Assessing the Costs of Work Stress

Research Report

Jean-Pierre Brun, Professor

Christine Lamarche, Assistant researcher

Université Laval

Quebec, Canada

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EXECUTIVE SUMMARY

This report presents the results of a study on the costs of work stress from an organizational point of view. The specific objectives of this project are to:

1. compile an inventory of documents on the internal organizational costs of work stress;
2. draw up a list of work stress cost indicators;
3. assess the capacity of organizations to produce these cost indicators; and
4. develop a preliminary version of a self-assessment tool to measure the costs of work stress.

An inventory of documents was compiled in order to analyze current information on the costs of work stress. This work showed that organizations have access to very little scientific information to help them assess the costs of stress in their environment. Organizations could use data mentioned in the literature to somewhat accurately evaluate some of their costs related to work stress. However, to our knowledge, there is no tool currently available to allow for a comprehensive assessment of the costs associated with this problem.

Stress is becoming increasingly recognized as a phenomenon that has a negative effect on a growing number of people in the workplace (Hoel, Sparks, & Cooper, 2001). Consequently, it is important to measure the economic impact of this phenomenon, since this assessment would have a major impact on management decisions.

The final objective of this report is to develop the preliminary version of a self-assessment tool to measure the costs of work stress. To do so, we conducted a field investigation that involved focus groups as well as interviews with individuals in two organizations, in addition to compiling the inventory of documents.

Although few of the selected cost indicators are currently available within organizations, it would appear that several of those that are currently unavailable could, nonetheless, be made available. The workload required on the part of the organization to produce these indicators would vary greatly.

This project supports the conclusion that the existing literature provides only limited information on assessing the costs of work stress from an organizational point of view. Consequently, we believe that companies would benefit from having a tool that would enable them to estimate these costs. However, data obtained during the field investigation shows that, to the extent possible, organizations need to take certain measures to make a larger number of cost indicators available. As an example, the management time associated with return-to-work activities could be made available if organizations were to develop a system to track this time.

Nevertheless, it would still be difficult to assess certain indicators. The cost associated with sick leave taken for psychological reasons is one example. However, the tool being proposed in this report will most certainly help organizations obtain more accurate and detailed estimates of the money being spent on the problem of work stress.

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1. Introduction

Problems related to work stress have increased significantly over the past two decades and are now one of the key problems facing organizations. According to a survey conducted by Statistics Canada, in which respondents were asked to indicate their level of stress at work, 38.8% of Canadians between the ages of 15 and 75 are slightly stressed at work, 25% are relatively stressed at work, while 5.4% are extremely stressed at work (Statistics Canada, 2002 – updated in September 2004). At the provincial level, surveys conducted by Santé Québec between 1987 and 1998 on Quebecers' health and well-being show that the inability to work due to mental health problems almost doubled, increasing from 7 to 13%. These surveys also show that the average number of missed work days per person for mental health reasons more than tripled between 1992 and 1998, jumping from 7.4 to 24.6 days per 100 people, a 200% increase (Vézina & Bourbonnais, 2001).

While work stress is a health problem, it has also become an economic problem for many people and organizations, and for society in general. The results of a Watson Wyatt survey conducted in 2002-2003 (which surveyed 180 organizations, representing more than 500,000 full-time Canadian employees) show how widespread this phenomenon is among Canadian organizations (Davey, DeBortoli, Parker, & Smolkin, 2003). According to this survey, entitled Staying@Work, psychological disorders[1] are the main cause of short-term and long-term disability claims (for 79% and 73% of respondents, respectively). Moreover, the average length of stress-related absences in the United States is four times higher than for absences resulting from workplace accidents and occupational diseases (Webster & Bergman, 1999). As a result, we can assume that the cost of absenteeism due to stress is correspondingly higher.

[1] In this study, the term "psychological problems" refers to depression, anxiety, stress and any other psychological problem that affects employees.

Another study by Anderson et al. (2000) shows that stress accounts for the highest percentage of health insurance costs ($6.2 billion and 7.9% of health costs) among 46,026 survey respondents from six large American companies.

Although absences related to mental health problems are, for the most part, addressed in group wage-loss indemnity plans, the financial and human impacts of this type of problem can also be reflected in the number of claims that workers submit to the Workers' Compensation Commission. For example, between 1990 and 1997, the number of claims accepted by the Commission de la santé et de la sécurité du travail du Québec (CSST) as workplace injuries related to stress, burnout or other psychological factors almost doubled, jumping from 530 to 994 cases. The amount of payouts also increased from $1.5 million to $5.1 million annually (Centre patronal de santé et sécurité du travail du Québec, 1999).

The data referred to up to this point clearly demonstrates the impact of stress on organizations. Whether because of disability-related costs or expenses resulting from worker claims, companies must pay close attention. It is difficult to estimate the extent of these costs to the business community to date, since little scientific information is available (Ramaciotti & Perriard, 2001); (Levi & Lunde-Jensen, 1996). On the other hand, stress is becoming increasingly recognized as a phenomenon that has a negative effect on a growing number of people in the workplace (Hoel, Sparks, & Cooper, 2001). Many managers, employees and specialized stakeholders (human resources advisors, occupational health physicians, occupational health and safety specialists, etc.) are seeking tools and accurate data on the scope of corporate stress-related costs. This is why it is important to provide companies with tools that will allow them to measure the economic impact of work stress. A more comprehensive assessment of these costs would almost certainly have a major impact on management decisions that could affect stress levels in an organization.

The Occupational Health and Safety Management Chair has been conducting a major research program over the past five years dealing with the strategic prevention of work-related psychological problems. The objectives are as follows:

1. Assess the effectiveness of organizational measures aimed at reducing exposure to psychosocial hazards and of outcome indicators on psychological health.

2. Assess the processes by which measures are implemented and the factors that facilitate or interfere with their implementation.

In the course of this project, both we and the participating organizations noticed the lack of innovative, simple and effective tools to calculate the direct and indirect costs of work stress. In general, these costs are estimated based on absenteeism data, but most of the stakeholders we met with are well aware that these numbers represent only a small portion of the actual and overall costs of work stress.

It is from this angle, therefore, that we developed a research project based on the costs of work stress from an organizational perspective. The project's initial objectives were as follows:

1. Identify the categories of costs with regard to work stress.
2. Identify the economic/non-economic, fixed/variable, direct/indirect and internal/external costs.
3. Build analytical tools to measure the costs of stress.
4. Test the model and the analytical tools within companies.
5. Measure the costs of work stress based on the information gathered.

After compiling an inventory of documents on the subject, we noted that very few studies had explored this issue. Some assessments of stress costs had been conducted, but the data is at a more macroeconomic level (for example, the overall costs of stress for companies). This means that organizations have very little information they can use to estimate, as accurately as possible, the economic impact of work stress. The literature

review also revealed that there are few, if any, tools for assessing the costs of corporate stress. As a result, our starting point is much more basic than we had anticipated when we set our initial objectives.

Accordingly, the project objectives were modified with the approval of the partners. The objectives of this research report were reformulated as follows:

1. Compile an inventory of documents on the internal organizational costs of work stress.
2. Draw up a list of work stress cost indicators.
3. Assess the capacity of organizations to produce these cost indicators.
4. Develop a preliminary version of a self-assessment tool to measure the costs of work stress.

2. Project Methodology

We used two research methodologies for this project: (1) a systematic review of scientific literature; and (2) focus groups and individual interviews with experts.

2.1 Systematic Review of Scientific Literature

First of all, an inventory of documents was compiled in order to get an overall picture of the knowledge of the costs of work stress. The scientific articles for this literature review were taken from computerized databases. We consulted the following databases: ScienceDirect, JSTOR, Proquest ABI/INFORM Global, PsycINFO, Current Contents, Emerald, MEDLINE (via PubMed) and Business Source Premier (EBSCO) for the general period between 1996 and 2004. Our bibliographic search strategy was based on various keywords (see Table 1). When the databases allowed it, terms combined with the keyword "cost" or "labor costs" were generally searched in article titles. The word "cost" was searched in larger fields, such as the article summary, the full text, etc. We occasionally used the database thesaurus. Our approach is summarized in the following table.

Table 1. Search Strategy Used to Compile Document Inventory

Databases Searched (years covered by the bibliographic search)	Keywords Searched
ScienceDirect, JSTOR, Proquest ABI/INFORM Global, PsycInfo, Current Contents[2], Emerald (1996-2004)	Stress AND Cost Absenteeism AND Cost Safety AND Cost Anxiety management AND Cost
MEDLINE via PubMed (1996-2004)	Stress, psychological AND occupational diseases AND cost
MEDLINE via PubMed (1996-2004)	Absenteeism (thesaurus) AND Cost Absenteeism (thesaurus) AND Labor costs
MEDLINE via PubMed (1996-2004)	Anxiety management AND Cost
Proquest ABI/INFORM Global (1996-2004)	Labor costs (thesaurus) AND Stress

[2] Year covered by the search in the Current Contents database: February 2003 to February 2004.

Databases Searched (years covered by the bibliographic search)	Keywords Searched
Proquest ABI/INFORM Global (1996-2004)	Absenteeism AND Costs (thesaurus for both words) Labor costs (thesaurus) AND Absenteeism
Proquest ABI/INFORM Global (1996-2004)	Labor costs (thesaurus) AND Safety
Proquest ABI/INFORM Global (1996-2004)	Labor costs (thesaurus) AND Anxiety management
Business Source Premier (EBSCO) (1996-2004)	Stress AND Cost
Business Source Premier (EBSCO) (no year specified)	Absenteeism (labor) AND Direct costing (thesaurus for both words)

This way, we were able to identify references that were relevant to our search topic. In reading these first articles, we discovered other references that helped round out our information.

We favoured high-quality scientific publications for this systematic literature review. The scientific quality of a scientific article is measured, in part, by the impact rating (number of citations/number of articles published by the journal) of the scientific journal and by the number of article citations. The following table indicates the "scientific reputation" of the main information sources used in this report. It should be pointed out that this data exists solely in articles that appeared in scientific journals indexed by Web of Science. We clearly have access to excellent scientific literature, since each article is cited 33 times on average and the impact rating of the journals is very high.

Table 2. Citations and Impact Rating of the Scientific Sources Used

Authors	Scientific Journals	Number of Article Citations*	Impact Rating of the Journal
Anderson, D. R., Whitmer, R. W., Goetzel, R. Z., Ozminkowski, R. J., Dunn, R. L., Wasserman, J., et al. (2000)	*American Journal of Health Promotion*	**29**	**1.671**
Berger, M. L., Murray, J. F., Xu, J., & Pauly, M. (2001)	*Journal of Occupational and Environmental Medicine*	**20**	**1.784**

Berndt, E. R., Bailit, H. L., Keller, M. B., Verner, J. C., & Finkelstein, S. N. (2000).	*Health Affairs*	**12**	**3.369**
Bray, J. W., French, M. T., Bowland, B. J., & Dunlap, L. J. (1996)	*Employee Assistance Quarterly*	**N/A**	**N/A**
Burton, W., Conti, D. J., Chen, C., Schultz, A. B., & Edington, D. W. (1999)	*Journal of Occupational and Environmental Medicine*	**75**	**1.784**
Cummings, T. G., & Cooper, C. L. (1979)	*Human Relations*	**35**	
Bray, J. W., French, M. T., Bowland, B. J., & Dunlap, L. J. (1999)	*Journal of Behavioral Health Services & Research*	**0**	**0.880**
Goetzel, R. Z., Hawkins, K., Ozminkowski, R. J., & Wang, S. (2003)	*Journal of Occupational and Environmental Medicine*		**1.784**
Hemp, P. (2004)	*Harvard Business Review*	**1**	**1.148**
Kalia, M. (2002)	*Metabolism*	**7**	**2.143**
Kessler, R. C., Ames, M., Hymel, P. A., Loeppke, R., McKenas, D. K., Richling, D. E., et al. (2004)	*Journal of Occupational and Environmental Medicine*	**3**	**1.784**
Kessler, R. C., Ames, M., Hymel, P. A., Loeppke, R., McKenas, D. K., Richling, D. E., et al. (2003)	*Journal of Occupational and Environmental Medicine*	**24**	**1.784**
Kessler, R. C., Ames, M., Hymel, P. A., Loeppke, R., McKenas, D. K., Richling, D. E., et al. (1999)	*Health Affairs*	**80**	**3.369**
Kessler, R. C., Ames, M., Hymel, P. A., Loeppke, R., McKenas, D. K., Richling, D. E., et al. (2002)	*Journal of Occupational and Environmental Medicine*	**21**	**1.784**
Koopmanschap, M. A., Rutten, F. F., van Ineveld, B. M., & van Roijen, L. (1995)	*Journal of Health Economics*	**168**	**2.495**
Pelletier, K. R., & Koopman, C. (2003)	*Business and Health*	**N/A**	**N/A**
Quick, J. C., & Quick, J. D. (1984)	*Organizational Stress and Preventive Management.*	**N/A**	**N/A**
Rothermich, E., & Pathak, S. (1999)	*Clinical Therapeutics*	**8**	**3.009**
Shumway, S. T., Wampler, R. S., Dersch, C., & Arredondo, R. (2004)	*Journal of Marital and Family Therapy*	**N/A**	**1.392**
Stewart, W. F., Ricci, J. A., Chee, E., Hahn, S. R., & Morganstein, D. (2003)	*JAMA: The Journal of the American Medical Association*	**48**	**24.831**
Kessler, R. C., Ames, M., Hymel, P. A., Loeppke, R., McKenas, D. K., Richling, D. E., et al. (2003)	*Journal of Occupational and Environmental Medicine*	**5**	**1.784**
	AVERAGE	**33.5**	

* N/A: NOT AVAILABLE

Database research is a very effective way to collect scientific articles. These works are undeniably a key source of information. However, given the preliminary nature of the issue of work stress costs, we felt it necessary to extend our research to so-called "grey literature." Grey literature is not available through traditional book or trade journal publishing houses, or through such databases as MEDLINE or ScienceDirect. As a result, it is much more difficult to obtain. This type of literature generally includes government reports, conference proceedings, official publications, etc. By using search engines such as Google, we were able to identify some of the documents classified as "grey literature."

2.2 Focus Groups and Individual Interviews

Our methodology for the field research can be divided into three components: (1) a focus group that brings together various organizations; (2) individual interviews; and (3) two additional focus groups held within separate organizations.

Exploring Indicators within Focus Groups

We held a preliminary focus group meeting during this exploratory step in the process. Nine experts from relatively diverse organizational environments (private and public) participated. The diverse expertise of the participants helped us gather complementary viewpoints and responses on the topics discussed during the meeting.

The objective was to compile a preliminary list of cost indicators that should be considered in assessing the costs of work stress. To do so, we drew up a table (Table 3) prior to the meeting containing several cost indicators taken from the literature we consulted and from our own thoughts on the issue. This table was presented to the participants so they could supplement the information it contained.

Table 3: Table Presented to Participants During the Initial Focus Group Meeting

Absenteeism Costs	Presenteeism Costs	Costs Common to Both Absenteeism and Presenteeism
Cost related to claims arising from the inability to work	Cost of absences related to family-work life balance	Cost related to employee turnover. For example, costs related to vacant positions (overtime, temporary workers, etc.), hiring costs, training costs, etc.
Cost of compensation claims (premiums paid for worker compensation funds)	Cost associated with errors in judgement and in action	Cost of employee assistance program (EAP)
Cost of dispute resolution	Cost associated with work quality	Cost of drug insurance
Cost of absences due to illnesses that could be stress-related (e.g. cardiovascular disease)	Cost related to conflicts and interpersonal problems	Cost of lost productivity
Cost of sick leave		Cost of substance abuse
Cost of replacing absent personnel	Cost of stress-related workplace accidents	Cost of an occupational health department (internal or external)
		Cost of management and workplace meetings
		Impact of absenteeism/presenteeism on work teams and communication (can lower productivity)
		Cost of grievances
		Cost of legal proceedings

A brainstorming session followed this presentation, during which participants discussed the indicators that should be considered when assessing the costs of work stress.

Documenting Cost Indicators Associated with Work Stress

We established a preliminary list of cost indicators based on the results of the first focus group meeting with experts and the inventory of documents that we compiled. However, to ensure these indicators would be available within organizations, we conducted individual interviews and two focus groups within separate organizations. It should be noted that this preliminary list of cost indicators evolved throughout the course of this project. The final list of selected cost indicators is presented in the chapter entitled "Draft Self-Assessment Tool for Assessing the Costs of Work Stress."

Individual Interviews to Document Cost Indicators

We initially conducted individual interviews within four organizations. We selected participants based on their duties within their organization. These people were all able to provide us with information (or partial information) that could be used to document cost indicators. During these interviews, we used a compilation grid to document information on the indicators. Our questions addressed the following:

- the status of cost indicators within the organization (availability and nature); and
- the sector to be interviewed (for example, human resources department) or the category of employees to be interviewed (for example, a department manager) in order to obtain these indicators.

Following these meetings, and in order to gauge the status of cost indicators within the organizations more accurately, we decided it would be better to consult a greater number of stakeholders who might have information on these indicators. At this point, we held a separate focus group within two organizations.

Focus Groups to Document Cost Indicators

The organizations that we met with to document cost indicators are both located in urban areas. The first organization that participated in this activity is an institution of higher education with 3,438 regular employees. In this organization, the employer provides

disability coverage for employees. This organization is self-insured for short-term disability, which means the employee's salary is paid directly by the employer during an absence. When it comes to long-term disability, wage-loss insurance is provided through an external insurer, but the employer still pays the insurance premium. The occupational health and safety section is responsible for managing disabilities within this organization.

The second organization that we met with is a financial institution offering various products and services, such as group and general insurance. In this organization, which has more than one thousand employees, wage-loss insurance is provided through an external insurer, in the case of both short- and long-term disability. However, the insurance premium is fully paid by the employees. This means the employer pays no salaries or insurance premiums for any short- or long-term inability to work. The human resources department is responsible for disability management, and one person devotes part of their time to this activity.

We chose the people to participate in these meetings in cooperation with the stakeholder interviewed during the individual interview process. Six people attended from the first organization: one occupational health and safety representative, two human resource specialists, one union representative and two managers.

Three people participated in the group meeting with the second organization: one human resource specialist and two managers.

We used a compilation grid for these focus groups that was more detailed than the one used in the individual interviews. Participants in these group meetings were invited to comment on the following points:

- the status of selected cost indicators within the organization (availability and nature);
- the methodology for calculating or measuring these indicators;
- the person or people who have access to the indicators or the information needed to calculate them;
- the amount of work needed to compile the indicators or the information needed to calculate them; and
- the timeline for producing the indicators.

Obviously, the objective of this exercise was not to collect the indicator values (for example, the value of disability premiums), but to document each of them in order to assess the availability of indicators and the organization's capacity to produce this information.

3. Compiling an Inventory of Documents on the Costs of Work Stress

The goal of this inventory is to examine what information is available on the costs of work stress. The inventory focuses on the economic impact of stress from an organizational standpoint. Therefore, literature that deals with other cost aspects – the costs of psychological problems to the health care system or even to the individual, for example – is excluded. There is some data on the cost of stress to society, but it is intended only to show the extent of the problem.

This literature review can be divided into two sections: (1) the categories of costs with regard to work stress; and (2) a general discussion of the literature review.

3.1 Definition and Nature of Work Stress

Before going into more detail about the costs of work stress, it would be appropriate to define the notion. From a transactional perspective, work stress results from the transaction between a person and his or her environment. Experiencing stress implies exposure to physical and psychosocial conditions that are negatively perceived by the individual, who believes she does not have the ability to face these demands. According to this definition, psychological, physical and behavioural consequences can occur when individuals feels the demands of their work exceed their abilities (Aldwin, 1994); (Lazarus & Folkman, 1984); (Quick & Quick, 1984); (Cummings & Cooper, 1979); (Cox, 1978).

The transactional perspective presupposes that stress is a factor that is not present in either persons or their environment. Instead, it is embedded in a process that affects people who transact with their environment, assess events that arise, and attempt to adapt to or deal with these events.

OPERATIONAL DEFINITION OF WORK STRESS

In this study, we use the word "stress" to signify a negative experience produced from the transaction between the person and his environment that results in psychological, physical and behavioural consequences (Aldwin, 1994; Clarke & Cooper, 2000; Cox, 1978; Cummings and Cooper, 1979; Quick & Quick, 1984).

According to this operational definition, experiencing work stress implies exposure to physical and psychosocial conditions, coinciding with the worker's perception that he is not dealing very well with certain aspects of his work situation. Experiencing stress usually goes hand-in-hand with attempts to manage the stress, using cognitive, behavioural or physiological strategies (Aspinwall & Taylor, 1997); (Guppy & Weatherstone, 1997). An individual uses these strategies to try to manage the environmental demands, to modify them or to adapt to them (Aldwin, 1994). The styles and strategies used are influenced by such aspects as the nature of the situation, the social and personal resources available, and the person's fundamental attributes (Lazarus & Folkman, 1984); (Cox, Griffiths, & Rial-Gonzalez, 2000). For example, an employee who is unable to find a solution to a problem at work and who cannot obtain any support from his family and friends may attempt to adapt by increasing his alcohol consumption, while another employee might increase the number of his fitness sessions.

What is more, individual differences (personality, negative affect, etc.) and personal characteristics (sex, age, etc.) might influence how that person assesses the situation and the strategies that he will use to adapt (Cox, Griffiths, & Rial-Gonzalez, 2000). Since stress is a subjective phenomenon, sources of work stress may be harmful to one person and not to the next. For example, a person who feels he can handle a heavier workload and work at a faster pace might view these factors positively, either as a challenge or as a source of stimulation and creativity. However, another person might feel that his abilities are inadequate or insufficient to deal with these same stressors, and this could lead to exhaustion, a high level of psychological distress or the appearance of psychosomatic symptoms.

It is also important to note that work stress can affect a person's psychological balance. This disturbance could in turn be the cause of well-known illnesses such as depression and burnout. Faced with this continuum, organizations may have to cover some of the costs. In fact, when a person's psychological balance is affected and he continues working, there may be an observable decline in his performance given the state of his psychological health. Subsequently, the presence of illnesses such as depression can lead to the distressed employee's absence, which will also result in costs to the organization. We will return to this point in a later section.

3.2 Categories of Costs with Regard to Work Stress

After analyzing the literature on our subject of interest, we were able to identify two major categories of costs with regard to work stress. The first category deals with macroeconomic costs at a national level or for a given economic sector. The costs are usually expressed as a percentage of the gross domestic product (GDP), as health care costs or even, for example, as costs to Canadian or American industry.

Microeconomic costs, the second category, identify the amount of money spent by businesses (salary, insurance costs, lost productivity, etc.). There are usually two sub-categories used at this level: the cost of absenteeism and the cost of presenteeism. We will now look more closely at these two categories of costs in regard to work stress.

3.2.1 Macroeconomic Costs

In their literature review of the costs of workplace violence and stress Hoel, Sparks, & Cooper (2001) indicate that all estimates of the costs of stress that exist to date could be somewhat inaccurate. One of the reasons noted by these authors is that some stress data has little scientific value and thus cannot be considered reliable. The literature that was consulted does, nonetheless, cite some results worthy of mention.

For example, Hoel, Sparks, & Cooper (2001) estimate that the costs of workplace violence and stress to society account for 1% to 3.5% of the GDP. In the United Kingdom, the total approximate cost of work stress represents more than 10% of the GDP (Cooper, Liukkonen, & Cartwright, 1996).

The American Institute of Stress points out that if we consider loss of productivity, absenteeism, accidents, employee turnover, worker compensation, and medical, legal and insurance costs (direct costs), the annual cost of work stress amounts to more than $300 billion for American companies (American Institute of Stress, 2004). What is more, using a slightly different cost formula[3] than the one previously indicated, Cooper, Liukkonen, & Cartwright (1996) report that stress costs American industry about $150 billion annually. Meanwhile, Kalia (2002) claims that stress-related health problems cost the United States more than $42 billion annually. Still in reference to the United States, the *Property and Casualty Insurance Edition* of *Best's Review* estimates that decreased productivity, absenteeism, poor decision-making, and mental health problems related to stress and substance abuse result in annual revenue losses of $150 billion (Kalia, 2002). This range of cost estimates, which varies between $42 billion and $300 billion, shows how difficult it really is to accurately and consistently identify and evaluate the costs of work stress. The problem does not lie solely in the quality of work that has been done, but in the manner in which the concept of work stress and the economic impacts of stress have been considered.

In regards to the impact on Canadian industry, data reported by Tangri (2003) shows total mental health costs of $35 billion annually. Stephens & Joubert (2001) are more conservative and estimate the amount to be $14.4 billion. In parallel, absences related to family and work life conflicts alone are estimated to cost Canadian society about $3.5 billion each year (Duxbury & Higgins, 2001).

[3] This formula includes the costs generated by absenteeism, decreased productivity, compensation claims, health insurance and direct medical spending.

In Europe, a document published by the European Commission indicates that work-related stress costs amount to at least €20 billion annually (European Commission, 2002). In Great Britain, more specifically, it is estimated that occupational stress costs employers from £353 million to £381 million (amount for 1995-1996) and society from £3.7 to £3.8 billion (HSE, 2003). This reference document produced by the Health and Safety Executive (HSE, 2003) also points out that the estimated number of days lost because of stress has more than doubled since the previous calculations were done, which suggests that the actual costs would be much higher than those indicated above.

The cost of stress can also be expressed in terms of the repercussions it has on absenteeism. The American Institute of Stress states that in the United States, about one million people are absent from work each day because of stress (American Institute of Stress, 2004). In England, a study conducted in 2000 by the Confederation of British Industry indicates that about 30% of all sick leave is related to stress (Hoel, Sparks, & Cooper, 2001). If we add to this number other factors linked to stress, such as extended work schedules, lack of employee commitment and loss of employee motivation, it would appear that stress is the cause of nearly 40% of all absences.

Still on the topic of absenteeism, the authors of the HSE report suggest that in Great Britain in 2001-2002 (a 12-month period), about 13.4 million work days were lost because of stress, depression or anxiety (conditions that are directly related to or worsened by work) (Jones, Huxtable, Hodgson, & Price, 2003). These authors also indicate that each person affected by these conditions will be absent for 29.2 days on average.

Finally, a joint study by the Confederation of British Industry (CBI) and *AXA PPP Healthcare* provides some interesting data on absenteeism (CBI, 2003). These results reflect the experiences of 550 organizations in 2002. These organizations represent 1.4 million employees, or about 6% of the United Kingdom's workforce. According to the study, companies spent £11.6 billion on absenteeism (not linked specifically to stress). In

Switzerland, Ramaciotti & Perriard (2001) suggest that a low estimate of the impact of stress, absenteeism and production losses would amount to nearly 1.45 billion Swiss francs, and a high estimate would reach 3.41 billion.

All these millions, billions and percentages are mind-boggling and clearly show how difficult it is to estimate the costs of work stress. In fact, because of the wide variety of data sources, calculation methods and included/excluded cost indicators, it is basically impossible to compare the data, whether within the same country or on an international basis (Hoel, Sparks, & Cooper, 2001). Will we run into the same problems if we try to estimate the costs of work stress on a microeconomic level? We will attempt to address this question in the following section.

3.2.2 Microeconomic Costs

The findings outlined in the preceding section, despite the methodology problems they present, clearly illustrate the scope of the economic phenomenon related to work stress. However, these overall costs can be difficult to interpret within the context of an organization. Human resource and occupational health and safety stakeholders often do not have the financial arguments to influence decision-making processes that have an impact on the health of people and the administration of an organization. It is essential that we have a better means of identifying and understanding the costs of work stress from an organizational standpoint in order to shed light on the decisions made by companies, their partners, and public institutions.

In this section, various internal cost indicators for business will be presented. However, it is important to note that there is no economic assessment of several of these indicators in the scientific literature. Difficulty in measuring these indicators may be one of the reasons why there is little data in this field. As an example, consider how relatively easy it is to evaluate decreased productivity among employees of a call centre. However, the situation is quite different for many professions and organizations where the work results

are difficult to measure. We only need think, for example, of professors whose daily and weekly workload is difficult to objectively evaluate. Despite this challenge, the literature presents several findings that are worth discussing.

First of all, several authors have identified the organizational cost of stress indicators, but few have compiled a comprehensive list, and even fewer have been successful in evaluating these indicators with any accuracy. Tangri (2003) is one of the few authors to publish a calculation method that helps measure the scope of an organization's costs with regard to stress. Tangri states that only economic indicators backed by solid proof were integrated into his proposed evaluation formula. As an example, the author says that productivity is unquestionably affected by stress. This cost variable was not, however, included in the formula because there is no data to quantify this impact. As a result, the cost indicators included in the method that was developed are as follows: absenteeism, employee turnover, the employee assistance program, short- and long-term inability to work, psychotherapeutic medication, workplace accidents, worker compensation claims and legal proceedings. The following indicators were not included: reduced productivity when employees are at work (the author might be referring to the notion of presenteeism here), costs related to workplace violence, costs related to absenteeism and medication for stress-related diseases (for example, cardiovascular disorders) and, finally, costs of absenteeism related to family-work life balance.

In the Hoel, Sparks, & Cooper (2001) report certain cost indicators are linked to workplace stress and violence. The authors indicate, however, that their findings represent some of the most important factors and are not a comprehensive list of all possible costs. They discuss seven indicators that must be taken into account when estimating costs to the organization: sick leave; early retirement; replacement costs associated with employee turnover (recruitment, training and development costs); costs for grievances, disputes and compensation; damage to equipment and decreased productivity caused by accidents and errors; decreased performance and productivity; and, finally, loss of reputation for the company.

Lastly, Kalia (2002) compiled a partial list of economic consequences related to employee stress within an organization. This list includes absenteeism, compensation claims, disputes and grievances, accidents, human errors (which can definitely have an impact on the occurrence of an accident and the quality of production), conflicts and interpersonal problems, violence, client service issues, resistance to change, quality issues and, finally, the loss of intellectual capital.

It is becoming increasingly apparent in the literature that absenteeism is not the only consequence of health problems that organizations must address. Presenteeism – which can be defined as decreased performance by an employee caused by the existence of a health problem (Hemp, 2004) – is also an important element that organizations must take into consideration. This finding is clearly illustrated in the following statement by Hemp (2004):

> But the illnesses people take with them to work, even though they incur far lower direct costs, usually account for a greater loss in productivity because they are so prevalent, so often go untreated, and typically occur during peak working years. Those indirect costs have long been largely invisible to employers. (p. 50)

Let us now look more closely at the costs associated with absenteeism, and then with presenteeism.

3.2.2.1 Absenteeism

The impact of work stress has traditionally been assessed according to the absences it can cause. Results from the 2003 annual *CCH Unscheduled Absence Survey* show that 11% of unplanned absences are related to stress, which is a 1% decrease compared to the 2002 results (CCH Incorporated, 2003). It should be noted that this survey was conducted amongst American organizations representing approximately two million employees. The Bureau of Labor Statistics (BLS) in the United States provides data showing that employees who must be absent from work because of stress, anxiety or a related problem

will be off for an average of 20 days (Sauter et al., 1999). Furthermore, it would appear the cost of one day's absence can amount to 1.5 to 2 times the worker's salary (IR Research Publications, 1997).

The costs resulting from absenteeism that are assumed by the organization can be diverse. As an example, disability premiums paid by the employer to an external insurer represent an amount spent by the organization so that the absent employee's salary (or part of the salary) will be covered during the disability period. The employer's contribution to the Workers' Compensation Commission in order to compensate workers facing a psychological health problem is another cost that can be linked to absenteeism. All the more "indirect" consequences related to an employee's absence (overtime for colleagues, hiring replacement workers, etc.) also have an economic impact on the organization.

The magnitude of short- and long-term disability claims for psychological health problems can be demonstrated using the findings from Watson Wyatt's 2002-2003 survey entitled Staying@Work (a survey of 180 organizations, representing more than 500,000 full-time Canadian employees) (Davey, DeBortoli, Parker, & Smolkin, 2003). These findings indicate that psychological problems[4] are the main cause of short-term (79%) and long-term (73%) disability claims amongst survey participants. The economic impact of short- and long-term inability to work is explained in the results of a study reported by Tangri (2003). These results show that the average cost of absences, in relation to the insurance plan, would be equivalent to 3.5% of the total payroll; half of this amount would be related to the short-term inability to work and the other half to the long-term inability to work and worker compensation for workplace injury.

In a study conducted by Kessler et al. (1999) data from two national surveys was used to estimate short-term inability to work because of a major depression. With the goal of measuring the impact of major depression on the number of missed work days, the study

[4] In this study, the term "psychological problems" refers to depression, anxiety, stress and any other psychological problem that affects employees.

asked two questions. First of all, respondents were asked to assess, with reference to their physical or mental health problems, the number of days (within the last 30 days) during which they were unable to work or to carry out their usual daily activities. Second, aside from those days previously identified, they were asked to estimate, again with reference to their physical or mental health problems, the number of days during which they reduced their work time or completed less work than usual. The results of this study show that employees suffering from depression have between 1.5 and 3.2 times more short-term absences and that the average cost of missed work varies between $182 and $395 per employee. The authors conclude that these costs are amongst the highest that must be assumed by employers for all chronic illnesses.

Goetzel, Hawkins, Ozminkowski, & Wang (2003) developed a list of the most expensive health conditions (physical and mental) for employers. Their work shows that expenditures for absences and short-term inability to work represent a relatively large percentage (from 24% to 58%) of the total expenditures[5] linked to various mental health conditions.

Finally, the results of a survey of 281 Canadian organizations show that the direct costs of the inability to work and absenteeism represent 7.1% of the total payroll in 2000 (Watson Wyatt Worldwide, 2001). This report also states that the indirect costs of absenteeism can be estimated at nearly 10% of the total payroll (6.2% for overtime and replacement workers and nearly 4% for a loss in productivity).

Employee absenteeism data is verifiable, especially within large organizations that have information management systems that provide a relatively accurate picture of the number of absences and missed work days. Whenever baseline data is available, the manner in which it can be used varies. Essentially, there are two approaches to measuring the impact of absenteeism: the Lost Wages Method and the Friction Cost Method.

[5] Total expenditures = total of payments for health care, those related to absence and the short-term inability to work.

A. Lost Wages Method/Human Capital Method

One of the most common methods for calculating the costs of absenteeism is the Lost Wages Method, also called the Human Capital Method (Berger, Murray, Xu, & Pauly, 2001). This method, which is mainly used to measure the economic impact of illness and premature death, is relatively straightforward since it involves multiplying the number of days lost by the absent employee's daily salary or by the organization's or economic sector's average salary. The estimates obtained using this method are considered to be low since they exclude a significant number of indirect cost indicators (legal fees, medical expertise fees, worker replacement costs, lost production, etc.) and suggest that the absent employee's salary sums up the impact of health problems on the organization's productivity.

B. Friction Cost Method

The Friction Cost Method (Koopmanschap, Rutten, van Ineveld, & van Roijen, 1995) also involves measuring absenteeism and its economic impact within the organization. This calculation method attempts to quantify the impact of absenteeism by identifying short- and medium-term costs. Short-term losses are established based on the amount of time needed by the organization to return to productivity levels that existed prior to the absenteeism; this period of time is called the friction period. By identifying this period of time, one assumes that productivity losses are limited to the amount of time required to replace the absent worker and for this new worker to become productive; as a result, it also includes the costs of hiring and training new personnel. Medium-term losses are established mainly at a macroeconomic level, and the authors believe it takes five years to measure them. This method has its limits, however, and it relies heavily on an organization's job structure. In some organizations, for example, absent employees are not replaced and work is redistributed to colleagues, or, in some cases, is simply not done. To date, this calculation method has not been widely used (Rothermich & Pathak, 1999). Despite the scope of our bibliographic search, we were unable to find empirical data that would allow us to evaluate this approach.

3.2.2.2 Presenteeism

It is becoming increasingly apparent that absenteeism is only the tip of the iceberg when it comes to the impact of work stress. In fact, a recent study by Brun, Biron, Martel, & Ivers (2003) shows that 2% to 3% of people are absent from work due to psychological disorders, while 40% of those who remain at work show signs of heightened psychological stress. The phenomenon of being at work but not working at one's full capacity for health reasons is called presenteeism (Hemp, 2004). Presenteeism has numerous impacts on the organization's financial burden.

The data reported by Hemp (2004) and taken from Bank One clearly shows the economic impact of presenteeism. This data indicates that, in this organization, the financial losses resulting from reduced productivity due to health problems (expenses related to presenteeism) account for a large portion of the health costs.[6] Hemp (2004) also points out that presenteeism can reduce an employee's productivity by 33% or more. What is more, Hemp states that presenteeism is a phenomenon that could cost an organization much more than absenteeism.

Burton, Conti, Chen, Schultz, & Edington (1999) accurately summarize the importance of including the notion of presenteeism when evaluating total productivity losses caused by poor health:

> However, absenteeism and disability costs should be recognized, at best, as a significant contributor to an incomplete estimate of the total loss of productivity resulting from health impairment. These costs only provide a partial measure of the total lost productivity for a group of employees whose health problems are so severe as to prevent them from working. What are seldom measured are the decrease in productivity for the much larger group of employees

[6] For this data from Bank One, health costs include medical and pharmaceutical expenses, inability-to-work and absenteeism costs and presenteeism costs.

> whose health problems have not necessarily led to absenteeism and the decrease in productivity for the disabled group before and after the absence period. This decrease may be captured by a measure of *presenteeism,* the decrement in performance associated with remaining at work while impaired by health problems. Presenteeism could be measured in costs associated with decreased or slowed output, failure to maintain a production standard, additional training time, errors in work, substandard output, and other events. (pp. 863-864)

In an insurance company, Berndt, Bailit, Keller, Verner, & Finkelstein (2000) studied the average productivity of employees with one or more diagnosed and treated mental health problems, compared to that of employees with no mental health problems. It should be noted that in this study, employee productivity was quantified using objective data (a computer tracks the number of files processed daily for each employee), rather than being based on the employees' own perception of their work performance. The results show that average work productivity of the group of employees with one or more mental health problems is the same as that of employees with no mental health problems. In interpreting the study results, we must consider that the people being surveyed were employees who were being treated for their mental health problem, which would definitely have an impact on work productivity, and thus on any possible generalization of these results. Furthermore, we need to point out that the nature of mental health problems considered in this project (anxiety, major depression, adapting to change, etc.) can also limit the generalization of these results to work stress situations.

Hemp (2004) in turn reports the results of a pilot study that indicates the average workplace productivity losses linked to depression amount to 7.6%. Another study, this one led by Stewart, Ricci, Chee, Hahn, & Morganstein (2003) assessed the workplace production hours lost for employees suffering from depression and those who were not. A cost was then associated with these hours, based on the hourly wage reported by study

participants. Lost production hours include the weekly hours absent from work for a health reason (absenteeism) and the weekly hours in which there is reduced performance on days worked because of a health problem (presenteeism). The results show that, on average, workers who are depressed (the term "depression" includes the following: major depression, dysthymia, partial remission or recurrence of a major depression) report a higher number of lost production hours attributable to their state of health, when compared to workers with no signs of depression. Furthermore, the authors show that in more global terms, lost production hours for people suffering from depression are mainly linked to presenteeism (production hours lost while the employee is at work). Specifically, 82.1% of all lost production hours are linked to presenteeism. This finding supports the need to include presenteeism when measuring the costs associated with productivity losses.

Finally, the results of two studies reported by Hemp (2004) follow this same line of reasoning. These results show that decreased productivity at work as a result of depression and pain is three times greater than that attributable to employee absences for these same health reasons.

Most organizations have their own meso-level (shop, team or department) or macro-level (management, vice-president or business unit) production data. Few companies produce accurate data on the work of each individual employee (Kessler et al., 2003). Thus it is difficult to obtain detailed information on production losses that are related to both absenteeism and presenteeism.

The document inventory that we compiled helped us to identify two tools that measure the impact of health problems on productivity. These are the World Health Organization's Health and Work Performance Questionnaire (HPQ) and the Stanford Presenteeism Scale. We will now look at each tool in more detail.

A. World Health Organization's Health and Work Performance Questionnaire (HPQ)[7]

This questionnaire, which was developed by Dr. Ronald C. Kessler in collaboration with the World Health Organization (WHO), was designed, in part, to assess the cost of work-related health problems (Kessler et al., 2004); (Kessler et al., 2003). Note that these costs are expressed in terms of reduced work performance (presenteeism), absenteeism, and critical incidents (successes, failures, injuries, accidents and work-related incidents). This tool is useful because it allows for the acquisition of information from a self-assessment. By answering a number of questions, respondents evaluate their absenteeism (in days and hours) and presenteeism, and describe any critical incidents. The information obtained is interesting since very few organizations hold or track such information.

Conclusions drawn from the work of Kessler et al. (2003) also add to this tool's appeal. After comparing the results obtained from four surveys conducted using the HPQ and the data[8] used by employers who participated in this study (for work performance and absenteeism), these authors conclude that there is a great deal of consistency between the self-assessment completed by the respondents and the data compiled by the organization. So this questionnaire seems to allow for an accurate assessment of absenteeism and work performance.

In addition to asking questions about absenteeism, presenteeism and critical incidents, the HPQ also helps researchers obtain information on the prevalence and treatment of key health problems. So it is possible to evaluate the relationship between certain health conditions and the results obtained from the HPQ (absenteeism, presenteeism and critical incidents). Wang et al. (2003) studied the relationship between various chronic physical and mental health conditions and work performance (in terms of absenteeism, presenteeism and critical incidents). The HPQ was used to evaluate both these aspects

[7] http://www.hpq.org/; http://www.hcp.med.harvard.edu/hpq/.
[8] The work performance data is taken from standardized assessments completed by the employer, whereas the absenteeism data comes from the employer's payroll.

(health conditions and work performance). One of the interesting findings that emerges from this study concerns depression. The authors point out that this mental health condition is the only condition, of all those studied, that has a significant impact both on the combined measurement of absenteeism and presenteeism and on critical incidents. In addition to helping assess the impact of health conditions on work performance, the findings from such studies can also help detect the prevalence of these conditions among workers.

Using the results obtained from the HPQ, it appears it would be possible to translate these results into financial terms (Kessler et al., 2003). Wang et al. (2003) discuss this possibility only briefly, but nonetheless reveal a number of important aspects. First of all, when evaluating the costs of absenteeism and poor work performance in financial terms, we need to consider that these elements will vary by profession and area of economic activity. The authors point out that these variations in the costs of absences and poor work performance are not necessarily proportional to employee salaries. So these diverse aspects need to be taken into account when assessing the costs of absenteeism and poor work performance to the employer.

Kessler et al. (2003) maintain that supervisors assess the costs related to critical incidents. In fact, the answers to questions about critical incidents are first converted into anonymous results and are then presented to supervisors, who translate them into financial terms for employers. As an example, an employee's answer to the HPQ question about critical incidents could address their failure to meet the expected level of production. So in order to assess this failure in economic terms, this response will be converted into anonymous results and the supervisor will then estimate the cost for the employer.

Our bibliographic research did not reveal any other studies that had used the HPQ. However, the authors do say there are currently investigations underway using the HPQ. As a result, more literature on this tool may become available in coming years.

B. Stanford Presenteeism Scale

The Stanford Presenteeism Scale is a tool that measures the impact of health problems on individual performance and productivity (Koopman et al., 2002). The scale is composed of 32 items (SPS-32) that measure the cognitive, emotional and behavioural ability of employees to concentrate and complete their work, despite their health problems.

A short version of this scale was developed by reducing the number of items in the SPS-32 tool. This shortened version contains six items (SPS-6) that help tally a total score that reflects the respondent's level of presenteeism.[9] Koopman et al. (2002) assert that a high score on the SPS-6 scale shows a strong ability to concentrate and carry out work, despite the presence of one or several health problems. These health problems can be of a physical or psychological nature (Pelletier & Koopman, 2003).

The SPS-6 tool for measuring the impact of heath problems on productivity is of interest since few organizations have this type of data. Furthermore, Koopman et al. (2002) say this shortened version of the scale has excellent psychometric qualities. In an article on the SPS-6, Pelletier & Koopman (2003) claim this tool is an accurate and valid scale for measuring presenteeism.

As with the HPQ, we were unable to identify other studies that had used the Stanford Presenteeism Scale (SPS-6) in our bibliographic research. However, Pelletier & Koopman (2003) say research is currently being done using the SPS-6.

3.2.2.3 Other Economic Impacts of Work Stress

When a company's workforce faces work stress problems, absenteeism and presenteeism are two consequences that have a significant impact on the organization's finances. Productivity losses, wage-loss insurance premiums paid to insurers for short- and long-term inability to work, and overtime hours put in by other workers during an employee's

[9] The shortened version of the scale (SPS-6) is presented in the article by Pelletier & Koopman (2003).

absence are just a few examples of costs the organization assumes for absenteeism and presenteeism. However, it is possible to identify other costs also borne by the company. These costs can be related to both absenteeism and presenteeism (common costs) or they may represent more general costs related to work stress. Several examples are presented in the following section.

A. Cost of Employee Turnover

In addition to temporary absences from the organization (absenteeism), work stress may also lead to permanent departures that will influence employee turnover rates within the company. Employee turnover can result in various types of costs. According to Hoel, Sparks, & Cooper (2001) the costs of recruitment (advertising and selection), training and development are the key replacement costs related to employee turnover. These authors also say that an employee taking on new duties will perform below expectations during the training period, which has an economic impact that must not be overlooked. Furthermore, they report that the replacement of an employee could also have an impact on other workers, although they provide no details.

Tangri (2003) distinguishes between five major categories of costs related to employee turnover (Table 4): employment termination costs, costs related to the vacant position, hiring costs, training costs, and overall financial losses.

Table 4: Categories of Costs Related to Employee Turnover (Tangri, 2003)

Employment Termination Costs	Costs Related to the Vacant Position	Hiring Costs	Training Costs	Overall Financial Losses
Cost of terminating the employment and severance cost Cost of time for the exit interview Administrative,	Overtime Temporary workers Salaries and benefits "saved" while the position is vacant	Cost of attracting candidates (advertising, agencies, etc.) Cost of selecting candidates Cost of interviews	Training costs Time devoted by other employees to on-the-job training Salary during training Training of	Loss of production or sales during the transition period Loss of intellectual capital Relationships with clients that end or

Employment Termination Costs	Costs Related to the Vacant Position	Hiring Costs	Training Costs	Overall Financial Losses
accounting and legal costs		Cost of psychometric evaluations for candidates Administrative, accounting and legal costs Travel expenses Cost of medical exams	temporary and replacement personnel Cost of integrating a new member into the team	become strained Cost of building or rebuilding relationships with clients and work colleagues Impact on other employees (absenteeism, productivity, etc.) Impact on suppliers Cost related to inefficiency due to the learning curve for a new employee Cost of inefficiencies related to the employee's departure

As we can see in Table 4, a cost is associated with each of these variables, but they are not all easy to quantify. For example, we can easily imagine that it is difficult to quantify the loss of intellectual capital caused by the departure of an employee. However, in order to gain a more accurate picture of the total cost of employee turnover, it appears important to consider a greater number of variables, since direct costs only represent 10% to 15% of this total amount (Tangri, 2003). The importance of including the more indirect impacts (such as the opportunity cost) of employee turnover is also supported by a study that concludes that among the North American organizations surveyed, more than 44% have seen their client base shrink and have lost significant income opportunities because of employee turnover and the accompanying loss of expertise (Tangri, 2003).

By identifying the percentage of employee turnover attributable to stress, and the total cost of this turnover, it would be possible to estimate the economic burden related to this work stress cost indicator. According to data reported by the American Institute of Stress, it appears that 40% of employee turnover is directly related to stress (American Institute of Stress, 2004). Along the same lines, the Institute also cites results from a survey that indicates nearly one respondent in five has already left a job because of work stress. Quick, Quick, Nelson, & Hurrell (1997) say that employee turnover costs are, in many cases, equivalent to approximately five times the employee's monthly salary.

B. Employee Assistance Program

The employee assistance program, or EAP, is a possible solution for employees who are experiencing problems. These programs require the organization's financial support and are thus another work stress cost indicator. Psychological health problems related to stress, anxiety, depression, or family and relationship issues frequently seem to be the reason for an EAP consultation. In fact, Midwest Employee Assistance Programs Inc. says that 50% to 60% of employees experiencing difficulties have these types of problems (Tangri, 2003). What is more, the study conducted by Shumway, Wampler, Dersch, & Arredondo (2004) also sheds light on the nature of the problems being experienced by people who consult an EAP. In order to understand to what extent the clients of an employee assistance program are affected by problems related to certain areas of their life, these authors interviewed 800 individuals who had used the EAP selected for the study. These clients were also asked to consider their need for services offered in these various areas. The results show that family problems and psychological/emotional problems are quite prevalent amongst the people interviewed.

In their article, Shumway, Wampler, Dersch, & Arredondo (2004) also report some interesting data from a study involving EAP professionals. This study – in which these professionals were asked to estimate the distribution of problems encountered – shows that family difficulties (25%), stress (23%), depression (21%), substance abuse (16%)

and work conflicts (9%) were the most prevalent problems. Furthermore, Brun, Biron, Martel, & Ivers (2003) reveal that between 30% and 40% of all EAP consultations are work related.

The results of a study conducted by French, Zarkin, Bray, & Hartwell (1999) shed light on the cost of these employee assistance programs. By comparing data obtained from a national survey conducted in the United States in 1993 and in 1995, these authors conclude that the annual average cost of internal EAPs[10] was $26.59 and $27.69 per eligible employee, respectively, for these two years. The annual average cost of external EAPs was $21.47 in 1993 and $22.19 in 1995, per eligible employee. The authors say these cost differences between internal and external EAPs can be explained in part by the number of services offered by these programs. According to this survey, 80% of the organizations with an EAP in 1995 had external assistance programs, and 3% had both external and internal programs.

Bray, French, Bowland, & Dunlap (1996) also investigated the costs of EAPs. To do so, these authors selected seven organizations, of which five had an internal EAP and two had both an internal and external EAP. The results show that the cost of EAPs varied somewhat from one employer to another. In fact, for the internal EAPs that were studied, the annual average costs fluctuate between $16.34 and $181.47 per eligible employee (amounts expressed in 1992 dollars). As for the two external EAPs, the annual average costs are $10.56 and $30.54 per eligible employee. The services offered by the EAPs that were studied were quite different from one program to another, which could explain the range of results obtained. Moreover, in light of these results, the authors say the types of services offered by an EAP will result in cost variations for such a program. And finally,

[10] In this article, the authors distinguish between internal and external EAPs. The professionals who are part of the internal EAP are members of the institution's personnel, while an external EAP is offered by consultants hired under contract and who work in facilities completely separate from the company's work site.

in this study, the cost of external EAPs are lower on average than those of internal EAPs, which is consistent with the results reported by French, Zarkin, Bray, & Hartwell (1999).

C. Drug Insurance and Medical Expenses

Organizations that offer their employees a drug insurance plan may face increased insurance premiums based on psychotherapeutic medication use within their company. IMS Health Canada provides interesting data on the substantial number of prescriptions for psychotherapeutic medication filled by pharmacies (IMS Health Canada, 2004). In fact, this type of medication ranked second amongst the top 10 therapeutic categories in 2003, registering an increase of 10.1% compared to 2002. These results clearly point to extensive use of psychotherapeutic medication in our society, which supports the need for including this variable when assessing the cost of stress to a company.

Psychological health problems at work may lead to a wide range of medical expenses. Even if most of these costs are covered by the public health system, some are borne by the organization or the employee. The main costs are for ambulatory care, medical expertise, psychotherapeutic care, and so on. Employers who completed a survey by Watson Wyatt Worldwide in 2003 indicated that they expected to see increased group insurance costs for health care in 2003-2004 and 2004-2005 (Watson Wyatt Worldwide, 2004). However, this cost increase will not necessarily be borne entirely by the employer. For example, employers may increase the workers' contribution to the insurance premium to reduce the impact of this increase on the organization's costs.

3.3 General Discussion of the Literature Review

It is clear, after analyzing both the scientific and non-scientific literature that a comprehensive list of work stress cost indicators does not exist. However, certain trends do emerge. The cost of work stress can be broken down into two broad categories that are not mutually exclusive: absenteeism and presenteeism. It is important to differentiate between these two categories of costs because they include both common and different elements. To clearly identify the impact of work stress, it is important to consider the

costs related to presenteeism as well as to absenteeism, since the former is a more costly phenomenon within organizations (Hemp, 2004). Indeed, according to the study by Brun, Biron, Martel, & Ivers (2003) only 2% to 3% of people are absent from work for psychological disorders, while 40% of those who stay at work show signs of heightened psychological stress that interferes with their work. Presenteeism is therefore a phenomenon that accounts for a significant portion of work stress costs.

This inventory of documents helped us identify a certain number of cost indicators that must be considered when estimating the economic impact of work stress on organizations. However, the information currently available on these indicators makes such estimates difficult. Admittedly, organizations could use the numbers or percentages indicated in the literature to somewhat accurately evaluate some of their costs related to work stress. However, it appears obvious that further information is needed in order to obtain a cost estimate that more closely reflects the actual amounts spent by an organization with regard to work stress.

Accordingly, based on the literature consulted, no comprehensive tool exists that would allow organizations to address the issue of work stress costs. Remember that Tangri (2003) is one of only a few authors to publish a calculation method that helps estimate the extent of an organization's costs with regard to stress. However, his proposed method excludes key cost indicators, such as reduced productivity when employees are at work (presenteeism). There can be no doubt about the importance of considering the phenomenon of presenteeism when assessing costs.

For these reasons, we believe that companies would benefit from having a self-assessment tool that would include a wider range of work stress cost indicators. Such a tool would enable cost estimates to more accurately reflect the actual amounts that companies spend in relation to work stress.

The final objective of our research project was to develop such a tool. To do so, we first proposed a model for assessing the costs of work stress. The proposed model can be

divided into three categories: absenteeism, presenteeism, and indicators common to both absenteeism and presenteeism. Consequently, throughout the course of the project, cost indicators were integrated into the model and placed in one of these three categories. The proposed model and draft self-assessment tool for measuring the costs of work stress will be presented later in the report. We will first look at the methodology and outcome of the field investigation.

4. Field Research

Using results obtained from the literature review and the focus groups and individual interviews, we were able to develop and organize a set of indicators. Based on these indicators, we built our self-assessment tool for evaluating the cost of stress to business.

In order to explain these results, this chapter is organized as follows. The first section deals with absenteeism indicators. The second section outlines the presenteeism indicators, and the last section looks at costs that are common to both absenteeism and presenteeism.

In total, 39 indicators for measuring the cost of stress to business were identified. They can be broken down as follows:

- baseline data: 14 indicators;
- absenteeism costs: 14 indicators;
- presenteeism costs: 2 indicators; and
- costs common to both absenteeism and presenteeism: 9 indicators.

It is important to note that only costs assumed by the organization were taken into account in this classification. In addition, the cost of stress to society and the individual (for example, the cost of suffering and distress) were excluded. The indicators are presented in the following table according to the classification we have just described.

Table 5: Results – Analyzing the Indicators

Absenteeism Costs	Presenteeism Costs	Costs Common to Both Absenteeism and Presenteeism
Disability premiums ▪ External insurance ▪ Self-insurance	Work-related accidents	Health insurance premium (individual or family plan) ▪ Alternative care (massages, naturopaths, etc.)
Premium for workers compensation	Equipment breakage	Drug insurance
Information management system for absenteeism data ▪ Technical cost ▪ Human resource cost	Absences related to family-work life balance	Substance abuse
Costs of managing disability cases ▪ Administrative costs (communication, administration, follow-up) ▪ Human resource cost	Errors in judgement and in action	Workplace health service (internal or external)
Return to work ▪ Gradual ▪ Assignment ▪ Relapse ▪ Accommodation	Reduced quality of work	Union leave time
Medical expertise	Conflicts and interpersonal problems	Staff turnover – for example, costs related to vacant positions (overtime, temporary workers, etc.), hiring costs, training costs, etc.
Replacement workers ▪ Human resource cost: salary of the replacement worker, hiring costs (e.g. pre-employment tests) and training for the replacement worker ▪ Physical resource cost: desk, computer		Time needed for case management ▪ Meetings ▪ Intervention ▪ Prevention
Benefits ▪ Quebec Pension Plan ▪ Employment insurance		Legal costs ▪ Legal disputes ▪ Grievances
Sick leave		Employee assistance program (EAP) and organizational assistance program (OAP)
Absences due to illnesses that could be stress related (e.g. cardiovascular disease)		Lost opportunities ▪ Clients ▪ Market
Reduced work time		Loss of productivity ▪ Production objectives or deadlines not met ▪ Unfinished projects ▪ Production deficiencies (e.g. errors) ▪ Service retakes ▪ Customer complaints

Absenteeism Costs	Presenteeism Costs	Costs Common to Both Absenteeism and Presenteeism
Loss of intellectual capital		External expertise ▪ Stress audit
Quantitative work overload for colleagues		Prevention ▪ Training (e.g. managing work attendance) ▪ Interventions ▪ Programs
Indirect harm to work team		Impact of absenteeism/presenteeism on work teams and communication (can lower productivity)

While it is important to identify the cost indicators, it is just as important at this stage of the research to find out whether the indicator is available within the organization and to determine the amount of work required to obtain it (data extraction, information processing, etc.). We were able to document these two essential points during the focus groups to ensure that our stress cost model would not only be comprehensive but would also be usable for the organizations.

Here are the explanations of the coding used to outline the cost categories.

Table 6. Explanation of the Availability of Cost Indicators

Number	Explanation
0	Not applicable
1	Not available and the organization has no way to obtain it[11]
2	Not currently available but could be obtained in the future
3	Currently available

[11] Note that this code does not take into account elements that could be developed in the future in order to obtain these indicators. As an example, the management time associated with return-to-work activities could be calculable information if organizations were to develop a system to track this time. However, if this is not the case right now, code 1 with regard to availability would be assigned to the "return to work" indicator.

Table 7. Explanation of the Amount of Work Required to Obtain Cost Indicators

Number	Explanation
0	Not applicable
1	Little work required to obtain the indicator
2	Average or moderate amount of work required to obtain the indicator
3	Extensive work required to obtain the indicator

In order to interpret the availability and workload data concurrently, both of these items are presented in a single graphic for each of the indicators for the two participating organizations.

4.1 Results – Documenting the Indicators

We will review all the cost indicators in this section, including a brief explanation of the categories and their indicators. For more details, please consult Appendix 1.

4.1.1 Baseline Data

It is important to obtain the information in this category since it is the basis of several indicator calculations or constitutes general information on work stress. In total, 14 indicators were identified:

- Annual number of absences related to a psychological disorder
- Total annual number of absences
- Total annual number of days lost due to psychological disorders
- Total annual number of days lost due to absenteeism (all causes)
- Number of regular employees (FTE) within the organization
- Total annual number of days worked
- Organization's average hourly wage
- Organization's annual sales
- Organization's annual profits
- Absenteeism rate
- Turnover rate

- Internal mobility rate
- Cost of staff turnover
- Prevalence of psychological distress

This data is usually available in an information management system. In general, the data is accessible and little work is required to obtain it. Here is a brief description of the indicators.

INDICATORS	DESCRIPTION
Annual number of absences related to a psychological disorder	For this baseline data, calculate the number of absences due to short- and long-term disability, specifically those related to psychological disorders. In order to obtain this information, the organization must know the reason for the absence. In general, the reason is only available after a certain number of days absent, when a medical certificate is required.
Total annual number of absences	For this baseline data, calculate the number of absences due to short- and long-term disability, taking into account all causes. In some organizations, the total annual number of absences could be divided into two categories: short-term disability and long-term disability.
Total annual number of days lost due to psychological disorders	This indicator refers to the number of days lost for absences due to short-term disability as well as for absences due to long-term disability, specifically those related to psychological disorders.
Total annual number of days lost due to absenteeism (all causes)	This indicator tracks the number of days lost due to absences attributable to short-term disability as well as for absences attributable to long-term disability, taking into account all causes.
Number of regular employees (FTE) within the organization	Indicates the number of full-time employees (FTE).
Total annual number of days worked	For this baseline data, tabulate the total number of days worked by all employees within the organization during the year.
Organization's average hourly wage	To obtain this value, add the salary of all employees within the organization and then divide by the number of full-time employees (FTE).
Absenteeism rate	This rate may be calculated differently from one organization to another. As a result, it is important to know which calculation method organizations have adopted before using this indicator. In general, this rate is calculated based on the number of days lost or the number of absences. This rate generally includes short- and long-term disability and, in some cases, sick leave (if data is available).
Turnover rate	The turnover rate for a year is calculated based on the number of people who have left the organization, divided by the number of employees.
Internal mobility rate	This rate indicates internal employee movement.

Cost of staff turnover	The cost of staff turnover can be linked to numerous factors (all costs involved in hiring a new employee, total costs for training this employee, etc.). For this indicator, refer to the organization's definition and take the elements included in this definition into account in order to interpret the value obtained.

As indicated in Figures 1 and 2, all of this baseline data is available for Organization #1, and little work is required to obtain this information. As for Organization #2, Figures 3 and 4 show that most of this baseline data is available and again little work is required to obtain it. However, information on the annual number of absences related to a psychological disorder and the total annual number of days lost because of a psychological disorder are not currently available within this organization. It would, however, be possible to obtain this information, and the amount of work required to do so is considered moderate.

Figure 1. Baseline Data, Organization #1

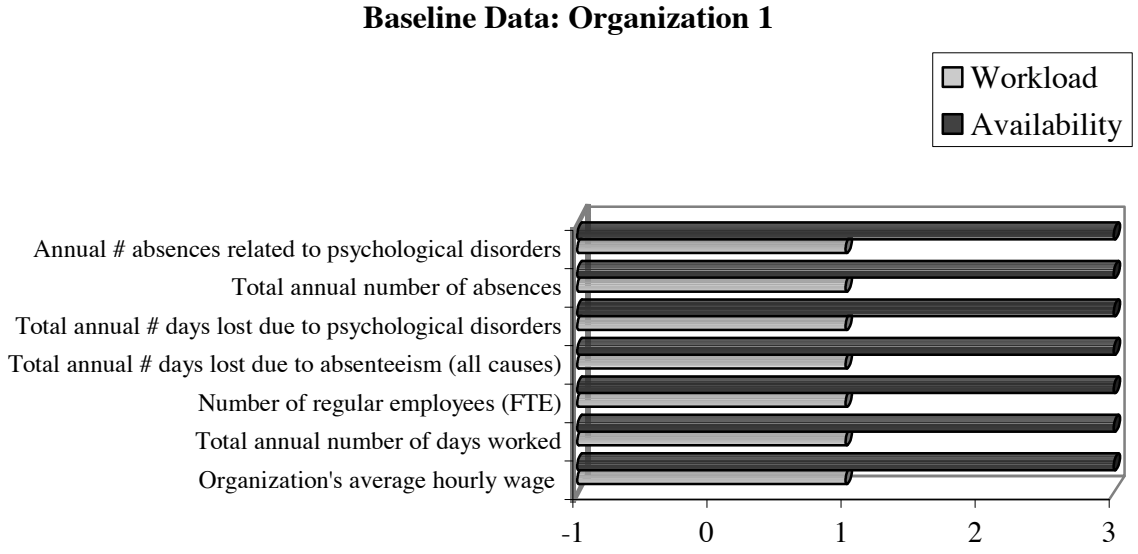


Figure 2. Baseline Data, Organization #2

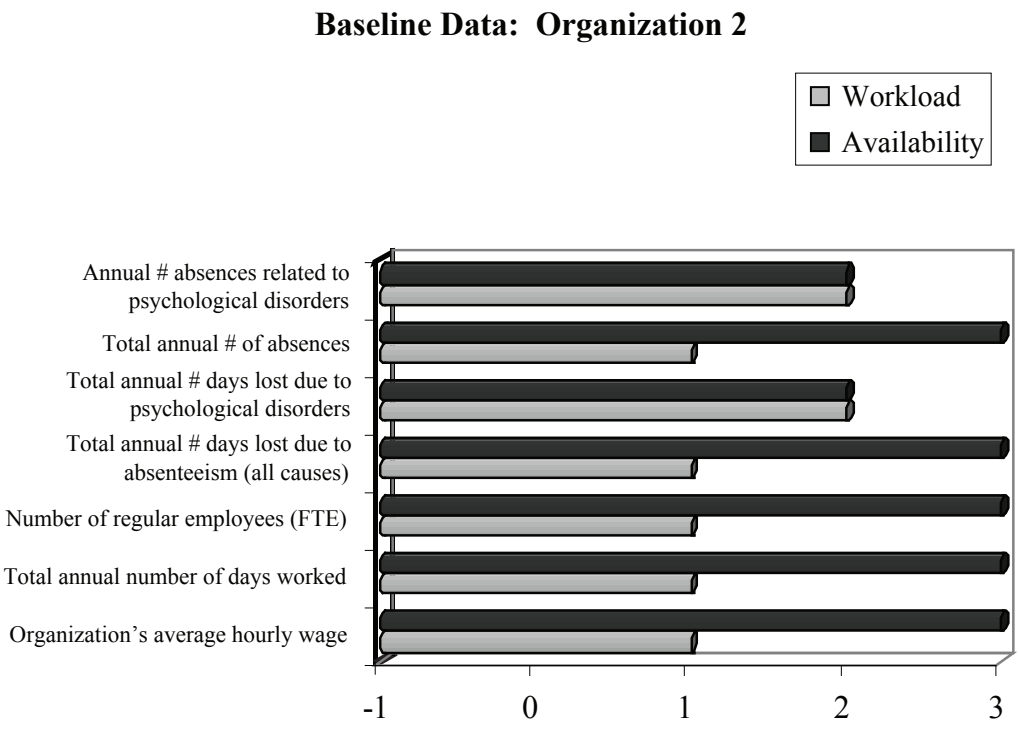


Figure 3. Baseline Data (2), Organization #1

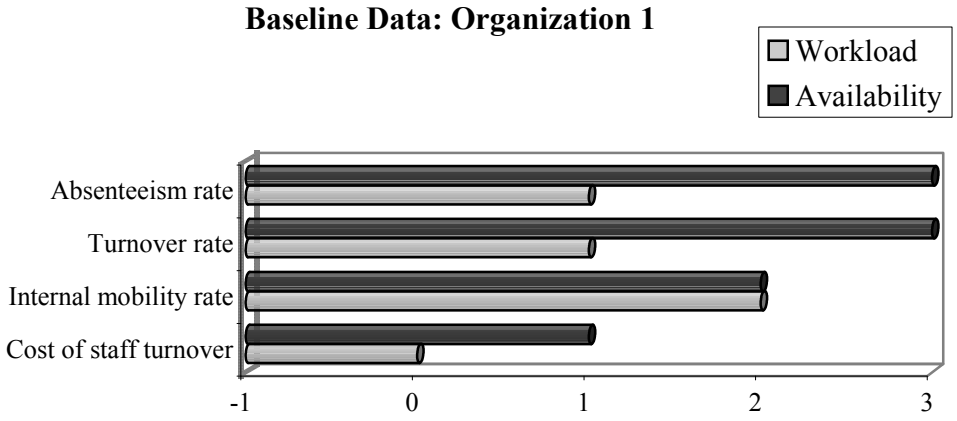
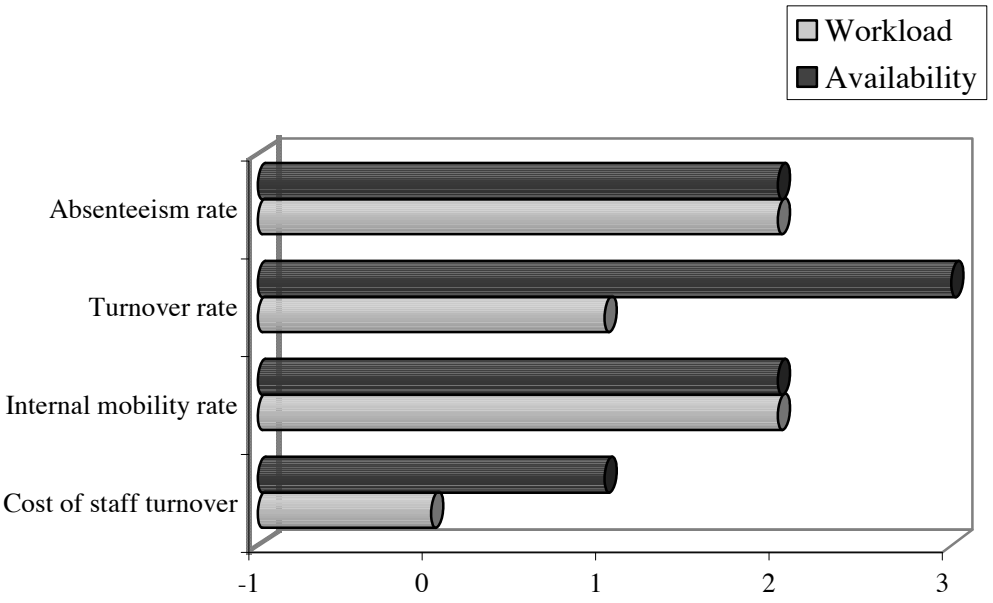


Figure 4. Baseline Data (2), Organization #2



Based on the results obtained, we can see several similarities between the two organizations. The turnover rate data is currently available (so little work is required to obtain it) within both organizations. The internal mobility rate is not currently available within either organization. It could be obtained, but doing so would require a moderate amount of work. The cost of staff turnover is not available, and the participating organizations have no way of obtaining this information.

The only difference that we can see between these two organizations concerns the absenteeism rate. This data is currently available for Organization #1 (little work required to obtain it), but is not available for Organization #2. It would be possible to obtain this information, but a moderate amount of work would be required.

4.1.2 Absenteeism Costs

This cost category includes all the economic repercussions of employee absenteeism – often called sick days or days lost for sickness. Here are the 14 cost indicators that were identified.

- Disability cost
- Premium for workers compensation
- Overtime
- Replacement workers
- Salary and benefit savings while the position was vacant
- Return to work
- Information management system for absenteeism data
- Costs of managing disability cases
- Medical expertise
- Quantitative work overload for colleagues
- Indirect harm to work team
- Sick leave
- Reduced work time
- Loss of intellectual capital

Whenever possible, these costs indicators should be obtained for (or be linked to) absences related to a psychological disorder.

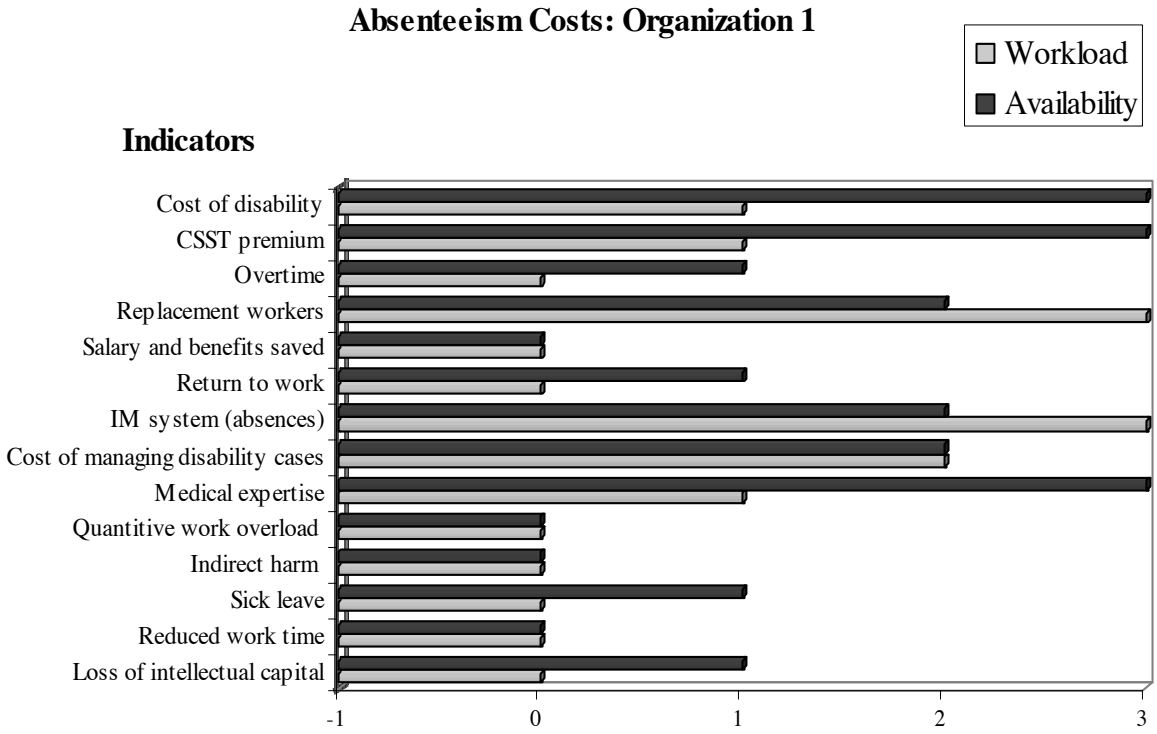
INDICATORS	DESCRIPTION
Disability cost ▪ **External insurance** ▪ **Self-insurance** ▪ **Benefits**	This indicator groups together wage-loss insurance premiums paid to an outside insurance company by the employer and/or workers' salaries, including benefits (QPP, employment insurance, etc.), paid by the employer during disablement periods due to a psychological disorder (self-insurance). By knowing the percentage of absences within the organization related to psychological disorders, it would be possible to determine what proportion of these costs is attributable to psychological disorders.
Premium for workers compensation	This indicator refers to the cost of workers compensation premiums for workers with a psychological disorder. The cost of the premium paid to Quebec's CSST, for example, is readily available. However, since few cases related to psychological disorders are accepted and compensated by the CSST, it is possible that the cost of the premiums for this specific type of problem is zero.
Overtime	Overtime data is usually available. However, it is very difficult to identify the overtime caused directly by absences related to psychological disorders. Furthermore, overtime cannot really be attributed to one single element.
Replacement workers	This indicator includes two components: the human resource cost (replacement worker's salary, cost of hiring and training a replacement worker as a result of an employee's absence due to a psychological disorder) and the cost of physical resources purchased for the replacement worker (e.g. desk and computer).

Salary and benefit savings while the position was vacant	This indicator pertains to savings to the employer when a worker is absent due to a psychological disorder and is not replaced. The extent of these savings will depend on the company's disability plan (which pays for disability cases and resulting costs). The methodology used for this calculation would be chosen on a case-by-case basis.
Return to work	This indicator consists of the aggregate costs related to an employee's gradual return to work, temporary assignment, risk of relapse, and need for accommodation measures, following an absence due to a psychological disorder.
Information management system for absenteeism data	This indicator includes two components: the technical cost (aggregate costs of computer system for managing absenteeism data) and the human resource cost (time devoted by an individual or individuals to managing absenteeism data).
Costs of managing disability cases	This indicator includes two components: the administrative cost of managing disability cases (communication, administration and follow-up) and the human resource cost (time devoted by an individual or individuals to managing disability cases).
Medical expertise	This indicator tallies the total cost of medical expertise sought following an employee's absence due to a psychological disorder.
Quantitative work overload for colleagues	This qualitative indicator is more difficult to obtain, because it involves the cost of the quantitative work overload for colleagues resulting from the absence of an employee due to a psychological disorder (not to be confused with overtime).
Indirect harm to work team	This is a qualitative indicator that pertains to the impact on the work team when an employee is absent due to a psychological disorder.
Sick leave	This indicator refers to the cost of sick leave taken due to a psychological disorder. It is possible, in some cases, to obtain the number of sick days taken. However, the reason for the absence is not usually available since a medical certificate is not required for sick leave.
Reduced work time	This indicator estimates the number of hours not worked each day due to the occurrence of a psychological disorder (e.g. an employee who leaves two hours before the end of the shift).
Loss of intellectual capital	This indicator shows the cost of expertise lost due to the departure of an employee (temporary absence or permanent departure from the organization) due to a psychological disorder. It is very difficult to obtain this indicator. It should also be noted that the employer or manager does not always know the exact reason for the departure. As a result, even if we ask the manager to assess the expertise lost due to the departure of an employee from their sector, it would be difficult, or even impossible, to assess this indicator specifically for a case related to a psychological disorder.

With regard to Organization #1, Figure 5 shows that disability costs (excluding costs related to benefits), CSST premiums and medical expertise are cost indicators that are currently available. Therefore, little work is required on the part of the organization to obtain this data. Indicators that are not currently available, but that could be obtained, include replacement workers, the information management system for absenteeism data,

and disability case management expenses. However, the amount of work required to obtain these indicators ranges from moderate (disability case management expenses) to extensive (replacement workers and information management system for absenteeism data). Indicators that are unavailable and that cannot be obtained because the organization has no means of acquiring them (at least for the moment) are overtime, return to work, sick leave and loss of intellectual capital. Consequently, the amount of work required is not an applicable measure for these indicators. The "not applicable" code was assigned to the "salary and benefits saved while the position is vacant" indicator, since this organization achieves no savings, even if the absent worker is not replaced.

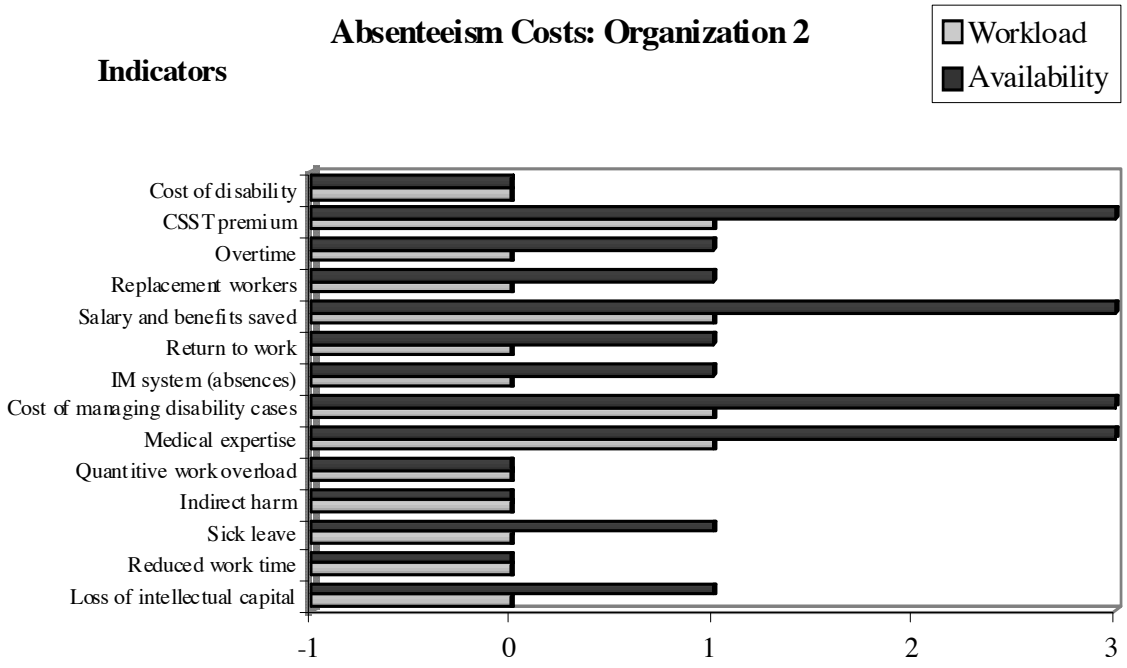
Figure 5. Absenteeism Costs, Organization #1



In the case of Organization #2, Figure 6 clearly shows that the following indicators are currently available and little work is required to obtain them: premium paid to the CSST, salary and benefits saved while the position is vacant, disability case management expenses, and medical expertise. Several indicators in this category are unavailable, and this organization has no means of obtaining them. They include the indicators related to

overtime, replacement workers, return to work, the information management system for absenteeism data, sick leave and, finally, loss of intellectual capital. Workload is not applicable to these indicators. Unlike Organization #1, data on the cost of disability is not applicable given the way in which Organization #2 manages disability cases.

Figure 6. Absenteeism Costs, Organization #2



4.1.3 Presenteeism Costs

The cost indicators included in this category should be obtained, where possible, for those cases where an employee is at work but is performing below expectations because of a work-related mental health problem (presenteeism). We chose these qualitative indicators, but the various stakeholders we consulted within the two participating organizations felt they were difficult to measure.

INDICATORS	DESCRIPTION
Increase in errors	This indicator is associated with the fact that the employee is at work but their performance is below expectations (increase in errors) due to a work-related mental health problem.
Decrease in quality of production	This indicator pertains to the cost associated with the fact that the employee is at work but their performance is below expectations (decrease in quality of production) due to a work-related mental health problem.

4.1.4 Costs Common to Both Absenteeism and Presenteeism

The cost indicators included in this category are those that can be linked to both absenteeism and presenteeism. In certain situations, the cost linked to these indicators should be obtained for (or be linked to) an absence due to a psychological disorder and/or for an employee who is at work but whose performance is below expectations due to a workplace mental health problem (presenteeism).

INDICATORS	DESCRIPTION
Health insurance premium (individual or family plan) associated with the use of psychotherapeutic drugs	This indicator relates to the portion of the health insurance premium paid by the employer specifically for psychotherapeutic drugs. Generally speaking, the organization's health insurance provider has information on drug use by broad therapeutic category, which they could provide to the organization in the form of a report. However, it is important to note that information about psychotherapeutic drug use obtained by the health insurance provider usually includes prescriptions for the employee and the members of their family (in the case of a family plan).
Health insurance premium (individual or family plan) associated with alternative care	This indicator deals with the portion of the health insurance premium paid by the employer for alternative care (massage, naturopath, etc.).
Employee assistance program (EAP)	This indicator assesses the total cost of running the EAP. The reasons for consultations within the scope of this assistance program could help determine the proportion of costs attributable to mental health problems in the workplace.
External expertise	This indicator refers to the cost of external expertise (e.g. stress audit) aimed at preventing, assessing or addressing mental health problems in the workplace. Overall, it appears to be easy to obtain this type of data. It is a matter of calculating the cost of external experts hired specifically with a view to preventing, assessing or addressing mental health problems in the workplace. As an example, stress audits conducted within certain organizations and interventions related to conflict management in a work team could be elements included in this indicator.
Union leave time	This indicator shows the amount of time union authorities devote to mental health in the workplace. On the whole, union leave time is a known factor. However, it is difficult to determine exactly how much time union authorities devote to mental health in the workplace.
Time devoted to mental health issues in the workplace ▪ **Meetings** ▪ **Intervention** ▪ **Prevention**	This indicator denotes the amount of time various stakeholders devote to mental health in the workplace. This time may be spent in meetings or on intervention and prevention. This indicator does not include time already tracked in previous indicators. For this indicator, the term *stakeholders* does not refer solely to managers. The time devoted by other stakeholders involved with mental health issues in the workplace (e.g. human resource counsellors and supervisors) should also be taken into account.

Legal costs ▪ **Legal disputes** ▪ **Grievances**	This indicator includes legal costs related to legal disputes or grievances associated with an absence due to a psychological disorder and/or with an employee who is at work but whose performance is below expectations due to a workplace mental health problem (presenteeism).
Lost opportunities	Lost opportunities represent all of the costs associated with work stress, since these are amounts that cannot be invested in the organization's day-to-day business. This cost is obtained after estimating the cost of all other indicators.
Loss of productivity	This indicator estimates the loss of productivity resulting from mental health problems in the workplace. This loss of productivity can be expressed in terms of aspects such as production objectives or deadlines that are not met, unfinished projects, production deficiencies (e.g. errors), service retakes and customer complaints.
Prevention ▪ **Training (e.g. managing work attendance)** ▪ **Interventions** ▪ **Programs**	This indicator is associated with the prevention of work-related mental health problems within the organization (cost of prevention activities and freeing up staff). This cost can be related to training activities, intervention and other programs designed to prevent mental health problems within the organization.

As indicated in Figures 7 and 8, we can see EAP and external expertise indicators are already available for both organizations and, consequently, little work is required to obtain them.

One other similarity between the two organizations has to do with indicators that are not currently available but that could nonetheless be obtained. They include the health insurance premiums related to the use of psychotherapeutic drugs and to alternative care, union leave time, legal costs, as well as the indicator associated with prevention for both organizations. The amount of work required to obtain these indicators is somewhat similar (with one small exception) for Organization #1 and Organization #2. With regard to the health insurance premiums related to the use of psychotherapeutic drugs and to alternative care, little work is required for these two organizations. A moderate amount of work would be required to obtain union leave time and legal costs. The difference between the two participating organizations relates to the prevention indicator. For Organization #1, extensive work would be required to obtain this indicator. For Organization #2, a moderate amount of work would be required.

Figure 7. Costs Common to Both Absenteeism and Presenteeism, Organization #1

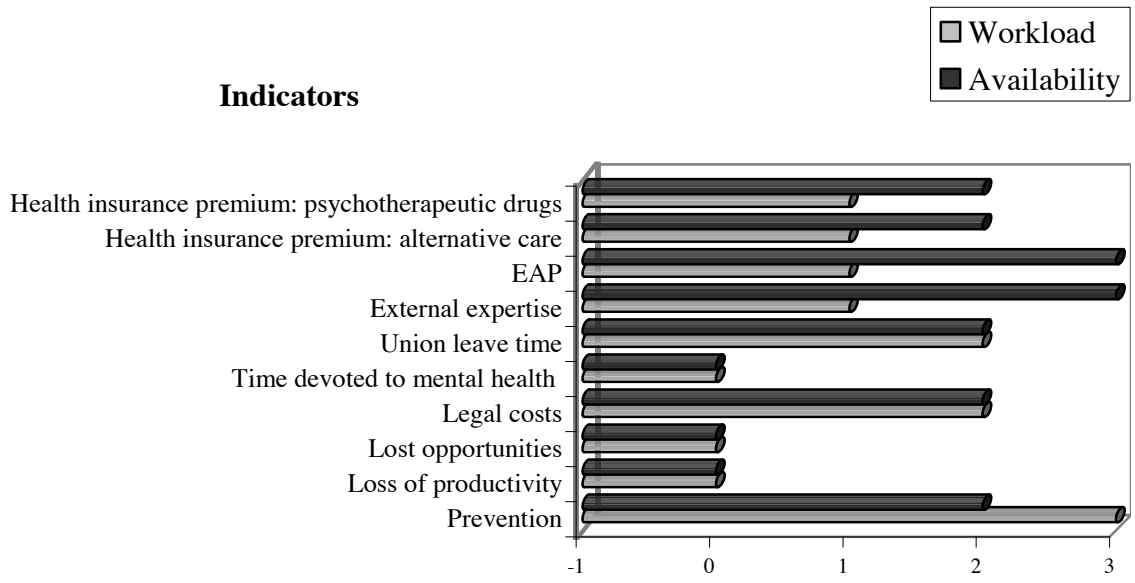
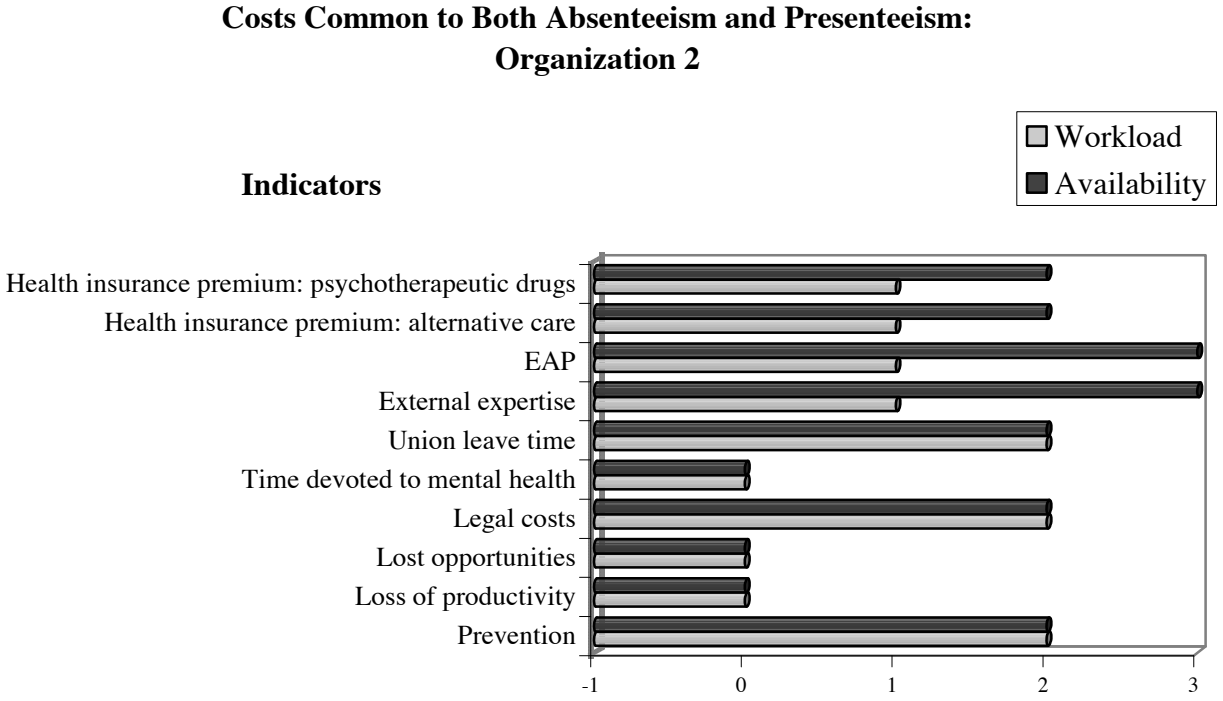


Figure 8. Costs Common to Both Absenteeism and Presenteeism, Organization #2



4.2 General Discussion on the Indicators

Overall, there does not seem to be any specific problem in obtaining the baseline data needed to calculate certain indicators. Nevertheless, in certain cases, the organization might need to do some work to make this data accessible (specifically data related to psychological disorders).

With regard to general information on work stress, it appears that the cost of staff turnover is the only information that cannot be obtained, at least for the two participating organizations.

The indicators in the "Absenteeism costs" category that pose a challenge include overtime associated with psychological disorders, which appears to be information that is very difficult to obtain. With regard to replacement workers, two components were included in the definition of this indicator: the human resource cost and the physical resource cost. In terms of human resources, information (or a portion of it) could be available in some cases, but extensive work would be required to obtain it. There would be no cost for physical resources purchased for the replacement worker. Thus, this component would not represent a cost for the organization.

The costs associated with returning to work do not seem to be available (at least when it comes to management time spent on return-to-work activities). However, we would need to evaluate whether it would be possible to obtain some of the costs (for example, the replacement worker's salary, if this person remains on the job during the employee's progressive return to work). In such instances, the amount of work required to obtain this information, specifically for those cases related to psychological disorders, should also be taken into account.

Other information that seems to be difficult to obtain is that related to the information management system for absenteeism data. Nevertheless, in organizations where this indicator is applicable, we would need to examine the possibility of obtaining an estimate of the technical and human resource costs.

As for the indicator that deals with the costs of managing disability cases, remember that two types of costs were identified (human resource and administrative costs). The human resource cost seems to be relatively easy to obtain. However, the situation is different when it comes to the administrative cost (communication, administration and follow-up), since this seems to be very difficult to evaluate.

Turning to the "Absenteeism costs" category, it would appear that it is impossible to obtain an economic assessment of two indicators. No data is available for the cost of sick leave days (due to a psychological disorder) or the cost of lost expertise related to an employee's departure (also due to a psychological disorder) within the organizations that participated in the focus group meetings. It would appear that information can be obtained (when applicable) on the other indicators in this category – the disability costs (excluding those costs related to social benefits), the premium for workers compensation, salary and benefits saved while the position is vacant, and medical expenses. It would certainly be possible to determine the cost of benefits included in the "disability cost" indicator, but the amount of work required to do so remains to be assessed.

Finally, for both organizations where a focus group meeting was held, most cost indicators that are common to both absenteeism and presenteeism are available or could be made available. The amount of work required to obtain them would vary from minimal to extensive, depending on the indicators. However, with regard to lost opportunities, this report has already stated that the economic assessment of this indicator could be obtained after estimating the cost of all other indicators. As a result, this information will be temporarily removed from the list of indicators selected for assessing the costs of stress.

Note that despite earlier comments, no indicator (with the exception of the lost opportunities indicator) will be removed from the model presented in the following section since it is possible that some organizations have or could have them.

Overall, when we compare our results to the scientific literature, the portfolio of 39 indicators that we developed covers a wide range of the economic repercussions of work stress. In fact, it is the only tool that looks at both absenteeism and presenteeism. As the reader will remember from the chapter dealing with the literature review, these two points are usually addressed separately in research.

5. Draft Self-Assessment Tool for Measuring the Costs of Work Stress

We have developed a self-assessment tool for measuring the costs of work stress, based on the results of our literature review and survey of participating organizations. The objective of this tool is to enable organizations to estimate the economic and non-economic impacts of work stress and, more specifically, the impacts in relation to absenteeism and presenteeism. The tool was built using an Excel spreadsheet so that it can be used directly by organizations. Stakeholders need only enter the required data (on absenteeism, presenteeism and common costs) in the appropriate fields of a spreadsheet. It is important to note that, for the moment, the tool has not yet been tested or validated in an authentic environment.

The following pages outline the results of a pre-test we conducted within a participating organization to test the tool's functionality. Using this tool, we estimated the direct and indirect costs of work stress to this organization to be $1,950,000. Of this amount, 80.3% ($1,565,000) is associated with absenteeism and 19.7% ($385,000) with presenteeism. When we convert these costs into management information, here are the results:

- the costs associated with work stress represent the equivalent of 54 full-time people annually; and
- the total direct and indirect costs of work stress amount to 11,880 days lost (based on 220 working days per year).

These results are extremely useful to the organization in question, which until now was using only the direct costs of wage-loss insurance (estimated at $900,000) as an indicator. The self-assessment tool clearly shows that the direct and indirect costs of work stress are, in fact, more than double that amount ($1,950,000).

This demonstration of a cost calculation is not intended to be representative or typical of other organizations; its sole purpose is to demonstrate the type of information that can be

obtained by using a self-assessment tool such as this one for measuring the costs of work stress. Readers are reminded that Appendix 1 consists of a detailed glossary that defines each of the cost indicators for measuring work stress.

PRE-TEST

Description of the Organization:

4,000 full-time employees
Wage-loss insurance: private insurer

Baseline Data

Required Information	Results
Annual number of absences related to a psychological disorder	75 cases
Total annual number of absences	400 cases
Total annual number of days lost due to psychological disorders	5,000 days lost
Total annual number of days lost due to absenteeism (all causes)	20,000 days lost
Number of regular employees (FTE) within the organization	4,000 FTE
Total annual number of days worked	880,000 days worked
Organization's average hourly wage	$20/hour
Organization's annual sales	$300,000,000
Organization's annual profits	Not applicable
Absenteeism rate	5.26 days/worker
Turnover rate	Not available
Internal mobility rate	Not available
Cost of staff turnover	Not available
Prevalence of psychological distress	40%

Absenteeism Costs

Indicators	Results
Disability cost • External insurance • Self-insurance • Benefits	$900,000
Premium for workers compensation	$250,000
Overtime	$280,000
Replacement workers • Human resource cost • Physical resource cost	$300,000
Salary and benefit savings while the position was vacant	(-) $560 000
Return to work • Gradual return • Assignment • Relapse • Accommodation	$75,000
Information management system for absenteeism data • Technical cost • Human resource cost	$35,000
Costs of managing disability cases • Administrative cost • Human resource cost	$60,000
Medical expertise	$5,000
Quantitative work overload for colleagues	Not available
Indirect harm to work team	Not available
Sick leave	$100,000
Reduced work time	$60,000
Loss of intellectual capital	Not available

Total Cost of Absenteeism	
Add up all the results of an economic nature	**$1,505,000**
Make a list of all the results of a non-economic nature	**3 cost indicators not available**

Presenteeism Costs

Indicators	Results
Increase in errors	Not available
Decrease in quality of production	Not available

Total Cost of Presenteeism	
Add up all the results of an economic nature	**Not available**
Make a list of all the results of a non-economic nature	**None**

Costs Common to Both Presenteeism and Absenteeism

Indicators	Results
Health insurance premium (individual or family plan) associated with the use of psychotherapeutic drugs	$50,000
Health insurance premium (individual or family plan) associated with alternative care	$45,000
Employee assistance program (EAP)	$70,000
External expertise	$20,000
Union leave time	$30,000
Time devoted to mental health issues in the workplace • Meetings • Intervention • Prevention	$60,000
Legal costs • Legal disputes • Grievances	$10,000
Loss of productivity	Not available
Prevention • Training • Interventions • Programs	$100,000

Total Cost of Indicators Common to Both Absenteeism and Presenteeism	
Add up all the results of an economic nature	**$385,000**
Make a list of all the results of a non-economic nature	**None**

Cost of Work Stress for this Organization
Summary Table

Baseline Data

Information	Results
Annual number of absences related to a psychological disorder	75 cases
Total annual number of absences	400 cases
Total annual number of days lost due to psychological disorders	5,000 days lost
Total annual number of days lost due to absenteeism (all causes)	20,000 days lost
Absenteeism rate	5.26 days/worker
Turnover rate	Not available
Prevalence of psychological distress	40%

Economic Costs

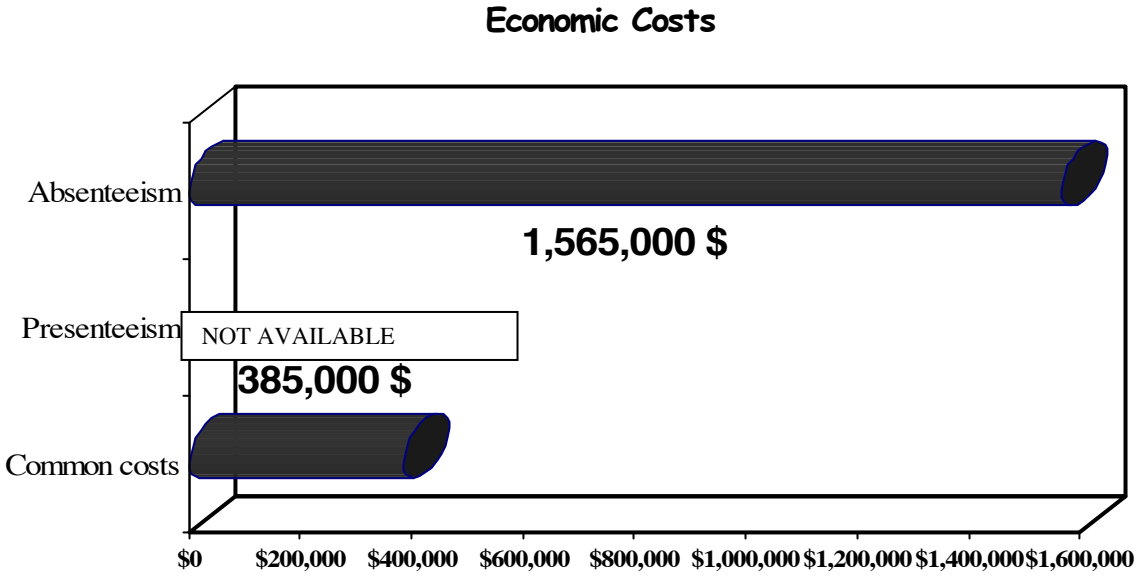
Categories	Results
Economic costs related to absenteeism	$**1,565,000**
Economic costs related to presenteeism	**+ Not available**
Economic costs common to both absenteeism and presenteeism	**+ $385,000**
Total costs	**= $1,950,000**

Non-Economic Costs

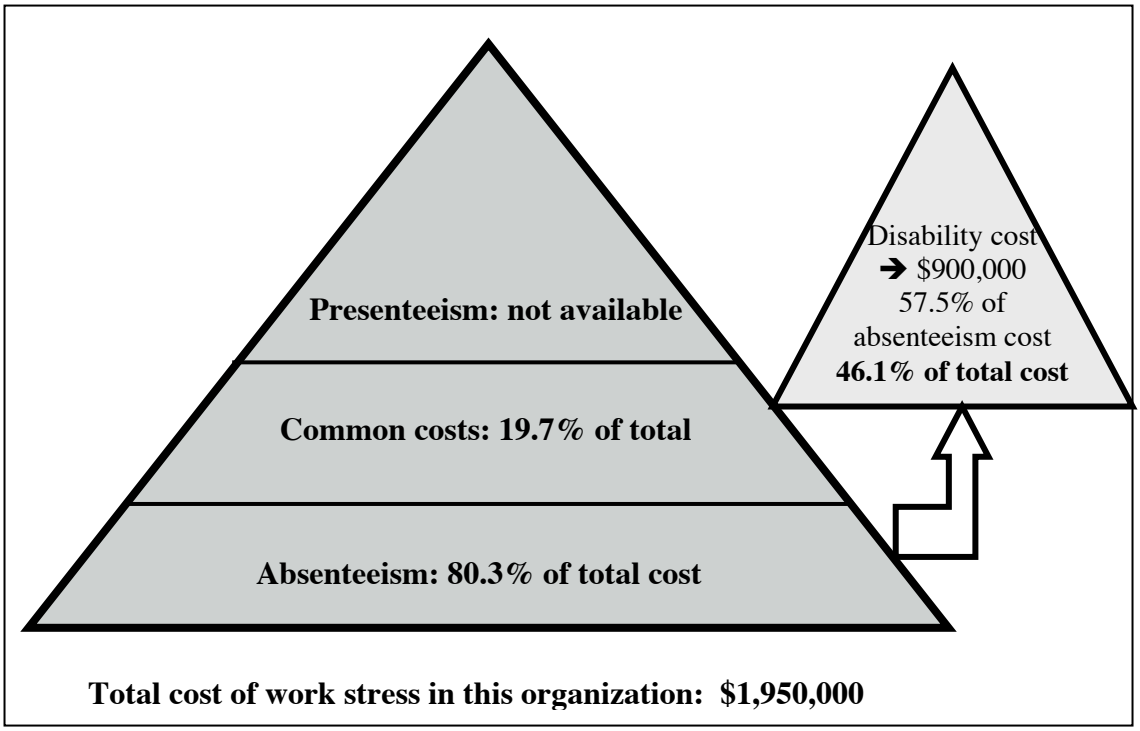
Categories	Results
Non-economic costs related to absenteeism (list these costs)	**Three cost indicators not available:** **a. Quantitative work overload for colleagues** **b. Indirect harm to work team** **c. Loss of intellectual capital**

Categories	Results
Non-economic costs related to presenteeism (list these costs)	**Two cost indicators not available:** **a. Increase in errors** **b. Decrease in quality of production**
Non-economic costs common to both absenteeism and presenteeism (list these costs)	**One cost indicator not available:** **a. Loss of productivity**

Example of a Graphic Illustrating the Results of the Management Scorecard



Percentage of Each Cost in Relation to the Total Cost of Work Stress



6. Conclusion

With the goal of gaining a better understanding of the economic impact of stress on organizations, we compiled a document inventory in order to get an overall picture of what is known about this issue. A reading of this literature shows that work stress affects a large number of individuals. For instance, a survey conducted by Statistics Canada, in which respondents were asked to indicate their level of stress at work, revealed that 38.8% of Canadians between the ages of 15 and 75 are slightly stressed at work, 25% are relatively stressed at work, while 5.4% are extremely stressed at work (Statistics Canada, 2002 – updated in September 2004). In their report, Hoel, Sparks, & Cooper (2001) say that stress is becoming increasingly recognized as a phenomenon that has a negative effect on a growing number of people in the workplace.

While work stress is a serious health problem, it has also become an economic problem for many people and organizations and for society in general. Tangri (2003) reports that the total cost to Canadian industry of issues related to mental health is $35 billion annually. Whether it be in the form of disability costs, expenses resulting from workers compensation claims, an employee's reduced productivity due to a health problem (presenteeism), or other more indirect impacts of an employee's absence (for example, overtime for colleagues), organizations must assume the cost of work stress from an economic perspective.

These findings confirm the importance of providing companies with tools that will allow them to measure the economic impact of work stress. The inventory of documents compiled within the context of this project shows that organizations have access to only a limited amount of scientific information to help them assess the costs of stress in their environment. Organizations might be able use the data presented in the literature to somewhat accurately evaluate a certain number of their costs related to work stress. However, to our knowledge, no tool currently exists that allows for a comprehensive assessment of the costs related to this problem. Remember that Tangri (2003) is one of

only a few authors to have published a calculation method that helps estimate the extent of an organization's costs with regard to stress. However, this author's proposed method excludes key cost indicators, such as reduced productivity when employees are at work (presenteeism). There can be no doubt as to the importance of considering the phenomenon of presenteeism when assessing costs. What is more, Hemp (2004) states that presenteeism is a problem that costs an organization much more than absenteeism.

In addition to the findings noted above, the document inventory that we compiled also helped us to identify a certain number of cost indicators, which were then improved and adjusted throughout the course of the project. As a result, we have developed a proposed tool to assess the costs of work stress, which consolidates all the indicators that were chosen. In total, 39 indicators for measuring the cost of stress in business were selected. They can be broken down as follows:

- baseline data: 14 indicators;
- absenteeism costs: 14 indicators;
- presenteeism costs: 2 indicators; and
- costs common to both absenteeism and presenteeism: 9 indicators.

Thus, in addition to the three cost categories, the proposed tool also presents another classification that groups together the baseline data needed to calculate certain indicators or that constitutes general information on work stress.

Based on our field research with organizations, we can see that information on very few of these indicators is currently available. It appears to be especially difficult to obtain cost indicators related to absenteeism. It would seem that a relatively large number of indicators in this category (four indicators for Organization #1 and six for Organization #2) are not available, and the two organizations have no way to obtain them (at least for now). The presenteeism cost indicators do not appear to be very hard to obtain. We can see that only a few indicators are currently available in the third category, which groups

together the indicators common to both absenteeism and presenteeism (two indicators in both organizations where a focus group was held). However, several indicators could still be obtained, even though they are not currently available.

In light of these results, organizations should, where possible, develop strategies to make a greater number of cost indicators available. As an example, the management time associated with return-to-work activities could be made available if organizations were to develop a system for tracking these results. Nevertheless, it would definitely be difficult to assess certain indicators. The cost associated with sick leave taken for psychological reasons is one example.

However, it is important to note that the results we obtained on the state of indicators cannot be generalized across all organizations, given the relatively small number of organizations surveyed during the course of this project. This explains why no indicators (with the exception of the lost opportunities indicator) were omitted from the proposed model for assessing the costs of work stress.

As mentioned previously, no tool exists that we are aware of for carrying out a comprehensive assessment of the organizational costs related to the issue of work stress. For that reason, we have developed a self-assessment tool. This tool, built using Excel spreadsheets, will help organizations obtain more accurate and detailed estimates of the money being spent on work stress. Such information would have a major impact on management decisions related to work stress, in particular such aspects of the issue as prevention.

Appendix 1

Glossary: Explanations or Definitions

1. **Absenteeism rate:** This rate may be calculated differently from one organization to another. As a result, it is important to know which calculation method organizations have adopted before using this indicator. In general, this rate is calculated based on the number of days lost or the number of absences. This rate generally includes short- and long-term disability and, in some cases, sick leave (if data is available).
2. **Annual number of absences related to a psychological disorder:** For this baseline data, calculate the number of absences due to short- and long-term disability, specifically those related to psychological disorders.
3. **Cost of Staff Turnover:** The cost of staff turnover can be linked to numerous factors (all costs involved in hiring a new employee, the total costs for training this employee, etc.). For this indicator, refer to the organization's definition and take the elements included in this definition into account in order to interpret the value obtained.
4. **Costs of managing disability cases**
   - Administrative cost
   - Human resource cost

   Includes two components: the administrative cost of managing disability cases (communication, administration and follow-up) and the human resource cost (time devoted by an individual or individuals to managing disability cases). By knowing what percentage of absences within the organization are related to psychological disorders, it would be possible to determine what proportion of these costs is attributable to psychological disorders.
5. **Decrease in quality of production:** Cost associated with the fact that the employee is at work but their performance is below expectations (decrease in quality of production) due to a work-related mental health problem.
6. **Disability cost**
   - External insurance
   - Self-insurance
   - Benefits

Workers' salaries, including benefits (QPP, employment insurance, etc.), paid by the employer during disablement periods due to a psychological disorder (self-insurance) and/or wage-loss insurance premiums paid to an outside insurance company by the employer. By knowing what percentage of absences within the organization are related to psychological disorders, it is possible to determine what portion of this premium is attributable to psychological disorders (if the insurance company does not provide this information directly).

7. **Employee assistance program (EAP):** Overall cost of running the EAP. The reasons for consultations within the scope of this assistance program could help determine the proportion of costs attributable to mental health problems in the workplace.
8. **External expertise:** Cost of external expertise (e.g. stress audit) aimed at preventing, assessing or addressing mental health problems in the workplace.
9. **Health insurance premium (individual or family plan) associated with alternative care:** Portion of health insurance premium paid by the employer for alternative care (massage, naturopath, etc.).
10. **Health insurance premium (individual or family plan) associated with the use of psychotherapeutic drugs:** Portion of health insurance premium paid by the employer specifically for psychotherapeutic drugs.
11. **Increase in errors:** Cost associated with the fact that the employee is at work but their performance is below expectations (increase in errors) due to a work-related mental health problem.
12. **Indirect harm to work team:** Impact on the work team when an employee is absent due to a psychological disorder.
13. **Information management system for absenteeism data**
    - Technical cost
    - Human resource cost

    Includes two components: the technical cost of managing disability cases (aggregate costs of computer system for managing absenteeism data) and the human resource cost (time devoted by an individual or individuals to managing absenteeism data). By knowing what percentage of absences within the organization are related to psychological disorders, it would be possible to determine what proportion of these costs is attributable to psychological disorders.
14. **Internal mobility rate:** This rate shows the movement of staff within the organization itself. It equals:

    $$\frac{\text{Number of employee moves during the year}}{\text{Average annual number of employees}} \times 100$$

15. **Legal costs**
    - Legal disputes
    - Grievances

    Legal disputes: Legal and administrative costs associated with an absence due to a psychological disorder and/or with an employee who is at work but whose performance is below expectations due to a workplace mental health problem (presenteeism).
    Grievances: Legal and administrative costs associated with an absence due to a psychological disorder and/or with an employee who is at work but whose performance is below expectations due to a workplace mental health problem (presenteeism).

16. **Loss of intellectual capital:** Cost of expertise lost due to the departure of an employee (temporary absence or permanent departure from the organization) due to a psychological disorder.
17. **Loss of productivity:** Estimated cost of lost productivity resulting from mental health problems in the workplace. This loss of productivity can be expressed in terms of aspects such as production objectives or deadlines that are not met, unfinished projects, production deficiencies (e.g. errors), service retakes and customer complaints.
18. **Medical expertise:** Cost of medical expertise sought following an employee's absence due to a psychological disorder.
19. **Number of regular employees (FTE) within the organization:** This data is expressed in terms of the number of full-time employees (FTE) as follows:

$$\text{FTE} = \frac{\text{total annual number of days worked}}{\text{220 working days (or the annual number of working days for the organization)}}$$

20. **Organization's annual profits:** Refer to the organization's annual report to obtain the annual profit amount.
21. **Organization's annual sales:** Refer to the organization's annual report to obtain the annual sales figure.
22. **Organization's average hourly wage:** To obtain the value of this baseline data, add up the salary of all employees in the organization and then divide by the number of full-time employees (FTE).
23. **Overtime:** Cost of overtime worked by other employees in order to carry out the work of employees who are absent due to psychological disorders.
24. **Premium for workers compensation:** Cost of premium paid to the CSST for workers with psychological disorders.
25. **Prevalence of psychological distress:** Proportion of individuals who report frequent symptoms (related to depression and anxiety, cognitive problems and irritability) during the week preceding the measurements that is higher than the threshold set for Quebecers by Santé Québec (Légaré et al., 2001).
26. **Prevention**

- Training
- Interventions
- Programs

Cost associated with the prevention of work-related mental health problems within the organization (cost of prevention activities and freeing up staff). This cost can be related to training activities (e.g. managing work attendance), intervention and other programs designed to prevent mental health problems within the organization.

27. **Quantitative work overload for colleagues:** Assessment of the quantitative work overload for colleagues resulting from the absence of an employee due to a psychological disorder (not to be confused with overtime).
28. **Reduced work time:** Estimated cost resulting from the number of hours not worked each day due to the occurrence of a psychological disorder (e.g. an employee who leaves two hours before the end of the shift).
29. **Replacement workers**

- Human resource cost
- Physical resource cost

Includes two components: the human resource cost (replacement worker's salary, cost of hiring and training a replacement worker as a result of an employee's absence due to a psychological disorder) and the cost of physical resources purchased for the replacement worker (e.g. desk and computer).

30. **Return to work**

- Gradual return
- Assignment
- Relapse
- Accommodation

Gradual return: Aggregate costs of an employee's gradual return to work following an absence due to a psychological disorder. A gradual return involves an employee's progressive reintegration into their position. For example, someone who was absent due to a psychological disorder could work two days a week for the first two weeks following their return and gradually increase their work time to three or four days a week, and so on.

Assignment: Aggregate costs of a temporary assignment when an employee returns to work following an absence due to a psychological disorder. A temporary assignment allows an employee to return to work even though they may not have completely recovered from their medical condition (in this case, a psychological disorder). At this point, the employee may either be assigned tasks other than those they usually carry out or be assigned tasks that are part of their regular work but that will be modified for a given time period.

Relapse: Aggregate costs of a relapse suffered by an employee who was previously absent due to a psychological disorder. In other words, the relapse in this case is characterized by the fact that an employee was off work due to a psychological disorder, returned to work for some time and was again off work due to the same psychological disorder.

Accommodation: Aggregate costs of accommodation measures taken when an employee returns to work following an absence due to a psychological disorder. Accommodation measures can vary, but they are essentially designed to allow an employee to return to work by taking their specific condition into consideration. For

example, training an employee for a position other than the one they normally occupy (if they are unable to return to their regular position due to a psychological disorder) can constitute an accommodation measure.

31. **Salary and benefit savings while the position was vacant:** Savings to the employer when a worker is absent due to a psychological disorder and is not replaced. The extent of these savings will depend on the company's disability plan (which pays for disability cases and resulting costs).
32. **Sick leave:** Cost of sick leave taken due to a psychological disorder.
33. **Time devoted to mental health issues in the workplace**

- Meetings
- Intervention
- Prevention

Cost associated with the amount of time various stakeholders devote to mental health in the workplace. This time may be spent in meetings or on intervention and prevention.
This indicator does not include time already tracked in previous indicators.

34. **Total annual number of absences:** For this baseline data, calculate the number of absences due to short- and long-term disability, taking into account all causes.
35. **Total annual number of days lost due to absenteeism (all causes):** Track the number of days lost due to absences attributable to short-term disability as well as for absences attributable to long-term disability, taking into account all causes.
36. **Total annual number of days lost due to psychological disorders:** Track the number of days lost for absences due to short-term disability as well as for absences due to long-term disability, specifically those related to psychological disorders.
37. **Total annual number of days worked:** For this baseline data, tabulate the total number of days worked by all employees within the organization during the year.
38. **Turnover rate:** The turnover rate is calculated based on the number of people who have left the organization. It equals:

$$\frac{\text{Number of departures during the year}}{\text{Average annual number of employees}} \times 100$$

39. **Union leave time:** Cost associated with the amount of time union authorities devote to mental health in the workplace.

Appendix 2

Self-Assessment Form for Measuring the Costs of Work Stress

Please follow these instructions in order to complete the self-assessment form for measuring the costs of work stress:

1. It is **essential** that you refer to the Glossary (found in Appendix 1) for explanations or definitions of the baseline data and indicators being used.
2. The results on this self-assessment form must be expressed in annual terms.

Baseline Data

Required Information	Results (expressed in financial terms or otherwise)
Annual number of absences related to a psychological disorder	
Total annual number of absences	
Total annual number of days lost due to psychological disorders	
Total annual number of days lost due to absenteeism (all causes)	
Number of regular employees (FTE) within the organization	
Total annual number of days worked	
Organization's average hourly wage	
Organization's annual sales	
Organization's annual profits	
Absenteeism rate	
Turnover rate	
Internal mobility rate	
Cost of staff turnover	
Prevalence of psychological distress	

Absenteeism Costs

Indicators	Elements Required to Obtain Results	Results (expressed in financial terms or otherwise)
Disability cost • External insurance • Self-insurance • Benefits	Workers' salary + benefits paid during the disablement period related to a psychological disorder (self-insurance)	
	Wage-loss insurance premium X percentage of absences related to a psychological disorder (external insurer)	
Premium for workers compensation	Premium for absences related to a psychological disorder	
Overtime	Number of overtime hours worked to replace workers who are absent for a psychological disorder X organization's average hourly wage	
Replacement workers • Human resource cost • Physical resource cost	Salary of workers who replace employees absent due to a psychological disorder	
	Cost of hiring workers who replace employees absent due to a psychological disorder	
	Cost of training workers who replace employees absent due to a psychological disorder	
	Cost of physical resources purchased for workers who replace employees absent due to a psychological disorder	
Salary and benefit savings while the position was vacant	Salary and benefits saved when workers who are absent due to a psychological disorder are not replaced	
Return to work • Gradual return • Assignment • Relapse • Accommodation	Cost associated with the gradual return of employees who were absent due to a psychological disorder (cost of management time, salary of the replacement worker if this person stays on the job during the employee's gradual return, etc.)	
	Cost associated with a temporary assignment following the return to work of employees who were absent due to a psychological disorder (e.g. cost of management time related to the temporary assignment)	
	Cost associated with the relapse suffered by employees who had been absent due to a psychological disorder (e.g. cost of management time related to the relapse)	
	Cost associated with accommodation measures taken following the return to work of employees who were absent due to a psychological disorder (e.g. cost of management time related to the accommodation measures, direct costs of the accommodation measures)	

Indicators	Elements Required to Obtain Results	Results (expressed in financial terms or otherwise)
Information management system for absenteeism data • Technical cost • Human resource cost	Cost of the computer system (cost of purchasing the system, maintenance cost, etc.) needed to manage absenteeism data X percentage of absences related to psychological disorders	
	Cost of the human resources needed to manage absenteeism data X percentage of absences related to psychological disorders	
Costs of managing disability cases • Administrative cost • Human resource cost	Administrative cost related to disability case management X percentage of absences related to psychological disorders	
	Cost of the human resources needed to manage disability cases X percentage of absences related to psychological disorders	
Medical expertise	Cost of medical expertise required following the absence of employees due to psychological disorders	
Quantitative work overload for colleagues	Data to be obtained using a questionnaire	
Indirect harm to work team	Data to be obtained using a questionnaire	
Sick leave	Total cost of sick leave days taken due to a psychological disorder	
Reduced work time	Data to be obtained using a questionnaire	
Loss of intellectual capital	Estimated cost of the loss of expertise related to employee departures due to a psychological disorder	

Presenteeism Costs

Indicators	Elements Required to Obtain Results	Results (expressed in financial terms or otherwise)
Increase in errors	Data to be obtained using a questionnaire	
Decrease in quality of production	Data to be obtained using a questionnaire	

Costs Common to Both Absenteeism and Presenteeism

Indicators	Elements Required to Obtain Results	Results (expressed in financial terms or otherwise)
Health insurance premium (individual or family plan) associated with the use of psychotherapeutic drugs	Percentage of the health insurance premium related to psychotherapeutic drugs	
Health insurance premium (individual or family plan) associated with alternative care	Percentage of the health insurance premium related to alternative care	
Employee assistance program (EAP)	Overall cost of the EAP X percentage of EAP consultations that are related to mental health problems at work	
External expertise	Cost of external expertise aimed at preventing, assessing or addressing mental health problems in the workplace	
Union leave time	Amount of time union authorities devote to mental health in the workplace X daily salary for union leave time	
Time devoted to mental health issues in the workplace • Meetings • Intervention • Prevention	Data to be obtained using a questionnaire	
Legal costs • Legal disputes • Grievances	Legal disputes: Legal costs + administrative costs (cost for leave time for people involved in legal disputes) of legal disputes linked to an absence due to a psychological disorder and/or to cases of an employee who is at work but whose performance is below expectations due to a workplace mental health problem	
	Grievances: Legal costs + administrative costs (cost for leave time for people involved in grievances) of grievances linked to an absence due to a psychological disorder and/or to cases of an employee who is at work but whose performance is below expectations due to a workplace mental health problem	
Loss of productivity	Data to be obtained using a questionnaire	
Prevention • Training • Interventions • Programs	Cost of all the organization's activities related to preventing mental health problems in the workplace (cost of developing the activity, cost of conducting it, etc.)	
	Cost of leave time for people participating in activities aimed at preventing mental health problems in the workplace	

Management Scorecard for the Self-Assessment Tool for Measuring the Costs of Work Stress

The results to be entered in the management scorecard are taken from the self-assessment form for measuring the costs of work stress.

Baseline Data

Required Information	Results
Annual number of absences related to a psychological disorder	
Total annual number of absences	
Total annual number of days lost due to psychological disorders	
Total annual number of days lost due to absenteeism (all causes)	
Number of regular employees (FTE) within the organization	
Total annual number of days worked	
Organization's average hourly wage	
Organization's annual sales	
Organization's annual profits	
Absenteeism rate	
Turnover rate	
Internal mobility rate	
Cost of staff turnover	
Prevalence of psychological distress	

Absenteeism Costs

Indicators	Results
Disability cost • External insurance • Self-insurance • Benefits	
Premium for workers compensation	
Overtime	
Replacement workers • Human resource cost • Physical resource cost	
Salary and benefit savings while the position was vacant	

Indicators	Results
Return to work • Gradual return • Assignment • Relapse • Accommodation	
Information management system for absenteeism data • Technical cost • Human resource cost	
Costs of managing disability cases • Administrative cost • Human resource cost	
Medical expertise	
Quantitative work overload for colleagues	
Indirect harm to work team	
Sick leave	
Reduced work time	
Loss of intellectual capital	

Total Absenteeism Costs	
Add up all the results of an economic nature	
Make a list of all the results of a non-economic nature	

Presenteeism Costs

Indicators	Results
Increase in errors	
Decrease in quality of production	

Total Cost of Presenteeism	
Add up all the results of an economic nature	
Make a list of all the results of a non-economic nature	

Costs Common to Both Absenteeism and Presenteeism

Indicators	Results
Health insurance premium (individual or family plan) associated with the use of psychotherapeutic drugs	
Health insurance premium (individual or family plan) associated with alternative care	
Employee assistance program (EAP)	
External expertise	
Union leave time	
Time devoted to mental health issues in the workplace • Meetings • Intervention • Prevention	
Legal costs • Legal disputes • Grievances	
Loss of productivity	
Prevention • Training • Interventions • Programs	

Total Cost of Indicators Common to Both Absenteeism and Presenteeism	
Add up all the results of an economic nature	
Make a list of all the results of a non-economic nature	

Costs of Work Stress: Summary Tables

Baseline Data

Information	Results
Annual number of absences related to a psychological disorder	
Total annual number of absences	
Total annual number of days lost due to psychological disorders	
Total annual number of days lost due to absenteeism (all causes)	
Absenteeism rate	
Turnover rate	
Prevalence of psychological distress	

Economic Costs

Categories	Results
Economic costs related to absenteeism	
Economic costs related to presenteeism	+
Economic costs common to both absenteeism and presenteeism	+
Total costs	=

Non-Economic Costs

Categories	Results
Non-economic costs related to absenteeism (list these costs)	
Non-economic costs related to presenteeism (list these costs)	
Non-economic costs common to both absenteeism and presenteeism (list these costs)	

Appendix 3

Baseline Data[12]

Required Information	Availability Within the Organization[13]		Comments
	Organization #1	*Organization #2*	
Annual number of absences related to a psychological disorder *Explanation*: For this baseline data, calculate the number of absences due to short- and long-term disability, specifically for a psychological disorder.	●	⊙	In order to obtain this information, the organization must know the reason for the absence. In general, the reason is only available after a certain number of days of absences, at which point the employer requires a medical certificate. It is usually impossible to know the reason for sick leave.[14] However, when a wage-loss insurance claim is made, it is considered a short-term disability, which could possibly become a long-term disability absence and then the reason for the absence would become available by means of the medical certificate.

[12] This baseline data is key information to obtain since it is the basis for calculating several indicators.
[13] Legend for the availability of information within the organization:
● : Information currently available.
⊙ : Information not currently available but could be obtained in the future.
❍ : Information not available and the organization has no way to obtain it.
N/A: Information not applicable to this organization.
[14] Periodic absences that do not usually require a medical certificate.

Required Information	Availability Within the Organization[13]		Comments
	Organization #1	*Organization #2*	
Total annual number of absences *Explanation*: For this baseline data, calculate the number of absences due to short- and long-term disability, taking into account all causes.	●	●	Absences are not reported in a consistent fashion between categories of employees, which would definitely affect the value of this baseline data. In some organizations, the total annual number of absences could be divided into two categories: short-term disability and long-term disability.
Total annual number of days lost due to psychological disorders *Explanation:* This is a matter of tracking the number of days lost due to absences attributable to short-term disability and absences attributable to long-term disability, specifically for a psychological disorder.	●	⊙	
Total annual number of days lost due to absenteeism (all causes) *Explanation:* This is a matter of tracking the number of days lost due to absences attributable to short-term disability as well as absences attributable to long-term disability, taking into account all causes.	●	●	

Required Information	Availability Within the Organization[13]		Comments
	Organization #1	*Organization #2*	
Number of regular employees (FTE) within the organization (FTE: full-time employees) *Explanation:* This data is expressed in terms of the number of full-time employees (FTE), as follows: FTE = total annual number of days worked / 220 working days (or the number of working days for the organization)	●	●	
Total annual number of days worked *Explanation:* For this baseline data, tabulate the total number of days worked by all employees within the organization during the year.	●	●	
Organization's average hourly wage *Explanation:* To obtain the value of this baseline data, add the salary of all employees in the organization and then divide by the number of full-time employees (FTE)	●	●	

Baseline Data[15]

Required Information	Definition	Availability Within the Organization[16]		Comments
		Organization #1	*Organization #2*	
Absenteeism rate	This rate may be calculated differently from one organization to another. As a result, it is important to know which calculation method organizations have adopted before using this indicator. In general, this rate is calculated based on the number of days lost or the number of absences. This rate generally includes short- and long-term disability and, in some cases, sick leave (if data is available).	●	⊙	Absences are not reported in a consistent fashion between job categories. For example, sick leave for trade employees (periodic absences that do not usually require a medical certificate) might be tracked in the organization's central system, while managers might not be required to report this information. Consequently, caution must be exercised when calculating the absenteeism rate within the organization, since it might vary or quite simply not be available for certain job categories.

[15] It is important to obtain this baseline data since it constitutes general information on work stress.
[16] Legend for the availability of information within the organization:
● : Information currently available
⊙ : Information not currently available but could be obtained in the future
❍ : Information not available and the organization has no way to obtain it
N/A: Information not applicable to this organization

Required Information	Definition	Availability Within the Organization[16]		Comments
		Organization #1	*Organization #2*	
Turnover rate	The turnover rate is calculated based on the number of people who have left the organization. It equals: Number of departures during the year X 100 / Average annual number of employees	●	●	
Internal mobility rate	This rate shows the movement of staff within the organization itself. It equals: Number of employee moves during the year X 100 / Average annual number of employees	⊙	⊙	This internal mobility rate can, for example, be linked to position attrition rules within the organization. This element must be taken into account when interpreting the value of the internal mobility rate.
Cost of staff turnover	The cost of staff turnover can be linked to numerous factors (all costs involved in hiring a new employee, the total costs for training this employee, etc.). For this indicator, refer to the organization's definition and take the elements included in this definition into account in order to interpret the value obtained.	❍	❍	The cost of staff turnover is not always available within organizations. Organizations may have certain elements to include in the calculation (e.g. training costs), but it is difficult to consider all the costs related to staff turnover. As an example, a position change may have numerous financial consequences for the organization, such as reduced or lost productivity, additional administrative costs, etc. These elements are sometimes difficult to evaluate and the amount of work required to obtain the information can be quite extensive.

Absenteeism Costs

Indicator	Definition	Availability Within the Organization[17]		Comments
		Organization #1	*Organization #2*	
Disability cost ▪External insurance ▪Self-insurance ▪Benefits	Workers' salaries, including benefits (QPP, employment insurance, etc.), paid by the employer during disablement periods due to a psychological disorder (self-insurance) and/or wage loss insurance premiums paid to an outside insurance company by the employer. By knowing what percentage of absences within the organization are related to psychological disorders, it would be possible to determine what proportion of these costs is attributable to psychological disorders.	● (Excluding the costs related to benefits)	N/A given the way disabilities are managed within this organization	<u>Disability cost (salary or insurance premium):</u> This cost will be dependent on how disabilities are managed. In fact, if the organization is affiliated with an external insurer to pay the employee's salary and the entire wage-loss insurance premium is paid by the employee, the employer will bear no direct cost for the absence. In cases where the employer pays the absent worker's salary, it appears relatively easy to obtain the costs specifically related to psychological disorders. However, when the employer is affiliated with an external insurer and the employee pays the wage-loss insurance premium, it is possible that the specific costs for psychological disorders would have to be assessed using a percentage (in those cases where the insurer does not separate the portion of the insurance premium associated with psychological disorders). <u>Disability cost (benefits):</u>

[17] Legend for the availability of the indicator within the organization:
● : Indicator currently available.
⊙ : Indicator not currently available but could be obtained.
❍ : Indicator not available and the organization has no way to obtain it.
N/A: Indicator not applicable to this organization.

Indicator	Definition	Availability Within the Organization[17]		Comments
		Organization #1	*Organization #2*	
				Again, the method used for managing disability cases would influence this cost. In fact, when the employee's salary is not paid directly by the organization (when the insurer pays the employee's salary), the employer also ceases to pay for the benefits (at least directly). In addition to the Quebec Pension Plan (QPP) and employment insurance (unemployment), all the other benefits (e.g. retirement plans) that continue to be paid by the employer during the employee's absence should also be considered (in cases where the employer pays the employee's salary directly).
Premium for workers compensation	Cost of workers compensation premium for workers with psychological disorders.	●	●	The cost of the premium to Quebec's CSST, for example, is readily available. However, since few cases related to psychological disorders are accepted and compensated by the CSST, it is possible that the cost of the premiums for this specific type of problem is zero.
Overtime	Overtime worked by other employees in order to carry out the work of employees who are absent due to psychological disorders.	❍	❍	Overtime data is usually available. However, it is very difficult to identify the overtime resulting directly from absences related to psychological disorders. Furthermore, overtime cannot really be attributed to one single element.
Replacement workers ▪Human resource cost: salary of the replacement worker, hiring costs (e.g. pre-employment tests) and training for	Indicator that includes two components: the human resource cost (replacement worker's salary, cost of hiring and training a replacement worker as a result of an employee's absence due to a psychological disorder) and the cost of physical resources purchased for the replacement worker (e.g. desk and computer).	⊙	❍	<u>Human resources</u>: Information about the cost of HR is more difficult to obtain. In fact, in order to establish this cost, we first need to identify the replacement worker who was hired following the absence of an employee (absence related to a psychological disorder). The methodology used would be a case-by-case approach, which involves a lot of time for the organization. Note also that the people in the organization who would likely be able to provide the information needed do not all have access to the reason for the absence. And finally, it is possible that some of the elements

Indicator	Definition	Availability Within the Organization[17]		Comments
		Organization #1	*Organization #2*	
the replacement worker ▪Physical resource cost: desk, computer				(e.g. the hiring cost) included in the HR cost are simply not tracked by the organization. In some organizations, where the employer does not assume the wage-loss insurance costs, the replacement worker's salary does not represent an extra expense for the employer. Physical resources: In general, when a person is absent, the replacement worker will use the absent employee's equipment and workspace. Thus, there would be no physical resources cost.
Salary and benefit savings while the position was vacant	Savings to the employer when a worker is absent due to a psychological disorder and is not replaced. The extent of these savings will depend on the company's disability plan (which pays for disability cases and resulting costs).	N/A	●	The methodology used to make this calculation would be considered on a case-by-case basis. We must also take into account the fact that when an employee is absent and is not replaced, colleagues could be asked to work overtime hours (refer to the *overtime* indicator), the sector could be forced to hire sub-contractors in order to complete the planned work or there could be lost productivity (refer to the *loss of productivity* indicator), etc. In other words, there could be other more indirect "costs" that must nevertheless be assumed by the sector or the organization.
Return to work ▪Gradual return ▪Assignment ▪Relapse ▪Accommodation	Gradual return: Aggregate costs of an employee's gradual return to work following an absence due to a psychological disorder. A gradual return involves an employee's progressive reintegration into their position. For example, someone who was absent due to a psychological disorder could work two days a week for the first two weeks	❍	❍	The methodology used to make this calculation would be considered on a case-by-case basis. It appears that information on management time devoted to return-to-work activities is more difficult to obtain since the time is not being tracked (at least not within the organizations we met with). What is more, even if a document that allowed management time to be tracked was provided, for example, to the absent worker's manager, the manager would not know the reason for the absence. As a result, it would be difficult to ask the

Indicator	Definition	Availability Within the Organization[17]		Comments
		Organization #1	*Organization #2*	
	following their return and gradually increase their work time to three or four days a week, and so on. Assignment: Aggregate costs of a temporary assignment when an employee returns to work following an absence due to a psychological disorder. A temporary assignment allows an employee to return to work even though they may not have completely recovered from their medical condition (in this case, a psychological disorder). At this point, the employee may be assigned tasks other than those they usually carry out or tasks that are part of their regular work but that will be modified for a given time period. Relapse: Aggregate costs of a relapse suffered by an employee who was previously absent due to a psychological disorder. In other words, the relapse in this case is characterized by the fact that an employee was off work due to a psychological disorder, returned to work for some time and was again off work due to the same psychological disorder. Accommodation: Aggregate costs of			manager to track this time uniquely for those cases related to psychological disorders. With regards to gradual returns, it is important to consider, in addition to management time, the salary of the replacement worker in cases where that person stays on the job during the employee's gradual return. In this situation, the employer will pay a salary surplus. With regard to accommodation in particular, the cost of certain programs paid for by the organization (e.g. the psychological support program for employees who are gradually returning to work following an absence related to a psychological disorder) could also be tracked.

Indicator	Definition	Availability Within the Organization[17]		Comments
		Organization #1	*Organization #2*	
	accommodation measures taken when an employee returns to work following an absence due to a psychological disorder. Accommodation measures can vary but they are essentially designed to allow an employee to return to work by taking their specific condition into consideration. For example, training an employee for a position other than the one they normally occupy (if they are unable to return to their regular position due to a psychological disorder) can constitute an accommodation measure.			
Information management system for absenteeism data ▪Technical cost ▪Human resource cost	Indicator that includes two components: the technical cost of managing disability cases (aggregate costs of computer system for managing absenteeism data) and the human resource cost (time devoted by an individual or individuals to managing absenteeism data). By knowing what percentage of absences within the organization are related to psychological disorders, it would be possible to determine what proportion of these costs is attributable to psychological disorders.	⊙	❍	Technical cost: It is difficult to obtain the cost of systems for managing absenteeism data, since often systems are integrated and manage more than just absenteeism data. HR cost: In some organizations, many people can be involved directly or indirectly in managing absenteeism data (a sector manager who must periodically complete an absenteeism report and send it to the human resources department, an employee from human resources who must validate the information, etc.). It is thus very difficult to track the time for all these people.

Indicator	Definition	Availability Within the Organization[17]		Comments
		Organization #1	*Organization #2*	
Costs of managing disability cases ▪ Administrative costs (communication, administration, follow-up) ▪ Human resource cost	Indicator that includes two components: the administrative cost of managing disability cases (communication, administration and follow-up) and the human resource cost (time devoted by an individual or individuals to managing disability cases). By knowing what percentage of absences within the organization are related to psychological disorders, it would be possible to determine what proportion of these costs is attributable to psychological disorders.	⊙	●	Administrative costs (communication, administration and follow-up) are very difficult to assess. What is more, in some cases they would be minimal. Human resources costs are relatively easy to estimate. However, we need to consider the fact that more time would be spent managing disability cases related to a psychological disorder. Consequently, if we want to know the cost for management time specifically related to psychological disorders, it appears important to attribute a higher percentage than the one resulting from absences (e.g. if 25% of absences are related to psychological disorders, then the expenses for managing disability cases for this type of absence will be higher than 25% of the total expenses).
Medical expertise	Cost of medical expertise sought following an employee's absence due to a psychological disorder.	●	●	This type of information is readily available. By looking for particular cases, it would be possible to obtain information specifically for psychological disorders.
Quantitative work overload for colleagues	Cost of the quantitative work overload for colleagues resulting from the absence of an employee due to a psychological disorder (not to be confused with overtime).	N/A for the moment		As revealed in the case of the following indicators, some information will be obtained using a questionnaire. (The questionnaire will be developed during a later phase of the project.) The quantitative work overload for colleagues is information that will be obtained using this questionnaire.
Indirect harm to work team	Impact on the work team when an employee is absent due to a psychological disorder.	N/A for the moment		Information to be obtained using a questionnaire (questionnaire to be developed at a later date).
Sick leave	Total cost of sick leave days taken for a psychological disorder	❍	❍	It is possible, in some cases, to obtain the number of sick days taken. However, the reason for the absence is not usually available since a medical certificate is not required for sick leave.

Indicator	Definition	Availability Within the Organization[17]		Comments
		Organization #1	*Organization #2*	
Reduced work time	Estimated number of hours not worked each day due to the occurrence of a psychological disorder (e.g. an employee who leaves two hours before the end of the shift).	N/A for the moment		Data to be obtained using a questionnaire (questionnaire to be developed at a later date).
Loss of intellectual capital	Cost of expertise lost due to the departure of an employee (temporary absence or permanent departure from the organization) due to a psychological disorder.	❍	❍	It is very difficult to obtain this indicator. Furthermore, it appears that loss of expertise varies based on several factors, including the experience and competency of the replacement worker, the type of position occupied by the person leaving the organization (e.g. the more specialized and unique the position, the greater the loss of expertise that results from the employee's departure). It should also be noted that the employer or manager does not always know the exact reason for the departure. As a result, even if we ask a manager to assess the expertise lost due to the departure of an employee from their sector, it would be difficult, or even impossible, to assess this indicator specifically for a case related to a psychological disorder.

Presenteeism Costs

Indicator	Definition	Availability Within the Organization [18]		Comments
		Organization #1	*Organization #2*	
Increase in errors	Cost associated with the fact that the employee is at work but their performance is below expectations (increase in errors) due to a work-related mental health problem.	N/A for the moment		Data to be obtained using a questionnaire (questionnaire to be developed at a later date).
Decrease in quality of production	Cost associated with the fact that the employee is at work but their performance is below expectations (decrease in quality of production) due to a work-related mental health problem.	N/A for the moment		Data to be obtained using a questionnaire (questionnaire to be developed at a later date). According to a comment made by one of the organizations, it seems that production quality is particularly affected by the mental health of employees. What is more, production would be reduced well before the employee is "officially" affected by a psychological problem.

[18] Legend for the availability of the indicator within the organization:
● : Indicator currently available.
⊙ : Indicator not currently available but could be obtained.
❍ : Indicator not available and the organization has no way to obtain it.
N/A: Indicator not applicable to this organization.

Costs Common to Both Absenteeism and Presenteeism

Indicator	Definition	Availability Within the Organization[19]		Comments
		Organization #1	*Organization #2*	
Health insurance premium (individual or family plan) associated with the use of psychotherapeutic drugs	Portion of health insurance premium paid by the employer, specifically for psychotherapeutic drugs.	⊙	⊙	Generally speaking, the organization's health insurance provider has information on drug use, by broad therapeutic category. The supplier could provide the organization this type of information in a report. The insurer can be asked to provide the portion of the health insurance premium used specifically for psychotherapeutic drugs. However, it is important to note that information about the use of psychotherapeutic drugs, obtained by the health insurance provider, usually includes prescriptions for the employee and their family members (in the case of a family plan). Furthermore, this information does not explain the relationship between drug use and work.
Health insurance premium (individual or family plan) associated with	Portion of health insurance premium paid by the employer for alternative care (massage, naturopath, etc.).	⊙	⊙	The insurer can be asked to provide the portion of the health insurance premium used specifically for alternative care.

[19] Legend for the availability of the indicator within the organization:
● : Indicator currently available.
⊙ : Indicator not currently available but could be obtained.
❍ : Indicator not available and the organization has no way to obtain it.
N/A: Indicator not applicable to this organization.

Indicator	Definition	Availability Within the Organization[19]		Comments
		Organization #1	*Organization #2*	
alternative care				
Employee assistance program (EAP)	Overall cost of running the EAP. The reasons for consultations within the scope of this assistance program could help determine the proportion of costs attributable to mental health problems in the workplace.	●	●	Generally speaking, the EAP supplier produces an annual report that provides the reasons for consultations. By using the amount the organization pays the EAP annually and the reasons for consultations, it is relatively easy to obtain the portion of the EAP costs related to psychological health problems at work.
External expertise	Cost of external expertise (e.g. *stress audit*) aimed at preventing, assessing or addressing mental health problems in the workplace.	●	●	Overall, it appears easy to obtain this type of data. It is a matter of calculating the cost of external experts hired specifically with a view to preventing, assessing or addressing mental health problems in the workplace. As an example, *stress audits* conducted in certain organizations and interventions related to conflict management in a work team could be elements included in this indicator.
Union leave time	Amount of time union authorities devote to mental health in the workplace.	⊙	⊙	On the whole, union leave time is a known factor. However, it is difficult to determine with any certainty the time that union authorities devote to mental health in the workplace. In this case, it would be possible to ask the union authorities about the approximate portion of leave that deals with psychological health at work (e.g. X% of work time related to psychological health). This way, a cost estimate could be obtained for this indicator.
Time devoted to mental health issues in the workplace ▪Meetings ▪Intervention ▪Prevention	Amount of time various stakeholders devote to mental health in the workplace. This time may be spent in meetings or on intervention and prevention. This indicator does not include time already tracked in previous indicators.	N/A for the moment		Data to be obtained using a questionnaire (questionnaire to be developed at a later date). For this indicator, the term "stakeholder" does not refer solely to managers. The time devoted by other stakeholders concerned with mental health issues in the workplace (e.g. human resource counsellors and supervisors) should also be taken into account.

Indicator	Definition	Availability Within the Organization[19]		Comments
		Organization #1	*Organization #2*	
				Note that, in general, it is difficult to evaluate this time since it is not being tracked (at least within the organizations we met with).
Legal costs ▪Legal disputes ▪Grievances	This indicator includes two components: ▪Legal disputes: Legal and administrative costs associated with an absence due to a psychological disorder and/or with an employee who is at work but whose performance is below expectations due to a workplace mental health problem (presenteeism). ▪Grievances: Legal and administrative costs associated with an absence due to a psychological disorder and/or with an employee who is at work but whose performance is below expectations due to a workplace mental health problem.	⊙	⊙	Legal costs are apparently somewhat rare for cases related to psychological health in the workplace. However, if there were any costs, a case-by-case approach would be adopted to obtain this information. With regard to administrative costs, it would be a matter of tracking the leave time for people involved in legal disputes or grievances that are related to psychological health problems at work.
Lost opportunities	Lost opportunities represent all of the costs associated with work stress since these are amounts that cannot be invested in the organization's day-to-day business.	N/A for the moment		This cost is obtained after the cost for all the other indicators is estimated.
Loss of productivity	Estimated loss of productivity resulting from mental health problems in the workplace. This loss of productivity can be expressed in	N/A for the moment		Lost productivity can be difficult to assess. Nevertheless, in some organizations that have objective information on this aspect of production, the organization or the sector could perhaps, for instance, account for the reduced productivity of an employee.

Indicator	Definition	Availability Within the Organization[19]		Comments
		Organization #1	*Organization #2*	
	terms of aspects such as production objectives or deadlines that are not met, unfinished projects, production deficiencies (e.g. errors), service retakes and customer complaints.			However, it would most likely be impossible to determine the exact reason for this declining performance (and thus associate it specifically with the presence of a psychological health problem). What is more, as previously mentioned, the exact reason for the absence (diagnostic) or the nature of the problems being experienced by an employee at work are not necessarily known by managers. It would be more difficult, or even impossible, to estimate lost productivity caused specifically by psychological health problems at work. For these reasons, this indicator will be assessed using a questionnaire (questionnaire to be developed at a later date).
Prevention ▪Training (e.g. managing work attendance) ▪Interventions ▪Programs	Cost associated with the prevention of work-related mental health problems within the organization (cost of prevention activities and freeing up staff). This cost can be related to training activities, intervention and other programs designed to prevent mental health problems within the organization.	⊙	⊙	Cost of prevention activities: This cost can be obtained by grouping together all the organization's activities with regard to preventing psychological health problems at work. This indicator can be obtained relatively easily if the organization has a budget earmarked specifically for psychological health in the workplace. However, if all the activities related to preventing mental health problems are not being tracked in a "central file," this indicator will be more difficult to obtain since the information would first have to be compiled. Cost of leave for people who are participating in prevention activities. The data on staff leave is usually available. However, extensive work would be required to collect this data if the information is not being tracked in a central file.

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