Journal of Occupational Health Psychology
2013, Vol. 18, No. 1, 75–86

1076-8998/13/$12.00 DOI: 10.1037/a0030932

Presenteeism and Absenteeism: Differentiated Understanding of Related Phenomena

Eric Gosselin
University of Quebec in Outaouais

Louise Lemyre and Wayne Corneil
University of Ottawa

In the past it was assumed that work attendance equated to performance. It now appears that health-related loss of productivity can be traced equally to workers showing up at work as well as to workers choosing not to. Presenteeism in the workplace, showing up for work while sick, seems now more prevalent than absenteeism. These findings are forcing organizations to reconsider their approaches regarding regular work attendance. Given this, and echoing recommendations in the literature, this study seeks to identify the main behavioral correlates of presenteeism and absenteeism in the workplace. Comparative analysis of the data from a representative sample of executives from the Public Service of Canada enables us to draw a unique picture of presenteeism and absenteeism with regards not only to the impacts of health disorders but also to the demographic, organizational, and individual factors involved. Results provide a better understanding of the similarities and differences between these phenomena, and more specifically, of the differentiated influence of certain variables. These findings provide food for thought and may pave the way to the development of new organizational measures designed to manage absenteeism without creating presenteeism.

Keywords: presenteeism, absenteeism, health problems, individual and organizational factors

Health-related costs are expensive and growing rapidly, largely because of the aging of the working population. These costs have social repercussions given their impact on the economy, and also on organizations having to cope with more frequent long-term absences (Meerding, Ijzelenberg, Koopmanchap, Severens, & Burdorf, 2005). Significant productivity losses due to absenteeism, traditionally resulting from major or even chronic health problems, are now associated with common health problems (Barnes, Buck, Williams, Webb, & Aylward, 2008). Although it is now estimated that growing absenteeism is in large measure linked to psychological disorders, companies will have to be more proactive in their efforts to ensure the well-being of their employees.

Eric Gosselin, Department of Industrial Relations, LAPS^2 Research Unit, University of Quebec in Outaouais, Gatineau, Quebec, Canada; Louise Lemyre and Wayne Corneil, GAP-Santé Research Unit, Institute of Population Health, School of Psychology, University of Ottawa, Ottawa, Ontario, Canada.

We thank the Social Sciences and Humanities Research Council (SSHRC) as well as the Association of Professional Executives of the Public Service of Canada (APEX) for their financial support and collaboration which made this study possible. We also wish to thank Professor Normand Laplante, Department of Industrial Relations at University of Quebec in Outaouais and the anonymous reviewers for many judicious comments on an initial draft of this article.

Correspondence concerning this article should be addressed to Eric Gosselin, Département de relations industrielles, Université du Québec en Outaouais, Pavillon Alexandre-Taché, 283, boul, Alexandre-Taché, Case postale 1250, Gatineau, Québec, Canada J8X 3X7. E-mail: eric.gosselin@uqo.ca

Beyond the well-documented impacts of absenteeism, different causes of health-related unproductiveness need to be considered (Zhang, Bansback, & Anis, 2011). The impacts of ill-health have an increasing effect on organizations, not simply due to missing work (Demerouti, LeBlanc, Bakker, Schaufeli, & Hox, 2009). Although a majority of sick workers will be absent from work, a growing number of them will show up for work in spite of their medical condition. Thus, presenteeism is characterized by a behavior according to which a worker, although impaired by physical or psychological health problems, comes to work regardless (Gosselin & Lauzier, 2011).

Until recently, the concept of presenteeism was largely ignored in the assessment of human efficiency in companies. Over the last years, however, this concept has quickly gained in credibility within the scientific community while raising numerous questions among corporate executives. While research was underway to both define the phenomenon and identify its determinants, it became clear that this concept should not be examined in isolation and that the significant knowledge acquired through absenteeism-related research should be tapped (Johns, 2010). Isolated research efforts are being replaced now by joint model building exercises related to both presenteeism and absenteeism phenomena (e.g., Baker-McClearn, Greasley, Dale, & Griffith, 2010; Böckerman & Laukkanen, 2010a; Elstad, 2008; Johns, 2011; MacGregor, Cunningham, & Caverley, 2008). The notions should not be seen as two sides of the same coin, because they are intimately related by determinants leading to the decision to stay home or go to work during illness. Recent evidence suggests that these phenomena could be intrinsically linked together by the influence of common determinants (complementary hypothesis; Johns, 2010) or form part of a dualistic logic where the decision to do one may possibly lead to the avoidance of the other (substitution hypothesis; Caverley, Cunningham, & MacGregor, 2007). The pres-

ent understanding of the mechanisms leading to such behaviors, however, is still limited (Hansson, Boström, & Harms-Ringdahl, 2006).

Against this backdrop, the purpose of this study is to clarify the role of groups of individual and organizational variables leading to presenteeism and absenteeism behaviors. More specifically, this research attempts to identify the links between distinct health problems, individual factors, organizational factors, and varied demographic indicators leading to the occurrence of presenteeism and/or absenteeism behaviors. In accordance with recent theoretical modeling using a decision-making framework that takes into account the centrality of the cognitive choice (Johns, 2010; Martinez & Ferreira, 2012), the proposed model delineates the role of diverse families of variables in predicting either presenteeism or absenteeism behavior. This study represents a concrete effort at improving the understanding of presenteeism/absenteeism dynamics by examining the undercurrents between factors shared by those competing or complementary behaviors.

Conceptual Framework

Whereas traditional estimates of health-related costs in the workplace have primarily focused on the direct and indirect losses due to absenteeism, these estimates must now take into account presenteeism behavior (Demerouti et al., 2009). Many confirm that productivity losses resulting from presenteeism may indeed be more significant than those caused by absenteeism (Schultz & Edington, 2007). The presenteeism phenomenon is more insidious and harder to estimate than absenteeism in terms of its real impact on organizational productivity (Brooks, Hagen, Sathyanarayanan, Schultz, & Edinton, 2010). Its occurrence may result in collateral impacts including, for example, an increase in contamination risks, longer convalescence leave, or future absenteeism behaviors (Gustafsson & Marklund, 2011; Kivimäki et al., 2005). Researchers now call for a joint conceptualization of these behaviors to capture their dynamic interplay as well as their common repercussions (e.g., Johns, 2010).

Presenteeism

Recently there has been a renewed interest in the presenteeism phenomenon with the first systematic studies providing theoretical support for this work-related behavior. Two interdependent research traditions are emerging to frame the topic (Johns, 2010). European researchers (e.g., Aronsson, Gustafsson, & Dallner, 2005; Hansen & Andersen, 2008) are focusing on the understanding of the presenteeism determinants by exploring the diverse factors leading to personal decisions. North American researchers (e.g., Caverley, Cunningham, & MacGregor, 2007; Koopman et al., 2002) are focusing more on the consequences of these behaviors. These studies delve into the quantification of productivity losses related to various illnesses that are manifest in presenteeism.

Despite terminology variants (Bierla, Huver, & Richard, 2010), researchers now agree on the following definition for presenteeism: "the phenomenon of people who, despite complaints and ill health that should prompt rest and absence from work, are still turning up at their jobs" (Aronson, Gustafsson, & Dallner, 2000, p. 503). Presenteeism is then "going to work despite illness" (Bergström, Bodin, Hagberg, Aronsson, & Josephson, 2009a, p. 1179). Whereas at first presenteeism was regarded as marginal and found only in a minority of workers, studies now reveal a more widespread phenomenon. Significant numbers of workers come to work ill (Hansen & Anderson, 2008; Rosvold & Bjertness, 2001), and presenteeism manifests itself indiscriminately across occupational groups (Dew, Keefe, & Small, 2005) resulting in substantial productivity losses (Goetzel et al., 2004).

The more recent studies of presenteeism focus on attempts to explain the phenomenon and assess its significance and its determinants. Models are emerging to systematically incorporate the information already available and to formulate theoretical insights about the relationships between a growing number of possible determinants of this organizational behavior. Three of these models are worth looking at. First, the Aronsson and Gustafsson (2005) model identified presenteeism behavior as part of the decision process framing the choice whether or not to go to work. Hansen and Andersen (2008) expanded on this model, schematizing the impact of organizational and individual factors in the behavioral choices dynamic. Finally, Johns's recent synthesis model (2010) puts forward a systemic perspective on presenteeism by demonstrating the possible behavioral retroactions on presenteeism and subsequent occurrences of absenteeism. It is worth noting that these models concur in identifying specific health problems as primary presenteeism determinants, whereas individual and organizational factors are the decision levers determining the choice to come to work in spite of illness (Gosselin & Lauzier, 2011).

Three areas of research are contributing to a more complete understanding of the origins of presenteeism. At first, there was an interest in the disorders contributing to presenteeism. It is now known that musculoskeletal problems (Aronsson, Gustafsson, & Dallner, 2000), depression, and anxiety disorders (Druss, Schlesinger, & Allen, 2001; Sanderson, Tilse, Nicholson, Oldenburg, & Graves, 2007) have the greatest impact on the frequency of presenteeism. That being said, other ailments such as allergies, asthma, headaches, digestive problems, and burnout can also be conducive to presenteeism behavior (Goetzel et al., 2004).

The other two areas of research are related to demographic and organizational factors. Among the most important personal predictors of presenteeism behavior, we find gender (Aronsson & Gustafsson, 2005), age (Bellaby, 1999; Aronsson & Gustafsson, 2005), job satisfaction (Caverley, Cunningham, & MacGregor, 2007; Dew, Keefe, & Small, 2005), stress (Elstad & Vabo, 2008; MacGregor, Cunningham, & Caverley, 2008) and family status (Hansen & Andersen, 2008). Knowledge regarding the influence of the organizational environment has also significantly progressed, now that employment security (Virtanen, Kivimäki, Elovainio, Vahtera, & Cooper, 2001; Caverley, Cunningham, & MacGregor, 2007; Hansen & Andersen, 2008), work schedules (Böckerman & Laukkanen, 2010b), workload (Aronsson & Gustafsson, 2005; Lowe, 2002), managerial support (Caverley, Cunningham & MacGregor, 2007), work monitoring (Aronsson & Gustafsson, 2005; Johansson & Lundberg, 2004), group cohesion (Dew, Keefe, & Small, 2005; Grinyer & Singleton, 2000; Hansen & Andersen, 2008), corporate culture (Johansson & Lundberg, 2004; McKevitt, Morgan, Dundas, & Holland, 1997), leadership style (Nyberg, Westerlund, Magnusson Hanson, & Theorell, 2008) and the type of employment (Aronsson &

Gustafsson, 2005; Koopman et al., 2002) are recognized as major determinants of presenteeism tendencies.

Absenteeism

Unlike the present situation with presenteeism, absenteeism has long been a preoccupation of organizations and one of the oldest research topics in the field of work and organization psychology (Johns, 2003). Over the last 40 years, hundreds of studies have examined this phenomenon and attempted to understand not only the determinants, but also the consequences of such behavior—both unavoidable and undesirable (Rhodes & Steers, 1990). In the literature, there is general agreement on the definition of absenteeism as being "a lack of physical presence at a behavior setting when and where one is expected to be" (Harrison & Price, 2003, p. 204). However, despite a marked interest in the topic and the development of intervention strategies, absenteeism still remains an organizational problem in numerous countries (Bacharach, Bamberger, & Biron, 2010; De Paola, 2010).

A number of explanatory theories and variants have been proposed to define the scope of absenteeism behavior at work (Laaksonen, Pitläniemi, Tahkonen, & Lahelma, 2010) with the most recent studies revealing significant progress in the understanding of the issue (Harrison & Martocchio, 1998; Johns, 1997; Steel, 2003). Most researchers used the decision choice paradigm (Rentsch & Steel, 2003), taking different tracks in an attempt to explain this behavior (e.g., withdrawal model, adjustment-to-work model, conflict model). Some integrated models (e.g., Nicholson attendance motivation model, Steers and Rhode model, and Brooke and Price model of absenteeism) have also been suggested to account for the key determinants of absenteeism and their interactions.

Five of the numerous variables concerning absenteeism have drawn the most attention by researchers (Harrison & Martocchio, 1998). The key absenteeism determinants have been identified as the sociodemographical indicators, personality, workplace behavior, social context, and the decision process itself. More specifically, studies have highlighted the contributions of low job satisfaction and low organizational commitment as stepping stones toward absenteeism (Punnett, Greenidge, & Ramsey, 2007).

Even though a number of models have successfully portrayed absenteeism behavior, many admit that the predictive capacity of these models is limited (Harrison & Martocchio, 1998). Absenteeism is, therefore, a human resources management problem that concerns managers as well as researchers (Erickson, Nichols, & Ritter, 2000; Sagie, 1998). Absenteeism is a multiple and complex phenomenon still requiring substantial investigation (Johns, 2003).

Conceptual Model and Hypotheses

Following the research on each of these behaviors and with a view to formulating a combined modeling of presenteeism and absenteeism, Figure 1 depicts the explanatory model used in this study.

This model underlies one exploratory proposition concerning the influence of health problems on both behaviors and four specific research hypotheses linked to each set of variables studied.

> P1: It is possible to note differences in the nature of health problems as the origin of presenteeism and absenteeism behaviors.

Health problems are the primary cause of productivity loss by presenteeism and absenteeism behaviors (Johns, 2010). For this reason, these health variables attracted lots of attention for their capacity to predict absenteeism/presenteeism behaviors. Many studies report the main health problems responsible for absenteeism and some are doing so for presenteeism. For example, back pain, drinking problems, headaches, and psychological disorders have been regularly linked to absenteeism (Johns, 1997). The health antecedents of presenteeism behaviors are possibly related to allergies, arthritis, chronic pain, diabetes, gastrointestinal conditions, and mental health (Schultz & Edington, 2007). Few studies though have investigated the influence of health problem on presenteeism and absenteeism simultaneously in a unique work setting. Because the influence of the kind of illness could be related to the nature of the job and the characteristics of the workers, a research design is needed to better understand the particular effect of each disorder on specific work attendance behaviors. With reference to this, Hansson, Boström, and Harms-Ringdahl (2006) showed distinctions for workers with neck/back pain and MacGregor, Cunningham and Caverley (2008) identified heart condition to be strictly an antecedent of absenteeism.

> H2: There is a specific set of demographic characteristics significantly linked to presenteeism and absenteeism behaviors.

> H3: There is a specific set of individual factors significantly linked to presenteeism and absenteeism behaviors.

> H4: There is a specific set of organizational factors significantly linked to presenteeism and absenteeism behaviors.

Until now, few studies have tested simultaneously models of multiple determinants of presenteeism and absenteeism behaviors. As pointed out by Johns (2010), there is a need to study both behaviors in a logic of attendance dynamics. Of note, researchers who have found results are prompted to identify a differential set

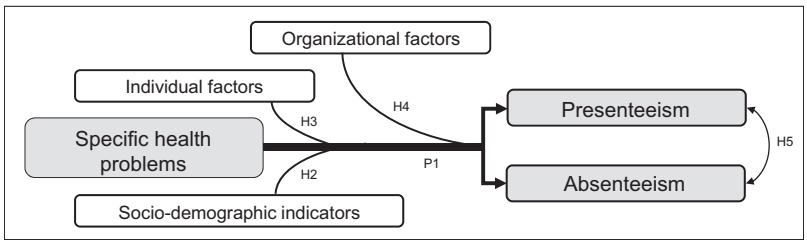

Figure 1. Conceptual model of presenteeism and absenteeism behaviors.

of variables responsible for the origin of presenteeism and absenteeism. Recent studies have shown some unique effects of personal characteristics and work experience factors on the pattern of attendance dynamics (Caverley, Cunningham, & McGregor, 2007).

Johns (2011) observed that age, the presence of young children, and ease of replacement influence positively the number of days of presenteeism without effect on absenteeism. Moreover, job security, absence legitimacy, and absence of equity had a negative effect on presenteeism and no effect on absenteeism. For Rantanen and Tuominen (2011), presenteeism is associated separately with less job satisfaction, more colleagues in the same department and one-shift work. Finally, Bierla, Huver, and Richard (2010) identified high cost for absence leave, responsibilities for a team, and age as factors predominantly linked to presenteeism.

H5: There is a significant interrelation between the number of behaviors of presenteeism and absenteeism.

H5a: A positive and significative relation exist between presenteeism and absenteeism behaviors.

H5b: A negative and significative relation exist between presenteeism and absenteeism behavior.

Two competitive hypotheses are postulated to understand the relationship between absenteeism and presenteeism. The first one formulates that these two behaviors are primarily related to the overall health state of the worker. Thus, for the complementary hypothesis, the two behaviors are positively associated with each other. The second hypothesis (substitution hypothesis) principally concerns the use of presenteeism as a replacement of the absenteeism behavior. In this case, variables such job insecurity or ease to take sick absence will be keys to the decisional process. Few studies have done a real test of the validity of each of these possible relations. Those that did present results that show moderate but positive correlations between presenteeism and absenteeism behaviors (Caverley, Cunningham & MacGregor., 2007; Johns, 2011; MacGregor, Cunningham & Caverley, 2008).

Methodology

The survey conducted by the Association of Professional Executives of the Public Service of Canada (APEX) provided an opportunity to empirically document management presenteeism and to distinguish it from reported absenteeism.

Participants

The surveyed population included 3,670 senior executives from the Public Service of Canada. Of the 3,670 questionnaires distributed, 1,730 were voluntarily completed and returned and were used for statistical analyses. This represents a response rate of 47%, which is quite acceptable when compared to the rates obtained by surveys using similar methodologies. The sample was made up of 67.4% men and 32.6% women with an average age of 50.4 years. 86% of the respondents were in a spousal relationship and of those, 57.5% were responsible for at least one child. They have an average of, 23.3 years of service and have had managerial responsibilities for 7.6 years. Of note, respondents came from all the provinces and territories of Canada, thus ensuring that the study provided a Canada wide perspective.

As regards to information provided by APEX related to the characteristics of all of the federal public service executives, it appears that our sample's characteristics match those of the population being studied. In fact, the distribution relating to gender, hierarchical levels, and age is very similar (Treasury Board, 2002). This validates the representativeness of our sample and provides the possibility to generalize the results for the population being studied.

Measures

To ensure measurement reliability and comparability with results of previous studies, the various instruments used already existed, notably used by the National Institute for Occupational Safety and Health, and demonstrated acceptable psychometric attributes. The choice of each scale was based on the research objectives and the predetermined validity of the metrics. Below all the measurements are presented according to the chronological order of the model being tested.

Specific Health Problems

The health problems specific to each respondent were measured with a predetermined checklist of 22 common ailments that had been diagnosed or treated during the previous 12-month period ("Please indicate if over the past 12 months, a physician or other health professional has treated you for or told you that you have any of the following medical conditions"). The list of ailments was drawn from the instrument used by the Canadian Community Health Survey and developed by Statistics Canada. For analytical purposes, only those ailments with a 4% or higher occurrence rate were included, ensuring that a least 70 respondents had that particular ailment. This cut-off was determined on a rational basis after multiples analysis and to prevent identification of false negatives due to a lack of statistical power. This reduced the initial 22 ailments to 10 ailments. These ailments were allergies (food and others; 12.1%), asthma (7.6%), arthritis/rheumatism (7.1%), backaches (20.5%), blood pressure problems (17.2%), heart condition (5.8%), gastritis (5.8%), insomnia (8.8%), thyroid problems (4.8%), and emotional problems (5.7%).

In addition, a comorbidity indicator was calculated to take into account the joint occurrence of two or more of these 10 ailments. This dichotomous variable distinguishes those suffering from a single ailment (31.4%) from those suffering from multiple ailments (more than two) simultaneously (24.2%). It is worth noting that 44.4% of our respondents indicated they suffered from none of the problems listed.

Demographic Factors

The demographic characteristics of respondents were obtained through single issue questions. Gender and marital status were measured following a dichotomous logic (male/female—couple/single) from a classification by category. Age was drawn from the year of birth. As for parental responsibility, respondents had to indicate, from an open question, the number of children less than 18 years of age under their custody at the time they completed the survey.

Individual Factors

Job satisfaction. The information on job satisfaction is based on a scale of eight items developed by Duxbury and Higgins (2003). This scale establishes a global job satisfaction indicator based on a 5-point scale (*very satisfied* to *very dissatisfied*) of various aspects of present job (e.g., "To what extent are you satisfied with training and development opportunities offered by your organization?"). This scale has good psychometric attributes with an internal consistency of .88 (Duxbury & Higgins, 2003). In this study, a Cronbach's alpha of .81 is observed.

Organizational commitment. The Meyer, Allen, and Smith (1993) Affective Commitment Scale was used to measure the level of commitment of our participants. This scale contains six items (e.g., "This organization has a great deal of personal meaning for me"), measured according to 7 levels ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Numerous studies (Tayyab, 2007) have used this scale to capture the attitude toward commitment. An internal consistency of results of .86 was obtained, which compares well with results obtained in previous studies.

Psychological stress. Psychological stress was measured using an abridged version of the Psychological Stress Scale (Lemyre, Tessier, & Fillion, 1990). This set of nine questions (e.g., "I feel preoccupied, tormented or worried") captures the level of psychological stress felt by the respondent over the previous five days. Participants had to assess the importance of each of the statements according to eight levels ranging from 1 (*not at all*) to 8 (*extremely*). Studies having used such a scale confirm the psychometric qualities of the measurements (Lemyre & Benzimra, 2000). Our sample produced an alpha of .88.

Organizational Factors

All the organizational factors of the study, with the exception of the number of hours worked, were measured using the Generic Job Stress Questionnaire developed by Hurrell and McLaney (1988). This questionnaire, based on studies done by the National Institute for Occupational Safety and Health, was used in numerous studies and accounts for the measurement of 26 work environment characteristics. The modular nature of the questionnaire enables the use of only a few subscales of the original global questionnaire (Murphy, 2005). For this study, five of those subscales were used. These subscales capture the reality associated with control over tasks (three items; e.g., "How much influence do you have over the order in which you perform tasks at work?"); responsibilities (four items; e.g., "What is your responsibility with regards to others' future?"); work group-related conflicts (three items; e.g., "There is dissension in my work group?"); manager's support (two items; e.g., "How much can your immediate supervisor be relied on when things get tough at work?"); and colleagues support (three items; e.g., "How much are colleagues at work willing to listen to your personal problems?"). Each response was tied to a five-level scale ranging from 1 (*rarely*) to 5 (*very often*). The overall psychometrical qualities of this questionnaire are excellent (Hurrell, Nelson, & Simmons, 1998; Sakai et al., 2005), particularly those of the subscales used (Murphy, 2005). The internal consistency coefficients (Cronbach's alpha) observed in these subscales are appropriate because they range from .78 to .82.

The number of work hours was measured using two open questions with single item asking respondents to indicate the approximate weekly number of hours devoted to work activities at the office ("Normally, how many hours a week do you spend on office related work?") and at home ("How many hours a week do you spend at home on office-related work, in addition to normal working hours at work?"). The addition of these two responses provided a reliable indicator of the total number of hours dedicated to work each week. For analyses purposes, this variable was dichotomized on the median, thus sorting respondents between those spending 53 hr/week on work-related activities and those who invested more than 53 hr/week in their professional activities.

Presenteeism and Absenteeism

In accordance with studies dealing with the same topic, presenteeism and absenteeism were measured by asking respondents to state how frequently these behaviors happened in a given period. Because it is harder to remember presenteeism occurrences, this behavior's frequency was measured on a monthly average over the previous 6 months ("Over the last six months, how many days a month did you show up for work when you felt physically ill?"), whereas the reference period for absenteeism covered the previous year, which is usually the norm ("How many days of sick leave did you take during the last year?"). However, presenteeism data was later annualized in the analyses to make it easier to compare with findings on absenteeism. After removing outliers data over 3 standard deviations (presenteeism = $\pm$43.57; absenteeism = $\pm$12.53), the range of annualized findings on presenteeism varied from 0 to 124 days (M = 22.4; 2% of the sample removed), whereas that of absenteeism varied from 0 to 39 days (M = 2.95; 1.7% of sample removed).

Contrary to previous studies (e.g., Böckerman & Laukkanen, 2010a; Böckerman & Ilmakunnas, 2008), which used data on presenteeism and absenteeism in a dichotomous format, the statistical analyses employed in this study managed to retain the original nature by using data transformation. Specifically, the traditional dichotomization of the presenteeism and absenteeism data comes from the abnormal distribution of these variables, which feature off-norm skewness and kurtosis coefficients (Steel, 2003). In both cases, these phenomena have a logarithmic distribution thus potentially limiting their use. To maximize the use of these data, and to avoid the loss of information through the use of a dichotomization of the type "a little/a lot," the data distribution was modified for both presenteeism and absenteeism. As suggested by Tabachnick and Fidell (2006) and used by Rudd et al. (1987), a logarithmic correction enabled adjustment of the distributions within acceptable boundaries of normality ($\pm$1 skewness/kurtosis). Thus, subsequent statistical analyses used to verify our research hypotheses will refer to the transformed data for both presenteeism and absenteeism.

Results

A two-step analysis strategy was used to verify our research hypotheses. A correlation matrix was first designed. Table 1 illustrates the descriptive characteristics and the correlations between the variables of the conceptual model for our sample. Then, two parallel hierarchical regression analyses were performed to understand the particular links between each set of variables and the presenteesim and absenteeism behavior (see Table 2). Health prob-

Table 1
Descriptive Statistics and Correlations

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Presenteeism	[—]														
2. Absenteeism	.162**	[—]													
3. Responsibilities	.043	−.122	[.79]												
4. Intragroup conflict	.134**	.054*	.025	[.80]											
5. Work control	−.158**	−.023	.143**	−.161**	[.81]										
6. Supervisor support	−.111**	−.086**	−.033	−.218**	.198**	[.82]									
7. Peer support	−.165**	−.086**	.034	−.297**	.197**	.373**	[.78]								
8. Job satisfaction	−.225**	−.067**	−.013	−.244**	.471**	.421**	.349**	[.81]							
9. Commitment	−.139**	−.161**	.103**	−.206**	.210**	.321**	.324**	.397**	[.86]						
10. Psychological stress	.367**	.126**	.008	.248**	−.371**	−.265**	−.253**	−.497**	−.208**	[.88]					
11. Age	−.130**	−.027	.050*	−.100**	.145**	−.005	.005	.081**	.120**	−.174**	[-]				
12. Gender	−.080**	−.067**	.010	.001	.060*	.062*	.048*	−.001	.109**	−.100**	.186**	[—]			
13. Children(s)	.054*	.007	−.065**	.025	−.068**	.009	−.018	−.047	−.048*	.038	−.228**	.147**	[—]		
14. Marital status	.046	.040	.002	.076**	.012	−.051*	−.064**	−.052*	−.090**	.064**	−.028	−.228**	−.245**	[—]	
15. Work hours	.037	−.126**	.119**	.028	−.113**	−.055*	−.001	−.226**	.003	.129**	.002	−.063*	−.062*	.053*	[—]
M	22.40[a]	2.95[a]	3.96[b]	2.09[b]	3.20[b]	2.71[b]	3.20[b]	3.35[b]	4.87[c]	3.93[b]	50.44	[—]	[—]	[—]	[—]
SD	30.46	4.70	0.78	0.84	0.83	0.92	0.83	0.71	1.36	1.29	5.82	[—]	[—]	[—]	[—]

Note. n = between 1,469 and 1,730 (pairwise model); coefficient alphas indicating estimated reliabilities are in brackets on the diagonal. Gender: 0 = women, 1 = men; Children: 0 = none, 1 = one or more; Marital status: 0 = single, 1 = married; Work hours: 0 = less than 53 hr/week, 1 = more than 54 hr/week.
[a] Annualize total of days. [b] 5-point response scale. [c] 7-points response scale.
* $p < .05$. ** $p < .01$.

lems, demographic indicators, organizational and individual factors were then successively integrated in each of the regression equations to isolate their differential contribution to both presenteeism and absenteeism phenomena. We specify that the collinearity diagnoses confirm the regressions relevance given that all the correlations are under .80 and that the multicollinearity variance inflation factor indices are substantially below the threshold of 10 (Howell, 1999).

Health Problems

It appears possible to initially identify (block 1) a set of health problems triggering presenteeism (P) behaviors ($F = 9.96$: $p < .01$; $R^2 = .065$) and absenteeism (A) ($F = 9.75$: $p = .00$; $R^2 = .069$). In addition, beyond the impact of back pains (P: $B = .077$; $p < .01$/A: $B = .097$; $p < .01$) and emotional problems (P: $B = .053$; $p < .05$/A: $B = .110$; $p < .01$), on both behaviors, probably dependent upon the seriousness of the condition, a differentiated grouping of conditions appear to be independently responsible for the choice to go to work or to stay at home. Thus individuals suffering from gastritis ($B = .077$; $p < .01$), insomnia ($B = .092$; $p < .01$) or allergies ($B = .069$; $p < .01$) choose to go to work despite their condition. Conversely, asthma ($B = .058$; $p < .05$), blood pressure problems ($B = .075$; $p < .01$) and thyroid trouble ($B = .077$; $p < .01$) may force people to stay home. Of note too is that comorbidity only significantly impact the choice to go to work ($B = .091$; $p < .05$). This fact probably serves to illustrate that presenteeism arises from a combination of factors whereas a single ailment may create absence from work.

Finally, of importance to note, health problems of a more psychological nature (insomnia and emotional problems) lose their capacity to explain presenteeism behavior when work environment (block 3) or worker (block 4) related characteristics are taken into account. This attests to the fact that stressors related to such things as responsibilities, workload, conflict, and support, when combined with work environment-related stress have a marked impact on the decision to go to work despite a health condition. In contrast, emotional problems, in every model, are always associated with the absenteeism behavior.

Demographic Indicators

Demographic indicators (block 2), unlike our second hypothesis, has little to do with assiduous work attendance. In the case of absenteeism, most particularly, the four indices used (age, gender, marital status, and parental responsibility) had no probable link with the interindividual variation in self-reported absenteeism. In the study sample, these indices did not help explain absenteeism in any way ($\Delta F = 1.55$; *ns*). As for presenteeism, the impact of demographic indices produced slightly different results ($\Delta F = 9.79$: $p < .01$; $\Delta R^2 = .023$). In particular, the younger respondents ($B = -.118$; $p < .01$) and women ($B = -.055$; $p < .05$) appear initially to be more likely to demonstrate presenteeism behaviors. However, gender influence is dependent upon job characteristics (organizational factors) and individual factors. Adding these factors in the regression model (blocks 3 and 4), reduces the impact of gender. Age is the most robust factor since its impact remains significant in all the models.

Table 2
Results of Regressions on the Links Between Health Problems, Demographical Indicators, Organizational Factors, Individual Factors, and Presenteeism/Absenteeism Behaviors

	Standardized regression coefficients (β)							
	Block 1		Block 2		Block 3		Block 4	
Variable	P	A	P	A	P	A	P	A
Health problems								
Asthma	−.033	.058*	−.038	.056*	−.042	.061*	−.034	.062*
Arthritis	−.028	.012	−.015	.014	−.016	.015	−.021	.014
Back problems	.077**	.097**	.078**	.098**	.077**	.092**	.051*	.085**
Blood pressure	.016	.075**	.042	.085**	.040	.076**	.036	.073**
Heart disease	.016	.045	.034	.054*	.036	.040	.036	.041
Gastritis	.077**	.014	.079**	.016	.081**	.013	.064**	.009
Insomnia	.092**	.051	.089**	.048	.081**	.040	.049	.031
Thyroid problems	.002	.077**	−.004	.071**	.002	.072**	−.003	.073**
Emotional problems	.053*	.110**	.042	.106**	.038	.098**	.007	.087**
Allergies	.069**	.029	.060*	.026	.062*	.019	.064**	.023
Comorbidity	.091*	.032	.087*	.029	.065	.049	.040	.043
Demographic indicators								
Age			−.118**	−.027	−.103**	−.026	−.066**	−.011
Gender			−.055*	−.050	−.050	−.050	−.044	−.040
Marital status			.021	.007	.012	.003	.009	−.002
Children(s)			.050	.019	.045	.006	.041	.003
Organizational factors								
Work hours					.006	−.117**	−.018	−.116**
Responsibilities					.067**	−.105**	.060**	−.097**
Intragroup conflict					.060*	.018	.023	.004
Work control					−.088**	.036	−.004	.054
Supervisor support					−.012	−.055*	.033	−.031
Peer support					−.105**	−.041	−.067**	−.018
Individual factors								
Job satisfaction							−.033	.022
Commitment							−.033	−.109**
Psychological stress							.271**	.064*
ΔF	9.96**	9.75**	9.79**	1.55	10.40**	9.51**	35.59**	6.27**
R^2	.065	.069	.088	.072	.122	.108	.178	.119
Adjusted R^2	.058	.062	.079	.063	.111	.095	.166	.105
ΔR^2	—	—	.023	.004	.035	.035	.056	.011

Note. P = présenteeism; A = absenteeism.
* $p < .05$. ** $p < .01$.

Organizational Factors

Many organizational factors (block 3) examined have a significant impact on the frequency of presenteeism. Thus greater responsibilities ($B = .067$; $p < .01$), conflicts within the work group ($B = .060$; $p < .05$), lack of control over task ($B = -.088$; $p < .01$), and limited peer support ($B = -.105$; $p < .01$) are characteristics that promote presenteeism ($\Delta F = 10.40$: $p < .01$; $\Delta R^2 = .035$). In the case of absenteeism, fewer organizational factors have a significant impact, but they nonetheless shed as much light on the matter ($\Delta F = 9.51$: $p < .01$; $\Delta R^2 = .035$). It seems that the number of work hours ($B = -.117$; $p < .01$), major responsibilities ($B = -.105$; $p < .01$), and little support from supervisor ($B = -.055$; $p < .05$) would reduce not showing up for work.

Across all these links, it becomes apparent that each of these behaviors is associated with a unique set of organizational factors as proposed by H3. With regards to the impact of responsibilities, the variable appears to be inversely related to presenteeism and absenteeism behaviors. The relative weight of responsibilities, in our model, has a "for better or for worse" effect. Thus, greater responsibilities would lead to presenteeism ($B = .056$; $p < .05$), whereas less responsibilities would be a probable cause of absenteeism ($B = -.112$; $p < .01$).

Individual Factors

Individual factors appear to have the most influence on the occurrence of presenteeism ($\Delta F = 35.59$: $p < .01$), while this influence is shared with organizational factors in the case of absenteeism ($F = 6.27$: $p < .01$). Psychological stress by itself accounts for a 5% increase of the explained variance in our respondents' presenteeism behaviors ($\Delta R^2 = .056$), while job satisfaction and organizational affective commitment have no effect in this regard. As for absenteeism, affective commitment ($B = -.109$; $p < .01$) together with job-related stress ($B = .064$; $p < .05$) add a small but significant 1% to the model's predictive capacity ($\Delta R^2 = .011$). Weak commitment combined with major psychological stress are personal conditions contributing to absenteeism.

The general models of presenteeism and absenteeism, using the four sets of variables, offer good predictive attributes regarding

these behaviors (R^2 = .178 and .119, respectively). In addition, these models underline the specific nature of each of these behaviors in relation to the significant variables involved in the decision to show up for work or not when afflicted by illness. Although there may be some combined impacts, the health problems at the root of these behaviors, as well as organizational and individual factors, often appear to clash. It is more specifically the case with asthma, blood pressure problems, gastritis, thyroid problems, emotional problems, and allergies that have a distinct impact on each of these behaviors. As far as organizational factors are concerned, the number of hours worked, responsibilities, and peer support all have similar impact. Finally, affective commitment appears to be an underlying factor of absenteeism, whereas it has no impact on the presenteeism behavior.

Discussion and Conclusions

Overall, results of this study build upon previous knowledge on the relational dynamic between presenteeism and absenteeism. More specifically, our findings reinforce those of Hansen and Anderson (2008), Aronsson, Gustafsson and Dallner (2000), and Johns (2011).

Our findings on the impact of health problems on presenteeism and absenteeism support our initial research proposition (P1). Thus, it is plausible that certain health conditions more specifically predispose toward presenteeism whereas others have a specific impact on absenteeism. The study confirms that workers with gastritis and allergies are more likely to show up for work despite their condition. Conversely, individuals suffering from emotional, thyroid, or blood pressure problems will tend to stay at home. In addition, back pain can result equally in presenteeism and absenteeism. These results corroborate previous studies (e.g., Hagberg, Wigaeus-Tornqvist, & Toomingas, 2002; Lamb et al., 2006).

It is possible to assume that the seriousness and recurrence of symptoms, as well as the impact of medication in relieving some of these symptoms, may provide an explanation for a variable impact of these ailments. In the case of some health conditions, such as gastritis and allergies, symptoms may be tolerated and controlled leading to presenteeism. The more debilitating symptoms associated with thyroid problems, blood pressure irregularities, and emotional problems, however, would lead to absenteeism.

At the very least, it is reasonable to assume that the specific nature of the illness has a marked impact on the decision process leading to either presenteeism or absenteeism. These results also provide consideration regarding the distinctions between desirable, avoidable, or toxic presenteeism, in terms of impact on the organization (Gosselin & Lauzier, 2011), given that presenteeism can worsen one's health condition (Demerouti et al., 2009) and thus pave the way to an eventual absenteeism situation (Bergström et al., 2009; Gustafsson & Marklund, 2011).

As some have already pointed out (Aronsson et al., 2000), demographic indices have very little to do with the two behaviors under study, except for the constant significant influence of age on presenteeism behavior. It's important to note that the characteristics of our population are different from those of the general population and that the characteristics of senior executives are much more homogenous with a limited range of variance. In this context, our general model reveals that only the age factor has a significant impact on presenteeism, whereas the other variables have no bearing whatsoever on the nature of the absenteeism behavior. Accordingly, workers who have a higher propensity for presenteeism are among the younger respondents. The reason could be that younger managers have greater career-related concerns and would rather come to work than not. As well, although it would be reasonable to believe that as one grows older it proves harder to show up for work than to stay home, this alternative is not supported by the data collected. Older workers are not more frequently absent from work than younger ones. Despite this age-related factor, the other demographic characteristics analyzed (gender, marital status, and parental responsibility) do not in any way impact presenteeism or absenteeism. In the particular case of gender effect, it's noteworthy to state that separate analyses for males and females showed differences in the health ailments responsible for presenteeism and absenteeism behaviors. Therefore, if individual and organizational factors have a similar effect for both sexes, it seemed probable to identify a differential sex grouping of health problems-related to those behaviors. For example, back problems cause presenteeism in women but have no effect on absenteeism behaviors. The reverse is true for men; back problems predict more absenteeism without any influence on presenteeism. Given the overall findings, we have to reject our H2, which purported that presenteeism and absenteeism behaviors could be linked to specific demographic profiles.

As far as organizational factors are concerned, our findings confirm that certain elements may contribute to both behaviors. Accordingly, major professional responsibilities and weak peer support would create conditions conducive to presenteeism. As for absenteeism, the number of hours worked and the relative importance of responsibilities would appear to reduce the occurrence of this behavior. This tends to support H3. The conflicting repercussions of responsibilities on both behaviors lead us to assume that this variable has a "for better or for worse" influence on the decision whether or not to show up for work during periods of illness. Significant professional responsibilities toward others will bring an ailing worker to choose presence at work irrespective of the nature of the health condition. Given that both presenteeism and absenteeism could be problematic behaviors, there is reason to believe that the amount of responsibilities given to a worker reduces absenteeism but has the counter effect of promoting presenteeism behavior. This illustrates the fact that in terms of management, "more is not always better" and that management principles regarding absenteeism must be adjusted to take into account the collateral effects of existing organizational policies.

Individual factors are more closely associated with presenteeism than with absenteeism. The level of stress reported by respondents is by far the variable that has the closest link to presenteeism. The findings clearly reveal that people suffering from the highest level of stress are among those who show up for work despite their illness. Although it is impossible to prove, given the nature of the data, it is plausible to consider that stress exerts a compound pressure on presenteeism (double risk factor; Hansen & Andersen, 2008). The stressed out worker will be more subject to illness and then will be more susceptible to come to work despite his illness. Moreover, the significant and compound impact of stress on absenteeism supports the recognition of stress as a major repercussion on the health of individuals. In fact, this double effect of stress on both presenteeism and absenteeism has already been identified by MacGregor et al. (2008). In addition, affective commitment

reduces absenteeism among respondents and job satisfaction, in spite of earlier findings, has no link to either behavior examined. Given this context, we consider, like Wynne-Jones et al. (2009), that individual factors do not allow us to discriminate between occurrences of presenteeism or absenteeism behaviors, and we therefore reject H4.

Finally, study respondents do not appear to be substituting presenteeism for absenteeism. There is a weak positive and significant correlation between the two behaviors ($r = .162$; $p < .01$). This link between the two corroborates the findings of Johns (2011), Hansen and Andersen (2008), and MacGregor et al. (2008) in illustrating the tendency for workers who use presenteeism behaviors to also demonstrate absenteeism behavior at the same time. This confirms the first perspective of H5 because, even if presenteeism and absenteeism do not pertain to a logic of substitution, these two phenomena appear to be subjected to some behavioral complementarity rule.

Given these results, it is possible to state that there are similarities and disparities with regards to factors related to presenteeism and absenteeism behaviors. Although it would make sense to further study these two phenomena in parallel, it would be just as relevant to consider, as stated by Böckerman and Laukkanen (2010a), that the context that leads to presenteeism includes specificities that are not simple reflections of those of absenteeism. Thus, some factors come into play jointly for both behaviors whereas many have specific, and in some case ambivalent, ties to both phenomena.

Limitations and Future Directions

Any study has its limits, regardless of its rigor, and this study is no exception. A number of limitations are described below that could color the results of this research.

Although the study sample is representative of the population targeted, it has specific characteristics. For example, the average age of respondents is relatively high; they have a greater than average level of education and all of them have management responsibilities within the public service sector. The conclusions of this study are relevant, therefore, to that specific population that has different characteristics than those of the general population. As well, the findings of this study deal with what could be considered as voluntary presenteeism and involuntary absenteeism. In fact, respondents have accumulated a sizable number of sick days that would easily allow them to be away from work when needed. One must therefore recognize that the possibility to generalize our findings is limited and that complementary studies of other population segments would be required in order to confirm the observed results. In spite of this limitation, the results offer a good perspective on the reality of presenteeism and absenteeism in a population of managers in the civil service. An opportunity to replicate this study in the private sector will offer a broader view of the manager's specificities of attendance dynamic.

Second, the transversal design of the research makes it impossible to empirically define formal causal links. To do so, a longitudinal research strategy, allowing for the temporal detachment of the measurement of the various sets of variables, is required. Nevertheless, even though no empirical causality can be formally established, the relations examined may manifest a theoretical causal orientation. Thus, the direction of relations revealed in the study could be supported by theoretical models that explain the presenteeism and absenteeism dynamic in the work environment. It is, however, impossible to eliminate all instances of exaggeration in the links between the study variables resulting from inverse causality or common method variance.

Moreover, the measurement of the presenteeism variable is still quite controversial (Johns, 2010) and measurement choices are not without limitations. To address this issue, the study measured presenteeism on a 6-month timeframe with a monthly recall period. As such, an effort was made to simultaneously minimize the recall problem and the seasonal effect. In our view, it is a good

strategy for a transversal design study to compare to an annualized absenteeism rate. A better way of measuring presenteeism would have been to use a longitudinal design with daily diaries facilitated by the use of electronic technology (Johns, 2012). There is also a need to address the information about sickness absence history to establish a better view of the respondent's general health status.

Finally, the two dependent variables in the study have been measured through single-item questions, exposing them to mnemonic bias and social desirability. Without engaging in a debate on the measurement of presenteeism and absenteeism, it appears that the use of measurements flowing from a single question is actually the norm in such studies. In addition, this type of question enjoys good test-retest validity and is adequate when the information required is unidimensional (Demerouti et al., 2009). However, in spite of this, the development of multi-item metrics is encouraged to fully capture the reality of presenteeism and absenteeism.

To confirm the results of this study and to overcome its limitations, more studies are needed to address simultaneously presenteeism and absenteeism origins. As stated by Johns (2010), presenteeism studies should not be done in a vacuum without considering the absenteeism counterpart. A priority should be placed on the attendance dynamic, integrating both behaviors. To improve understanding of the nature of the relation between presenteeism and absenteeism, further research is needed to identify the similarities and differences in the determinants of both of these behaviors. Moreover, some potential interaction effects between health problem and individual/organizational factors should be theorized and verified. A significant step in developing better organizational policies is to more fully understand which exact conditions lead to presenteeism/absenteeism behaviors and to be able to identify some group at risk. Organizations can then use this knowledge in identifying effective options that promote an overall good attendance dynamic for employees.

Practical Implications

In the light of recent observations on the attendance dynamic at work, absenteeism organizational policies should be reconsidered to evaluate their efficiency in reducing inappropriate absenteeism behavior without creating presenteeism patterns. Moreover, the specificities of presenteeism and absenteeism behaviors pointed out in this study encourage employers to make differential diagnoses of the occurrences and causes of these behaviors. Health ailments, for example, should not be considered as the only cause of attendance dynamic problems; individual and organizational

factors also contribute significantly to presenteeism and absenteeism patterns. To reduce the occurrence of presenteeism and absenteeism, employers should avoid concentrating their health promotion activities exclusively on disease-prevention programs. In formulating their strategy, they should consider also the direct influence of specific work conditions and psychological indicators of performance. The results of this study, therefore, offer new perspectives in favor of a global approach to employee health at work.

References

Aronsson, G., & Gustafsson, K. (2005). Sickness presenteeism: Prevalence, attendance-pressure factors, and an outline of a model for research. *Journal of Occupational and Environmental Medicine, 47,* 958–966. doi:10.1097/01.jom.0000177219.75677.17

Aronsson, G., Gustafsson, K., & Dallner, M. (2000). Sick but yet at work: An empirical study of sickness presenteeism. *Journal of Epidemiology and Community Health, 54,* 502–509. doi:10.1136/jech.54.7.502

Bacharach, S. B., Bamberger, P., & Biron, M. (2010). Alcohol consumption and workplace absenteeism: The moderating effect of social support. *Journal of Applied Psychology, 95,* 334–348. doi:10.1037/a0018018

Baker-McClearn, D., Greasley, K., Dale, J., & Griffith, F. (2010). Absence management and presenteeism: The pressures on employees to attend work and the impact of attendance on performance. *Human Resource Management Journal, 20,* 311–328.

Barnes, M. C., Buck, R., Williams, G., Webb, K., & Aylward, M. (2008). Beliefs about common health problems and work: A qualitative study. *Social Science & Medicine, 67,* 657–666. doi:10.1016/j.socscimed.2008.05.008

Bellaby, P. (1999). *Sick from work: The body in employment*. Aldershot, UK: Ashgate.

Bergström, G., Bodin, L., Hagberg, J., Aronsson, G., & Josephson, M. (2009a). Sickness presenteeism today, sickness absenteeism tomorrow? A prospective study on sickness presenteeism and future sickness absenteeism. *Journal of Occupational and Environmental Medicine, 51,* 629–638. doi:10.1097/JOM.0b013e3181a8281b

Bergström, G., Bodin, L., Hagberg, J. T., Aronsson, G., & Josephson, M. (2009b). Does sickness presenteeism have an impact on future general health? *International Archives of Occupational and Environmental Health, 82,* 1179–1190. doi:10.1007/s00420-009-0433-6

Bergström, G., Bodin, L., Hagberg, J., Lindh, T., Aronsson, G., & Josephson, M. (2009). Does sickness presenteeism have an impact on future general health? *International Archives of Occupational and Environmental Health, 82,* 1179–1190.

Bierla, I., Huver, B., & Richard, S. (2010). *New evidences on absenteeism and presenteeism behaviour*. Working paper series, IÉSEG School of Management, Catholic University of Lille, Lille, France.

Böckerman, P., & Ilmakunnas, P. (2008). Interaction of working conditions, job satisfaction, and sickness absences: Evidence from a representative sample of employees. *Social Science & Medicine, 67,* 520–528. doi:10.1016/j.socscimed.2008.04.008

Böckerman, P., & Laukkanen, E. (2010a). Predictors of sickness absence and presenteeism: Does the pattern differ by a respondent's health? *Journal of Occupational and Environmental Medicine, 52,* 332–335. doi:10.1097/JOM.0b013e3181d2422f

Böckerman, P., & Laukkanen, E. (2010b). What makes you work while you are sick? Evidence from a survey of workers. *European Journal of Public Health, 20,* 43–46. doi:10.1093/eurpub/ckp076

Brooks, A., Hagen, S., Sathyanarayanan, S., Schultz, A., & Edinton, D. W. (2010). Presenteeism: Critical issues. *Journal of Occupational and Environmental Medicine, 52,* 1055–1067.

Caverley, N., Cunningham, J. B., & MacGregor, J. N. (2007). Sickness presenteeism, sickness absenteeism, and health following restructuring in a public service organization. *Journal of Management Studies, 44,* 304–319. doi:10.1111/j.1467-6486.2007.00690.x

Demerouti, E., Le Blanc, P. M., Bakker, A. B., Schaufeli, W. B., & Hox, J. (2009). Present but sick: A three-wave study on job demands, presenteeism and burnout. *The Career Development International, 14,* 50–68. doi:10.1108/13620430910933574

De Paola, M. (2010). Absenteeism and peer interaction effects: Evidence from an Italian Public Institute. *The Journal of Socio-Economics, 39,* 420–428. doi:10.1016/j.socec.2010.02.004

Dew, K., Keefe, V., & Small, K. (2005). Choosing to work when sick: Workplace presenteeism. *Social Science & Medicine, 60,* 2273–2282. doi:10.1016/j.socscimed.2004.10.022

Druss, B. G., Schlesinger, M., & Allen, H. M. (2001). Depressive symptoms, satisfaction with health care, and 2-year work outcomes in an employed population. *The American Journal of Psychiatry, 158,* 731–734. doi:10.1176/appi.ajp.158.5.731

Duxbury, L., & Higgins, C. (2003). *Work-life conflict in Canada in the new millennium: A status report*. Ottawa: Health Canada.

Elstad, J. I. (2008). Job stress, sickness absence and sickness presenteeism in Nordic elderly care. *Scandinavian Journal of Public Health, 36,* 467–474. doi:10.1177/1403494808089557

Elstad, J. I., & Vabo, M. (2008). Job stress, sickness absence and sickness presenteeism in Nordic elderly care. *Scandinavian Journal of Public Health, 36,* 467–474.

Erickson, R. J., Nichols, L., & Ritter, C. (2000). Family influences on absenteeism: Testing an expanded process model. *Journal of Vocational Behavior, 57,* 246–272. doi:10.1006/jvbe.2000.1730

Goetzel, R. Z., Long, S. R., Ozminkowski, R. J., Hawkins, K., Wang, S., & Lynch, W. (2004). Health, absence, disability, and presenteeism: Cost estimates of certain physical and mental health conditions affecting U.S. employers. *Journal of Occupational and Environmental Medicine, 46,* 398–412. doi:10.1097/01.jom.0000121151.40413.bd

Gosselin, E., & Lauzier, M. (2011). Le présentéisme: Lorsque la présence n'est pas garante de la performance. *Revue Française de gestion, 211,* 15–27.

Grinyer, A., & Singleton, V. (2000). Sickness absence as risk-taking behaviour: A study of organizational and cultural factors in the public sector. *Health, Risk & Society, 2,* 7–21.

Gustafsson, K., & Marklund, S. (2011). Consequences of sickness presence and sickness absence on health and work ability: A Swedish prospective cohort study. *International Journal of Occupational Medecine and Environmental Health, 24,* 153–165. doi:10.2478/s13382-011-0013-3

Hagberg, M., Wigaeus-Tornqvist, E., & Toomingas, A. (2002). Self-reported reduces productivity due to musculoskeletal symptoms: Associations with workplace and individual factors among white-collar computer users. *Journal of Occupational Rehabilitation, 12,* 151–162. doi:10.1023/A:1016890527520

Hansen, C. D., & Andersen, J. H. (2008). Going ill to work: What personal circumstances, attitudes and work-related factors are associated with sickness presenteeism? *Social Science & Medicine, 67,* 956–964. doi:10.1016/j.socscimed.2008.05.022

Hansson, M., Boström, C., & Harms-Ringdahl, K. (2006). Sickness absence and sickness attendance: What people with neck or back pain think. *Social Science & Medicine, 62,* 2183–2195. doi:10.1016/j.socscimed.2005.10.002

Harrison, D. A., & Martocchio, J. J. (1998). Time for absenteeism: A 20-year review of origins, offshoots, and outcomes. *Journal of Management, 24,* 305–350.

Harrison, D. A., & Price, K. H. (2003). Context of consistency in absenteeism: Studying social and dispositional influences across multiple settings. *Human Resource Management Review, 13,* 203–225. doi:10.1016/S1053-4822(03)00013-5

Howell, D. (1999). *Fundamental statistics for the behavioural science*. New York, NY: Duxbury Press.

Hurrell, J. J., & McLaney, M. A. (1988). Exposure to job stress: A new psychometric instrument. *Scandinavian Journal of Work, Environment & Health, 14,* 27–28.

Hurrell, J. J., Nelson, D. L., & Simmons, B. L. (1998). Measuring job stressors and strains: Where have been, where we are, and where we need to go. *Journal of Occupational Health Psychology, 3,* 368–389. doi:10.1037/1076-8998.3.4.368

Johansson, G., & Lundberg, I. (2004). Adjustment latitude and attendance as determinants of sickness absence or attendance: Empirical tests of the illness flexibility model. *Social Science & Medicine, 58,* 1857–1868. doi:10.1016/S0277-9536(03)00407-6

Johns, G. (1997). Contempory research on absence from work: Correlates, causes, and consequences. In C. L. Cooper & L. T. Robertson (Eds). *International review of industrial and organizational psychology* (pp. 115–173). New York, NY: Wiley.

Johns, G. (2003). How methodological diversity has improved our understanding of absenteeism from work. *Human Resource Management Review, 13,* 157–184. doi:10.1016/S1053-4822(03)00011-1

Johns, G. (2010). Presenteeism in the workplace: A review and research agenda. *Journal of Organizational Behavior, 31,* 519–542. doi:10.1002/job.630

Johns, G. (2011). Attendance dynamics at work: The antecedents and correlates of presenteeism, absenteeism, and productivity loss. *Journal of Occupational Health Psychology, 16,* 483–500. doi:10.1037/a0025153

Johns, G. (2012). Presenteeism: A short history and a cautionary tale. In J. Houdmont, S. Leka, & R. R. Siclair (Eds.), *Contemporary occupational health psychology: Global perspectives on research and practice* (Vol. *2,* pp. 204–220). Chichester, UK: Wiley-Blackwell.

Kivimäki, M., Head, J., Ferrie, J. E., Hemingway, H., Shipley, M. J., Vahtera, J., & Marmot, M. G. (2005). Working while ill as a risk factor for serious coronary events: The Whitehall II Study. *American Journal of Public Health, 95,* 98–102. doi:10.2105/AJPH.2003.035873

Koopman, C., Pelletier, K. R., Murray, J. F., Sharda, C. E., Berger, M. L., Turpin, R. S., Hackleman, P., Gibson, P., Holmes, D. M., & Bendel, T. (2002). Stanford presenteeism scale: Health status and employee productivity. *Journal of Occupational and Environmental Medicine, 44,* 14–20. doi:10.1097/00043764-200201000-00004

Laaksonen, M., Pitläniemi, J., Rahkonen, O., & Lahelma, E. (2010). Work arrangements, physical working conditions, and psychosocial working conditions as risk factors for sickness absence: Bayesian analysis of prospective data. *Annals of Epidemiology, 20,* 332–338. doi:10.1016/j.annepidem.2010.02.004

Lamb, C. E., Ratner, P. H., Johnson, C. E., Ambegaonkar, A. J., Joshi, A. V., Day, D., Sampson, N., & Eng, B. (2006). Economic impact of work place productivity losses due to allergic rhinitis compared with select medical condition in the United States from an employer perspective. *Current Medical Research and Opinion, 22,* 1203–1210. doi:10.1185/030079906X112552

Lemyre, L., & Benzimra, Y. (2000). Les efforts de recouvrement suite à la tempête de verglas: état de stress psychologique chez des travailleurs après la crise. *Santé mentale au Québec, 25,* 186–209. doi:10.7202/013030ar

Lemyre, L., Tessier, R., & Fillion, L. (1990). *Measure of psychological stress MPS: Users manual*. Brossard, Canada: Behaviora.

Lowe, G. (2002, December). Here in body, absent in productivity: Presenteeism hurts output, quality of work-life and employee health. Canadian HR Reporter, pp. 9–10.

MacGregor, J. N., Cunningham, J. B., & Caverley, N. (2008). Factors in absenteeism and presenteeism: Life events and health events. *Management Research News, 31,* 607–615. doi:10.1108/01409170810892163

Martinez, L. F., & Ferreira, A. I. (2012). Sick at work: Presenteeism among nurses in a Portuguese public hospital. *Stress & Health, 4,* 297–304. doi:10.1002/smi.1432

McKevitt, C., Morgan, M., Dundas, R., & Holland, W. W. (1997). Sickness absence and working throughillness: A comparison of two professional groups. *Journal of Public Health Medicine, 19,* 295–300. doi:10.1093/oxfordjournals.pubmed.a024633

Meerding, W. J., Ijzelenberg, W., Koopmanschap, M. A., Severens, J. L., & Burdorf, A. (2005). Health problems lead to considerable productivity loss at work among workers with high physical load job. *Journal of Epidemiology, 58,* 517–523.

Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organization and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology, 78,* 538–551. doi:10.1037/0021-9010.78.4.538

Murphy, L. R. (2005). Job stress research at NIOSG: 1972–2002. In P. L. Perrewé & D. C. Ganster (Eds), *Historical and current perspectives on stress and health* (pp. 1–55). Oxford, UK: Elsevier Science.

Nyberg, A., Westerlund, H., Magnusson Hanson, L. L., & Theorell, T. (2008). Managerial leadership is associated with reported sickness absence and sickness presenteeism among Swedish men and women. *Scandinavian Journal of Public Health, 36,* 803–811. doi:10.1177/1403494808093329

Punnett, B. J., Greenidge, D., & Ramsey, J. (2007). Job attitudes and absenteeism: A study in the English speaking Caribbean. *Journal of World Business, 42,* 214–227. doi:10.1016/j.jwb.2007.02.006

Rantanen, I., & Tuominen, R. (2011). Relative magnitude of presenteeism and absenteeism and work-related factors affecting them among health care professionals. *International Archives of Occupational and Environmental Health, 84,* 225–230. doi:10.1007/s00420-010-0604-5

Rentsch, J. R., & Steel, R. P. (2003). What does unit-level absence mean? Issues for future unit-level absence research. *Human Resource Management Review, 13,* 185–202. doi:10.1016/S1053-4822(03)00012-3

Rhodes, S., & Steers, R. M. (1990). *Managing employee absenteeism*. Reading, MA: Addison Wesley.

Rosvold, E. O., & Bjertness, E. (2001). Physicians who do not take sick leave: Hazardous heroes? *Scandinavian Journal of Public Health, 29,* 71–75.

Rudd, P., Price, M. G., Lewis, E. G., Beilstein, B. A., Tarbell, S. J. H., Bacchetti, P., & Fortmann, S. P. (1987). Consequence of worksite hypertension screening: Change in absenteeism. *Hypertension, 10,* 425–436. doi:10.1161/01.HYP.10.4.425

Sagie, A. (1998). Employee absenteeism, organizational commitment, and job satisfaction: Another look. *Journal of Vocational Behavior, 52,* 156–171. doi:10.1006/jvbe.1997.1581

Sakai, Y., Akiyama, T., Miyake, Y., Kawamura, Y., Tsuda, H., Kurabayashi, L., Tominaga, M., Noda, T., Akiskal, K., & Akiscal, H. (2005). Temperament and job stress in Japanese company employees. *Journal of Affective Disorders, 85,* 101–112. doi:10.1016/j.jad.2004.03.012

Sanderson, K., Tilse, E., Nicholson, J., Oldenburg, B., & Graves, N. (2007). Which presenteeism measures are more sensitive to depression and anxiety? *Journal of Affective Disorders, 101,* 65–74. doi:10.1016/j.jad.2006.10.024

Schultz, A. B., & Egington, D. W. (2007). Employee health and presenteeism: A systematic review. *Journal of Occupational Rehabilitation, 17,* 547–579. doi:10.1007/s10926-007-9096-x

Steel, R. P. (2003). Methodological and operational issues in the construction of absence variables. *Human Resource Management Review, 13,* 243–251. doi:10.1016/S1053-4822(03)00015-9

Tabachnick, B. G., & Fidell, L. S. (2006). *Using multivariate statistic*. New York, NY: Allyn & Bacon.

Tayyab, S. (2007). An empirical assessement of organizational commitment measures. *Pakistan Journal of Psychological Research, 22,* 1–21.

Treasury Board of Canada Secretariat. (2002, January). *Population Affiliation report*. Ottawa, Ontario, Canada: Author.

Virtanen, M., Kivimäki, M., Elovainio, M., Vahtera, J., & Cooper, C. (2001). Contingent employment, health and sickness absence. *Scandinavian Journal of Work, Environment & Health, 27,* 365–372.

Wynne-Jones, G., Buck, R., Varnava, A., Phillips, C., & Main, C. J. (2009). Impacts on work absence and performance: What really matters? *Occupational Medicine, 59,* 556–562.

Zhang, W., Bansback, N., & Anis, A. H. (2011). Measuring and valuing productivity loss due to poor health: A critical review. *Social Science & Medicine, 72,* 185–192. doi:10.1016/j.socscimed.2010.10.026

Received October 17, 2011
Revision received September 21, 2012
Accepted October 23, 2012 ■