

Psychological health

Studies and Research Projects

REPORT R-577



**Strategic approach to preventing
occupational stress**

*Jean-Pierre Brun
Caroline Biron
Hans Ivers*



Established in Québec since 1980, the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST) is a scientific research organization known for the quality of its work and the expertise of its personnel.

OUR RESEARCH *is working for you !*

Mission

To contribute, through research, to the prevention of industrial accidents and occupational diseases as well as to the rehabilitation of affected workers.

To offer the laboratory services and expertise necessary for the activities of the public occupational health and safety prevention network.

To disseminate knowledge, and to act as scientific benchmark and expert.

Funded by the Commission de la santé et de la sécurité du travail, the IRSST has a board of directors made up of an equal number of employer and worker representatives.

To find out more

Visit our Web site for complete up-to-date information about the IRSST. All our publications can be downloaded at no charge.

www.irsst.qc.ca

To obtain the latest information on the research carried out or funded by the IRSST, subscribe to *Prévention au travail*, the free magazine published jointly by the IRSST and the CSST.

Subscription: 1-877-221-7046

Legal Deposit

Bibliothèque et Archives nationales

2008

ISBN: 978-2-89631-292-4 (print format)

ISBN: 978-2-89631-293-1 (PDF)

ISSN: 0820-8395

IRSST – Communications Division

505, De Maisonneuve Blvd West

Montréal (Québec)

H3A 3C2

Phone: 514 288-1551

Fax: 514 288-7636

publications@irsst.qc.ca

www.irsst.qc.ca

Institut de recherche Robert-Sauvé

en santé et en sécurité du travail,

September 2008



Psychological health

Studies and Research Projects



REPORT R-577

Strategic approach to preventing occupational stress

Disclaimer

The IRSST makes no guarantee regarding the accuracy, reliability or completeness of the information contained in this document. In no case shall the IRSST be held responsible for any physical or psychological injury or material damage resulting from the use of this information.

Note that the content of the documents is protected by Canadian intellectual property legislation.

Jean-Pierre Brun, Caroline Biron et Hans Ivers

*Chair in Occupational Health & Safety Management,
Laval University, Faculty of Administrative Sciences*

Clic Research
www.irsst.qc.ca



This publication is available free
of charge on the Web site.

The IRSST wishes to thank Health and Safety Executive from England,
which financed the translation of this report.



IN CONFORMITY WITH THE IRSST'S POLICIES

The results of the research work published
in this document have been peer-reviewed.

SUMMARY

Despite an impressive amount of empirical data showing the adverse effects of stress in the workplace on the health of individuals and on organisations, there is little scientific evidence on how to prevent it effectively. Indeed, scientific evidence on the causes of stress at work (i.e. psychosocial risks such as low job control, high workload, role conflicts or low social support) is convincing. However, studies on the process of introducing organisational interventions to prevent stress in the workplace and on their effectiveness are still scarce. A number of reviews of scientific literature on workplace stress prevention programmes show the dominance of prevention programmes which focus on the individual (DeFrank & Cooper, 1987; Van Der Hek & Plomp, 1997, Giga, Cooper & Faragher, 2003). Although they can be very useful, interventions focussed on individuals deal with the effect of stress instead of preventing it. Moreover, without ongoing support, the benefits associated with this type of intervention are likely to be temporary (Giga, Cooper & Faragher, 2003). As for interventions which aim to target stress at its source by intervening on psychosocial risks in the workplace, there is much less scientific evidence, although the existing results seem more promising. In order to prevent stress effectively, we need to identify the most effective strategies and appropriate means of implementing such interventions in order to achieve the desired results.

Given this gap in stress intervention research, this research had two objectives:

1. Assisting organisations in order to **document the development and implementation process** of interventions to prevent work-related stress;
2. **Evaluating the effectiveness** of stress interventions aiming at reducing the exposure to psychosocial risks in the workplace, and in improving psychological health and wellbeing.

The study was conducted in three organisational settings (a higher education establishment, a hospital centre and business units in the public forestry sector). Within these three settings, a total of seven different intervention projects were monitored and evaluated. Questionnaires measuring sources of stress (i.e. psychosocial risks factors such as workload, low job control, job insecurity) and consequences of stress on wellbeing (e.g. psychological distress, job dissatisfaction, etc.) were completed by participants before the beginning of the interventions and 18 months later. Comparison groups (who were not exposed to any specific interventions) were used in four of the projects. After the first questionnaire was completed, employees and managers identified various sources of stress in their work and suggested solutions. These solutions were analysed by joint committees during which an action plan was drafted and implemented to address the stressors identified by employees. A total of 1613 questionnaires were completed (832 employees completed the pre-intervention questionnaire, and 781 completed the post-intervention one). Moreover, 266 persons were met in individual or group interviews. Finally, we monitored the development and implementation of interventions during a period of 18 months by attending meetings relevant to stress and psychological health at work within each participating units.

In this report, we will describe and evaluate the effectiveness of each project and discuss the main issues (facilitators and obstacles) which were encountered in the development and the implementation of the interventions.

MAIN RESULTS ABOUT THE EFFECTIVENESS OF INTERVENTIONS:

The overall outcome of the interventions introduced in the higher education establishment is extremely positive. Between the pre- and post-intervention questionnaire, the following changes were observed:

- In unit A, 14/16 psychosocial risk factors improved (i.e. causes of stress reduced). Moreover, wellbeing indicators improved: job satisfaction increased and a significant reduction in the proportion of employees who report high psychological distress was observed (56.1% vs. 25.9%).
- In unit B, 14/16 psychosocial risk factors also improved; there was more social support in the workplace, greater job satisfaction, less desire to leave and a reduced percentage of employees reporting high levels of psychological distress (43.6% vs. 33.6%).
- In project C, only 5/16 risk factors changed for the better; employees observed a slight increase in social support and a reduction in psychological distress (41.4% vs. 32.5%).
- In the comparison groups, only 5/16 risk factors improved slightly and there were no significant changes with regard to wellbeing indicators.

The results achieved in the hospital centre were also very positive based on the quantitative results.

- In unit D, 15/16 psychosocial risk factors improved. Employees observed positive changes in indicators such as job satisfaction, emotional exhaustion and psychological distress (68.3% vs. 37.8%).
- In the comparison group, only 6/16 risk factors improved and there were no significant improvements or deterioration in wellbeing indicators.

Finally, the preventive interventions introduced in the forestry sector seem to have had a moderate impact.

- In unit E, 12/17 risk factors improved and there was no significant change in wellbeing indicators.
- In unit F, 9/17 risk factors improved and once again there was no significant change in wellbeing indicators.
- In unit G, 10/17 risk factors improved, but there was no significant change in wellbeing indicators.

THE FOLLOWING KEY FACTS EMERGED AS A RESULT OF MONITORING THE INTERVENTION PROCESS:

- ↪ Administrative data concerning absenteeism is extremely useful as it sheds light on the decisions taken at the start of and during the implementation of measures.
- ↪ If administrative data is not available, a stress risk assessment questionnaire can also prove to be a wise choice to determine where to begin the process.
- ↪ If neither administrative data nor survey information is available, subjective qualitative information may be used to target those units which are at greatest risk.
- ↪ Particular attention must be paid to management commitment to the programme in order to maintain a high level of commitment throughout the project.
- ↪ Including the prevention of occupational stress in the workplace in an organisational strategic plan requires the management to be accountable to the staff and to the board.
- ↪ Top management commitment to implement changes to reduce exposure to psychosocial risks and improve wellbeing in the workplace are viewed as being infinitely more credible and feasible if a specific budget is assigned for this purpose.

- ↪ The parties' commitment can be measured by the level to which they go beyond mere diagnosis (i.e. surveys, focus groups) and to introduce structures, programmes or specific actions.
- ↪ It is important to support line managers and middle managers in setting up these activities as these very managers are often regarded by employees as being the source of problems, which can be very intimidating for them.
- ↪ Union commitment and involvement gives added value to the interventions and enhances the credibility of the proposed activities.
- ↪ Employee participation should start early (at the stage of identifying risks and solutions) and be maintained throughout the whole process
- ↪ It is essential to introduce actions with long-term effects, but also simpler actions which can be performed in the short term.
- ↪ Some unfavourable reactions may be encountered when introducing measures with a view to improving working conditions and it is important to implement concrete actions as soon as possible and to ensure that information on these is circulated.
- ↪ Members of steering committees are offered little support in delicate situations (i.e. employee meetings to introduce the project, leading group discussions to resolve problems, etc.). On these occasions, expert support is usually much appreciated.
- ↪ Selecting the project manager (e.g. the chairman of the steering committee) is a key factor behind the success of the interventions. This individual must have leadership qualities, be highly efficient, have project management skills and make use of strategies to handle resistance on the part of employees and managers.

OBSTACLES AND FACILITATORS

This research report highlights the main facilitators and obstacles to such actions. Concerning **obstacles**, the following points are discussed:

- managers' excessive workloads
- problems in changing work organisation procedures
- changing project managers
- the lack of skills in dealing with people amongst certain managers
- the negative opinion of employees and managers with regard to the intervention process
- simultaneous implementation of more than one intervention
- excessively long time taken to implement actions
- a method which focuses excessively on reducing absenteeism.

As for the main factors which **facilitated** the development and implementation of interventions, the following ones are discussed in the report:

- a strategic approach to risks
- strategic financial support
- support for managers during changes
- incorporation of stress prevention in policies or corporate mission statement
- a strong structure and regular meetings of the steering committees
- close collaboration and a trusting relationship with representatives of the human resources department
- a participatory approach throughout the proceedings

- creation of a short, medium and long-term action plan
- rapid and adequate diffusion of accomplishments and results.

To sum up, the results of this project reinforce the relevance of organisational- and work-oriented interventions when it comes to taking action against sources of stress in the workplace. We observed a reduction in exposure to risk factors and an improvement in wellbeing indicators (i.e. satisfaction, intention to resign and psychological distress) as a function of the prevention efforts (number and type of interventions, level of participation and relevance of actions). Much less positive results were obtained in the comparison groups where no specific interventions were implemented. These results suggest that a strategic and systematic approach to primary prevention constitutes an efficient way of reducing stress in the workplace and its negative consequences.

ACKNOWLEDGEMENTS

This research is the fruit of collaboration with a number of individuals and organisations and we should like to express our sincere gratitude to the following:

- The employees and managers of the organisations, the members of committees responsible for promoting mental health in the workplace and project managers in each organisation who have invested time and effort in this process and taken the time to reply to questionnaires and participate in interviews as well as a variety of specific focus groups;
- The Institut Robert-Sauvé en Santé et en Sécurité du Travail (IRSST) (Quebec Occupational Health and Safety Research Institute) and the Department of Human Resources in Canada (DRHC) who made this research project possible thanks to their financial support;
- The Health & Safety Executive in the United Kingdom who translated this report in English;
- The joint associations (ASP) and organisations who have assisted us since the early stages of the project;
- Sophie Lamontagne, research assistant, for her support, availability and excellent attention to detail and sense of organisation at each stage of the project;
- Christiane Blais for her logistics and administrative support throughout the project;
- Jean Cloutier, consultant and trainer, for his close and accommodating collaboration with the team, his reports of new developments in participating units and his highly relevant comments on a number of occasions.

The authors would also like to thank the scientific reviewers whose constructive comments have allowed us to improve this research report.

Note: The masculine gender is used generically with the sole aim of making this document easier to read.

TABLE OF CONTENTS

1. INTRODUCTION	1
1.1 CONTEXT AND HISTORICAL BACKGROUND TO THE RESEARCH PROJECT	1
1.2 OBJECTIVES OF PHASE 2 OF THE RESEARCH PROJECT.....	2
2. THEORETICAL BACKGROUND	3
2.1 RISK MANAGEMENT APPROACH	5
2.1.1 Risk assessment	5
2.1.2 Translation	6
2.1.3 Risk reduction.....	6
2.1.4 Evaluation and organisational learning	7
2.2 RESEARCH CONCERNING THE EFFECTIVENESS OF ORGANISATIONAL STRESS INTERVENTIONS.....	7
3. METHODS.....	9
3.1 DESCRIPTION OF ORGANISATIONS AND HISTORICAL CONTEXT OF THE STUDY PROJECT.....	10
3.1.1 Higher education establishment (Case 1)	10
3.1.2 Hospital centre (Case 2)	12
3.1.3 Organisations in the public forestry sector (Case 3).....	13
3.2 DEVELOPMENT PHASE: PREPARING FOR CHANGE.....	14
3.2.1 Partnership agreement with organisations and training for corporate committee members ...	14
3.2.2 Identification of pilot projects, risk assessment and group discussions with the participants	14
3.2.3 Translating the solutions into action plans	16
3.3 IMPLEMENTATION PHASE: DIRECT OBSERVATIONS, INDIVIDUAL AND GROUP INTERVIEWS	16
3.4 EVALUATION OF CHANGES BETWEEN BEFORE AND AFTER MEASURES.....	17
3.4.1 Instrument	17
3.4.2 Statistical analyses	18
4. RESULTS & DISCUSSION OF THE INTERVENTION PROCESS.....	20
4.1 RECOGNITION OF THE EXISTENCE OF PROBLEMS RELATED TO STRESS IN THE WORKPLACE.....	20
4.2 PREPARATION FOR CHANGE	21
4.3 IDENTIFICATION OF RISK FACTORS AND SOLUTIONS	25

4.4	ANALYSIS OF RISKS AND SOLUTIONS, IDENTIFICATION OF PRIORITIES AND RESOURCES	27
4.4.1	Outline description of each project.....	27
4.5	IMPLEMENTATION OF SOLUTIONS	30
4.5.1	Strategic comments on the actions undertaken.....	30
5.	RESULTS: EFFECTIVENESS OF THE INTERVENTIONS.....	33
5.1	EDUCATION ESTABLISHMENT	34
5.1.1	Response rate and sociodemographic data	34
5.1.2	Level of exposure to interventions	35
5.1.3	Changes observed in the participants between the pre- and post-intervention measures.....	38
5.2	HOSPITAL CENTRE.....	40
5.2.1	Response rate and sociodemographic data	40
5.2.2	Level of exposure to interventions	41
5.2.3	Changes observed in the participants between the pre- and post-intervention measures.....	42
5.3	FORESTRY ORGANISATIONS.....	44
5.3.1	Response rate and sociodemographic data	44
5.3.2	Level of exposure to interventions	45
5.3.3	Changes observed in the participants between the pre- and post-intervention measures.....	46
6.	DISCUSSION	49
6.1	OBSTACLES	50
6.2	FACILITATORS	53
6.3	STRENGTHS AND LIMITS OF THE STUDY	56
7.	CONCLUSION	57

LIST OF TABLES

Table 1.1: Classification of interventions based on objectives and population	4
Table 2.1: Group and individual interviews conducted in each organisation to identify problems and solutions in their workplaces.....	15
Table 2.2: Type of structure responsible for the project and interventions agreed on in each unit	16
Table 2.3: Group and individual discussions to inventory implemented interventions and assess the process.	17
Table 3.1: Solution generator table for focus groups	26
Table 4.1: Risk factors targeted by the actions in each unit.....	28
Table 5.1: Response rate for each target group, n (%)	34
Table 5.2: Percentages, mean values and number of respondents according to their sociodemographic characteristics for each measure.	34
Table 5.3: Percentage of exposure to each intervention.....	37
Table 5.4: Changes in levels of exposure (effect size) to psychosocial risk factors (Higher education establishment).....	39
Table 5.5: Changes in wellbeing indicators (adjusted mean values) (Higher education establishment) † .	40
Table 5.6: Response rate for each target group, n (%)	40
Table 5.7: Percentages, mean values and number of respondents according to their sociodemographic characteristics for each measure.	40
Table 5.8: Percentage of exposure to each intervention.....	42
Table 5.9: Changes in levels of exposure (effect size) to psychosocial risk factors (Hospital centre)	42
Table 5.10: Changes in wellbeing indicators (adjusted mean values) (Hospital centre)†.....	43
Table 5.11: Response rate for each target group, n (%)	44
Table 5.12: Percentages, mean values and number of respondents according to their sociodemographic characteristics for each measure.	44
Table 5.13: Percentage of exposure to each intervention.....	45
Table 5.14: Changes in levels of exposure (effect size) to psychosocial risk factors (Forestry organisations)	47
Table 5.15: Changes in wellbeing indicators (adjusted mean values) (Forestry organisations) †	47
Table 6.1: Obstacles to interventions	50
Table 6.2: Aspects which make it easier to implement actions.....	53

LIST OF FIGURES

Figure 1.1: Intervention process as implemented in the education establishment	11
Figure 2.1: Intervention process as implemented in the hospital centre	13
Figure 3.1: Intervention process as implemented in organisations in the public forestry sector	14
Figure 4.1: Example of a question assessing the level of exposure to the action and perception of the impact on quality of life in the workplace.....	18

1. INTRODUCTION

In Canada, 30.8% of employees confirm that most of their working days are considerably or extremely stressful (Statistics Canada 2003). Short and long periods of incapacity absence due to mental health problems represent one third of requests for compensation and 70% of the total cost (Sroujian, 2003). Stress in the workplace is associated with a number of health problems in employees (Vézina, Bourbonnais, Brisson & Trudel, 2004). It is also linked to low job satisfaction, reduced productivity (Cotton & Hart, 2003) and an increase in occupational accidents (Clarke & Cooper, 2004). These negative consequences for employees affect the success of organisations and their competitive edge in the marketplace. Even if the employer cannot protect employees from the sources of stress arising in their private lives and personal problems, he can protect them from sources of stress emerging in the workplace (Leka, Griffiths & Cox, 2003).

Given the scale of the problem and the costs associated with stress in the workplace, a number of organisations would like to implement measures with a view to either training individuals to cope better with stress or reducing the sources of stress in the work environment. Despite a considerable increase in the number of scientific publications on stress in the workplace between 1991 and 2002 (Archambault, Côté & Gingras, 2003; Kristensen, 2005), a number of authors stress the need to intensify research into organisational-level work stress interventions (Cooper, Dewe & O'Driscoll, 2001; Cox *et al.* 2007). Scientific texts on organisational-level work stress interventions are indeed quite rare, and much scarcer than individual-level interventions. As a result, it is difficult to ascertain which measures are likely to lead to an effective reduction in stress in the workplace and how these measures need to be implemented in order to achieve the anticipated results (Cooper *et al.*, 2001).

1.1 CONTEXT AND HISTORICAL BACKGROUND TO THE RESEARCH PROJECT

This research project follows on from an initial phase which was conducted between 2000 and 2003. This initial phase aimed to:

- Determine the scale and causes of mental health problems in the workplace;
- Identify human resources management practices which can affect the psychosocial work environment and therefore have an impact on mental health problems.

Data was collected via questionnaires, semi-structured interviews and focus groups within four organisations: a higher education establishment, an industrial establishment in the metallurgical sector, a hospital centre and an organisation in the public forestry sector. A total of 3142 people replied to the questionnaire and 56 managers and employees were interviewed. On average, across the four participating organisations, 43.42% of employees had a high level of psychological distress compared to 20.09% across the population of Quebec in 1998 (Légaré *et al.*, 2001).

The main risk factors affecting mental health were as follows: quantitative overload, low recognition of efforts, poor relations with line managers, limited participation in decision-making processes and a lack of information circulation. Prevention of mental health problems was in its initial stages in each of the participating organisations. In general terms, the groups studied favoured secondary and tertiary prevention measures as opposed to primary measures. Overall, all the organisations already had a variety of

management tools which could have been influential in preventing work-related stress, but some of these could do with being reviewed and adapted to employee requirements. Our conclusions on completion of this first research project indicated that prevention and management of mental health problems should be integrated in the overall management system of companies.

1.2 OBJECTIVES OF PHASE 2 OF THE RESEARCH PROJECT

This second research project has two main objectives:

- Assisting organisations in order to **document the development and implementation process** of interventions to prevent work-related stress;
- **Evaluating the effectiveness** of stress interventions aiming at reducing the exposure to psychosocial risks in the workplace, and in improving psychological health and wellbeing.

Three organisations took part in the study project. Units, departments and job classes from each organisation were selected in consultation with the Human Resources Department, the Health & Safety Department, the managers of the units in question and union officials. A total of six units and one job class were selected across the three organisations with a view to participating in an intervention project. In two organisations, two comparison groups were selected in order to compare their results with the units which participated in an intervention project.

The development and implementation of interventions in each of these groups were recorded by participants' observations over a 20-month period, with the exception of the projects in the forestry sector where the atypical nature of the work necessitated a shorter timescale (12 months). The wealth of information gathered over the course of these months of observation and collaboration with the organisations in question made it possible to document the background of organisational stress interventions. Up to now, few research projects have taken the time to describe the process of actions taken in connection with stress in the workplace. Most models to prevent stress in the workplace specify a number of general stages such as "*ensuring strong top management commitment*" or "*developing, implementing and evaluating an action plan*". Despite being compulsory, these stages do not tell users how to put them into practice. This study project therefore aims to explore and describe the main stages in the intervention process.

In view of the fact that there are very few studies assessing the effectiveness of organisational interventions to prevent stress, it is difficult to identify specific measures which need to be developed and implemented. As a result, the second objective of this study project is to evaluate the effectiveness of actions by means of questionnaires and individual and group interviews. Questionnaires were administered before the interventions were developed and 20 months later. The results relating to the effectiveness of actions include variations in exposure to risk factors and variations in wellbeing indicators (i.e. psychological distress, exhaustion, job satisfaction). When it has been possible to identify comparison groups (who did not take part in an intervention project), the results are compared with the groups who were exposed to specific interventions. Because some interventions (e.g. management training on how to deal with stress issues) were implemented throughout the organisations and not only in the units selected to participate in a specific intervention project, it was not possible to have adequate control groups. The comparison groups were exposed to some general interventions but not to anything specifically aimed at reducing the psychosocial

constraints in their unit. The degree to which each group (intervention and comparison) was exposed to each intervention was measured in the follow-up questionnaire.

Before going into the results in any detail, the section entitled “*Theoretical background*” will outline the strategies used to prevent the consequences of stress. Examples of stress interventions will also be described in this section. Then, the risk management approach which suggest a method to develop and implement organisational stress interventions will be outlined. Finally, this section will present an overview of findings on the impact of stress interventions.

2. THEORETICAL BACKGROUND

Whilst organisations are increasingly aware of the scale of stress-related problems in the workplace and their harmful consequences, minimal efforts have been invested in trying to prevent it effectively at source. A number of strategies can be used by employers, managers and union officials with a view to providing employees with a working environment which does not place excessive demands on their abilities. Note that theoretical stress prevention models differ with respect to a number of parameters. For example, DeFrank and Cooper (1987) suggest that interventions to reduce stress in the workplace may target the individual, the organisation or the interface between the individual and the organisation. Individual actions seek to increase the physical and psychological capacity of the individual to enable him to adapt to the stressful situation. In turn, organisational interventions aim to reduce stress on a macro level, e.g. by modifying certain aspects of the organisational structure, revising personnel selection processes and policies such as to adapt the working environment to employees’ needs. Finally, actions which are taken on a more local level (i.e. within a team or a department) tend to put the emphasis on the interface between the individual and the organisation, e.g. by clarifying roles or by increasing staff involvement and autonomy.

Murphy (1988) proposes a model which classifies interventions according to their level, namely the primary level (i.e. reducing sources of stress), the secondary level (i.e. improving stress management by the individual) and the tertiary level (i.e. rehabilitation and treatment). Primary prevention aims to eliminate or control risk factors which exist in the working environment by acting directly on these factors. Primary prevention aims to act on the causes of stress (psychosocial risks in the work environment). Reducing and preventing psychosocial risks in the workplace implies an action on the causes of stress rather than on its consequences. As far as secondary prevention programmes are concerned, they aim to help employees manage by improving or modifying their strategies for adapting to the sources of stress (i.e. time management, cognitive restructuring, etc) or by relieving the symptoms associated with stress (i.e. relaxation, physical exercise, therapy, etc). As for tertiary level actions, these are concerned with treatment, rehabilitation, procedures for returning to work and monitoring of individuals who are suffering or have suffered from mental health problems in the workplace (Cooper & Cartwright, 1997).

Murphy’s classification model based on prevention levels implies a time-based perspective since the primary level entails acting before stress-related symptoms appear, the secondary level may be preventive or reactive depending on whether the individual is showing symptoms or not and tertiary prevention necessarily means that the individual has already succumbed to stress-related problems. The model by DeFrank and Cooper is specific as to what or who will be targeted by the interventions, whereas Murphy’s model focuses on the goal of the intervention. The two models are often confused and primary level prevention is often thought to be necessarily describing an intervention at the organisational level. As Jordan *et al.* (2003) specify, an intervention could be aimed at individuals (for example training managers on a topic relevant to

stress) and yet still be considered as a primary level intervention. Indeed, training managers about psychosocial risks could imply in the longer term a reduction in employees' exposure to the causes of stress in the workplace.

In order to clarify and simplify the different means of categorising interventions, as part of this study, they will be grouped according to two parameters: the intervention level (primary, secondary and tertiary) or the target population for the intervention (corporate, job category or local unit). Table 1.1 shows the classification of actions according to the objective and target population.

Table 1.1: Classification of interventions based on objectives and population

		Intervention level	
		Primary prevention (reduce the stress factor)	Secondary / tertiary prevention (reduce the consequences of the stress factor)
Target population	Corporate actions (affecting all staff members or a particular job class)	1 <ul style="list-style-type: none"> ▪ Reorganise the line of authority ▪ Organisational restructuring ▪ Communication/Information ▪ Decision-making processes ▪ Fairer reward system ▪ Training to improve management skills ▪ Improve physical and environmental constraints ▪ Staff selection ▪ Job allocation procedure ▪ Job description ▪ Work-family conciliation policy ▪ Staff training (linked to tasks) ▪ Encourage a participatory management style 	2 <ul style="list-style-type: none"> ▪ Promote health and a healthy lifestyle ▪ Employee assistance programme ▪ Return to work programme ▪ Home carer programme ▪ Staff appraisal/reward programme
	Local actions (affecting staff in a particular sector / department or in a work team)	3 <ul style="list-style-type: none"> ▪ Changes in task organisation (i.e. to increase autonomy and control of employees) ▪ Clarification of roles ▪ Constructive retrospective action concerning staff performance ▪ Co-development / team building programme ▪ Staff training in tasks / equipment ▪ Reorganising a unit's working hours ▪ Task rotation ▪ Training with a view to improving the atmosphere in the work team 	4 <ul style="list-style-type: none"> ▪ Relaxation session, biofeedback, meditation ▪ Training in strategies to adapt to stress ▪ Training in time management ▪ Chair massage ▪ Working hours adapted to particular cases ▪ Resolution of inter-personal conflicts

Sources: Adapted from (Elkin & Rosch, 1990; Jordan *et al.*, 2003; Kompier & Marcelissen, 1990).

In the following section, we will now describe the Risk Management Approach (Cox *et al.*, 2000). This approach can be used to develop and implement a stress prevention programme. Although our research did not follow precisely all the steps suggested in this approach, it was quite closely modelled on it.

2.1 RISK MANAGEMENT APPROACH

Just as risk management in the field of health and safety at work would appear to be systematic and fact-based, managing stress-related problems in the workplace starts with identifying problems and their consequences so that we can try to reduce risks at source and, eventually, evaluate their impact (Cox *et al.*, 2000; Cox, Randall & Griffiths, 2002). By determining the features of work which are most closely associated with employee wellbeing, decisions relating to preventing mental and physical health problems can be taken more judiciously so as to reduce the consequences of the pathogenic conditions or even their probability of occurrence (Warner, 1992).

The risk management method adopted in the present study follows the one proposed by Cox and his colleagues (2000). It is based on the problem-solving processes used in applied psychology and in management, but adapted to the particular problems and contexts applicable to stress in the workplace. The process comprises the following stages: 1) risk assessment, 2) translation, 3) risk reduction and 4) evaluation and organisational learning processes. Evaluation is involved in each stage because each aspect of the process needs to be assessed, not just the results. The following section describes each of these steps.

2.1.1 Risk assessment

The aim of risk assessment is to identify the main sources of stress in the workplace which have an impact on the physical and mental health of a group of employees or an organisation. The assessment process can be broken down into five stages: 1) familiarisation, 2) work analysis, 3) the assessment questionnaire, 4) status of existing preventive measures and, finally, 5) data analysis and interpretation.

The initial familiarisation stage entails setting up a credible steering committee with the necessary authority to conduct the entire project. All those taking part should be involved in the various phases of the project, whilst bearing in mind that a restricted number of members will make the committee's job easier. The committee should include board representatives, managers and employees as well as a specialist in health & safety in the workplace.

The steering committee must select the groups which will be assessed. Several factors need to be considered when selecting these groups, in the sense that these must make it possible to create a portrait of the organisation as a whole and allow us to compare different groups such as departments, units or even job classes. Statistics on the rate of absenteeism and the turnover rate may also prove useful in making these choices.

The second stage of the risk assessment process entails analysing the nature of the work so as to identify the main stress factors. Work may be analysed in various ways, but Cox and his colleagues (2000) stress the effectiveness of group discussions (i.e. focus groups) involving employee representatives. These group meetings make it possible to identify the main problems encountered in the work context and to understand whether these problems have an impact on their wellbeing. The discussion also allows us to identify those aspects of work which are satisfying and may help staff to deal with the stressful aspects of their work.

Based on the information gathered in the familiarisation and work analysis stages, the third stage entails drawing up a questionnaire intended for the members of the selected groups. The questionnaire generally comprises: 1) a section assessing exposure to the major sources of stress in the workplace, as identified in the preceding stages, 2) a section assessing health 3) a series of questions aimed at obtaining sociodemographic

information about the respondents and 4) a space for comments and any other information which might be useful.

In order to avoid any overlaps, it is advisable to identify preventive measures and staff support services which already exist within the organisation. The information gathered may, for example, relate to existing policies, the organisational culture or training courses available to staff and managers. In the case of large organisations with a number of departments or where units are separated by considerable geographical distances, some existing (and potentially very useful) measures may not be widely known, may not be used properly or may even have been discarded for a variety of reasons. Assessing the current situation allows us to collate information about existing resources and identify residual risks or the most problematical risk factors for which there are limited preventive measures or none at all.

The final stage of the risk assessment process entails analysing and interpreting the results obtained as a result of the questionnaire. The psychosocial risk factors to which employees are most exposed and which are most closely linked to harmful physical or psychological symptoms can thus be identified. Cox and colleagues (2000) point out that stress factors are generally chronic by nature and that identification of the major stress factors is thus based on the proportion of individuals who report a problem, taking into account the number of employees who completed the questionnaire and ensuring that they do in fact represent the group as a whole. The authors thus suggest that a source of stress would appear to be significant if more than 50% of the sample regard it as being a problem. Information obtained by means of the group discussions with employees is then pooled and compared with the results of the questionnaire. The factors which are most closely linked to wellbeing indicators are regarded as being the main sources of stress. The risk factors which require action are selected on the basis of the strength of the link between the stress factor and its negative consequences and as a function of the number of employees exposed to the problem.

2.1.2 Translation

When the diagnostic stage is finished, the results must be circulated to the members of the steering committee for validation and approval. It is also important to circulate the information, either in part or in full, to the groups of employees targeted by the study project.

The main aim of circulating the results is to inform the steering committee of the results in order to stimulate discussion and determine the subsequent stages with a view to implementing actions. This stage usually takes longer than anticipated. Circulating the results often refers to delicate subjects and arouses a variety of emotional responses. These discussions serve to explore the links between risk factors such as to identify the underlying processes behind risk factors. This translation phase enables us to identify a limited number of actions to target the greatest number of risk factors.

2.1.3 Risk reduction

Publications concerning organisational interventions are often restricted to specifications and recommendations relating to health management practices and healthy working environments (Briner, 1997; Kompier, Geurts, Grundemann, Vink & Smulders, 1998) or focused on the individual rather than the work organisation (Burke, 1993; Cooper & Sutherland, 1997). Cox and his colleagues (2000) propose a balanced preventive approach, making use of actions at various levels. The authors stipulate that it is not advisable to merely use isolated strategies with a view to supporting staff as part of a risk reduction programme. They suggest that it is better to provide a balance of actions at primary, secondary and tertiary level. Lamontagne *et al.* (2007) conducted a systematic review of intervention studies and found that the more comprehensive programmes (including interventions at the primary, secondary and tertiary levels) had more favourable

impacts on organisational outcomes whereas less inclusive programmes (more focussed on individuals) tended to have an impact on individual outcomes but not on organisational ones.

2.1.4 Evaluation and organisational learning

The proposed evaluation strategy should include an inventory of interventions and information concerning the degree to which the interventions are implemented within the target groups. Discussions with groups of employees and key members can be useful in providing information about the impacts of interventions and the implementation process. Finally, a further questionnaire is issued to the target groups to measure the scale of changes in terms of exposure to risk and wellbeing indicators. This assessment also allows to record whether employees are aware of the implemented actions, whether they have been involved in the implementation process and, finally, whether they have noticed any impact in terms of their work. For example, do employees who have been involved in the process report significantly less work-related stress and/or fewer health problems compared with those who were not involved in the process?

2.2 RESEARCH CONCERNING THE EFFECTIVENESS OF ORGANISATIONAL STRESS INTERVENTIONS

Reviews of the scientific literature on stress prevention programmes in the workplace reveal the dominance of secondary- and tertiary-level interventions (DeFrank & Cooper, 1987; Giga, Noblet, Faragher & Cooper, 2003; Murphy & Sauter, 2003; Richardson & Rothstein, 2008; Van Der Hek & Plomp, 1997; Van Der Klink, Blonk, Schene & Van Dijk, 2001). Even though interventions of this type are more popular within organisations, studies tend to show that they are associated with a reduction in psychological and physiological stress symptoms, but that these positive effects are likely to be of relatively short duration and limited extent (Giga *et al.*, 2003; Murphy & Sauter, 2003). In addition, programmes focusing on individuals generally don't have any impact on organisational measures such as job satisfaction or productivity, whereas organisational measures are linked to improvements in the health of individuals and the performance of the organisation (Giga *et al.*, 2003). Even though preventive methods focused on individuals would seem to be both useful and necessary, they do not change the work organisation, since they tend to target the consequences rather than the sources of the problem. As confirmed by Burke (1993) and Hurrell and Murphy (1996), working situations which pose a risk for the mental health of employees should be targets for research into workplace stress.

From a theoretical viewpoint, it seems clear that the extent and duration of the impact will be greater by tackling the sources of stress in the workplace. However, there are very few research projects which have considered the impact of primary level interventions on employees and on the performance of the organisation. Given that the conditions under which this type of project is conducted are generally inadequate in terms of methods, the conclusions are often ambiguous and difficult to interpret (Parkes & Sparkes, 1998). Even though the research conducted into the effectiveness of primary prevention strategies does provide a number of promising results, there is still very little scientific evidence to enable us to identify the most effective strategies or to establish how these strategies should be employed in order to achieve the desired results. This lack of scientific evidence in evaluating organisational stress interventions explains in part the dominance of individual action programmes within organisations.

As mentioned above, reviews of studies evaluating the impact of work/organisation-level interventions do not always entirely agree (see Biron, Cooper & Bond, 2008 for a review). Burke (1993), for example, surveyed 10 studies concerned with organisational interventions to prevent stress at work. He concluded that,

in general terms, these measures showed that they can have a positive impact. Also, he suggested that primary level interventions which target the organisation should be encouraged, given that actions on an individual level have a rather limited history of success. On the other hand, Briner and Reynolds (1999) re-examined the studies surveyed by Burke (1993) and maintain that his conclusions were too optimistic. Indeed, Briner and Reynolds (1999) stress that, of the studies with methods which enable valid conclusions to be drawn, some will show that organisational measures have a positive impact on employee health, whilst others will suggest a negative impact and others will not discern any impact at all.

Other reviews of the stress intervention literature take a more optimistic view. For example, Kompier and his colleagues (2000) conducted a study which aimed to select, compare, and analyze interventions and preventive actions from international bus companies in order to reduce occupational stress and absenteeism amongst drivers. These researchers consulted a number of transport companies in order to survey the various actions taken across a number of countries. Only 13 of the 174 cases studied were conducted using an acceptable research design to allow them to be taken into consideration by the authors. Analyses of these 13 studies tended to show that the interventions lead to positive effects if they are adequately implemented. Prevention programmes were actually linked to a reduction in absenteeism. As far as subjective effects were concerned, the results showed that the interventions had a positive impact on employee health, wellbeing and satisfaction.

Bond, Flaxman and Loivette (2006) have studied the effectiveness of interventions targeting the six sources of stress identified by the *Health & Safety Executive* as part of the Stress Management Standards approach. Note that these sources of stress include demands, monitoring, support, relationships, roles and support during changes. Bond and his colleagues (2006) conducted meta-analyses of studies assessing the impact of measures concerning at least one of these stress sources. The impact of interventions on various organisational indicators (i.e. absenteeism, productivity, turnover rate, team performance) was analysed. The results of the meta-analyses show that stress interventions targeting the six psychosocial risks lead to positive consequences with respect to organisational outcomes. More convincing evidence is obtained from interventions aiming at increasing the level of job control. Nineteen longitudinal studies demonstrate consistently and significantly that higher levels of job control lead to improved performance, a reduction in absenteeism and the turnover rate. Other evidence supports measures relating to other sources of stress. However, evidence relating to job demands is less convincing, probably because the concept is too general and difficult to isolate. By way of example, role ambiguity or a lack of support in performing one's job are working conditions which are liable to increase the workload. As a result, an action aiming to reduce the workload (included in the concept of "job demands") will be more effective if it is implemented in such a way as to reduce role ambiguity and increase support. This being so, studies which attempted to reduce the "demand" factor are less convincing because this variable is often mixed up with other factors. Nevertheless, the meta-analyses conducted by Bond and his colleagues (2006) provide support for the relevance of primary preventive measures in order to reduce sources of stress in the workplace in terms of management and performance indicators.

In Quebec, Bourbonnais and colleagues (2003) conducted a study amongst care staff in health establishments. This involved introducing a participative action research with to optimise the psychosocial work environment. In comparison with control groups, the intervention groups reported more significant reductions in exposure to psychosocial constraints at work and improvement in health indicators. These researchers conclude that the research results support the use of primary level actions to prevent stress in the workplace and its associated negative consequences.

Along the same lines, Semmer (2003) identified a number of studies which provide convincing evidence of the fact that work organisation changes can affect the health of staff. Of the studies which were concerned with the features of tasks, the use of skills and a high level of control have a positive impact on mental health, job dissatisfaction and absenteeism. On the other hand, in most of the studies gathered by Semmer (2003), these benefits relate to one or the other of these variables and not all at once. As far as changes in working conditions are concerned (i.e. ergonomics, workload, working hours), beneficial effects seem to be more apparent in the short term, although a number of long-term effects are also indicated. The results of studies evaluating organisational and work-oriented stress interventions are not constant. Nevertheless, it should be noted that none of the examined studies indicate any deterioration after the implemented actions.

To sum up, a number of studies show that organisational-level work interventions have some potential for preventing problems associated with stress in the workplace. However, it is difficult to predict what changes will lead to which consequences. In their systematic review of organisational stress intervention studies, Parkes and Sparkes (1998) conclude that the problem of demonstrating favourable and significant effects may perhaps be attributable to the complexity of this problem area, the strategies used to reduce stress or complications associated with using a valid research design. Challenges posed by the requirements of the natural science paradigm in changing organisational settings are not easily dealt with (Griffiths, 1999; M. Kompier, 2004; Murphy & Sauter, 2004) and evidence concerning the effectiveness of interventions in these settings is often difficult to interpret (Shannon & Cole, 2004). For example, due to the many changes which organisations have to face in order to contend with market conditions, it is often impossible to achieve the required level of stability to conduct a research using a strong design (National Institute for Occupational Safety and Health, 2002). What's more, the problems associated with demonstrating significant effects may also be linked to the mismatch between the nature of the intervention and the methods adopted to assess its effectiveness.

Griffiths (1999) and Cox *et al.* (2007) also point out that the current scientific paradigm places the emphasis on the results of actions to the detriment of the process. Similarly, Goldenhar *et al.* (2001) stress that the aim of research to assess the effectiveness of health and safety actions in the workplace is not solely to assess the effectiveness of the actions, but must also make it possible to assess the way in which these interventions are developed and implemented. Furthermore, other authors mention the fact that the limited attention given to the context and process used represent major obstacles to achieving the anticipated effects of the actions (Nytrø, Saksvik, Mikkelsen, Bohle & Quinlan, 2000; Saksvik, Nytrø, Dahl-Jørgensen & Mikkelsen, 2002). To recap, learning about the context and the process of developing and implementing interventions could be as relevant a subject for research as actually evaluating their impact on outcomes (Biron, Cooper & Bond, 2008; Goldenhar *et al.*, 2001).

3. METHODS

Given that scientific evidence on the effectiveness of organisational interventions to prevent work-related stress is rare and that little is known about the way they are developed and implemented, this study is based on the use of a systematic method for preventing stress-related problems. The study was conducted in three organisations. The intervention process was documented and the changes in psychosocial risks and in health were measured. The interventions studied are either corporate actions (e.g. covering all the staff within an organisation or for a particular job class) or interventions relating to a specific unit. In accordance with the evaluative approach proposed by Goldenhar (2001), observations relating to each phase of the intervention

process will be reported (i.e. development, implementation and evaluation of the effectiveness of the actions).

As mentioned before, the study objectives were:

- To assist organisations in order to **document the development and implementation process** of interventions to prevent work-related stress;
- **To evaluate the effectiveness** of stress interventions aiming at reducing the exposure to psychosocial risks in the workplace, and in improving psychological health and wellbeing.

In other words, the research aims to document how interventions are developed and put in place, and evaluate if they are effective methods to reduce sources of stress and improve psychological health. As a result, it was not possible to select the participating organisations on a purely random basis since they had to be relevant for this set of problems in the first instance. Only those organisations which participated in the first phase of the study were observed by the research team as part of this second phase.

In this section, the participating organisations will be described along with the background against which the study is set. The research phases will then be explained in detail along with the data collection methods relating to each of these phases.

3.1 DESCRIPTION OF ORGANISATIONS AND HISTORICAL CONTEXT OF THE STUDY PROJECT

The organisations were contacted in January 2003 in order to ask them to participate in the second phase of the research project. The study was conducted in three organisational settings: a higher education establishment, a hospital centre and three units in the public forestry sector. The educational establishment and the hospital centre both employ over 3000 employees, whereas the entire forestry sector organisation employs up to 1500 staff members in peak periods. Each organisation will be described in brief on the following pages.

3.1.1 Higher education establishment (Case 1)

As shown in Figure 1.1, this establishment started being more active in preventing psychological health problems at work in the year 2000. Statistics concerning the absence rate were quite worrying back in autumn 2000. Mental health was the main cause of absence. In 2003 mental health problems represented 30% of absence events and days amounting to less than six months (short duration) and represented 50% of events and days lost amounting to over six months (long periods of invalidity). Absenteeism due to mental health problems was high in all job categories. However, office staff (representing 22% of total staff numbers) were the most affected with events representing 50% of the total mental health problems in 2003 (70 out of the 138 cases) and 46% of days lost (2791 days out of 6052). The presumed cost of absences due to mental health problems amounts to approximately \$1,300,000 per year purely in direct costs. As a parallel measure, our initial research phase in this establishment showed that 41% of the 1086 individuals surveyed report a high level of psychological distress. Our results also enabled us to identify the three psychosocial constraints in the work environment which posed the greatest threat to wellbeing. These three constraints were classed as *high risk* for the majority of job categories: quantitative overload, poor relations with line managers, limited participation in organisational decision-making processes. We used the Clarke and Cooper (2000) method to calculate the risks levels. This method allow to include the level of exposition to each

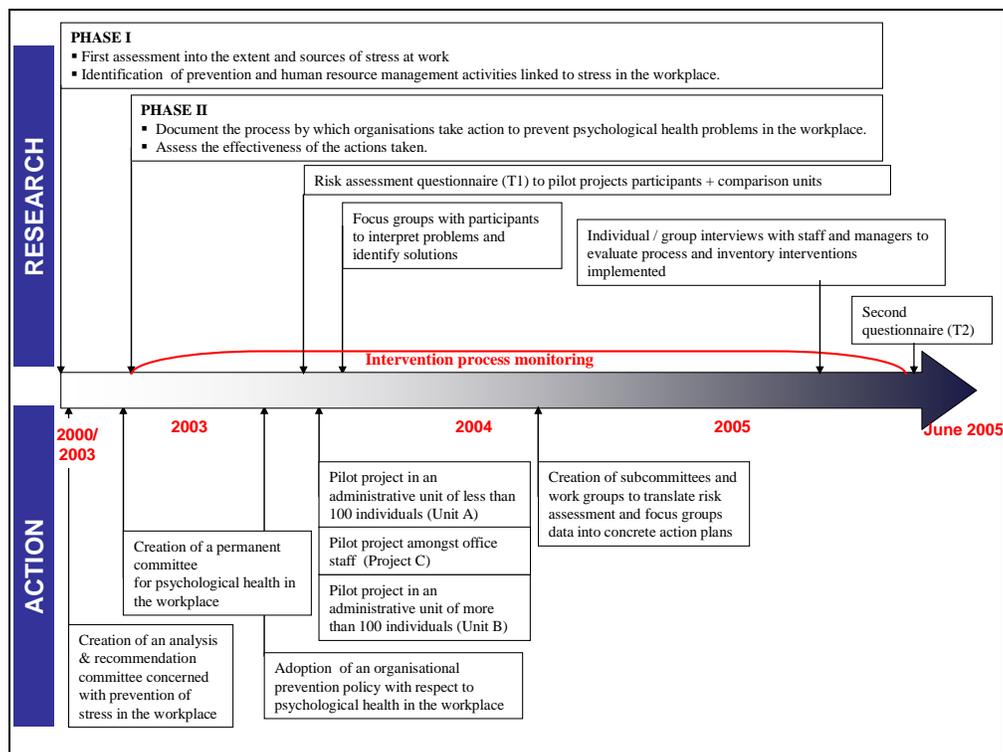
psychosocial constraint as well as the level of negative consequences on wellbeing posed by each of these constraints (see Biron, Brun & Ivers, 2008 for more details on the risk calculation procedure and Biron, Ivers, Brun & Cooper, 2006 for its possible applications).

The Pro Vice Chancellor for Human Resources thus set up a working group to review the situation and make recommendations. Amongst other things, the working group recommended setting up a permanent psychological health committee. This permanent committee was first appointed in June 2002. The committee is responsible for drawing up an institutional policy proposal with respect to psychological health in the workplace and ensuring that this is updated; drawing up a three-yearly action plan and revising this on an annual basis; proposing the required analyses concerning psychological health in the workplace and recommending appropriate action; monitoring and assessing the actions taken. Since the start of the second research phase during the course of 2003, this committee has met on average once a month. The committee comprises experts, union representatives and associations and employer representatives, numbering 14 people in total. The research team attended all of these meetings in order to document the intervention process.

Of the many actions proposed by this committee, three pilot intervention projects were introduced:

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Pilot project in an administrative unit numbering less than 100 employees 2. Pilot project in an administrative unit numbering more than 100 employees 3. Pilot project amongst office staff | <p>Unit A
Unit B
Project C</p> |
|---|--|

Figure 1.1: Intervention process as implemented in the education establishment



3.1.2 Hospital centre (Case 2)

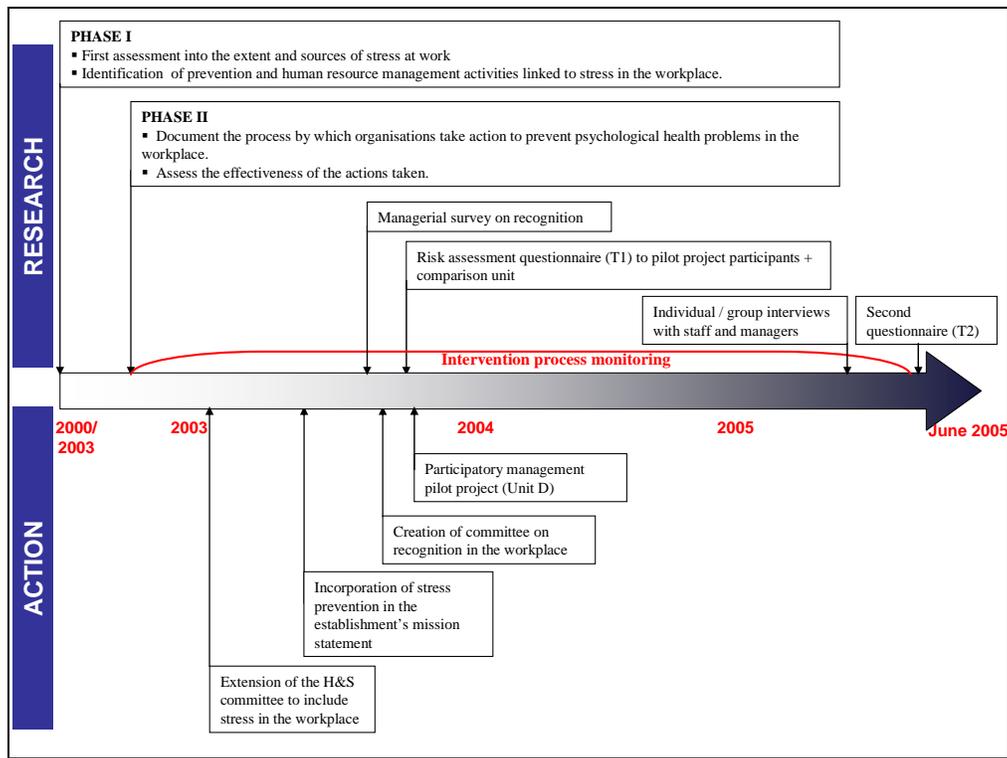
This hospital centre includes two short-term care centres who both participated in the first phase of our study. Since 1995 the national health system has undergone numerous reforms. This led the hospital centre to major reorganisations and changes. Psychological problems accounted for 38% of the total absences in 2003. The first research phase (see Figure 2.1) allowed us to show that 54% of the 1064 questionnaire respondents experienced a high level of psychological distress. Staff in the “*para-technical and nursing care*” category were the group most at risk from all the job categories in the hospital centre and all job categories amongst the other participating organisations as well.

The steering committee overseeing the process existed before the start of the study project, but was made up of managerial representatives only and had not been very active for quite some time. It was responsible for some aspects linked to occupational health & safety and management of absenteeism in the workplace. For the purposes of the study, union representatives became members of the committee. Contrary to expectations, this committee did not play a very major role in drawing up and implementing the actions. This was primarily the responsibility of the Human Resources Department, which kept the committee informed of the various actions taken. The committee met five times during the observation period. In order to obtain a full set of information regarding the action process, the research team mainly met the individuals responsible for psychological health matters in the Human Resources Department.

Psychological health aspects were incorporated in the institution’s strategic mission statement. The following priorities were identified to this end: to intensify management methods promoting staff recognition, to accentuate union and employee participation, to revise the management structure and the work organisation structure, and to stimulate interest and training of individuals to take over the managerial role. A number of participatory management projects were set up in conjunction with these priorities. One of these projects commenced within a care unit at the same time as the present study project. All the staff in the unit were thus asked to respond to a questionnaire on stress in the workplace before and 18 months after the start of the project. The research team was only able to attend some of the meetings held by the committee managing the project. The comparison group also replied to the questionnaire at two different times.

After the results of the first research phase, which identified the lack of recognition as a priority problem, a sub-committee was set up in the hospital centre. This was responsible for recommending a campaign to improve awareness of recognition practices within the organisation on a day-to-day basis. A questionnaire was compiled by the researchers and issued to all managers within the organisation with a view to achieving a better understanding of their own recognition requirements and their practices of recognizing their staff efforts. The questionnaire was developed specifically for this group and issued on a one-off basis. The researchers then used the results to make top management aware of the needs and requirements with regard to recognition practices. We subsequently assisted the organisation in preparing awareness tools for use by all managers. Given that this was a specific assistance role, the results of this survey will not be presented in this report and are regarded as being specific aspects of action plans as opposed to research results.

Figure 2.1: Intervention process as implemented in the hospital centre

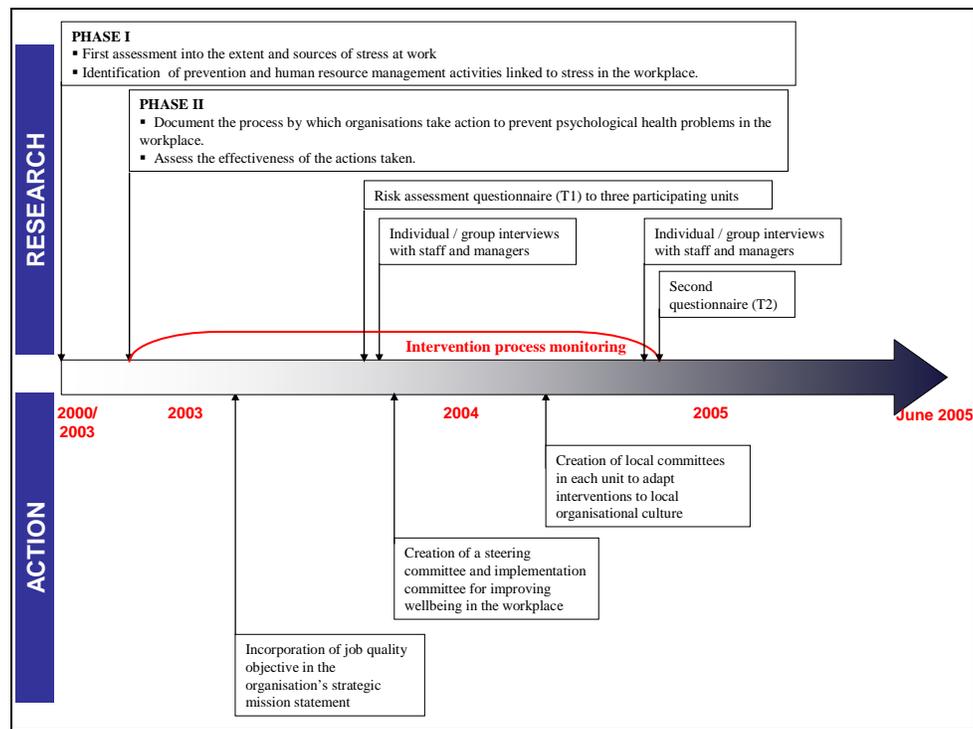


3.1.3 Organisations in the public forestry sector (Case 3)

The organisation consists of six units located in different geographical areas, 65 permanent employees, 460 seasonal staff and nearly 1100 occasional workers during peak periods. In 2001, the management committee conducted a strategic planning exercise for the period from 2002 to 2005. In order to ensure that it was fulfilling its mission, this organisation identified certain issues, one of which was job quality. Against a background of a shortage of labour, the organisation needs its staff to be committed and must be able to depend on a motivated workforce. The study was thus conducted with this aim in mind and also with a view to achieving ongoing improvements in job quality. The strategic methods considered by the management team to fulfil its mission statement include allocating responsibility and motivating individuals, individual recognition and skills development.

Only one unit in this organisation took part in the first phase of the study (see Figure 3.1). When the second phase of the research project was presented, the Director wanted to extend participation to all six units in order to implement actions which would affect all employees. However, the research team's limitations meant that intensive monitoring of all these units was not possible. It was thus agreed that all the information would be collected from three of the six units (i.e. group and individual discussions, participants' observations, questionnaires before and 12 months after the start of the project). The work of the two committees overseeing the process was also monitored by the research team.

Figure 3.1: Intervention process as implemented in organisations in the public forestry sector



3.2 DEVELOPMENT PHASE: PREPARING FOR CHANGE

In this section we shall outline the research strategy which was used in order to establish favourable conditions for the introduction of interventions on psychosocial risks in the workplace.

3.2.1 Partnership agreement with organisations and training for corporate committee members

At the point when this second research phase was put before the organisations concerned, a partnership agreement document was submitted for signing. This document describes the project's objectives and the implications for the organisation and the researchers. Once the partnership agreement had been signed, the members of the steering committee had a day's training on the subject of stress in the workplace, the major risk factors identified in our first phase of research, the consequences of stress in the workplace and prevention strategies. The training session is basically intended to heighten members' awareness of the importance of primary prevention so as to make sure that subsequent actions do not solely concentrate on secondary and tertiary prevention. It also allows a common language to develop within the steering committee, which we shall now refer to as "*corporate committees*", and which is also shared by the researchers.

3.2.2 Identification of pilot projects, risk assessment and group discussions with the participants

The pilot projects were identified jointly by the key members of the organisation and the research team. Wherever possible, similar comparison groups were selected based on the numbers of employees, professional function and level of absenteeism.

To enable them to be monitored by the research team, the projects were required to target changes in the pathogenic features of their working environment or organisation structure (i.e. workload, role conflicts, recognition, etc.) with a view to improving mental health amongst staff. In addition, the projects must not already be in existence or have started beforehand, to enable us to monitor the entire process.

Once the target groups and comparison groups had been identified, the team presented the research project to the staff (target groups only; the other groups were informed of their involvement as comparison groups by their managers). The participants then received a postcard informing them that they would shortly receive a questionnaire by e-mail. In certain organisations (or within a target group), individuals did not have access to individual e-mail accounts, so a paper version of the questionnaire was sent to them. An information letter, signed by the research team, their manager and union representatives, accompanied the questionnaire along with a consent form. Notices on the unit’s notice boards reminded the individuals involved of the importance of completing the questionnaire. The participants were neither rewarded nor remunerated for filling in the questionnaire. However, few prizes of \$50 were distributed amongst the respondents on a random basis. The questionnaires were returned directly to the Chair of Occupational Health and Safety Management at Laval University. The participants had a month to reply to the questionnaire.

Meetings were also held with the employees in the pilot projects over three stages in order to: 1) identify the main problems experienced at work, 2) suggest solutions and finally, 3) validate the collected information. Nominal group technique was used to prioritize problems which would be further considered for solution identification. During the second stage, a number of solutions were identified and then classified according to whether they were suitable for use on an individual scale, within a work team, union or at employer level. Possible solutions for all groups were then analysed by a committee and translated into action plans. Table 2.1 below shows the number of groups and individual discussions conducted in the various cases under consideration.

Table 2.1: Group and individual interviews conducted in each organisation to identify problems and solutions in their workplaces.

	Unit/project	Number of individuals in group interviews	Individual interviews
CASE 1	UNIT A	48 individuals (6 groups)	5 individuals (management team members)
	UNIT B	5 individuals (1 group)	
	PROJECT C	31 individuals (3 groups)	
CASE 2	UNIT D	51 individuals (9 groups)	
CASE 3	UNITS E, F and G	37 individuals (3 groups)	
TOTAL		172 individuals	5 individuals

3.2.3 Translating the solutions into action plans

Within each organisation, possible solutions for units/projects were analysed by a joint committee and translated into action plans (see Table 2.2). The solutions were grouped according to subjects as a general rule. The work teams were then consulted in order to validate and adapt the action plan to reflect reality. In certain cases (Units A, E, F, G), sub-committees or implementation committees were formed to implement specific or local actions. All the action plans were submitted and approved by hierarchical bodies within the participating organisations.

Table 2.2: Type of structure responsible for the project and interventions agreed on in each unit

	Unit/project	Participation structure	Type of interventions
CASE 1	UNIT A	Joint local steering committee Employees implementation committees	Information, return to work, work recognition, role clarification, work organisation, involvement in committees, social club, team meetings, physical environment improvements.
	UNIT B	Management committee on Human resources	
	PROJECT C	Joint corporate steering committee	
CASE 2	UNIT D	Joint local steering committee	Additional equipment, task modification, holding team meetings, productivity assessment, access to a report drafting room
CASE 3	UNITS E, F and G	Corporate director committee Joint corporate implementation committee Joint local implementation committees	Involvement in the choice of equipment, preparatory meetings for production activities, progress meetings, review of task allocation, welcome guide for new employees, annual productivity assessment, site visits by managers

3.3 IMPLEMENTATION PHASE: DIRECT OBSERVATIONS, INDIVIDUAL AND GROUP INTERVIEWS

Over an 18-month period (12 months in the case of the forestry organisations), the research team attended meetings relating to the project with a view to observing and guiding the members of each committee. The research team documented interactions with the people involved, the issues, the decision-making process, information circulation or budgets granted. The research team was present when the specific activities were organised. Each meeting was recorded by systematic note-taking. It is important to note that the researchers were never responsible for delivering the interventions, but that their role was to act as co-pilots in certain actions. The researchers facilitated the project start-up phase, monitored all the execution stages and assessed the effectiveness of the interventions, but were not actually responsible for any projects. This decision by the researchers as to their role in the project was intended to ensure a greater transfer of responsibility and ownership by the participating units from the start of the project. However, in certain cases, the researchers did play a more active role, either by leading the group discussions to identify risks and solutions (Case 3) or by collaborating actively with the consultant responsible for leading the discussions (Case 1).

On several occasions during the observation period, the research team conducted individual interviews with key informants (i.e. HR managers, external consultants, Health & Safety Director, union representatives,

managers, employees, etc.) in order to document progress with the activities, the facilitating aspects, obstacles and the organisational background. Before issuing the second questionnaire to measure the effectiveness of the actions, the research team held meetings with groups of voluntary employees representing each team affected by an intervention project. These meetings served to identify the actions and changes made as part of the project. The interventions were divided into two categories: actions within a specific unit and actions at organisational level, targeting other staff apart than those in the unit. The participants then reported whether they had participated or been affected by this intervention and their perceptions of the intervention. This stage served to list the specific and general activities performed during the 18-month period in which the interventions were monitored and to incorporate these in the questionnaire for the second wave.

Meetings were also held with managers, either individually or in small groups. They were also required to identify and share their perceptions of the interventions implemented during the project. They were also interviewed as to their perceptions of the usefulness of the project overall, problems or resistance encountered and asked what could have been done to support them in implementing these activities. Table 2.3 shows the total number of interviews held and people interviewed.

Table 2.3: Group and individual discussions to inventory implemented interventions and assess the process.

	Number of individual interviews	Number of group discussions	Total number of people interviewed
Education establishment (Unit A)	3	4	34
Education establishment (Unit B)	9	1	23
Hospital centre (Unit D)	2	2	8
Forestry organisation – Unit E	2	1	5
Forestry organisation - Unit F	2	2	9
Forestry organisation - Unit G	0	3	10

3.4 EVALUATION OF CHANGES BETWEEN BEFORE AND AFTER MEASURES

3.4.1 Instrument

Measures were taken before and 20 months after the beginning of the intervention process (in Case 3, 12 months instead of 20). The questionnaires measured organisational risk factors (sources of stress at work), mental health and wellbeing indicators, and sociodemographic data. The second questionnaire also included items measuring the perception of interventions identified during the previous stage. The questionnaire was issued to employees in the target groups and comparison groups who were given one month to complete it. During this month, they were invited to complete the questionnaire online on several occasions (by means of memos or notices). A code was inserted in the hyperlink to enable the researchers to: (a) identify the organisation in which the respondent is based, and (b) match the completed questionnaires to the two measurement periods. The respondents' identities (i.e. name and work details) were not recorded in the statistical databases in order to preserve the anonymity of the respondents and the confidentiality of their replies.

A number of factors which were deemed to affect wellbeing were measured, as suggested by Sparks and Cooper (1999). In addition to the risk factors proposed by Cooper and Marshall (1976), elements of the models created by Karasek (1979) and Siegrist (1996) were measured. The various risk factors measured and their psychometric characteristics are described elsewhere (Brun, Biron, Martel & Ivers, 2003; Biron, Ivers, Brun, 2008). Also, as stress symptoms may vary from one individual to another, a number of indicators were used to assess perceptions of work (i.e. job satisfaction and intention to resign), mental health (i.e. psychological distress and emotional exhaustion) and psychosomatic symptoms experienced by employees. In the first wave, the questionnaire was completed by 847 respondents.

In the second wave, the interventions implemented as part of the project were identified by the employees and managers during group and individual discussions. In the light of this information, a new section was added to the questionnaire which was used prior to the intervention process. A question was added for each identified intervention in order to determine to what extent the employee: 1) had been exposed to the action and 2) felt that the action had had an impact on his quality of life in the workplace. The questionnaire was completed by a total of 788 respondents in the second stage. The following diagram shows an example of a question added to the questionnaire in the post-intervention questionnaire.

Figure 4.1: Example of a question assessing the level of exposure to the action and perception of the impact on quality of life in the workplace.

I took part in a training session on communication and teamwork.				
	No	Only partly	Yes	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
This activity had the following kind of impact on my quality of life in the workplace...				
Very negative	Somewhat negative	No impact	Somewhat positive	Very positive
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.4.2 Statistical analyses

Data entry. All data from the paper versions of the questionnaires were entered twice (double entry method) by an independent company in order to maximise data integrity. The two data sources were then compared and examined using standardised procedures (Tabachnick & Fidell, 2001) in order to identify missing or aberrant data and to check distributions. Version 9.1.3 of the SAS software package (SAS Institute, 2001) was used for data handling and statistical analyses. The alpha level was set at a standard level of 5% and all statistical tests were bilateral.

Representative nature of the participants in the two assessments. Some participants had left the organisation (and not completed the second assessment), whilst others have recently joined the organisation (and not completed the first assessment). In order to maximise the statistical power, the representative nature of the sample and the external validity of conclusions, participants who had completed *at least one* of the two assessments were included in all analyses. Partial completers were compared with full completers on sociodemographic (i.e. age, sex, years of service) and psychological indicators (i.e. psychological distress, job satisfaction, intention to resign, exhaustion) using chi-squared tests and Student's T tests for independent samples.

Evaluation of the impact of actions. The methodological design was a quasi-experimental procedure with prospective longitudinal measures with comparison groups (excepted in the three units from the forestry sector). A control group was not used in this study for various methodological and ethical reasons. First, due to the fact that some of the interventions were implemented throughout the organisation, it was impossible to select a perfect control group i.e. a group of employees who were completely unexposed to the intervention processes and activities (Parkes & Sparkes, 1998). Secondly, while selecting a control organisation may be a way to answer these limitations, this strategy leads to major threats to internal validity, related to non-comparability of organisations (e.g., management and working practices, organisational structure). Instead, comparison groups were selected. These groups were not exposed to specific interventions but only to the corporate interventions.

To study the longitudinal changes, a series of analyses of variance using linear mixed models were conducted to compare exposure level to every 16 risk factors and wellbeing indicators according to a factorial split-plot design (between effect = 2 groups, within effect = 2 periods). The temporal change score for each group was estimated using simple effects (Kirk, 1995). The effect size (i.e., standardised difference, Cohen, 1988) was computed as the ratio of temporal change scores and the root mean squared error (*MSE*) of the final model (Bird, 2002). Mixed model analysis was favoured over the traditional *ANOVA* method due to its ability to retain incomplete longitudinal observations, thus increasing statistical power and external validity, and its greater ability to cope with non-normal data (Keselman et al, 2001).

Calculation of distress level. The Psychiatric Symptom Index was used. It is a validated instrument used in the Quebec Health Surveys and in many other studies on mental health at work (Blais & Lachance, 1992; R. Bourbonnais, Brisson, Vézina & Moisan, 1996; R. Bourbonnais, Comeau & al., 1998; M. Vézina & Bourbonnais, 2001). This instrument measures the frequency of symptoms of anxiety, depression, aggressiveness, and cognitive problems during the previous week. It is a useful scale given that (a) it allows comparisons between groups of employees with the population of Quebec, and (b) it assesses the individual's symptoms who are currently working (as opposed to those who are absent from work). The threshold proposed by the 1987 Quebec Health Survey is the 80th percentile of the population distribution, representing 20% of the most distressed individuals aged 15 and over.

Finally, Spearman rank correlation coefficients were computed between exposure to risk factors and wellbeing indicators (i.e. social support, job satisfaction, intention to resign, psychosomatic symptoms and emotional exhaustion) after the interventions (T2). Spearman's rank correlation was selected over Pearson correlation because the former is more robust to extreme data and small samples (Siegel & Castellan, 1988).

4. RESULTS & DISCUSSION OF THE INTERVENTION PROCESS

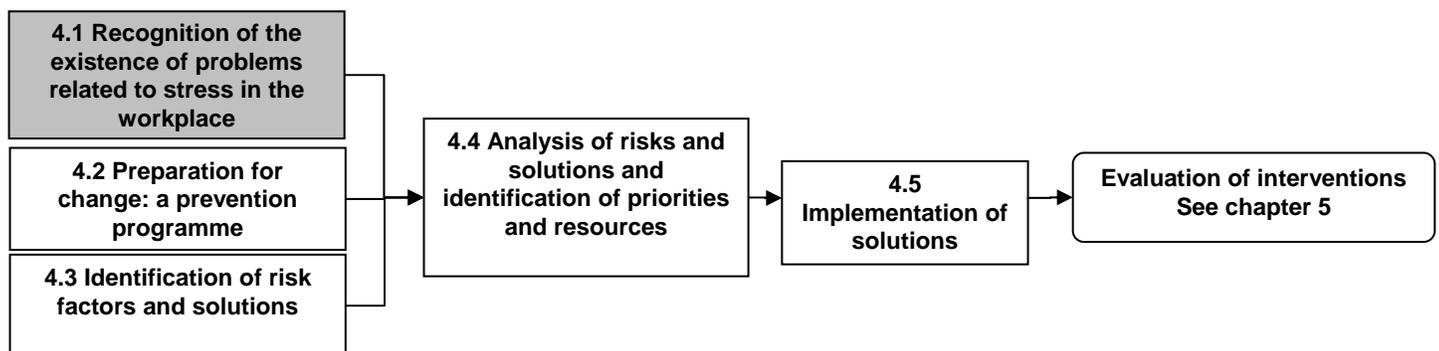
This section will examine the main stages of the intervention process. For the purposes of this report we opted for a reporting strategy based on six major and strategic stages of the intervention process in order to avoid a presentation in the form of an organisational monograph. We shall highlight the aspects which played an important role in each stage. The following main stages will be discussed:

- 4.1 Recognition of the existence of problems related to stress in the workplace
- 4.2 Preparation for change
- 4.3 Identification of risks and solutions
- 4.4 Analysis of risks and solutions and identification of priorities and resources
- 4.5 Implementation of interventions

These stages were inspired by the model created by Cox and his colleagues (2000), but differ in the sense that more emphasis was placed on the process prior to the action stage so as to provide a better picture of the issues in this phase. In order to make it easier to monitor our progress, the figures at the start of the section illustrate the sequence of the action project. Each box identifies one of the stages in the action process. This figure is included in each section of this chapter, with the shaded box being discussed in that particular section. Once the topic has been discussed, the box is ticked (✓).

In the sixth stage, which assesses the effectiveness of the interventions, the results of each project are given in Chapter 5 to provide a better overview of the impact of the implemented actions.

4.1 RECOGNITION OF THE EXISTENCE OF PROBLEMS RELATED TO STRESS IN THE WORKPLACE



The first step towards change implies the acknowledgement of the relationship between the psychosocial work environment, workers' health, and organisational performance. Using existing data (i.e. absenteeism, loss of productivity, cost, etc) ingeniously plays a major part in raising the awareness and helping decision-makers acknowledge the need to take action. The following points describe how the participating organisations made good use of their administrative data in order to increase the potential of subsequent interventions.

↳ In order to avoid an approximate approach to problems of psychological health in the workplace and similarly to ensure a global and fair vision of the scale of these problems, it is essential to obtain as much administrative data as possible (i.e. absence rate, type of absence, disability insurance contribution costs, etc)

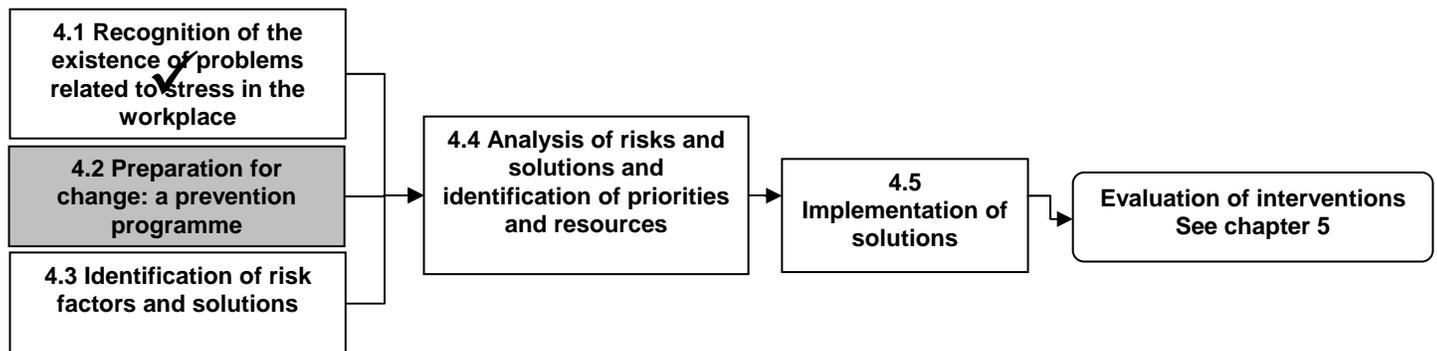
before the start of the prevention program. Two of the three organisations participating in the project had precise absence data relating to each type of complaints. This includes information on short and long-term invalidity, the costs of disability insurance, use of medication, psychotherapy and reasons for consulting the employee assistance programme. In just one case, this information was available globally and for each of the organisation’s units, which will make it easier to select certain action targets at a later date. This administrative data is extremely important as it provides management indicators which shed light on the decisions taken at the start of and during actions. Having this data available allowed us to respond objectively and quantitatively when doubts were put forward by employees and managers regarding the true scale of psychological health problems in the workplace.

↳ If neither administrative data nor survey information is available, subjective information may also be used to target those units which are at greatest risk. Human resource managers and managers of units know their teams well and are aware of "hot spots" within the organisation (i.e. complaints concerning workload, increase in overtime, task complexity, staff cuts, new employees with less expertise, regular sick leave takers and problems in replacing absent staff, etc).

↳ We noticed that managers and employees are aware of these problems, but do not always have a grasp of their scale or consequences. Inactivity on the part of the organisation is thus not due to ignorance of a problem, but rather to a poor grasp of its scale (i.e. number of employees experiencing the problem), its possible consequences (i.e. lack of motivation, absenteeism, presenteeism, etc.) or an inability to act (i.e. lack of expertise, lack of financial or human resources to resolve the problem). Despite these obstacles, it is important to note that the absence of administrative data is not an insurmountable hurdle to preventive action on the part of small and medium-sized organisations. A qualitative and quantitative analysis of the situation often provides a sound basis for deciding whether or not to act.

↳ If administrative data is not available, a survey concerning stress in the workplace or “stress audit” can also prove to be a wise choice. Thus, the results of the survey of the first phase of the study (Brun *et al.*, 2003) were used to motivate the board, managers and employees. In Case 3, the strategy used entailed acknowledging the scale of the problem, whilst at the same time announcing the organisation’s desire to draw up a specific and fast-acting global action plan that would concern all units. Enthusiasm for the project was so great that the researchers had to negotiate and define the scope of the research mandate to ensure it would be consistent with the financial and human resources of the research team.

4.2 PREPARATION FOR CHANGE



A number of researchers stress the fact that the support of the board, the involvement of managers and the participation of employees are key elements behind the success of a prevention programme. By way of

example, Kompier and Cooper (1999) point out that the initial success and survival of the prevention programme are highly dependent on the sustained involvement of senior management staff. Note that few studies have taken the time to describe the mechanisms and processes used to obtain the support of members of the organisation and to maintain this on an ongoing basis. In contrast, the systematic review of stress interventions conducted by Jordan and colleagues (2003) shows various forms of involvement such as financial support, personal involvement on the part of some managers, setting up of infrastructures, the use of wellbeing indicators as organisational performance indices and also allocating responsibility for the prevention programme to a top-level manager.

Despite the fact that the first phase of our study project (2001-2003) enabled us to establish close links with a number of contacts in each organisation, setting up prevention activities required much greater involvement on their part. In the three participating organisations, it took longer than expected to prepare and introduce the actions. Moving from a problem to a diagnosis (Phase I) does not pose the same organisational challenges as moving from a problem to an action (Phase II). Preparing for change is thus a strategic process which must be discussed with respect to the following aspects.

↳ Fixed and specific involvement of the board is a stage which needs more time than anticipated at the outset. Organisational-level work stress interventions imply changing the work organisation structure and thus posed much greater challenges for board members and managers. In organisation 1, it took 15 months to negotiate and refine the details of a level of involvement which finally took the form of a permanent joint committee for psychological health in the workplace and led to the adoption of a prevention policy on psychological health in the workplace.

↳ As a general rule, board involvement is conceptualised as an initial stage in the project, but our experience in this field indicates that this involvement should be regarded as a process which requires particular attention and which must be reconfirmed on a regular basis throughout the project. This strategy allows us to avoid creating a gap between the board's expectations and the activities implemented in the workplace. The management teams of these organisations should therefore be regularly informed of progress with activities. A senior member (Director of Human Resources) was invited to attend a committee meeting each year, either to discuss budget matters or progress with activities. In general terms, the visibility of senior managers demonstrated their interest in the problem and confirmed their level of involvement.

↳ In the three cases, the prevention programme was linked to strategic corporate planning in order to ensure its ongoing nature and make sure that the action programme was well anchored within the three participating organisations. By way of example, the following objectives were recorded as major trends: "*provide quality jobs*", "*promote a culture of recognition*", "*increase team cohesion and a feeling of belonging*". This "anchoring" strategy is interesting as it means that staff health becomes a management function and not merely an activity at operational level which is never discussed as part of the organisation's major strategic plans. This very fact means that incorporating health issues in the workplace in strategic planning requires the management to be accountable to the staff and even, in the case of the educational establishment, to the board.

↳ An organisation's commitment to implement changes with a view to reducing stress in the workplace are viewed as being infinitely more credible and feasible if a specific budget is assigned for this purpose. This financial effort was a key element in demonstrating the organisation's determination, providing resources for the steering committee and motivating committee members, employees and managers to take an active role in the process. Over the 18-month monitoring period, the financial argument was used regularly to respond to the various criticisms raised throughout the organisation. This argument proved very effective.

↳ The success of a project is not solely dependent on top management involvement. If the process is implemented within a specific unit (i.e. department, division, workshop, etc.), it is crucial to obtain the support of the directing manager so that he can motivate and obtain the commitment of the staff and other managers in the unit. By motivating the middle management team from the start, it is easier to have their support when implementing solutions. We also observed that it is important to strongly support line managers and middle managers in setting up these activities, as these very managers are often regarded by some employees as being the source of problems, which can be intimidating for them.

↳ Our research shows that managers leading the project in a unit or in corporate committees must have very high “people skills”. In each case where a project was conducted in a unit, the director of the unit was responsible for the operations and implementation of the changes. This management process required special skills and abilities on the part of the managers, such as the ability to communicate with their teams, motivate staff, lead meetings and use more political strategies, etc. Although managers encounter these tasks within their regular roles, the fact that these were not associated with psychological health and work-related stress made them much more delicate and challenging than they usually were.

↳ The manager must also be well disposed (i.e. in terms of values, beliefs, hope, etc) to enable him to believe that the proposed changes are the right changes and will be beneficial, as his workload will represent an almost daily constraint when it comes to implementing activities to improve working conditions.

↳ Whilst management support is essential for the intervention process to succeed, union involvement is also necessary (Dawson, William, Clinton & Brandford, 1988). We noted that representatives co-defined the context, rules and the type of action along with the employer’s representatives. They thus made an active contribution to drawing up operating methods for corporate committees (i.e. objectives to be achieved, decision-making process and powers, access to information) and to deciding on the intervention process (i.e. target population, selection of actions, employee participation methods, determination of monitoring methods). Their involvement gives added value to the actions and enhances the credibility of the proposed changes in the employees’ eyes at the same time.

↳ As far as employee involvement is concerned, literature on this subject is very clear: their involvement is essential if the prevention actions are to succeed (Fielden & Cooper, 2002; Jordan *et al.*, 2003; M. A. J. Kompier *et al.*, 1998; Mikkelsen & Gundersen, 2003; Mikkelsen, Saksvik & Landsbergis, 2000). However, employees have expressed doubts as to the management’s good faith, the proposed projects and the anticipated repercussions on a virtually systematic basis. In fact, we observed systematic doubts or even a systematically negative perception of the proposed stress interventions or the way in which they are to be implemented in the workplace. Providing support for managers (i.e. by means of an external consultant, an HR representative, a line manager) to enable them to deal with these attitudes has proved crucial in this stage. This comment made by an employee during a group discussion to identify problems and solutions illustrates this point:

“I found it really difficult to persuade my team to come along (to a focus group on identifying sources of stress in the unit). If this process doesn't lead to anything, you can forget about us, because we won't be coming again; time and time again people LISTEN to us, but don't DO anything about it. We are not frightened of coming here, we're just not under any illusions.”

As shown by this comment, the negative attitude of employees is not due to any resistance to change, but down to the fact that they have witnessed many projects in the past which raised their hopes, but which came

to nothing in the long run or did not have any impact at all. The project managers and researchers therefore had to come to terms with this lack of popularity, which led to an increase in the information meetings required and the need to act even more quickly in order to answer these doubts by means of specific and valid actions. In a study concerned with changes in working situations by means of a participatory ergonomic approach, Bellemare and her colleagues (2002) reported the same phenomenon with respect to expectations and suggested that specific times should be set aside for refocusing:

“... this analysis of perceptions of changes supports the notion of planning specific times for refocusing and updating the possible scope of changes as part of the ergonomic approach. A steering committee or any other committee set up specifically for the purpose of implementing and monitoring the project must provide a venue for this refocusing operation during which the decision-makers will set the boundaries for possible measures” (P. 75).

Despite the efforts made, the general view was still that these interventions were fitted for managerial interests, rather than for the good of employees and functioning of the team:

“Employees also have responsibilities in terms of mental health, not just managers. If this exercise was repeated, all employees would have to accept that they have a part to play in this process. I proposed the process in the first place and I tried to convince them, even though they were sceptical. If they had all been in agreement, it would have stopped them telling me that it was “my project, my baby” when we came across difficulties”. (a manager, director of an intervention unit)

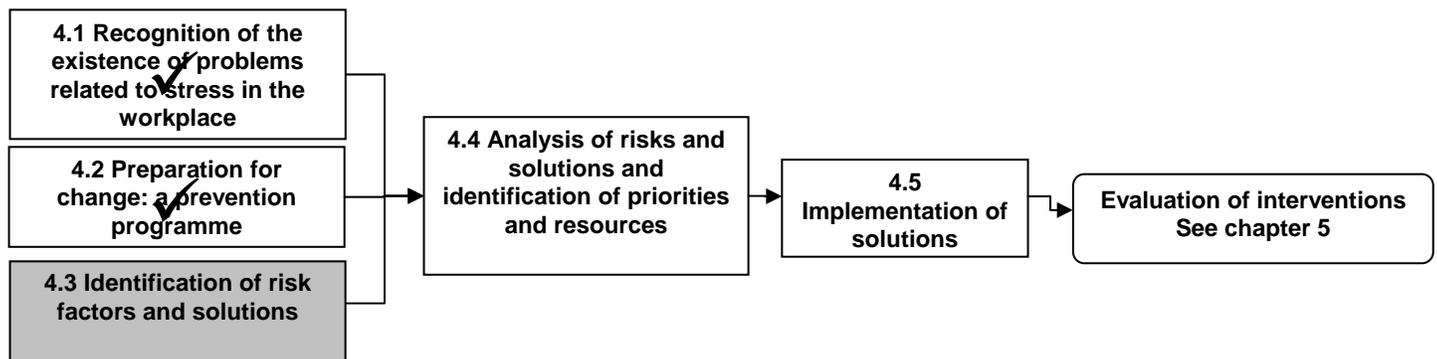
↳ In very specific terms, the parties’ commitment can be measured by their desire to go beyond mere diagnosis (i.e. surveys, *focus groups*) and to introduce structures, programmes or specific actions. In organisation 2, although there was a thorough risk assessment in 2000 resulting from our first phase of research, there were many requests to reissue the questionnaire to all staff, rather than just the staff in the target unit who had been selected to participate in the intervention project. These requests on the part of the committee were motivated by the belief that a new diagnostic outlining a similar organisational situation would reinforce the management’s commitment towards implementing changes to prevent stress. We do not aim to deny the importance of a precise risk assessment nor the relevance of quantitative data in the beginning of the intervention process and in determining priorities for interventions. Instead, we wish to insist that change comes about by modifying the work itself (Guérin, 2006), which in turn affects the day-to-day life of employees and managers. However, these changes require structures to be implemented, and support to be obtained, a favourable climate of working relations and a financial situation which is able to have a favourable impact on the introduction of preventive activities. The repeated use of diagnostic questionnaires without any changes and without any information on what is being done with the results tends to increase employee expectations.

↳ When creating the structure which will form the basis for the prevention programme, our contacts in an organisation which in the end did not participate in this second research phase discussed the ideal steering committee. Some suggested integrating the prevention of psychological health problems in a joint occupational health and safety committee whereas others favoured integrating it in an existing committee for preventing violence in the workplace. Integrating the prevention and management of psychological health problems in an already existing structure might sound like an attractive option at the outset in order to avoid overlapping activities and to save resources. However, our observations tend to show that it is a risky strategy.

In the first place, the organisation's commitment is more visible when a committee is appointed with the specific task of managing psychosocial risks and preventing psychological health problems. Secondly, by

allocating this responsibility to an existing committee, the resources devoted to this new topic will necessarily be reduced since the committee's workload is liable to be heavier without any additional human and/or financial resources. Indeed, we were able to observe that considerable effort, time and resources are required in order to implement action plans, especially when the interventions to be implemented apply across various levels (primary, secondary and tertiary). In this case, even if sub-committees are appointed to develop and implement each intervention, the workload is still considerable and requires a substantial involvement from the members. It thus appears preferable to establish a structure which is solely responsible for psychological health, at least as far as the "corporate" committee is concerned or the central committee responsible for interventions throughout the organisation.

4.3 IDENTIFICATION OF RISK FACTORS AND SOLUTIONS



Many authors suggest that organisations with a coherent and articulate programme for assessing psychosocial risks tend to have better processes for dealing with stress (Cox *et al.* 2000; Giga *et al.* 2003; Jordan *et al.*, 2003). Measuring and analysing risks are key elements in the intervention process, since these make it possible to focus the priorities on the most important issues. It is often suggested that the organisation should consult external experts or experts from other departments, in order to ensure a certain degree of neutrality. For example, following on from a review of organisational stress intervention studies, Parkes and Sparkes (1998) recommend a neutral evaluation of the impact of implemented measures as well as an external consultant to facilitate the changeover.

It may be that resources are not sufficient to employ a consultant or to have expert assessors or researchers on hand. In this case, occupational health and safety experts or human resource management experts may provide information on the absence rate, the turnover rate or productivity of a department or job class. Once the units or groups who are due to benefit from the actions have been identified, there are a number of tools for assessing psychosocial risks. Jordan *et al.* (2003) give examples of organisations which have developed their own assessment tools or which use traditional management instruments such as task analysis.

Here are a number of points which would seem to be important when it comes to identifying risk factors and solutions:

↳ Employee involvement is essential if projects intended to change the working environment are to succeed. However, this participation must not be limited to introducing actions, but must also take effect much earlier in the proceedings, at the risk and solution identification stage. In the vast majority of action projects with which we have been involved, the employees did participate by means of focus groups in identifying problems and solutions specific to their unit. This task was often guided by the initial

questionnaire which made it possible to highlight the major risk factors for each organisation in order to map out the proposed field of action.

↳ During these discussions with employees, it was important to be clear on the scope of possible changes which could be implemented. For example, in units E, F and G, it was specified that creating jobs was not a possible solution since the economic background of the establishments in question was extremely precarious. In order to define this "*scope of possibilities*", the researchers held discussions with the steering committees with a view to establishing possible action areas (i.e. reviewing duties, communication methods, workload distribution, etc) and those areas in which actions were impossible (i.e. taking on new staff, changing managers, etc). This strategy for diagnosing problems and solutions is not intended to limit people's ability to express their views of risks and solutions, but rather to avoid creating false expectations. The consultant responsible for leading the group discussions within the higher education establishment regularly refocused the participants' expectations.

This approach was not used in Unit D of the Hospital Centre. Risks and solutions were identified by external consultants with the participation of all staff. A working group composed of managers and employees then managed to identify more than 60 different improvement measures, only one of which involved creating a new technician's post. This solution was not selected by the hospital board of directors since the budget was not sufficient to permit it. On the other hand, employees' expectations were very high with regard to the setting up of a new post since task analysis had shown that providing this new post could resolve a number of problems. When the employees heard the news from the manager, they viewed the entire project as being a waste of time. The "*scope of possibilities*" does not seem to have been clearly defined. The entire process was affected as a result and many employees said during the follow-up interviews that they would no longer participate in such an exercise.

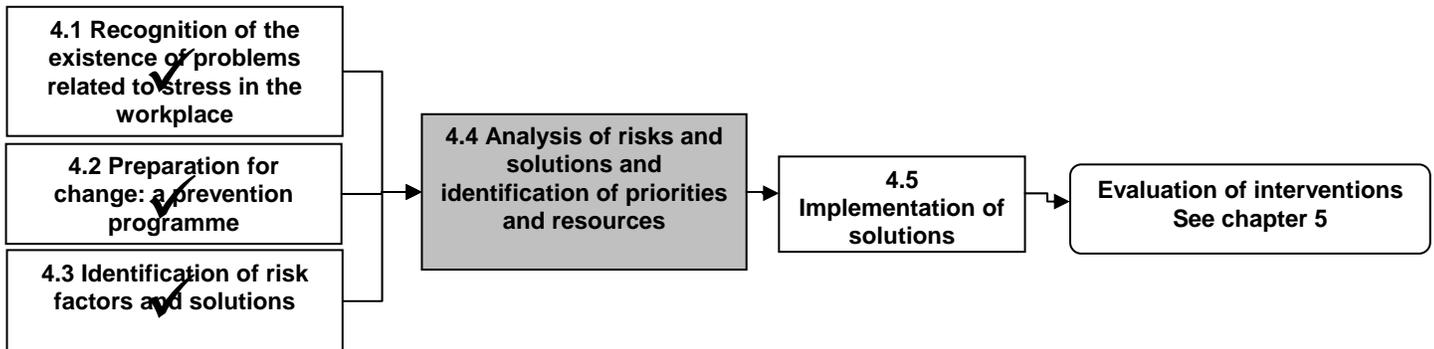
↳ During focus groups, problem identification brings up a large number of issues. When drawing up solutions, we observed that there was a tendency to only mention those aspects which relate to work organisation or management, thus limiting possible actions concerning what individuals can do about some of these issues.

We compiled a table to generate solutions within the focus groups (see Table 3.1). This table comprises four columns which consider different levels of responsibility: the individual, the team, the union and the organisation. For each dimension, we ask the participants to indicate possible solutions. This table proved to be extremely useful since it enables local and fast-acting measures to be considered (me and team) as well as more organisational measures (union and organisation). This table thus represents a kind of guidance tool for a problem-solving and solution identification exercise.

Table 3.1: Solution generator table for focus groups

Problem description	What can I do to improve the situation?	What can the TEAM do to improve the situation?	What can the UNION do to improve the situation?	What can the ORGANISATION do to improve the situation?

4.4 ANALYSIS OF RISKS AND SOLUTIONS, IDENTIFICATION OF PRIORITIES AND RESOURCES



The stage in which a prevention strategy is drawn up and priorities are identified is often complex. Jordan and his colleagues (2003) observed that the organisations with the most successful prevention programmes are those in which a precise action plan had been drawn up. The plan shows why the actions are to be implemented, what are the target objectives, who will be responsible for implementing the plan and how often the action plan is to be reviewed. Solutions often require the involvement of several departments, i.e. the Human Resources Department, the Occupational Health & Safety Department, the Communications Department and the unions. It is thus a good idea to have representatives of these bodies on the steering committee. What's more, their involvement demonstrates the management's commitment to the prevention programme.

Parkes and Sparkes (1998) also recommend not introducing too many changes at one time. The choice of actions must be based on the sources of stress identified by a high proportion of employees. They suggest targeting one or more risk factors rather than trying to take action across all levels. Other authors also made this recommendation (Schaubroeck & Ganster, 1991).

4.4.1 Outline description of each project

As shown in Table 4.1, the interventions implemented in each unit targeted one or more risk factors. The number of actions ranged from 7 to 60 and the execution timescale generally ranged between 3 and 12 months. The following paragraphs give more details of each case. As mentioned earlier, researchers acted as “co-pilots” and were not in charge of implementing any of the interventions. We however accompanied and documented the process in each unit.

Table 4.1: Risk factors targeted by the actions in each unit

Risk factors	Unit A	Unit B	Project C	Unit D	Units E, F and G
Low skill discretion	X	X			
Decisional latitude	X	X			X
Recognition in the workplace		X	X		X
Quantitative workload	X		X		X
Role ambiguity	X			X	X
Role conflict	X				
Responsibilities					X
Work-family conflict	X				
Relations with line manager			X	X	
Relations with colleagues		X	X	X	X
Relations with staff		X	X	X	
Physical environment		X		X	X
Number of actions	55	16	18	60	7
Execution timescale	3, 6 or 12 months	6 months	6 months	12 months	6, 12 and 18 months

↪ In Unit A of the educational establishment, the committee required five working days to translate the report written by the external consultant. The report was based on the material gathered within each focus group. It included a description of the main problems in each work group as well as a number of solutions of different level as to how to correct them. During the equivalent of five working days, the management committee, staff representatives and an HR manager analysed the report and came up with a detailed action plan comprising 55 actions. These actions were principally concerned with work organisation (i.e. working hours, holidays, duty staff), job stabilisation, training the new staff, allocation of authorities and the decision-making process, clarification of roles, improving equipment and physical work environment, communication within the team and technical improvements to be made in order to reduce excessive workloads. It was also proposed that work processes should be restructured and the organisational structure of the unit reorganised. A timescale, a manager and an implementation procedure were specified. Actions were split up into short, medium and long-term actions, i.e. to be performed within 3, 6 or 12 months.

↪ In Unit B of the educational establishment, the directors (four people) developed an action plan for their own sector by making sure that they took account of the problems raised in the report from Project C (project covering all office staff), since a significant proportion of their staff were clerical employees. In addition, at the outset of the project, the corporate committee and the research team reached an agreement with the management team of Unit B on an action project which would merely target the unit's office staff. However, when the first questionnaire was issued, the management team of Unit B asked whether the questionnaire could be issued to all staff, not just office staff. This request was made on the grounds that the managers had been inspired by the office staff report to draw up an action plan for all of their staff. These action plans were then analysed by a committee made up of all the unit's managers (including the director, senior managers and intermediate managers) and an overall plan was drawn up. These frequent managerial meetings made it possible to set up a permanent committee for human resource management within Unit B. It would consist of managers, but that employees could play a part in drawing up the agenda for the committee by suggesting specific points. Setting up the committee, its mandate and identifying common points for the action plans in each sector all came about with the assistance of the external consultant. During the next stage, the managers validated the overall action plan with their respective work teams. The overall action plan (for the unit) could be adjusted to each sector with the aid of these consultations. A total of 16 objectives are grouped in six problem areas: personal and skills development, consultation regarding changes, versatility between roles,

managing staff replacements, improving the physical environment and improving the atmosphere within the unit. A number of actions are ongoing, whereas others may relate to the current year or the following year.

↳ As part of Project C which was aimed at office staff across the educational establishment, the consultant submitted a report to the steering committee and the management team after conducting three focus groups with employees to identify risks and solutions. A sub-committee made up of employees, managers, union representatives and bosses was then set up. The sub-committee was responsible for analysing risks and drawing up an action plan. The research team led these meetings with a view to identifying specific actions in each of the following five (5) areas: (1) welcome and induction of new staff, (2) management values with more emphasis on communication and the work team, (3) training and supporting managers with psychosocial risks issues in their team and preventing mental health problems, (4) support for individuals and, finally, (5) evaluating work overload. A total of 18 actions, spread across these areas, were identified. An initial activity with the aim of improving office staff recognition was performed less than six months after drawing up the action plans.

↳ As far as Unit D was concerned, the steering committee was composed of the director the unit, managers and staff representatives. They met two days a week over a 10-week period in order to assess 965 ideas suggested by the staff to improve the climate and the performance of the unit. The idea identification process was organised by an external company using their own methods; the researchers were not involved in carrying out this exercise. The steering committee meetings were facilitated by the external consultant. The meetings allowed them to clarify each individual's role and work out the number of hours required to perform tasks for all the staff within the unit. These work sessions led to 60 solutions being selected by the committee. These solutions relate to defective equipment and materials, improving physical premises, work organisation changes, management processes (i.e. managing the recall list, absenteeism, training), improving communication within the team and, finally, relations with other departments (i.e. clarification of professional roles). Sixteen officers were appointed to update the latter and an execution timescale was agreed over a 12-month period.

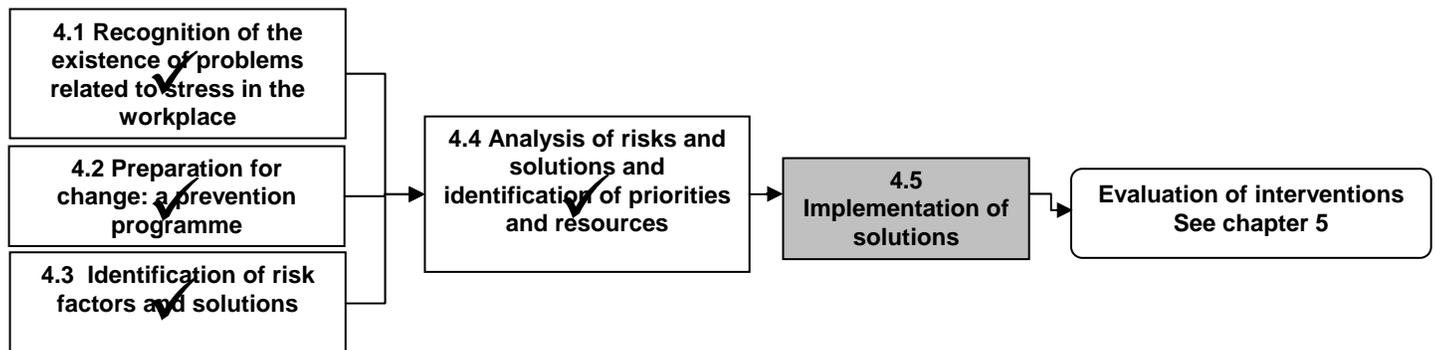
↳ As for units E, F and G of the public forestry sector, information on the three organisations was collated in a table once the group discussions were complete in order to show those problems which were shared by all areas. Despite the specific realities of each environment, a number of common problems could be identified. As a result, an implementation committee was responsible for performing a detailed analysis of the risk factors for each unit with the aid of the researchers and drawing up an integrated action plan which also allowed for local initiatives. The action plan would then be applied in accordance with the requirements of each unit. Seven topics came to light from a list of 40 items and these were linked to the organisational risk factors suggested by the research team: (a) teamwork planning, (b) lack recognition from co-workers and boss, (c) lack of involvement in decisions and distribution of information, (d) favouritism, (e) role ambiguity, (f) poor physical environment, (g) uncertainty and job insecurity. Solutions associated with each topic were then classified according to an implementation timescale extending over 6, 12 or 18 months.

↳ Overall, when considering the solutions drawn up by each unit in the three organisations, it appears that many of them relate to the field of organisational development. By way of example, here is a list of the actions undertaken:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Organisational assistance programme (support for managers and their work teams) • Training in communication and teamwork • Reorganising working hours • Restructuring work processes. • Welcome programme for new staff • Information package for managers in HRM • Training programme for managers on mental health in the workplace and HRM • Individual HRM coaching • Team building • Recognition activities for a job class (lecture, workshop, etc) | <ul style="list-style-type: none"> • Return to work programme • Co-development groups for managers • Brief information meetings (express meetings) • Physical activity club (morning exercises) • Social club • Reference website/lectures • Training in assessing contributions • Training in management of unmotivated staff • Increasing the frequency of team meetings • List of recognition techniques already in use • Workshops to make managers aware of recognition • Job stabilisation |
|--|--|

These few examples show quite clearly that solutions to psychological problems in the workplace are often to be found at the heart of management techniques. This observation also reinforces the fact that taking action to change the work organisation structure is an essential prerequisite for improving working conditions. In fact, whilst stress is associated with the field of psychology, solutions for stress are associated with the management field. This principle was regularly outlined to members of the steering committees in order to make them aware that the units and teams do have the expertise to take action and that solutions are often within their grasp. Another notable observation was that the proposed solutions often boiled down to implementing good management and work practices which we shall refer to as the ABC of management (i.e. team meeting, employee assessment, role clarification, etc).

4.5 IMPLEMENTATION OF SOLUTIONS



4.5.1 Strategic comments on the actions undertaken

↳ Many researchers agree that we need to avoid a strategy based only on individual actions since these imply, albeit indirectly, that stress is solely dependent on the individual and that the working environment doesn't count for anything (see Cooper *et al.*, 2001; Giga *et al.* 2003; Lamontagne *et al.* 2007).

Taking action with respect to the risk is likely to have a more direct and sustainable effect on the sources of stress in the workplace. However, given their complexity, organisational and work-based interventions often need to be performed in several stages (i.e. analysis, problem inventory, drawing up solutions, implementation plan, etc), which requires a certain amount of time and which suggests to employees and

managers that nothing is being done, even though actions are in the preparatory stages. It is thus essential to introduce actions with long-term effects, but also simpler actions which can be performed in the short term. Some secondary level activities can be arranged quickly (i.e. lectures, team training in communication, work recognition activities). For example, in an educational establishment, several work recognition seminars were organised as early as the first year. During these meetings, the top management explained the background to this seminar and also took the opportunity to explain forthcoming actions and to clearly demonstrate the link with the organisation's desire to take action in the field of psychological health in the workplace. This strategy had the effect of countering much of the criticism that nothing had yet been done.

↳ Any attempt to improve wellbeing in the workplace must be the subject of regular communication between employees and managers to ensure that they are informed of the progress of the organisation's endeavours and efforts. Even before the start of the research project, it was common among participants to hold negative prejudices or doubts regarding the potential repercussions of such measures. This is not a case of resistance to change, but rather judgements made by employees and managers on the basis of their experiences in the past and the success or failure of previous projects. Introducing measures with a view to improving working conditions must thus deal with these unfavourable views and must strive to implement concrete actions as soon as possible and to ensure that information on these is circulated. The circulation of information on the strategies implemented also plays a central role in the prevention model suggested by Jordan and colleagues (2003).

↳ In the three participating organisations, the members of the action committees worked very hard and became very involved, at the cost of an increase in their own workload. This investment in implementing activities is often to the detriment of communication about these activities. Our research indicates that, when these actions are implemented, it is essential to promote them and to explain precisely how they stand with respect to the overall prevention procedure. For example, in the forestry sector organisations, a training session on communication in work teams was offered. However, the link with the project on wellbeing in the workplace was not mentioned as a matter of course. As a result, even though all the employees we met were aware of or had attended the training session, some of them did not know that the activity formed part of the action plans on wellbeing in the workplace. As far as the participants were concerned, these actions were thus not associated with psychological health, but with current management activities. This meant that they were left in the dark regarding the activities arranged by the committee to improve wellbeing in the workplace.

↳ For all members involved in committees and work groups, there was a certain increase in workload. In addition to this workload, they have to contend with the negative opinions and judgements of staff (employees and managers) with regard to the usefulness and success of the actions suggested by their committee. In general terms, we observed that little support was offered to the committee members in combating these difficulties. Only the educational establishment provided the members with access to an external consultant who was able to offer advice and assist the committee members within their units when the latter felt that they were dealing with problems which required expert support. This support was much appreciated, as the committee members felt less isolated in delicate situations (i.e. employee meetings to sell the project, leading group discussions to resolve problems, etc.).

↳ Our observations of the intervention process show quite clearly that the project manager (i.e. the chairman of the steering committee), is a crucial factor behind the success of the actions. This individual must have leadership qualities, be highly efficient, have project management skills and make use of strategies to handle resistance on the part of employees and managers. He must also have political skills to ensure that the issues

surrounding stress prevention in the workplace remain on the top management agenda. His network of contacts and the decision-making circuits to which he has access must be solid and effective.

The project manager must also be able to successfully motivate the steering committee members and be responsible for the project as a whole. As stressed by Garrety and Badham (1999), occupational health & safety measures always incorporate a political dimension, not merely a technical dimension, which requires negotiations between the various parties involved. A project manager without such political skills, or who tries to avoid this dimension, will find it much more difficult to achieve a successful outcome for his project.

↳ We observed a certain paradox concerning the level of involvement of each party. As far as managers are concerned, some were exhausted and found the process very demanding:

“One of the things I realised was that you shouldn’t try to do the project for your own benefit. I found it very hard to bear. I felt that I worked hard, but that I wouldn’t get much recognition for doing so. Even though I believe in this kind of project, I think that there are limits, because you can’t make everyone happy in a work environment. So, as a manager, you shouldn’t carry out the project expecting to be loved by your staff. You have to do it because the organisation needs it. You must look at the improvement in the work climate and be content with that; don’t expect to be acknowledged by your staff.” (a manager)

On a more positive note, it is worth noting that during a follow-up interview 12 months later, this same manager said that in the end, the investment was well worth it and considered this type of project highly recommendable.

As for the employees, it appears that dissatisfaction relates primarily to the *process* of change, rather than the *changes* themselves. They want to be involved and informed as to what’s going on. The main criticisms reported are primarily concerned with their perception of not being very involved in the change process, the lack of information concerning the progress of projects and their feeling of not having any real power. However, when they are kept informed of what’s happening, the level of satisfaction increases, despite the scale of the achievements:

“We had positive results but there was a bad feeling in the unit at the outset. When we can see that a small problem has been resolved, it gives us confidence ... it makes us feel better!” (an employee)

SALIENT POINTS

- ↪ Administrative data concerning absenteeism is extremely useful as it sheds light on the decisions taken at the start of and during the implementation of measures.
- ↪ If administrative data is not available, a survey concerning stress in the workplace or “*stress audit*” can also prove to be a wise choice to determine where to begin the process.
- ↪ If neither administrative data nor survey information is available, subjective qualitative information may be used to target those units which are at greatest risk.
- ↪ Particular attention must be paid to management involvement and this must be confirmed on a regular basis throughout the project.
- ↪ Including health risks in the workplace in strategic plans requires the management to be accountable to the staff and to the board.
- ↪ Top management commitment to implement changes to reduce exposure to psychosocial risks and improve wellbeing in the workplace are viewed as being infinitely more credible and feasible if a specific budget is assigned for this purpose.
- ↪ The parties’ commitment can be measured by their desire to go beyond mere diagnosis (i.e. surveys, focus groups) and to introduce structures, programmes or specific actions.
- ↪ It is important to support line managers and middle managers in setting up these activities as these very managers are often regarded by employees as being the source of problems, which can be very intimidating for them.
- ↪ Union commitment and involvement gives added value to the interventions and enhances the credibility of the proposed activities.
- ↪ Employee participation should start early (at the stage of identifying risks and solutions) and be maintained throughout the whole process
- ↪ It is essential to introduce actions with long-term effects, but also simpler actions which can be performed in the short term.
- ↪ Some unfavourable reactions may be encountered when introducing measures with a view to improving working conditions and it is important to implement concrete actions as soon as possible and to ensure that information on these is circulated.
- ↪ Members of steering committees are offered little support in delicate situations (i.e. employee meetings to introduce the project, leading group discussions to resolve problems, etc.). On these occasions, expert support is usually much appreciated.
- ↪ Selecting the project manager, e.g. the chairman of the steering committee, is a key factor behind the success of the actions. This individual must have leadership qualities, be highly efficient, have project management skills and make use of strategies to handle resistance on the part of employees and managers.

5. RESULTS: EFFECTIVENESS OF THE INTERVENTIONS

Both the pre- and post-intervention questionnaires included measures of psychosocial risks in the workplace, psychological and wellbeing indicators as well as sociodemographic data. However, in the post-intervention questionnaire, a new section was included. This new section evaluated the degree to which interventions were delivered and how they were perceived by participants. Interventions were first inventoried during individual and group interviews, and then for each identified intervention, a question was added in the

questionnaire to determine the extent to which the employee 1) had been exposed to the intervention and 2) felt that the intervention had had an impact on his quality of life in the workplace.

This section describes the results of the assessment of the actions for the following three participating organisations: education establishment (5.1), hospital centre (5.2) and forestry organisations (5.3). For each section we shall describe:

- the response rate and sociodemographic data concerning the respondents;
- the extent to which samples were representative in the two assessments;
- the level of exposure to and perceived impact of each intervention;
- changes observed in psychosocial risks and psychological health between the two assessments.

5.1 EDUCATION ESTABLISHMENT

5.1.1 Response rate and sociodemographic data

Table 5.1 indicates the number of respondents and the response rate to each of the questionnaire sessions and the number and percentage of respondents who completed the two questionnaires. An average response rate of 56.2% was obtained for the first measure, 51.1% for the second, and 33.3% completed both questionnaires.

Table 5.1: Response rate for each target group, n (%)

Target group	First measure (T1)	Second measure (T2)	First & second measures *
Unit A	41 (77.4)	29 (49.2)	19 (35.8)
Unit B	124 (61.4)	113 (55.4)	77 (38.1)
Project C	331 (52.0)	316 (48.7)	191 (30.0)
Comparison units	63 (60.6)	68 (57.6)	44 (42.3)
Total	559 (56.2)	526 (51.1)	331 (33.3)

* The rate is calculated using the total number of participants eligible for the first measure as a common denominator.

Table 5.2 shows the main sociodemographic characteristics of the respondents in the first and second measure. In each group, there are more female participants than male. The groups studied include a large proportion of clerical staff. This is due to the selection of participating units which would allow meaningful comparisons with the participants in Project C which was conducted strictly with clerical staff.

Table 5.2: Percentages, mean values and number of respondents according to their sociodemographic characteristics for each measure.

First measure	Intervention groups									Comparison groups		
	Unit A			Unit B			Project C			%	M	N
	%	M	n	%	M	n	%	M	n			
Women	85.4		35	68.3		84	93.9		310	71.0		44
Age		44.9			48.4			48.5			46.3	
Years of service		15.8			22.4			20.0			19.5	

Work											
Executive	7.3		3	3.2		4	0		0	7.9	5
Professional	34.2		14	26.6		33	2.1		7	31.8	20
Office	51.2		21	35.5		44	93.7		310	41.3	26
Technical	7.3		3	34.0		42	3.3		12	15.9	10
Trade	0		0	0.8		1	0.6		2	3.2	2
Second measure											
Women	81.5		22	65.1		71	93.8		285	75.4	49
Age		46.8			47.1			48.2			46.4
Years of service		14.3			19.4			17.6			17.9
Work											
Executive	6.9		2	2.7		3	0		0	4.4	3
Professional	31.0		9	29.2		33	2.5		8	29.4	20
Office	58.6		17	25.7		29	93.4		295	38.2	26
Technical	0		0	41.6		47	3.8		12	22.1	15
Trade	3.5		1	0.9		1	0.3		1	5.9	4

The four samples, as well as all the respondents in the education establishment, were compared using three sub-groups of participants: employees who had only responded to the first questionnaire (dropped out), employees who responded only to the second questionnaire (new) and employees who completed the two questionnaires. These three sub-groups were compared using different demographic (i.e. sex, age, years of service) and psychological indicators (i.e. level of distress, satisfaction, intention to resign and exhaustion).

Unit A (n = 51) No significant difference was observed at demographic level. No new employees reported experiencing a high level of distress compared with 42% of the employees who completed T1. This conclusion should be interpreted with caution due to the small number of participants at T2 (N = 27).

Unit B (n = 160). The new employees were significantly younger (43.3 years of age) than the ones who completed both measures (47.9 years of age) or those who had dropped out of the process (49.3 years of age) and report fewer years of service (13.5 years) than the participants who completed both questionnaire sessions (21.7 years) or those who dropped out of the process (23.5 years).

Project C (n = 456). The new employees were significantly younger (46.8 years of age) than full-completers (47.9 years of age) or those who had dropped out of the process (49.4 years of age) and report fewer years of service (14.4 years) than the participants who completed both questionnaire sessions (18.8) or those who dropped out of the process (21.8 years). Furthermore, a lower percentage of new employees displayed high distress levels (24.8%) compared with employees who completed both measures (44.5%) or those who had dropped out of the process (37.1%).

Comparison groups (n = 84). Participants who completed only the second measure reported considerably fewer years of service (13.9 years) than the participants who completed both questionnaires (18.4) or those who dropped out of the process (22.8 years). Furthermore, a lower percentage of new employees displayed high distress levels (23.8%) compared with existing employees (38.3%) or those who dropped out of the process (43.8%).

5.1.2 Level of exposure to interventions

Based on the second wave of questionnaires, the level of exposure to the interventions is shown in the following table. With respect to general (corporate) interventions, which were aimed at all the staff in the organisation, the respondents report that they were exposed to a greater extent in information activities (65%)

and to a lesser extent in subject-based activities (31%). In addition, interventions such as return to work support (5%) or recognition cards (12%) did not seem to have reached very many employees. We should state that the categories of activities and their description vary from one working environment to the next, since they reflect the actions reported by employees and managers interviewed in each of the participating units. Nevertheless, in order to allow comparisons between units, we tried to standardize some of these question formulations.

The respondents in Table 5.3 include all the participants who completed the second wave of questionnaires since these items were not present in the first wave. The intervention categories were created as a result of factorial analyses (and a correlation analysis since the sample was too small). Thus, an item such as “*annual appraisals*” may be regarded as forming part of the “*social relations*” category within a unit due to the strong link between this item and other items with a view to improving relations (if of course the evaluation is conducted in such a way to highlight efforts and accomplishments and not just flaws and errors). In another unit, this same item may have a greater correlation with a factor entitled “*knowledge of work*” given that appraisals imply a meeting between the supervisor and an employee could allow a greater understanding of each others’ work. Classification of interventions in categories is thus based on the relationship between the various actions, but also on theoretical coherence. The example of “*annual appraisals*” shows that this action may simultaneously improve the quality of the relationship with one’s line manager, but that it is entirely logical to classify this item as one which would improve knowledge and understanding of what the other person’s tasks and roles.

The level of exposure to the interventions implemented in Unit A (see Table 5.3) shows that the employees were reached by actions related to social relations (55%), one of the committees (48%) or activities associated with role clarification (46%). In Unit B, the level of exposure to specific actions (see Table 5.3) suggests that employees in this unit participated more in activities associated with improving the physical environment (63%), improving understanding of the tasks performed by their colleagues (57%) or obtaining information on committee activities (56%). Activities associated with work organisation (20%) and participation in the social club (27%) seem to have reached a fewer number of employees. In the case of Project C, which concerns all office staff, the respondents report that they participated to a greater extent in information activities (63%) and to a lesser extent in subject-based activities (32%). In addition, activities such as return to work support programme (7%) or the recognition card (13%) seem to have reached a fewer number of employees.

Table 5.3: Percentage of exposure to each intervention.

GENERAL ACTIONS (affecting all staff)		
Categories	Description of activities	Participation as a %
Information	- Psychological health policy - Psychological health committee activities and action plan	65%
Subject-based activities	- Job and profession recognition seminars - 10 km walking challenge - Psychological health lectures and conferences - Reference website on psychological health	31%
Return to work	- Return to work (after mental health absence) support programme	5%
Recognition card	- Receipt of an acknowledgment/recognition postcard	12%
SPECIFIC ACTIONS – UNIT A		
Social relations	- Annual appraisal by line manager - Training on personality styles and recognition needs - Meetings with the line manager to discuss what’s working or otherwise - Participation in activities organised by the social club	55%
Clarification of roles	- Change tasks or the way in which they are allocated - Receive information on work performed by other teams - Receive information on the roles of individuals working in the unit - Hold team meetings for the section - Quality of meetings (discuss problems affecting work)	46%
Work organisation	- Change in working hours (breaks, beginning and end of shift, on-call duty to be covered) - Change in annual holidays - Changes made to the physical environment (ergonomic action, additional equipment, rearrangement) - Reorganising working hours across teams	33%
Committee involvement	- Having been a member of a committee concerned with psychological health - Having been consulted on drawing up new guidelines: working hours, holidays - Having been consulted on restructuring work teams - Having received information on the project concerning psychological health in the workplace - Having attended progress/overview meetings on the psychological health action plan	48%
SPECIFIC ACTIONS – UNIT B		
Communication	- Receive information on work performed by other sections	51%
Knowledge of work and colleagues	- Lectures given by a colleague on his work functions - Training on personality styles and recognition requirements - Annual appraisal by line manager	57%
Work organisation	- Job-related changes (reclassification, change in hierarchical status) - Change tasks or the way in which they are allocated	20%
Social club	- Participation in activities organised by the social club	27%
Team meeting	- Consultation concerning the psychological health action plan - Meetings with the line manager to discuss what’s working or otherwise - Hold team meetings for the section - Quality of meetings (discuss problems affecting work)	50%

Committee information	- Intranet to describe psychological health developments, including minutes of the human resources management committee	56%
Physical environment	- Morning physical activity sessions (15-minute periods) - Changes made to the physical environment (ergonomic action, additional equipment, rearrangement)	63%
PROJECT C		
Information	- Psychological health policy - Psychological health committee activities - Psychological health committee action plan	63%
Subject-based activities	- Job and profession recognition seminars - 10 km walking challenge - Psychological health lectures and conferences - Website on psychological health	32%
Return to work	- Return to work (after mental health absence) support programme	7%
Recognition card	- Receipt of an acknowledgment/recognition postcard	13%

5.1.3 Changes observed in the participants between the pre- and post-intervention measures

From the point of view of a strategic programme, the intention is to reduce exposure to risk factors and lead to an improvement in wellbeing indicators. In order to verify this improvement hypothesis, we thus calculated the changes in levels of exposure to psychosocial risk factors between T1 and T2 for each intervention unit (Unit A, Unit B and Project C) and for the comparison groups (CP). The change in exposure levels between the two waves was calculated and standardised (see note to Table 5.4) to allow us to compare changes between the different risk factors. The following results were obtained:

- The majority of changes in Unit A are primary level actions (quadrant 3 in Table 1.1). Employees in Unit A report **positive changes in 14/16 risk factors**, thus illustrating the positive impact of the actions implemented. In specific terms, decision latitude was increased as well as participation in decisions, and quantitative overload, role ambiguity, and role conflict were reduced. The quality of relationships was improved, as well as the physical work environment. Recognition of efforts, career opportunities and job security were also improved.
- Employees in Unit B were exposed to both primary and secondary level actions (quadrants 3 and 4 in Table 1.1). Although they report **positive reductions in 14/16 risk factors, though the extent is smaller** compared with employees in Unit A. They report positive changes in terms of job control (both on skill discretion and decision latitude), participation in decisions, recognition of efforts, career opportunities and job security. They also report reduction of work overload, clearer and less contradictory roles, and less work-family/life conflicts. These changes also illustrate the positive impact of the actions implemented.
- The actions implemented as part of project C are both primary and secondary level and take place at corporate level, i.e. targeting the entire job class (quadrants 1 and 2 of Table 1.1). Overall, the employees participating in project C report **few positive changes, 5/16 risk factors**, between the two measures. The main positive change in terms of psychosocial risks is an increase in decisional latitude. A number (5) of small negative changes were also observed.

- The employees in the comparison group were exposed to actions at corporate level (quadrants 1 and 2 in Table 1.1), but not to any specific interventions like the ones in units A and B. As expected, the comparison group reported **few positive changes after the assessment (5/16 risk factors)**, with the exception of a significant reduction in the risk associated with poor relations with staff in other units. However, after examining the mean values, it seems that this change is probably due to a very negative initial assessment.

Table 5.4: Changes in levels of exposure (effect size) to psychosocial risk factors (Higher education establishment)

Risk factor	Unit A (n = 51)	Unit B (n = 160)	Project C (n = 456)	Comparison groups (n = 84)
Limited skill discretion	- -	+++	+	+++
Limited decisional latitude	+++++	+++++	+++	
Low recognition (esteem)	+++	+++++	-	
Low job stability	++++	++	+	-
Low career opportunities	+++	+	-	+
Quantitative overload	+++++	++		
Role ambiguity	+++++	+++	+	-
Role conflict	+++++	++		
Limited participation in decisions	+++++	+++++		-
Competitive atmosphere	+++	++	-	- -
Responsibilities	+	-	-	-
Work-family conflict		++		+
Poor relations with line manager	+++	+++		
Poor relations with colleagues	+++	+++		+++
Poor relations with staff	+++	+	+	+++++
Difficult physical environment	+	-	-	-

Note. ‘+’ indicates an improvement (reduction), whereas ‘-’ indicates a deterioration (increase) in exposure to the risk factor. The number of +/- shows the magnitude of the standardised difference between the first and the second questionnaire (Cohen’s *d*, Cohen, 1988). For example, +++ indicates a reduction of 0.3 standard deviations for exposure to the risk factor between the two assessments (*d* = -0.30).

The final objective of this research is to assess whether stress interventions in the workplace really can improve the wellbeing of employees (see Table 5.5). We compared the measurements in T1 and T2. We should point out that the change in wellbeing indicators between the two measures was calculated and standardised (see note to Table 5.5) for each unit to allow us to compare changes. Here is a summary of the variations observed in the case of significant results:

- Employees in Unit A reported significant positive changes in job satisfaction (56.6% vs. 66%) and a considerable and significant reduction in psychological distress (56.1% vs. 25.9%).
- Employees in Unit B, although they reported improvements on a smaller scale, also reported a number of positive changes, including more social support in the working environment (60.4% vs. 65.5%), greater job satisfaction (60.9% vs. 66.3%) and less intention to resign (21.5% vs. 15.1%). There was also a reduction in the high level of psychological distress (43.6% vs. 33.6%), although this was slightly below the significance threshold.
- The employees participating in Project C also reported more moderate positive changes: a slight increase in social support (60.2% vs. 62.6%) and a reduction in the high level of psychological distress (41.4% vs. 32.5%). However note that exhaustion has increased slightly (19.4% vs. 21.7%).

- As expected, the comparison groups did not report any major changes with respect to wellbeing indicators.

Table 5.5: Changes in wellbeing indicators (adjusted mean values) (Higher education establishment) †

Indicator	Measure	Unit A (n = 51)	Unit B (n = 160)	Project C (n = 456)	Comparison groups (n = 84)
Social support (0 – 100)	T1	64.3	60.4	60.2	63.7
	T2	67.8	65.5**	62.6*	63.2
Job satisfaction (0 – 100)	T1	56.6	60.9	58.3	58.7
	T2	66.0**	66.3***	59.3	57.4
Intention to resign (0 – 100)	T1	17.4	21.5	21.3	22.9
	T2	16.7	15.1**	22.6	24.5
Psychosomatic symptoms (0 – 100)	T1	14.7	14.5	14.7	12.1
	T2	13.0	14.5	14.9	13.0
Exhaustion (0 – 100)	T1	21.0	21.5	19.4	23.2
	T2	21.9	20.5	21.7*	25.3
Psychological distress (% high distress)	T1	56.1	43.6	41.4	39.7
	T2	25.9**	33.6	31.5**	33.9

The change test is statistically significant (* $p < .05$, ** $p < .01$, *** $p < .001$)

† The mean values for each scale are adjusted such that they vary between 0 and 100 to facilitate comparison between the different response scales for the indicators.

5.2 HOSPITAL CENTRE

5.2.1 Response rate and sociodemographic data

Table 5.6 indicates the number of respondents and the response rate to each wave of questionnaires, and the number and percentage of respondents who completed the two questionnaires. For Unit D, a response rate of 63.6% was obtained for the first wave, 48.1% for the second wave, and 39.4% completed both questionnaires. The response rate amongst the comparison group was 36% for the first wave and 38% in the second wave, with 20.2% of full-completers.

Table 5.6: Response rate for each target group, n (%)

Target group	First measure (T1)	Second measure (T2)	First & second measures*
Unit D	41 (63.6)	37 (48.1)	26 (39.4)
Comparison group	32 (36.0)	38 (38.0)	18 (20.2)
Total	73 (47.5)	75 (42.3)	44 (28.4)

* The rate is calculated using the total number of participants eligible for the first measure as a common denominator.

Table 5.7: Percentages, mean values and number of respondents according to their sociodemographic characteristics for each measure.

	Unit D (intervention group)			Comparison group		
	%	<i>M.</i>	<i>n</i>	%	<i>M</i>	<i>n</i>
First measure						
Women	90.2		37	90.0		27
Age		35.0			43.0	
Years of service		13.1			21.7	
Work						
Manager	4.9		2	6.3		2
Professional	61.0		25	34.4		11
Technical	34.2		14	15.6		5
Office	0		0	43.8		14
Second measure						
Women	91.9		34	84.2		32
Age		36.1			42.2	
Years of service		13.8			18.9	
Work						
Manager	5.4		2	5.3		2
Professional	56.8		21	47.4		18
Technical	35.1		13	15.8		6
Office	2.7		1	31.6		12

Table 5.7 shows the sociodemographic characteristics of the participant in this sample. Both units comprise a large number of women, and this is due to the nature of the work. The two units under consideration were compared using three sub-groups of participants: employees who had only responded to the first measure (dropped out of the process), employees who responded only to the second questionnaire (new) and employees who completed the two questionnaires. These three sub-groups were compared using different demographic (i.e. sex, age, years of service) and psychological indicators (i.e. level of distress, satisfaction, intention to resign and exhaustion). The characteristics of the employees who had dropped out of the process and those who had only completed the second measure were compared with the characteristics of the employees who had completed both questionnaires.

Unit D ($n = 53$) No significant difference was observed at demographic level. However, a significantly lower percentage of new employees scored high on the psychological distress scale (36%) compared with employees who completed both measures (65%) or those who have dropped out of the process (67%).

Comparison group ($n = 52$). The new employees report considerably fewer years of service (14 years) than the employees who completed both questionnaires (23 years) or those who dropped out of the process (21 years).

5.2.2 Level of exposure to interventions

The level of exposure to each intervention is shown in the following table. The employees in Unit D reported that they had been reached more by activities relating to changing tasks (62%), team meetings (50%) and improving the working atmosphere (47%), but to a lesser extent in information activities (15%). As a general rule, the employees in the comparison group had not taken part in many of the activities with the exception of information activities (53%). Even though the comparison group should not, at least in theory, be exposed to any changes, we observed a relatively high percentage of participation in a number of activities. These are current specific activities in the unit which did not form part of the ongoing improvement programme in Unit D. This finding reinforces our initial choice of opting for a comparison unit. Indeed, although no specific

interventions were supposed to be implemented in the comparison unit, an important number of employees report having been exposed to changes of a similar nature to the ones in the intervention unit.

Table 5.8: Percentage of exposure to each intervention.

ACTIONS			
Categories	Description of activities	Participation as a %	
		Unit D	Comparison group
Quality	- Additional equipment	39%	38%
Task changes	- Physical rearrangements - Change tasks or the way in which they are allocated	62%	45%
Team meeting	- Improved communication between work shifts - Holding team meetings more frequently - Improvement in meeting quality	50%	30%
Working atmosphere	- Information on work performed by other teams - Improvement in the working atmosphere within the unit - Regular meetings with line manager	47%	27%
Roles	- Clarification of roles and tasks - Increased collaboration with external parties	29%	20%
Information	- Annual appraisal - Creation of working techniques and logs	15%	53%
Room	- Access to a work room to draft reports	35%	N/A
Steering Committee	- Information on monitoring the participatory management project	38%	N/A
Recognition	- Recognition of the nature of the job by other units - Recognition by a colleague or line manager	43%	N/A
Consultation	- Having been consulted as part of the project to reorganise work within the unit	17%	N/A

5.2.3 Changes observed in the participants between the pre- and post-intervention measures

As for the previous organisation, we calculated the changes in levels of exposure to psychosocial risk factors between T1 and T2 for each unit (see Table 5.9). The results were as follows:

- All the interventions implemented in Unit D of the hospital centre were focussed on work-related aspects (quadrant 3 in Table 1.1). Employees in Unit D reported **positive changes in 15/16 risk factors**, thus illustrating the positive impact of the actions implemented. In specific terms, recognition of efforts was improved as well as relationships with manager, colleagues and staff from other units. Job stability and career opportunities increased. Quantitative overload, competitive climate, role conflict and work-family/life conflict were reduced. The physical work environment was also improved.
- As expected, the comparison group reported **only 6/16 positive changes** associated with greater decision-making powers, more recognition, less role conflict, better relations with staff from other units and a less problematic physical environment respectively. Yet, **7/16 negative changes (though small)** were observed. Indeed, participants from the comparison group report lower recognition of their effort, more job insecurity, more pressure due to their level of responsibility and work overload, as well poorer relationships with their manager and colleagues within the unit.

Table 5.9: Changes in levels of exposure (effect size) to psychosocial risk factors (Hospital centre)

Risk factor	Unit D (n = 53)	Comparison unit (n = 52)	Risk factor	Unit D (n = 53)	Comparison unit (n = 52)
Limited skill discretion	++		Limited participation in decisions	++++	--
Limited decision latitude	+++	++++	Competitive atmosphere	+	
Low recognition (esteem)	+++++	--	Responsibilities	++	-
Low job stability	+++	--	Work-family conflict	+++	+
Low career opportunities	+	++	Poor relations with line manager	++++	-
Quantitative overload	++++	-	Poor relations with colleagues	+++++	--
Role ambiguity	-		Poor relations with other staff	+++++	++
Role conflict	+++++	+	Difficult physical environment	++	++++

Note. ‘+’ indicates an improvement (reduction), whereas ‘-’ indicates a deterioration (increase) in exposure to the risk factor. The number of +/- shows the magnitude of the standardised difference between the first and the second questionnaire (Cohen’s *d*, Cohen, 1988). For example, +++ indicates a reduction of 0.3 standard deviations for exposure to the risk factor between the two assessments (*d* = -0.30).

As shown in table 5.10, changes in wellbeing indicators between T1 and T2 were observed. We should point out that the change in wellbeing indicators between the two measures was calculated and standardised (see note to Table 5.10) for each unit to allow us to compare changes. Here is a summary of the variations observed:

- Employees in Unit D reported positive changes in job satisfaction (39.5% vs. 46.2%), emotional exhaustion (37.9% vs. 30.3%) and psychological distress (68.3% vs. 37.8%).
- The employees in the comparison group did not report any significant improvements or deterioration in wellbeing indicators.

Table 5.10: Changes in wellbeing indicators (adjusted mean values) (Hospital centre)†

Indicator	Measure	Unit D (n = 53)	Comparison group (n = 52)
Social support (0 – 100)	T1	70.8	61.6
	T2	75.0	60.1
Job satisfaction (0 – 100)	T1	39.5	54.7
	T2	46.2**	54.5
Intention to resign (0 – 100)	T1	29.5	22.4
	T2	32.1	28.4
Psychosomatic symptoms (0 – 100)	T1	18.6	12.2
	T2	15.7	13.5
Exhaustion (0 – 100)	T1	37.9	26.3
	T2	30.3***	28.4
Psychological distress (% high distress)	T1	68.3	31.3
	T2	37.8**	26.3

The change test is statistically significant (* *p* < .05, ** *p* < .01, *** *p* < .001)

† The mean values for each scale are adjusted such that they vary between 0 and 100 to facilitate comparison between the different response scales for the indicators.

5.3 FORESTRY ORGANISATIONS

5.3.1 Response rate and sociodemographic data

Table 5.11 indicates the number of respondents and the response rates to each of the questionnaire sessions and the number and percentage of respondents who completed the two questionnaires. An average response rate of 69.9% was obtained for the first measure, 62.5% for the second measure and 54.5% of participants were full-completers.

Table 5.11: Response rate for each target group, n (%)

Target group	First measure (T1)	Second measure (T2)	First & second measures*
Unit E	26 (50.0)	25 (41.5)	20 (37.0)
Unit F	82 (91.1)	74 (88.2)	73 (81.1)
Unit G	92 (64.1)	81 (57.0)	66 (44.6)
Total	200 (69.9)	180 (62.5)	159 (54.5)

* The rate is calculated using the total number of participants eligible for the first measure as a common denominator.

Table 5.12 shows the main sociodemographic characteristics of the respondents. Unit E employs a smaller percentage of women compared to Units F and G, and they have fewer years of service.

Table 5.12: Percentages, mean values and number of respondents according to their sociodemographic characteristics for each measure.

First measure									
	Unit E			Unit F			Unit G		
	%	<i>M</i>	<i>n</i>	%	<i>M</i>	<i>N</i>	%	<i>M</i>	<i>n</i>
Women	34.6		9	61.0		50	56.5		52
Age		47.2			46.5			46.8	
Years of service		17.6			19.4			21.1	
Work									
Office	11.5		3	9.8		8	5.4		5
Forestry assistant	34.6		9	65.9		54	70.7		65
Technician/professional	23.1		6	6.1		5	9.8		9
Forestry worker	26.9		7	12.2		10	9.8		9
Foreman/lead forestry worker	3.9		1	6.1		5	4.4		4
Second measure									
Women	Data not available**								
Age	Data not available**								
Years of service	Data not available**								
Work									
Office	12.0		3	9.5		7	3.7		3
Forestry assistant	32.0		8	63.5		47	66.7		54
Technician/professional	28.0		7	6.8		5	9.9		8
Forestry worker	20.0		5	13.5		10	14.8		12
Foreman/lead forestry worker	8.0		2	6.8		5	4.9		4

** When sending out questionnaires in the second wave, questions concerning the sex, age and years of service were left out of the questionnaire due to a data handling error which was only picked up on receipt of the completed questionnaires.

The three units were compared using three sub-groups of participants: employees who had only responded to the first issue of the questionnaire (dropped out of the process), employees who responded only to the second

questionnaire (new) and employees who completed the two questionnaires. These three sub-groups were compared using different demographic (i.e. sex, age, years of service) and psychological indicators (i.e. level of distress, satisfaction, intention to resign and exhaustion). Note that, for methodological reasons, the participants in the second stage did not complete the demographic indicators. The characteristics of the employees who had dropped out of the process and those who had only completed the second measures were compared with the characteristics of the employees who had completed both measures.

Unit E (n = 31). No significant difference was observed at demographic or psychological level between the three sub-groups.

Unit F (n = 83). The people who dropped out were all women (100%) compared with the employees who completed both measures (56% women). In addition, the drop-outs were significantly younger (42 years of age) than the participants who were full-completers (47 years of age).

Unit G (n = 107). A significantly higher percentage of dropouts displayed high psychological distress levels (42%) compared full-completers (23%) or those who participated solely to the second questionnaire (20%).

5.3.2 Level of exposure to interventions

Exposure to the interventions implemented in the participating units is shown in the following table (5.13). Participation was higher for activities associated with adapting the organisation to employees’ requirements, distribution of information on needs and changes and the social club. Feedback from the manager was implemented to a greater extent in Unit F. However, the participation rate was lower with regard to activities relating to team training, subject-based activities and work processes (improving operations).

Table 5.13: Percentage of exposure to each intervention.

ACTIONS				
Categories	Description of activities	Participation as a %		
		Unit E (n = 31)	Unit F (n = 83)	Unit G (n = 107)
Working processes	<ul style="list-style-type: none"> - Involvement in the selection or modification of equipment - Memory aids for supervisors to enable them to improve preparatory meetings before production activities - Preparatory meetings before production activities - Operating guides (for individuals involved in work planning) - Operation overview meetings 	35%	29%	35%
Adapting to requirements	<ul style="list-style-type: none"> - Reorganising working hours - Reviewing the allocation of tasks - Better balanced work team - Possibility of involving a supervisor in inter-staff conflicts 	50%	55%	64%
Information	<ul style="list-style-type: none"> - Monitoring costs and quality of work - On the future of the organisation - On forthcoming layoffs - Concerning forthcoming work and operations - Responsibilities of the various staff members - Welcome guide for new employees 	45%	54%	59%
Team training	<ul style="list-style-type: none"> - On communication and teamwork - On values within teamwork - On the supervisor’s role 	35%	23%	19%

Team rotation	- Staff rotation within the team - Staff rotation between teams	30%	37%	46%
Feedback	- Annual productivity assessment - Management visits to the site	27%	73%	28%
Social club	- Visits to other units - Participation in social club activities	43%	54%	34%
Subject-based activities	- Midday lectures, humour workshops, self-esteem - Meetings with an external consultant with a view to improving the work atmosphere	17%	21%	7%

5.3.3 Changes observed in the participants between the pre- and post-intervention measures

We calculated the changes in levels of exposure to risk factors between T1 and T2 for each action unit (Unit E, Unit F and Unit G) in order to check the impact of the actions. The same action plan was implemented across the 3 units. With reference to Table 1.1, this plan is primarily concerned with primary level actions (quadrant 3) and some secondary level actions (quadrant 4). The results were as follows, as summarised in Table 7.4:

- Employees in Unit E **reported 12/17 positive changes** in psychosocial risk factors, thus illustrating the positive impact of the actions implemented. Specifically, employees felt more job control (both in terms of decision latitude and skill discretion), more participation in decision-making, and perceived that their efforts were more recognized by their supervisor and colleagues. They report major improvement in terms of their relationship with their line manager but a deterioration of the relationships with their colleagues. They also report a slight improvement on quantitative overload, role ambiguity and role conflict. They also felt much more stability in their job. This is surprising given the context of uncertainty at the moment of the study. However, this organisation was very keen on keeping employees very well informed about the organisational context. It is possible that employees felt quite reassured that their unit was not going to close and that they would keep their job. Moreover, although there were rumours about the closure of one of the six units comprised in this organisation, employees of Unit E knew it was not their unit that was threatened. They report slight deteriorations regarding the pressure due to their responsibility and work-family conflict.
- Employees in Unit F **reported 9/17 positive but modest changes**. Risk factors which were improved include the competitive atmosphere, poor relations with colleagues and work-family conflict.
- In turn, their colleagues in Unit G reported **10/17 positive changes**, although these were slightly larger than Unit F. The risk associated with the competitive climate seems to have improved considerably after the actions.

Table 5.14: Changes in levels of exposure (effect size) to psychosocial risk factors (Forestry organisations)

Risk factor	Unit E n = 31	Unit F n = 83	Unit G n = 107	Risk factor	Unit E n = 31	Unit F n = 83	Unit G n = 107
Limited skill discretion	++	-	++	Limited participation in decisions	+++	---	-
Limited decisional latitude	+	-	+	Competitive atmosphere		++	+++
Low recognition (esteem)	+++	+	++	Responsibilities	-	+	
Low job stability	+++++	+	++	Work-family conflict	-	++	-
Low career opportunities	+++	-	-	Poor relations with line manager	+++++		-
Quantitative overload	++	+	++	Poor relations with colleagues	--	++	++
Role ambiguity	+	-	--	Poor relations with staff	+++++	+	++
Role conflict	+	+	++	Difficult physical environment	++	-	+
				Security	---		

Note. ‘+’ indicates an improvement (reduction), whereas ‘-’ indicates a deterioration (increase) in exposure to the risk factor. The number of +/- shows the magnitude of the standardised difference between the first and the second questionnaire (Cohen’s *d*, Cohen, 1988). For example, +++ indicates a reduction of 0.3 standard deviations for exposure to the risk factor between the two assessments (*d* = -0.30).

We compared the measurements in T1 and T2 in order to identify variations in employee wellbeing indicators (see Table 5.15). We should point out that the change in wellbeing indicators between the two assessments was calculated and standardised (see note to the following table) for each unit to allow us to compare changes. As shown in the following table, there were few significant changes in wellbeing indicators. In the case of Unit F, we even observed an increase in the intention to resign (19.8% vs. 27.2%), but this is mainly linked to the threatened closure of the organisation and the lack of job security which prevailed throughout the study period.

Table 5.15: Changes in wellbeing indicators (adjusted mean values) (Forestry organisations) †

Indicator	Measure	Unit E (n = 31)	Unit F (n = 83)	Unit G (n = 107)
Job satisfaction (0 – 100)	T1	55.8	61.4	63.0
	T2	59.4	59.4	63.7
Intention to resign (0 – 100)	T1	31.0	19.8	24.5
	T2	28.6	27.2**	23.7
Psychosomatic symptoms (0 – 100)	T1	9.2	13.8	12.7
	T2	9.7	13.1	12.9
Exhaustion (0 – 100)	T1	19.9	17.2	20.8
	T2	18.9	17.4	18.8
Psychological distress (% high distress)	T1	15.2	26.8	28.3
	T2	24.0	23.3	24.7

Note. The change test is statistically significant (* *p* < .05, ** *p* < .01, *** *p* < .001)

† The mean values for each scale are adjusted such that they vary between 0 and 100 to facilitate comparison between the different response scales for the indicators.

Our study shows that within 18 months, stress interventions implemented in specific units reduced exposure to psychosocial risk factors in the workplace to an important extent. A number of wellbeing indicators also showed notable improvements. Interventions at corporate level targeting the entire organisation or a job class, depending on their scale, may take longer to be implemented completely and lead to significant impacts.

Education establishment

- ↪ In Unit A, on average, 46% of participants were exposed to the various prevention activities. A total of **14/16 psychosocial risk factors improved**, including decision latitude, work overload, role ambiguity, role conflict and participation in decisions. **Job satisfaction improved** (56.6% vs. 66%) and there was a **considerable reduction in psychological distress** (56.1% vs. 25.9%).
- ↪ In Unit B, on average, 46% of respondents participated in the various prevention activities and **14/16 risk factors improved**, including: decision latitude, recognition of efforts and participation in decisions. There were a number of positive changes, including **more social support** (60.4% vs. 65.5%), **greater job satisfaction** (60.9% vs. 66.3%) and **less intention to resign** (21.5% vs. 15.1%). There was also a reduction in the high level of psychological distress (43.6% vs. 33.6%), although this was slightly below the significance threshold.
- ↪ In Project C, on average, 29% of respondents participated in the various prevention activities and **only 5/16 risk factors improved slightly**, including decision latitude. **Small negative changes** were also observed on **5 factors**. In terms of wellbeing indicators, employees reported **moderate positive changes**: a slight increase in social support (60.2% vs. 62.6%) and a moderate reduction in psychological distress (41.4% vs. 32.5%).
- ↪ In the comparison group, 24% of respondents participated in the general prevention activities in the organisation and **4/16 risk factors improved slightly, and one more significantly** (the quality of relations with staff in other units). A total of **5/16 psychosocial risk factors showed slight negative changes** (increased exposure). **This comparison group did not report any significant changes with respect to wellbeing indicators.**

Hospital centre

- ↪ In unit D, 38% of respondents participated in the various prevention activities and **15/16 psychosocial risk factors improved (positive changes)**, including: low recognition, quantitative overload, role conflict, limited participation in decision-making and poor relations (line manager, colleagues, staff from other units). Employees in this unit reported **significant positive changes in wellbeing indicators** including job satisfaction (39.5% vs. 46.2%), emotional exhaustion (37.9% vs. 30.3%) and psychological distress (68.3% vs. 37.8%).
- ↪ In the comparison group, 36% of respondents participated in the various prevention activities and **only 6/16 risk factors improved**, including: decision-making powers, recognition, role conflict and relations with colleagues. **There was no significant improvement or deterioration in wellbeing indicators.**

Forestry organisations

- ↪ In unit E, 35% of respondents participated in the various prevention activities and **12/17 risk factors improved**, including: recognition, job stability, relations with the line manager and staff from other teams, and participation in decision-making. There were a **few (4/17) negative changes**, including safety in the work environment and the quality of relationships with colleagues (within the team). There was **no significant variation in wellbeing indicators.**
- ↪ In unit F, 43% of respondents participated in the various prevention activities and **9/17 risk factors improved but only slightly**, including: the competitive atmosphere, poor relations with colleagues and work-family conflicts. **There was no significant variation in wellbeing indicators.**
- ↪ In unit G, 36% of respondents participated in the various prevention activities and **10/17 risk factors improved**, with most improvement in the competitive atmosphere. **There was no significant variation in wellbeing indicators.**

6. DISCUSSION

Researchers and organisations are currently facing huge pressures to identify, analyse and demonstrate the effectiveness of programmes to prevent stress in the workplace (Goetzel et al, 2002). This research provides important results on the subject of the intervention process (how interventions are developed and implemented), as well as on the changes interventions can have on organisational risk factors and wellbeing indicators in the workplace.

The aim of this study was to record the intervention process and to evaluate the effectiveness of stress interventions. A total of three public sector organisations participated in the research process. Seven action projects were monitored over a period ranging from 12 to 18 months. In two organisations, i.e. the education establishment and the hospital centre, the methodological design was a quasi-experimental procedure with prospective longitudinal measures with comparison groups (excepted in the three units from the forestry sector where it was not possible to target a comparison group).

Interventions at primary, secondary and tertiary level were implemented in each of the projects. The quantitative results show that, in the case of projects targeting specific units (rather than the organisation as a whole or a job class), a large number of interventions targeting work-related and organisational aspects were implemented. In these units, significant improvements were recorded with respect to wellbeing indicators, especially with regard to psychological distress and exposure to a variety of psychosocial risk factors in the working environment. In all cases, the units participating in a specific action project report more positive changes than the units participating in the research project as a comparison group. These results reinforce the relevance of action at primary level focussed on work aspects (instead of individual aspects) in order to reduce work-related stress.

To be more specific, the overall outcome of the measures introduced in the education establishment shows a number of improvements. In unit A, 14/16 risk factors improved: job satisfaction increased and a significant reduction in psychological distress was observed (56.1% vs. 25.9%). In unit B, 14/16 risk factors also improved: there is more social support in the workplace, greater job satisfaction, less desire to leave and a reduction in levels of psychological distress (43.6% vs. 33.6% of high psychological distress). In Project C, only 5/16 risk factors improved: the employees reported a slight increase in social support and a reduction in the high level of psychological distress (41.4% vs. 32.5%). In the comparison group, only 5/16 risk factors improved slightly and there were no notable changes with regard to wellbeing indicators.

Improvements were also noted in the overall results achieved in the hospital centre. In unit D, 15/16 risk factors improved. Employees observed positive changes in indicators such as job satisfaction, emotional exhaustion and psychological distress (68.3% vs. 37.8%). In the comparison group, only 6/16 risk factors improved and there were no significant improvements or deterioration in wellbeing indicators.

Finally, the preventive actions introduced in units of the forestry sector seem to have had a moderate impact. In unit E, 12/17 risk factors improved and there was no significant variation in wellbeing indicators. In unit F, 9/17 risk factors improved and there was no significant variation in wellbeing indicators. In unit G, 10/17 risk factors improved, but there was no significant variation in wellbeing indicators.

With regard to the action process itself, a number of points should be highlighted in this general conclusion. We shall consider three aspects: 1) obstacles to interventions, 2) aspects facilitating interventions and 3) the scope and limitations of this research project.

6.1 OBSTACLES

Since our study shows that the success of a process is not solely based on a specific type of action (i.e. training, task modification, improving communication, etc.), but also on a general strategic approach, we should like to draw attention to the main obstacles (see Table 6.1).

Table 6.1: Obstacles to interventions

OBSTACLES TO ACTION	CASE
1. Managers have an excessive workload	1, 2, 3
2. Problems in changing the work organisation structure	2, 3
3. Conflicting interests and tasks of the Human Resources Department	1
4. Change of project manager and committee members	1, 3
5. Lack of resources and support for managers when managing changes	2, 3
6. Negative opinion of employees and managers with regard to actions	1, 2
7. Introducing too many actions at once	1, 2
8. Excessively long action implementation period	2, 3
9. Process geared too much towards reducing absenteeism	2

1. In the three participating organisations, managers tend to have an excessive workload. This risk factor - and it really is a risk factor – has a pernicious effect, as not only is it damaging to the physical and psychological health of individuals, but it is also an obstacle (i.e. lack of time, excessive workload, etc) to implementing actions with a view to improving wellbeing in the workplace. We are therefore faced with a paradox in which managers (and often employees too) are overloaded with work and too preoccupied by “urgent operations” to spare the time and energy to improve their working conditions. This thus creates a vicious circle which makes it impossible to think or take action about work and leaves the individual no option but to endure the stresses in the workplace until he leaves or becomes exhausted. The workload risk factor thus has a double impact: it has an adverse effect on health and on the introduction of positive changes in working conditions.
2. Actions which affect work organisation are increasingly regarded as an effective way of reducing stress in the workplace. However, changing working conditions is not an easy thing to do. The boundary between improving wellbeing and productivity is sometimes very clear in the case of actions which target specific risks such as workload. Over years, we have been researching and taking action against stress in the workplace, and workload is the most important risk factor in almost all cases. When it’s time to discuss this and, more specifically, propose solutions, we are soon faced with major challenges relating to productivity and efficiency at work. In other words, in a number of cases, reducing the workload entails reducing production rates, controlling external demands, providing more employees, changing the service on offer, etc. These are very sensitive aspects and it is rarely possible to take action in this respect. In units where it has proved possible to restructure work processes and implement actions in accordance with staff recommendations, new tasks have been created as a result of the changes. Even though

significant improvements were observed in terms of quantitative results, our qualitative data suggests that action projects gave rise to unexpected changes (secondary effects) with respect to workload. We therefore believe that the workload problem still exists because there is an increasingly strained relationship between the health of individuals and the productivity of organisations. More in-depth research projects on the subject of workload problems and the load created by implementing a procedure for preventing stress in the workplace will need to be conducted over the course of the next few years.

3. Whilst monitoring the actions, we observed that the Human Resources Management Department was heavily solicited by these projects. The HR representatives themselves had a very heavy workload and sometimes received contradictory briefs with regard to psychological health. For example, an HR manager may be supporting an employee or manager as part of an action project, but may also be required to impose disciplinary measures or participate in a selection process involving the same individuals. The nature of their work, involving tasks which are often contradictory, makes it difficult to create an atmosphere of trust between the HR function, staff and the managers of the participating units. HR managers often regard prevention projects as very interesting briefs. On the other hand, as a result of their considerable workload and their relationship with the individuals involved in the action, which may be contradictory at times, some tasks were entrusted to external consultants. It is crucial to establish roles clearly and regularly, as well as the boundaries between HR managers and external consultants. Once roles and an atmosphere of trust had been clearly established, the involvement of HR managers was greatly appreciated by staff and managers in the participating units. The HR manager played the role of facilitators, information providers and moderators and proved very useful in committee member meetings. For example, the action projects often include changes in the work organisation structure and thus involve a number of collective agreement clauses.
4. Actions to prevent stress in the workplace are projects which take place over several months, or even several years (T. Cox *et al.*, 2002; M. A. J. Kompier *et al.*, 1998) and it is thus important to ensure a certain level of stability amongst the individuals managing the project. In the case of two participating organisations, the project manager changed over the course of the period. In both cases, this had the effect of delaying the actions, not due to the expertise of the new project manager, but quite simply because the latter needed to familiarise himself sufficiently with the project before being able to take full control of the action process. He needed a certain amount of time to fully comprehend the history behind the project, the procedure for implementing actions, decisions taken and decisions not taken, failure or success of the steps introduced, etc. The same applies to committee members responsible for these actions. We therefore need to take this aspect into account when starting up a project: will the project manager be in the job for the duration of the process? Are the various committee members sufficiently committed to the project to stay with it to the end? What is certain is that it's impossible to offer a 100% guarantee when answering these questions. However, the very fact of taking these personnel changes into account as obstacles to the project and putting in place systems to avoid such problems or to respond if they should arise is a start. For example, creating and updating a document giving an overview of the history of the committee and the decisions taken would enable committees to avoid "drifting" towards actions focusing solely on secondary prevention and to remain on course in terms of reducing sources of stress in the workplace.
5. As a general rule, intervention projects require a high level of various skills such as project management, change management and "people" skills. The managers in the departments where the changes are to be made need to be well supported, not only by the senior management team in order to ensure the necessary resources to implement the recommendations, but also by their teams, who must demonstrate tolerance, and by an HR advisor or consultant in order to manage any tension, conflicts and other secondary effects

which may result from the changes. Managers have an excellent knowledge of their profession, production line or the service to be delivered (i.e. content knowledge), but generally don't have specific expertise in project management with a view to reducing psychosocial risks in the workplace, improving psychological health and reducing stress. We therefore feel that managers need to be supported in almost every case in order to ensure that the process runs smoothly and that the anticipated results are achieved. This point should be included in the project management brief: not only do we need to consider the changes to be made, but also the individuals who are going to implement the changes. In general terms, little thought is given to the support which the manager will need to implement the change, respond to employee arguments, deal with difficult situations, etc. As well as increasing the prospects of the action being successful, this support is also important for the psychological health of the manager in question.

6. Taking action to improve wellbeing and psychological health in the workplace is a noble objective which received the unhesitating support of members of the implementation committees and certain members of the management teams in the participating organisations. During our observations on site, we observed that the same cannot always be said about managers and employees. Some of the latter expressed their doubts in no uncertain terms as to the possible success and purpose of such a process. Their objections were as follows: doubts as to the potential success of the interventions and doubts concerning the underlying motivation behind the project (e.g. managerial interests instead of employees' wellbeing). These comments are often as a result of previous experience with failed projects or projects which have not yet led to the anticipated results. In other words, this is not merely a case of resistance to change, as described in organisational behaviour theories, but doubts based on past experience. It is thus important to rebuild the relationship of trust between employees and managers. This rebuilding process will come about by taking swift and visible action to demonstrate the good faith of the programme to improve working conditions. This good faith will also come about as a result of a participatory approach involving employees just as much as managers. Furthermore, the individuals responsible for implementing the process need to be patient and ready to handle any negative opinions and comments on their actions. The management team also needs to be aware of the low popularity of organisational measures and to offer their support in implementing such measures and taking quick decisions about the introduction of such measures. We need to understand that, in such projects, time and delays in introducing measures work against the reputation of the intervention programme.
7. In many prevention procedures (i.e. ergonomics, work psychology, conflict prevention, occupational accident prevention, etc), one of the first stages involves risk identification. This stage certainly is essential and allows a risk inventory to be compiled. As a general rule, the next step is to identify solutions. One or more solutions are drawn up for each of the risks. This process is often described in a report itemising the problems and their corresponding solutions. In some of the participating organisations, we noticed that 60 or even 120 solutions were proposed per work unit. Such a large number of solutions shows the range of possibilities when it comes to changing work procedures and also proves that the problem-solving groups performed their job well. Problems arise when it comes to implementing the solutions. The great number of solutions often has the effect of discouraging employees or managers and, paradoxically, poses a threat to the reputation of the project since it is almost impossible to implement all the proposed solutions. We know that workload is an important consideration for all the relevant parties, which means that too many solutions often result in actions being diluted or quite simply ignored because there are too many of them. Keeping in mind Cox's and colleagues' (2000) suggestion to pinpoint the underlying pathology behind the high number of solutions, we had to contend with this problem and recommended limiting the number of solutions to be introduced to just a few (two, three or four interventions targeting the most important problems). Our experience shows that, if a lot of solutions are identified, very few are actually implemented. By choosing a limited

number of solutions, the chances of success are greater, less effort needs to be put in and the arguments concerning the resulting workload are more difficult to justify. The other solutions aren't just shelved; they are simply filed and may be implemented at a later date. This step-by-step approach increases the chance of better quality actions, with the aim not of doing more, but of doing it better.

8. Several months may elapse between the time at which the risks are identified, alternatives discussed, solutions drawn up and the actions actually implemented. In other words, the decision-making processes, the frequency of the steering committees' meetings and delays before meetings with employees and managers are other aspects which postpone the point of implementing the actions. This delay between diagnosis and implementation of solutions is virtually unavoidable but it also constitutes an obstacle to the reputation of the action programme. In the three participating organisations, the delays in implementing the process all had the same effect: they impacted on the credibility of the project, allowing rumours to spread about the failure or abandonment of the entire process, etc. It is thus essential to act promptly and to take concrete action swiftly, even if this action hasn't been fully researched. It is thus essential to provide short, medium and long-term actions.
9. The prevention process must satisfy several objectives: reduce absenteeism, improve wellbeing, increase productivity and/or service quality. Justification for initiating the action procedure is often based on absenteeism data, which is in fact a relevant indicator for convincing the management team of the scale of the problem and the need to act. The challenge is to remain focused solely on reducing the rate of absenteeism and thus managing absences. It is important to understand that absenteeism is a consequence of the problem of stress in the workplace and is often merely the tip of the iceberg (Hemp, 2004). Our research showed that it was worth using psychological distress measurements and risk factors as action management indicators.

6.2 FACILITATORS

A number of aspects contribute to the success of measures to reduce stress in the workplace and we feel we should emphasise those which can be applied on a general basis. Table 6.2 thus shows the aspects which make it easier to implement actions.

Table 6.2: Aspects which make it easier to implement actions.

ASPECTS WHICH MAKE IT EASIER TO IMPLEMENT ACTIONS	CASE
1. Strategic and systematic approach to risk management	1, 2, 3
2. Financial support	1, 2
3. Support for managers when implementing changes	1
4. Incorporating actions in the wider organisational project	1, 2, 3
5. Strong structure and regular meetings of the steering committee	1
6. Participatory approach throughout the process	1, 2, 3
7. Draw up a short, medium and long-term action schedule	1, 2, 3
8. Target a number of specific problems at once	1, 2, 3
9. Publicise achievements promptly and adequately	1, 3

1. A strategic and systematic approach to risk management which enables risk factors to be identified and wellbeing indicators to be assessed is essential. This makes it possible to avoid a blindfold approach,

where we are not sure which factor to target, and which has the effect of focussing action on secondary prevention (training and information), since this is easy to suggest and implement. This strategic approach is in line with the approach suggested by Cox and his colleagues (2000). The strategic aspect also takes the form of an integral approach which is primarily concerned with improving working conditions (primary prevention) and only then taking individual action (secondary prevention) or treatment or return to work (tertiary prevention).

2. The support of the organisation management team is very important since this also takes the form of substantial financial support. What's more, the credibility of the project is considerably enhanced, there is a greater variety of action opportunities and support for implementing these actions can be anticipated.
3. In most cases, the changes to be made related to sensitive aspects of the organisation (i.e. tasks, relations, decision-making processes, distribution of information), which require specific skills and expertise. The managers who have to manage the changes on a local basis with the collaboration of their employees are not always supported adequately or sufficiently to guarantee success. Furthermore, the latter are also experiencing considerable stress and have a hefty workload. In the education establishment, people soon became aware that the position of the managers could be a major obstacle to implementing changes. After consulting groups of managers and holding several discussions in committees, these managers reported that they wanted the support of an organisational development expert to assist them if required. This type of process was referred to as an "organisational assistance programme". Its aim was to support managers and their teams in implementing stress prevention measures. This initiative is currently being developed within organisation 1, but follows on from the support provided to Units A and B throughout the process. This support was very much appreciated and represents an aspect which played a great part in the success of implementing changes.
4. An intervention process with a view to improving psychological health in the workplace is often an ad hoc, temporary project which is conducted in parallel within the organisation. This process is not very highly weighted in strategic terms. We therefore took great pains to suggest that the process should, wherever possible, be linked to corporate processes (i.e. mission, strategic trends, development plan, etc.). This joint research made it possible to raise the priority level of the whole process and provide a better guarantee that the actions would be implemented and maintained since they related to corporate issues and not just any old health & safety or psychological health committee. Creating political support thus proved to be a very effective strategy. Despite the efforts of the committees to anchor the process as a corporate issue, the actions are not guaranteed to be maintained in a number of cases. This is because, in the long term, it is difficult to maintain committees with specific responsibility for stress prevention, irrespective of whether these committees are permanent, made up of stable individuals, convinced of the soundness of the process and with a sustained high level of motivation to remain involved in the process. In order to maintain the level of motivation and commitment of committee members, the project manager must replicate the same prevention principles as a manager within a unit (i.e. allocate and clarify roles, recognise effort, involve members in the decision-making process, communicate information). Finally, to ensure that the actions are maintained, the committees and units must receive the support of stable managers and decision-makers who are convinced of the importance of the interventions and ready to provide an ongoing operating budget. Ranking alongside with a sustainable prevention process, making sure that actions can be generalized to the organisation as a whole remains an important, but delicate issue. This study entailed targeting certain specific units to monitor the process and measure the effectiveness of the actions. Our results show that this type of undertaking is costly in terms of both human and financial resources and with regard to the skills required in order to bring such projects off, but that they do lead to a great many improvements. These projects may thus be very effective in

reducing stress in the workplace at its source and hence improving the psychological health of staff. In view of the costs, it is difficult to replicate these processes in each unit or department of an organisation. As a result, we need to provide other means or structures to make this more cost-effective (economies of scale). The initiative to set up an organisational assistance programme in organisation 1 is in keeping with this way of thinking.

5. To ensure that the problem of psychological health in the workplace is regarded as a major concern, we felt that it was more effective to set up a committee to deal specifically with this issue. This makes it easier to focus on the issues and prevents diluting resources, effort and the number of problems to be handled. However, this committee must be properly structured, it must comprise the various parties involved (i.e. board, managers, employees) and it must also have clearly defined powers and resources. Since this is a committee dedicated to just one aspect, it is important to make sure that there is a certain level of coordination with other existing committees (e.g. health & safety, violence/bullying prevention, employee assistance programmes, etc.). This coordination may be organised by the chairman of the committee, or members of the said committees can also sit on the psychological health committee. This structure must remain in situ until the actions are implemented or until the members feel that solid foundations are in place. Once this stage has been reached, it may be integrated with other committees, but this must be well planned.
6. A system which allows employees and managers to play an active part in identifying problems and implementing solutions is also a key factor in success, since these individuals are experts in their work situation. This type of action-based research increases the chance of meeting both scientific and empirical objectives. Our research has enabled us to see that the participation of employees and managers is just as important as the method used to identify risks.
7. We have already explained that it is essential to implement actions as soon as possible. However, this should take place gradually, as resources are limited and the environments have a restricted capacity to assimilate the actions. A timescale for implementation comprising three phases: short, medium and long-term provides an element of perspective when assessing the efforts to be applied and spreading the impact of the changes. Various criteria must be considered during this exercise: impact of changes, ease of implementation, popularity of the solution, importance of the solution in reducing priority problems.
8. The actions which were most successful are those which targeted only a few specific but important problems to start with. Since regular workload is important, it is risky to tackle too many problems in one go. The groups of employees and managers who opted for one or two specific actions were all capable of seeing through the chosen solutions. At first glance, it may seem disappointing to just opt for a couple of actions when there is time to do more. Our observations show that if too many actions are initiated at the outset, most are not completed, there is no proper monitoring and those responsible for implementing the actions tend to tire themselves out. With a view to not increasing the workload to an excessive extent, we opted for a more modest, but realistic approach. When selecting the actions to be implemented, we applied the principle of risk exposure, which means that one of the selection criteria for the activities was to assess, by consensus, whether the number of hours of exposure to this risk was reduced only a little, moderately, a lot or hugely. For example, an hour-long lecture on recognition in the workplace would reduce the lack of recognition in the organisation by only a little compared with redistributing the workload, which would have an effect on all the hours worked (2000 hours /year).

When observing the organisations, we regularly listened to the views of individuals (employees and managers), who maintained that the organisation did very little to improve employee wellbeing. In many

cases, considerable efforts had been made. It is thus important to publicise achievements. The implementation committee must also market its achievements successfully. Just because something has been done, it does not mean that it is widely known. In the case of organisations 1 and 3, communication plans were developed to publicise the committees' achievements: e-mail, website, lecture, management message, etc. Despite these efforts, our interviews with staff showed that little was known about several of the actions.

6.3 STRENGTHS AND LIMITS OF THE STUDY

This study incorporates certain limits which need to be emphasised. In the first place, the organisations under consideration are not a random sample but a well thought-out sample based on already existing contacts within the organisations due to our first phase of research. Secondly, the study uses comparison groups instead of control groups. This is because it was impossible to select any groups within the organisations which would be totally unexposed to any interventions. We decided to use comparison groups (units which were comparable on many aspects and were exposed to general interventions instead of specific interventions. A number of authors have already described the problems of creating genuine control groups in an organisational environment (Griffiths, 1999; Randall, 2005). However, the use of comparison groups in the context of actions within the various units does enable us to see quite clearly that the groups exposed to interventions which relate specifically to the work processes display a number of improvements, whereas the changes are much less clear-cut in the comparison groups. Thirdly, our research does not enable us to ascertain which type of specific actions lead to the strongest effects. Analysis of qualitative and quantitative data shows us that there is no simple dose-effect relationship when we are talking about organisational measures to combat stress. Due to lack of space, we have not reported on these analyses in this report, but our analyses of dose-response effects did not enable us to identify any clear trends with regard to the effectiveness of specific interventions on specific risk factors. For example, holding team meetings may have an effect on workload, role conflicts, recognition in the workplace, etc. In other words, we do not think that it is possible to isolate the effects of a particular intervention. The measured effects are thus not dependent on just one action, but on a more holistic or more global approach which affects several factors at once. Finally, since only three organisations in Quebec were involved in this research project, it is important to stress that caution should be applied when generalising the results obtained for use with other similar organisations, but they should not be generalised to apply to all organisations in Quebec. Nevertheless, unlike other projects in this field, this research was performed using a considerable number of participants representing several job categories and monitored over a fairly long period of 18 months. This process is coherent with the risk management approach proposed by Cox and his colleagues (2000).

The mixed methods approach where both quantitative and qualitative were collected over an appropriate period of time is an important strength of this project. Several studies which intend to evaluate the effect of interventions are solely concerned with measurements pre- and post-action without much light on the context and conditions necessary for interventions to be developed and implemented. Research projects in which the implementation process is documented using the methods we have used are rare. This research project attempts to fill this gap by using qualitative material which enables us to provide an in-depth record of the various stages of the interventions and also by using quantitative data on risk factors and wellbeing indicators, allowing us to measure the various effects of the actions implemented over the 18-month observation period on site.

7. CONCLUSION

To sum up, the results of this project reinforce the relevance of organisational- and work-oriented interventions when it comes to taking action against sources of stress in the workplace. We observed a reduction in exposure to risk factors and an improvement in wellbeing indicators (i.e. satisfaction, intention to resign and psychological distress) as a function of the prevention efforts (focussed on aspects in the work environment with high number of employees exposed to the interventions). Given that no significant changes were observed in the comparison groups and that more positive changes were observed in the units where actions were implemented intensively by targeting specific aspects of work, a strategic and systematic approach to prevention constitutes an efficient way of reducing stress in the workplace and its negative consequences. This procedure must be systematic and participatory and actions must be designed in line with a risk analysis and the recommendations of staff and managers. The latter and the project managers themselves must be supported, either by an external consultant during certain stages of the project, or throughout the process by work teams, human resources representatives and the management team in order to ensure the success of this type of process and to benefit from its effects.

This study project took place over a period of 18 months. A lengthy period of time was necessary in order to allow the action plans to be fully implemented and to produce an effect on the measured outcomes. On the other hand, as shown by our measurements gauging exposure of staff to the interventions, the level of exposure to interventions after 18 months vary depending on the action in question. This data shows that certain actions can be implemented and received by employees quickly, whereas others tend to be more long-term. However, due to a large number of changes affecting staff, managers, project managers and the board, it is difficult to predict whether these longer-term actions will actually be implemented and whether the project will then be able to apply in general terms to all organisations. Our research attempted to measure the extent to which the actions were implemented. Future research should try to develop more systematic tools to evaluate the intervention process (e.g. to measure the extent to which the actions were delivered, received, their respective costs and how they were perceived by the individuals in question). Finally, future research should attempt to identify more efficient structures with a view to ensuring: 1) the sustainability of the actions implemented within the units and 2) generalisation of actions across the organisation.

BIBLIOGRAPHY

- Archambault, E., Côté, G. & Gingras, Y. (2003). *Bibliometric Analysis of Research on Mental Health in the Workplace in Canada, 1991-2002*: Science-Metrix, Centre interuniversitaire de recherche sur la science et la technologie/Observatoire des sciences et des technologies. Prepared for the Institute of Population and Public Health, the Institute of Neurosciences, Mental Health and Addiction and the Canadian Health Research Institutes.
- Baril-Gingras, G., Bellemare, M. & Brun, J.-P. (2006). Interventions externes en santé et en sécurité du travail: Influence du contexte de l'établissement sur l'implantation de mesures préventives. (*External actions to improve health and safety in the workplace: Influence of the organisational background on the implementation of preventive measures*) *Relations industrielles*, 61(1), 9-43.
- Bellemare, M., Marier, M., Montreuil, S., Allard, D. & Prévost, J. (2002). *La transformation des situations de travail par une approche participative en ergonomie : une recherche intervention pour la prévention des troubles musculo-squelettiques*. (*Changing working conditions by a participatory ergonomic approach: research into action to prevent muscular skeletal problems*) (No. R-292). Montreal: IRSST.
- Biron, C., Ivers, H., Brun, J.-P., & Cooper, C. L. (2006). Risk assessment of occupational stress: Extensions of the Clarke and Cooper approach. *Health, Risk & Society*, 8(4), 417-429.
- Biron, C., Brun, J.-P., & Ivers, H. (2008). Extent and sources of occupational stress in university staff. *Work: A Journal of Prevention, Assessment & Rehabilitation*, 30(4).
- Biron, C., Cooper, C. L., & Bond, F. W. (2008). Mediators and moderators of organisational interventions to prevent occupational stress. In S. Cartwright & C. L. Cooper (Eds.), *Oxford Handbook of Organizational Wellbeing* (pp. 441-465). Oxford: Oxford University Press.
- Blais, M. R. & Lachance, L. (1992). *Qualité de vie au travail, santé et bien-être chez les professeurs et professeures de l'Université du Québec à Montréal*. (*Quality of life in the workplace, health and wellbeing amongst professors at the University of Montreal*) Montreal: Motivation and Quality of Life Laboratory. Psychology Department, University of Quebec at Montreal.
- Bond, F. W., Flaxman, P. E. & Loivette, S. (2006). *A business case for the Management standards for stress* (No. RR 431). Norwich, UK: Health & Safety Executive.
- Bourbonnais, R., Brisson, C., Vézina, M. & Moisan, J. (1996). Job strain and psychological distress in white collar workers. *Scandinavian Journal of Work, Environment and Health*, 22, 139-145.
- Bourbonnais, R., Comeau, M. & al. (1998). *La transformation du réseau de la santé : mesure des caractéristiques du travail et de santé des infirmières de l'agglomération de Québec* (*Changes in the health system: measuring the characteristics of work and health in nurses in the urban area around Quebec*): RIPOST research team, Quebec Public Health Department.
- Bourbonnais, R., Lower, A., Brisson, C., Vézina, M. & Vinet, A. (2003). *Évaluation d'une intervention participative visant la prévention des problèmes de santé mentale chez les infirmières d'un hôpital de la région de Québec*. (*Evaluation of a participatory action programme with a view to preventing mental health problems in nurses in a hospital in the Quebec region*). Quebec, Canada: CLSC-CHSLD Haute-Ville-Des-Rivières, CLSC, Affiliated University Centre.
- Braverman, M. (1999). Preventing workplace violence: a guide for employers and practitioners. *Stress Medicine*.
- Briner, R. (1997). Improving stress assessment: Toward an evidence-based approach to organisational stress interventions. *Journal of Psychosomatic Research*, 43(1), 61-71.
- Briner, R. B. & Reynolds, S. (1999). The costs, benefits and limitations of organisational level stress interventions. *Journal of Organisational Behavior*, 20, 647-664.
- Brun, J.-P., Biron, C., Martel, J. & Ivers, H. (2003). *Évaluation de la Santé Mentale au Travail : Une Analyse des Pratiques de Gestion des Ressources Humaines* (*Assessment of Occupational Mental*

- Health: An Analysis of Human Resources Management Practices*) (Studies and research / Report No. R-342). Quebec, Canada: Institut de recherche Robert-Sauvé en santé et en sécurité du travail.
- Bunce, D. (1997). What factors are associated with the outcome of individual-focused worksite stress management interventions. *Journal of Occupational and Organisational Psychology*, 70, 1-17.
- Burke, R. J. (1993). Organisational-level interventions to reduce occupational stressors. *Work & Stress*, 7(1), 77-87.
- Clarke, S. G., & Cooper, C. L. (2000). The risk management of occupational stress. *Health, Risk and Society*, 2(2), 173-187.
- Clarke, S. G. & Cooper, C. L. (2004). *Managing the Risk of Workplace Stress: Health and Safety Hazards*. London/New York: Routledge.
- Cooper, C. L. & Cartwright, S. (1997). An intervention strategy for workplace stress. *Journal of Psychosomatic Research*, 43(1), 7-16.
- Cooper, C. L., Dewe, P. J. & O'Driscoll, M. P. (2001). *Organisational Stress: A Review and Critique of Theory, Research and Applications*. Thousand Oaks, CA: Sage Publications.
- Cooper, C. L. & Marshall, J. (1976). Occupational Sources of Stress: a Review of the Literature Relating to Coronary Heart Disease and Mental ill Health. *Journal occup. Psychol.*, 49(1), 11-28.
- Cooper, C. L. & Sutherland, V. J. (1997). Job Stress, Mental Health and Accidents Among Offshore Workers in the Oil and Gas Extraction Industries. *Journal of Occupational Medicine*, 29(2), 119-125.
- Cotton, P., & Hart, P. M. (2003). Occupational Wellbeing and Performance: a Review of Organisational Health Research. *Australian Psychologist*, 38(1), 118-127.
- Cox, T. (1993). *Stress research and stress management: Putting theory to work*. Nottingham: Centre for Organisational Health and Development, University of Nottingham.
- Cox, T., Griffith, A. & Rial-Gonzales, E. (2000). *Research on Work-related Stress*. Luxembourg: European Agency for Health & Safety at Work.
- Cox, T., Griffiths, A. J., Barlowe, C. A., Randall, R. J., Thomson, L. E. & Rial-Gonzalez, E. (2000). *Organisational interventions for work stress: A risk management approach*. Nottingham: Institute of Work, Health and Organisations, University of Nottingham Business School.
- Cox, T., Randall, R. & Griffiths, A. (2002). *Interventions to control stress at work in hospital staff*. Nottingham: The Institute of Work, Health and Organisations, University of Nottingham.
- Cox, T., Karanika, M., Griffiths, A., & Houdmont, J. (2007). Evaluating organizational-level work stress interventions: Beyond traditional methods. *Work & Stress*, 21(4), 348-362.
- Dawson, S., William, P., Clinton, A. & Brandford, M. (1988). *Safety at work: the limits of self regulation*. Cambridge: Cambridge University Press.
- DeFrank, R. S. & Cooper, C. L. (1987). Worksite stress management interventions: Their effectiveness and conceptualisation. *Journal of Managerial Psychology*, 2(1), 4-10.
- Elkin, A. J. & Rosch, P. J. (1990). Promoting mental health at the workplace. *Occupational Medicine: State of the Art Reviews*, 5(4), 739-754.
- Fielden, S. L. & Cooper, C. L. (2002). Managerial stress: Are women more at risk. In D. L. Nelson & R. J. Burke (Eds.), *Gender, work, stress, and health* (pp. 19-34). Washington, DC: American Psychological Association.
- Garrety, K., & Badham, R. (1999). Trajectories, social worlds, and boundary objects: A framework for analyzing the politics of technology (Vol. 9, pp. 277-290).
- Giga, S. I., Noblet, A. J., Faragher, B. & Cooper, C. L. (2003). The UK perspective: A review of research on organisational stress management interventions. *Australian Psychologist*, 38(2), 158-164.
- Giga, S. I., Cooper, C. L., & Faragher, B. (2003). The development of a framework for a comprehensive approach to stress management interventions at work. *International Journal of Stress Management*, 10(4), 280-296.

- Goldenhar, L. M., LaMontagne, A. D., Heaney, C. & Landsbergis, P. (2001). The intervention research process in occupational safety and health: An overview from NORA Intervention Effectiveness Research Team. *Journal of Occupational and Environmental Medicine*, 43(7), 616-622.
- Griffiths, A. (1999). Organisational interventions: Facing the limits of the natural science paradigm. *Scandinavian Journal of Work and Environment Health*, 25(6), 589-596.
- Guérin, F. (2006). *Comprendre le travail pour le transformer : prat. ergonomie (Understanding work in order to change it: practical ergonomics)* (3rd ed.): Anact.
- Hemp, P. (2004). Presenteeism: at work--but out of it. *Harvard Business Review*, 82(10), 49-58.
- Hurrell, J. J. J. & Murphy, L. R. (1996). Occupational stress intervention. *American Journal of Industrial Medicine*, 29(4), 338-3341.
- Jordan, J., Gurr, E., Tinline, G., Giga, S., Faragher, B. & Cooper, C. (2003). *Beacons of excellence in stress prevention* (No. Research report 133). Manchester: Health and Safety Executive.
- Karasek, R. (1979). Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign. *Administrative Science Quarterly*, 24, 285-310.
- Kompier, M. (2004). Does the "Management Standards" approach meet the standard? *Work & Stress*, 18(2), 137-139.
- Kompier, M. & Cooper, C. L. (1999). Stress prevention: European countries and European cases compared. In M. A. J. Kompier & C. L. Cooper (Eds.), *Preventing stress, improving productivity - European case studies in the workplace* (pp. 312-336). London: Routledge.
- Kompier, M. A. J., Aust, B., Van Den Berg, A.-M. & Siegrist, J. (2000). Stress prevention in bus drivers: Evaluation of 13 Natural Experiments. *Journal of Occupational Health Psychology*, 5(1), 11-31.
- Kompier, M. A. J., Geurts, S. A. E., Grundemann, R. W. M., Vink, P. & Smulders, P. G. W. (1998). Cases in stress prevention: The success of a participative and stepwise approach. *Stress Medicine*, 14, 155-168.
- Kompier, M. A. J. & Marcelissen, F. H. G. (1990). *Handboek Werkstress*. Amsterdam: Nederlands Instituut voor Arbeidsomstandigheden.
- Kristensen, T. S. (2005). Intervention studies in occupational epidemiology. *Occupational and Environmental Medicine*, 62, 205-210.
- Lamontagne, A. D., Keegel, T., Louie, A. M., Ostry, A., & Landbergis, P. A. (2007). A systematic review of the job-stress intervention evaluation literature, 1990–2005. *International Journal of Occupational and Environmental Health*, 13, 268-280.
- Légaré, G., Préville, M., Massé, R., Poulin, C., Boyer, R. & St-Laurent, D. (2001). Santé mentale (*Mental health*). In Institut de la statistique du Québec (Ed.), *Enquête sociale et de santé 1998 (Social and health survey 1998)* (2nd ed.). Quebec.
- Leka, S., Griffiths, A. & Cox, T. (2003). *Work Organisation & Stress*. Nottingham: World Health Organisation 2003.
- Mikkelsen, A. & Gundersen, M. (2003). The effect of a participatory organisational intervention on work environment, job stress and subjective health complaints. *International Journal of Stress Management*, 10(2), 91-110.
- Mikkelsen, A., Saksvik, P. O. & Landsbergis, P. (2000). The impact of a participatory organisational intervention on job stress in community health care institutions. *Work & Stress*, 14(2), 156-170.
- Murphy, L. R. (1988). Workplace interventions for stress reduction and prevention. In C. L. Cooper & R. Payne (Eds.), *Causes, coping and consequences of stress at work*. New York: Wiley.
- Murphy, L. R. (1996). Prevention and management of work stress. In J. Billsberry (Ed.), *The effective manager: Perspectives and illustrations* (pp. 69-76).
- Murphy, L. R. (1996). Stress management in work settings: A critical review of the health effects. *American Journal of Health Promotion*, 11(2), 112-135.

- Murphy, L. R. & Sauter, S. L. (2003). The USA perspective: Current issues and trends in the management of work stress. *Australian Psychologist*, 38(2), 151-157.
- Murphy, L. R. & Sauter, S. L. (2004). Work organisation interventions: State of knowledge and future directions. *Soz.-Präventivmed*, 49, 79-86.
- National Institute for Occupational Safety and Health. (2002). *The Changing Organisation of Work and the Safety and Health of Working People: Knowledge Gaps and Research Directions* (No. 2002-116). Cincinnati, OH: NIOSH-Publications Dissemination.
- Nytrø, K., Saksvik, P. O., Mikkelsen, A., Bohle, P. & Quinlan, M. (2000). An appraisal of key factors in the implementation of occupational stress interventions. *Work & Stress*, 14(3), 213-225.
- Parkes, K. L. & Sparkes, T. J. (1998). *Organisational interventions to reduce work stress: Are they effective? A review of the literature* (No. Contract research report 193/1998). Oxford, UK: University of Oxford, Health and Safety Executive.
- Richardson, K. M., & Rothstein, H. R. (2008). Effects of occupational stress management intervention programs: A meta-analysis. *Journal of Occupational Health Psychology*, 13(1), 69-93.
- Saksvik, P. O., Nytrø, K., Dahl-Jørgensen, C. & Mikkelsen, A. (2002). A process evaluation of individual and organisational occupational stress and health interventions. *Work & Stress*, 16(1), 37-57.
- SAS Institute. (2001). *SAS/STAT User's Guide, Version 8* (Vol. 1, 2, 3). Cary, NC: SAS Institute.
- Schaubroeck, J. & Ganster, D. C. (1991). The Role of Negative Affectivity in Work-Related Stress. *Journal of Social Behavior and Personality*, 6(7), 319-330.
- Semmer, N. K. (2003). Job stress interventions and organisation of work. In J. C. Quick & L. E. Tetris (Eds.), *Handbook of Occupational Health Psychology*. Washington, DC: American Psychological Association.
- Shannon, H. S. & Cole, D. C. (2004). Making workplaces healthier: generating better evidence on work organisation intervention research. *Soz.-Präventivmed*, 49, 92-94.
- Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, 1, 27-41.
- Sparks, K. & Cooper, C. L. (1999). Occupational differences in the work-strain relationship : Towards the use of situation-specific models. *Journal of Occupational and Organisational Psychology*, 72(2), 219-229.
- Sroufian. (2003, August). Mental health is the number one cause of disability in Canada. *Insurance Journal* p. 8,
- Statistics Canada. (2003). L'emploi et le revenu en perspective. (*Jobs and earnings in perspective*) *Statistics Canada Catalogue*, 4, 19.
- Tabachnick, B. G. & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). New York: Allyn and Bacon.
- Van Der Hek, H. & Plomp, H. N. (1997). Occupational stress management programmes: A practical overview of published effect studies. *Occupational Medicine*, 47(3), 133-141.
- Van Der Klink, J. J. L., Blonk, W. W. B., Schene, A. H. & Van Dijk, F. J. H. (2001). The benefits of interventions for work-related stress. *American Journal of Public Health*, 91(2), 270-276.
- Vézina, M. & Bourbonnais, R. (2001). Incapacité de travail pour des raisons de santé mentale. (*Inability to work for mental health reasons*). In I. d. l. s. d. Quebec (Ed.), *Portrait Social du Québec - Données et Analyses. (Social Portrait of Quebec - Data and Analyses)* Quebec.
- Vézina, M., Bourbonnais, R., Brisson, C. & Trudel, L. (2004). Workplace prevention and promotion strategies. *Healthcare Papers*, 5(2), 32-44.
- Warner, F. (1992). *Risk: Analysis, perception and management*. London: Report of a Royal Society Study Group.