the framework of the standard. Data were collected on the organization field by a research assistant.

3. The proportions of men and women among the organization staff were listed (for seven organizations), based on company records made available through the human resources department.

Participants

To be included in the focus group, employees had to be members of the HW committee of the organization. Participation in interviews was voluntary. In total, 40 people participated in focus groups. Participants signed informed consent forms whose content was approved by the Ethics Committees of the Université du Québec à Montréal (UQAM) and the Université de Sherbrooke (UdeS).

Data analysis

Research question 1 (Q1) was intended to investigate whether the HW committee was concerned with differences in exposures between subgroups in the organization (such as men/women), that might require different types of activities or a specific effort to reach the most exposed population. For Q1, the seven focus group interviews were recorded, transcribed and coded in order to perform thematic analysis *a posteriori*. Thematic analysis is a « method for identifying, analyzing and reporting pattern (themes) within data ». ¹⁷ This type of analysis allows themes to emerge, instead of approaching the analysis with a pre-established template (predetermined themes from literature or a previous empirical study). Qualitative analysis focused on all types of criteria, reasoning or decision-making tools that could explain how activities were chosen in order to take into account differences between employees, including gender differences.

Research question 2 (Q2) was intended to investigate whether the choice of activities was intended to be more adapted to men or to women in order to encourage employees' participation in activities, for example in the choice of the nature of activity itself or the time of day the activity was offered. For this analysis, we focused on two cases among the seven organizations. To do this, we chose two extreme cases where job holders were identified as predominantly female or male, defined as those where the gender ratio was more than 60/40 according to the definition by Quinn.¹ Thus, we could better bring out if gender was a concern in the choice of activities. On this basis, organizations **A** (72 % men) and **B** (81 % women) were selected. We did not choose organization **D** (92 % women) because this organization was in a less advanced stage within the process of certification. In organization **D**, questions about the conception and design process of activities did not provide relevant data because the intervention process was at a less advanced stage, prevention activities were less numerous and not as well developed as in the other organizations.

For Q2, we used two sets of data: (1) We analyzed detailed data on each activity collected from the key informant (see Data collection section). We extracted the nature of activities and classified them according to the “Healthy Enterprise” standard areas (see Description of the intervention section). We also extracted data about the time of day when activities were made available to employees: during working time (paid time), breaks, lunch time, at the end of the workday or during weekends. (2) For this descriptive analysis, the coding strategy of template analysis was chosen. “Template analysis is a style of thematic analysis”¹⁸ characterized by the use of codes *a priori* (activities classification according to the areas definition of the “Healthy Enterprise” standard) and *a posteriori* (nature of the activities). Analyses were performed using QDA Miner software (version 4.1.19).

Results

Criteria for choosing “Healthy Enterprise” activities

Table 1 lists the criteria mentioned by participants which led to the choice of activities implemented in their organization. Data analysis highlights two broad categories of criteria that influence the choice of activities: employees’ occupational exposure (two different criteria) and employees’ participation and involvement in activities (four different criteria).

<< place table 1 here >>

The first category concerns the **employee’s occupational exposure**. Firstly, all HW committees mentioned that the health and exposure assessment (diagnosis) performed by the National Institute for Public Health (INSPQ) determined the choice of activities, as illustrated by the following excerpts.

[The survey] allowed us to see, oops!, OK, in such and such an area, it's not going that well. And then, in this other area, it's perhaps going better than we previously thought. Then, well, work precisely on these points there [needs identified through the diagnosis]. [104A]^a

The survey was administered to all employees. So once it was analyzed, and we run statistics on all that, we are able to see where are people’s concerns, in what area we must act first. And then, that is what guides us to choose activities in fact. [112C]^b

This shows that health and exposure assessment performed to identify the needs for change in the organization played an important role when choosing and designing activities. Therefore, if this preliminary assessment does not distinguish men from women in the results, then it will not favor the design of gender-sensitive interventions. In this sample, preliminary health and exposure assessments were provided to organizations without any distinction between men and women.

Two HW committees (organizations D, E) out of five put forward the criterion of considering the gender most represented in the organization (Table 1, criterion 2). Recall that gender as a criterion was suggested with organizations D and E by the interviewer (whether gender was taken into account when choosing activities), whereas it was not suggested with organizations A, B and C (see Data collection section above).

The second category of criteria concerns the **employees' participation and involvement in prevention activities**. Six of the 7 committees (all except A) mentioned that the activities were chosen to reach the maximum number of workers, as shown in the following excerpt.

...this is to consider when preparing the calendar of activities to be sure you reach all workers. This is not a committee for a specific age group. [108B]^c

With this criterion, the committee did not intend to target specific groups of employees according to gender or age for example. On the contrary, the objective was to choose activities that would reach the maximum number of employees overall.

Four committees (C, D, E, F) also conducted their own survey to collect the activity preferences of workers (Table 1, criterion 4).

[...] But we did a small ad hoc survey because [we noticed] "well, yes, we have worked hard to provide activities, but then there are not many participants". So, a small survey was done, to ask "what topics would you like us to discuss or inform you about, or do you think your committee is important? [126F]^d

Three committees (A, B, D) said that the choice of activities was influenced by the *employees schedule preferences for the activity* (Table 1, criterion 5). The criterion 6, *including family members*, was raised by the committee of organization D only. These criteria are not directly

associated with gender, although the schedule preference question and targeting activities including family members bring out committees' concerns about work-family balance issues.

By these criteria, there is a willingness to consider employees' activity preferences and to facilitate work-personal life balance to promote greater participation. However, consulting employees about their preferences (for activities and schedules) may be in conflict with the aim to meet the requirements for intervention as provided by the diagnosis of health and risk assessment.

The nature and the time of "Healthy Enterprise activities": analysis of two gender-differentiated cases

In order to answer to the second research question (whether activities were intended to be more adapted to men or women in order to encourage employee participation), the detailed data for each activity implemented in the framework of the standard were analyzed. We extracted the nature and the time (working hours, break, lunch time, after work, evening, weekend) of each activity. The areas, as defined by the "Healthy Enterprise" certification program were used for classifying activities. A total of **26 activities** were implemented in organization A and **19** in organization B. More precisely, organization A has been involved in three areas of the standard: healthy life habits = 16 activities; management competencies and psychosocial constraints = 7 activities; physical environment = 3 activities. For organization B, activities are related to two areas: healthy life habits = 14 activities; physical environment = 5 activities.

<< place table 2 here >>

For both organizations, the dominant area of intervention is healthy life habits. The nature of activities does not allow to identify which activities are more men or women-oriented.

Organization B (81% women) offers a few more physical activities as *Zumba, Pilates, cardio fitness, line dancing*, which could be preferred by women. On the other hand, *softball and water sports* are activities that might be thought to better respond to the interests of men (organization A). But we must note that there is no validated criterion available in the literature that would provide a reference for categorizing activities between typically male or female activity.

Concerning nutrition and diet, activities are available for both organizations A and B with no significant difference in their nature. Among the activities included in the ‘physical environment’ area of the standard, two could be identified as healthy life habits (*gym access in the organization and healthy food vending machine*). The area of healthy life habits is the one with the largest number and greatest diversity of activities. Finally, only organization A reports activities in the management competencies and psychosocial constraints area and we cannot tell whether these activities are more men or women-oriented.

All activities offered by organization B (81% women) were outside working hours (Table 2): after work, work break, lunch time or during the week-end. In organization A (72% men), only one activity in healthy life habits area (*medical check-up*) was offered during working hours and the vast majority of activities were offered outside working hours with the exception of activities concerning management competencies and psychosocial constraints. Focus group analysis shows that *employees schedule preferences for the activity* was a criterion for the selection of activities. This analysis of the time of day when activities were offered does not allow us to conclude that activities were more adapted to men’s or women’s schedule preferences.

Finally, our study underlines that it is very difficult to identify activities more adapted to men or women by the nature of the activity itself or by the schedule of the activity.

Discussion

Main results

In the process of elaborating, designing and implementing activities, the main objective (for 6 out of 7 organizations) was to reach a maximum number of workers. The health and risk assessment was an important criterion for the choice of activities to be implemented. However, if this preliminary diagnosis does not describe the situation of men and women separately, then it will not favor taking into account gender specificity when elaborating interventions. This was the case in the organizations under study. Activities did not appear to be tailored to the needs of specific subgroups of employees, such as gender or age.

Otherwise, some criteria for selecting activities may seem inconsistent with each other. For example, 6 HW committees claimed to base their choice of activities both on the requirements defined by the preliminary diagnosis and on the employees' preferences about the scheduling and the nature of activities. These two criteria may not be compatible.

A close analysis of the nature of activities did not allow us to identify activities as better adapted to women in the organization where 81 % of workers were women, or better adapted to men in the organization where 72 % of workers were men. Intuitively, activities such as Zumba or Pilates might be considered as more attractive to women, but this explanation was not confirmed by the analysis of focus group data. Both organizations offered yoga sessions which may appear more attractive to women. As a matter of fact, there is no consensus on criteria to identify typical 'masculine' or 'feminine' activities. In consequence, it may become difficult for HW committee members to choose activities according to such a criterion. Moreover, the analysis of the time of day when employees could participate in activities (during or outside working hours) did not show

any difference between the two organizations. For both organizations, the schedule of “healthy life habits” activities suggests that these activities take place during personal time as opposed to working time. Although our analysis is based on a single organization for the ‘management competencies and psychological constraints’ area, this area of activities appears to be more integrated within working time. This may be explained by the fact that this area is part of human resources activities. As a result, this study shows that in a context of a majority of healthy life habits activities, it is difficult to identify activities more adapted to men or women, both for methodological reasons (no consensus on a criterion for categorization) and for lack of data about men’s and women’s actual participation in activities.

Limitations

Because data collection was retrospective, i.e. data collection for this project started at the end of the intervention process, we could not keep a logbook during implementation, although doing so is often recommended in implementation evaluation.¹⁹ Organizations in the sample were involved in a certification process which required gathering a large amount of statistics, information, and descriptions about activities. In this context, existing statistical files and company records contributed to the feasibility and validity of this data collection. However, some data were not available: we did not get quantitative data on the participation of men and women according to the type of activity in each organization because data had not been collected during the implementation process. The average duration of the intervention process was approximately three years; therefore data about the time of day when employees could participate in activities were not always available. Furthermore, variations in the interview plan for the focus group limit comparisons between organizations, although changes were minimal.

The analysis covered a broad range of activities included in the “Healthy Enterprise” standard, but most of them related to healthy life habits activities: nutrition and physical activity. This is due to the fact that the “healthy life habits” area of the standard is compulsory for organizations that wish to obtain the certification. It is also due to the fact that the definition of the area “physical environment” includes all changes in the environment, including for example adding a healthy food vending machine in the lunch room or creating a physical activity facility in the working place. Therefore our results are mainly based on activities related to healthy life habits activities. As shown in table 2, activities implemented in organizations A and B were mainly at the individual level and did not modify work organization, except for activities in the “management competencies and psychological constraints” area (organization A). It is difficult to know whether an analysis based on activities implemented at the organizational level would have yielded different results regarding gender differences.

Moreover, our question on whether the choice of schedule for activities was intended to be more adapted to men or women according to their availability outside working hours could be less relevant for analyzing changes in working conditions. Changing conditions under which work is performed usually occurs during working hours and in this context schedule availability is not an issue any more. Therefore the schedule of activities may be a relevant issue in gender analysis of preventive interventions specifically in interventions related to healthy life habits.

Strengths

We collected data in seven organizations from various economic sectors, private and public, with a diversity of number of employees (from below 100 to over 1000 employees). Detailed

information about a large set of interventions covering a long period of time (approx. 3 years) was collected, and such rich and detailed information is quite rare in the literature. Also, triangulation of two data sources (short description of implemented activities and focus group) for the nature of activities (Q2) support the quality of data and study results. Moreover, interpretation bias in the coding process was limited because the analysis was more descriptive than conceptual.

The literature is very scarce on how implementation of prevention interventions in occupational and safety health takes account of gender differences in organizations.^{20, 21} This study provides some of the first results on this issue based on a rigorous analysis of qualitative data. It also produces the first results on the evaluation of interventions implemented within the framework of the “Healthy Enterprise” certification program.

These results emphasize the need for more investigation about how gender is taken into account when designing preventive activities. In this study, we suggest distinguishing two aspects: (1) the concern to target differently men and women if they have different exposures and (2) the need to adapt activities according to men and women if they have different preferences. More specifically, it would be relevant to collect data on the participation of men and women in different types of activities since there is very little knowledge available on the latter aspect in the literature. For practical implications, these results suggest that gender was not an important concern in the organizational health and safety interventions under study, whereas the scientific literature insists on the need to take into account of differences between genders. For further research, it will be necessary to conduct more gender-sensitive analysis of health and exposure assessment to develop a better understanding of effective interventions.

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Notes

a. « Ça fait qu'après ça, on épluche les sondages, là. Ça fait que ça nous a permis de voir, bien oups!, OK, dans tel coin, ça ne va pas si bien que ça, puis dans l'autre, ça va peut-être mieux qu'on pensait. Puis, bien, de travailler justement sur ces points-là, là. »

b. « Le sondage qu'on fait à tous les employés. Donc une fois que ça c'est décortiqué, qu'on ressort les statistiques de tout ça, on est capables de voir où sont les préoccupations des gens, dans quelle sphère il faut agir en premier et puis c'est ça qui nous guide en fait. »

c. « Mais, c'est de les prendre en compte lors de l'élaboration du calendrier des activités pour être sûr qu'on touche le monde. Ce n'est pas un comité pour telle strate d'âge. »

d. « [...] mais on a fait un petit sondage maison parce qu'on avait parlé de ça à un moment donné pour dire bien là, oui, on travaille fort pour faire des activités puis on n'a pas beaucoup de participants. Alors, on a fait un petit sondage maison pour dire « quels sujets aimeriez-vous qu'on discute ou qu'on vous informe, ou, trouvez-vous que votre comité c'est important? »

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Authors' short biographies

Hélène Sultan-Taïeb is an associate professor at the department of human resources, at the faculty of management (École des Sciences de la Gestion) at Université du Québec à Montréal (UQAM). She is a health economist with a PhD in economics, specialized in occupational and safety health. Her research interests deal with evaluations of prevention interventions at the workplace, with cost benefit-analyses of such interventions and with the assessment of the costs of diseases attributable to occupational exposures. Some of her works focus on gender differences in exposures, work injuries and occupational diseases and in prevention actions in the workplace.

France St-Hilaire, PhD, is an associate Professor in human resources management, Business School, Sherbrooke University, Québec, Canada. During her doctorate, she worked on manager' skills and worker' skills linked to stress at Laval University in Canada. Her main current funded research aims to firstly design a model and then an intervention to develop managers and workers skills and behaviours to improve well-being and reduce stress. She also works on psychological risks specific to managers and organizational intervention to reduce stress.

Rébecca Lefebvre is a research professional at the Université de Sherbrooke (UdeS) and at the Université du Québec à Montréal (UQAM). Her research interests lie in the area of managers' mental health at work and prevention intervention. In recent years, she has collaborated with researchers in social sciences, particularly on organizational health research projects.

Caroline Biron is an Associate Professor of occupational health and safety management at Laval University, Quebec, Canada. She earned a Master's degree in Psychology from Laval University and a Ph.D. from Lancaster University Management School, United Kingdom. She is actively involved in several organizations to support and evaluate implementation of interventions to reduce stress, improve well-being, and organizational performance.

Michel Vézina is a medical specialist in public health and preventive medicine. He has been a tenured professor at Laval University in the Social and preventive medicine department since 1983, and a consultant in workplace health at the Institut national de santé publique du Québec since 2000. He has released numerous scientific publications on the effects of the organization of work on mental and cardiovascular health, and on psychological harassment at work. His expertise mainly concerns the social and psychological impacts of work and strategies that can be implemented to prevent them.

Table 1: Criteria for choosing “Healthy Enterprise” activities

Factors	Criteria	Organizations						
		A	B	C	D	E	F	G
Employees’occupational exposure	1 Needs according to diagnosis (INSPQ)	X	X	X	X	X	X	X
	2 Percentage of men and women within the organization				X	X		
Employees’ participation and involvement in activities	3 Target a maximum number of employees		X	X	X	X	X	X
	4 Activity preferences (according to ad hoc survey)			X	X	X	X	
	5 Employees schedule preferences for the activity	X	X		X			
	6 Including family members				X			
% Women among staff		28	81	65	92	41	40	31

Table 2: Comparison of the nature and the time of activities: two gender-differentiated cases

Area	Categorie	Activity	A (72 % men)		B (81 % women)	
			Time of day	In org A	In org B	Time of day
Healthy life habits	Physical health	Medical checkup	Work time	x		
		Chair massage	Break time	x		
	Nutrition and diet	Healthy snacks	Break time	x	x	Break time
		Culinary workshop	After work	x		
		Presentation on nutrition labels	Lunch time	x		
		Presentation on healthy eating	Lunch time	x		
		Purchase of recipe books and health magazines			x	NA
		Creating a recipe book			x	US
		Nutrition week			x	US
	Physical activities	Yoga	Lunch time or after work	x	x	After work
		Spinning	Lunch time or after work	x		
		Water sports	Lunch time or after work	x		
		Pilates			x	US
		Zumba			x	US
		Cardio fitness			x	US
		Line dancing			x	After work
		Workout			x	US
		Jogging			x	US
		Walking club			x	After work
		Softball	Evening	x		
		Sport challenge between enterprises	Week-end	x		
		Marathon			x	Week-end
		Payment for exercise activity	NA	x	x	NA
		Conference on benefits of daily physical activity	Lunch time	x		
		Conference on jogging			x	US
	Stress management and psychological health	Conference on stress management	Lunch time	x		
	Integrated approach to lifestyle	Challenge for a daily physical activity and vegetables diet (national program)	NA	x	x	NA
		Conference on mental health and physical activity	Lunch time	x		
Physical environment	Physical health facility	Gym access in the organization	Lunch time or after work	x		
	Healthy nutrition facility	Healthy food vending machine			x	NA
	Healthy working environment programs	Presentation on back pain	Lunch time	x		
		Presentation on ergonomics	Lunch time	x		
	Convert healthy area	Do a rest area			x	NA
Management competencies and psychological constraints	Recognition	Training program for managers	Work time	x		
		Training program for employees	Work time	x		
		Awareness campaign (posters)	NA	x		
		Presents and gifts for day of celebration	Work time	x		
		Workers' day	Work time	x		
	Conflict management	Presentation on the qualities of good teammates	Lunch time	x		
	Violence prevention	Training for managing difficult customers	Work time	x		
Other		Circulate info. on "Healthy enterprise"			x	NA

Total			26	19	
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*Legend: US = unspecified, NA = Non applicable, **x** = activity offered in this organization (A or B), we highlighted in grey activities offered during work time.*

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