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A Multilevel Analysis of Changes in Psychological Demands over Time on Employee Burnout

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Abstract: In pursuing this study, we were interested in the effect of changes in psychological demands over time on burnout. We were also interested in examining the moderating role resources could play between changes in job demands over time and employee burnout. Multilevel regression analyses of repeated measures were conducted to capture the hierarchical structure of the data (time (Level 1, n = 537 (12-month period between T1 and T2)); employees (Level 2, n = 289)) nested in firms (Level 3, n = 34). To measure change in psychological demands, the distribution of psychological demands at T1 and T2 were dichotomized at the T1 median. Following this dichotomization, four groups were created: low T1 and low T2; high T1 and low T2; low T1 and high T2, high T1 and high T2. In terms of direct associations, an increase in psychological demands over time was associated with emotional exhaustion and cynicism but not professional efficacy. Locus of control, self-esteem, and social support from supervisors were also directly associated with burnout. As for interaction effects, social support from coworkers attenuated the effect of changes in psychological demands over time (i.e., increasing psychological demands) on cynicism. In other words, employees facing greater psychological demands over time (increasing psychological demands) and benefitting from social support from their coworkers had less cynicism. Our findings offer meaningful insights into possible ways of lowering burnout levels. Based on the results obtained, psychological demands, social support, locus of control, and self-esteem should be considered valuable intervention targets.

Keywords: burnout; changes in psychological demands; personal resources; social resources; social support from coworkers; longitudinal study

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1. Introduction

Burnout is a work-related state that is usually associated with several negative consequences at the individual, organizational, and societal levels. At the individual level, burnout seems to be associated with an increased allostatic load, systemic inflammation, immunosuppression, metabolic syndrome, cardiovascular disease, and, in some cases, premature death [1]. In the long run, burnout could lead to mental health problems such as depression [2]. At the organizational level, burnout seems to be associated with job dissatisfaction and absenteeism [3]. In Canada, the costs of burnout are estimated to exceed CAD 51 billion annually. Those costs are attributed to the use of health care resources, loss of productivity, and human suffering [4]. On the other side of the pond, in the United States, burnout seems to be associated, with healthcare spending ranging between USD 125 billion and USD 190 billion [5]. As such, employee burnout could be perceived as a crisis that employees and organizations are grappling with worldwide [6].

Due to these negative consequences, it is important to gain a better understanding of the mechanisms leading to burnout. Some previous empirical studies have shed light on

the role psychological demands could play in burnout. Although informative, these studies usually measure burnout at a single point in time (i.e., with stable job demands). At the theoretical level, one of the main models, the Job Demands–Resources model (JD–R; [7]), postulates that job demands lead to burnout via a mechanism of health impairment (i.e., hypothesis of impaired health). That said, the JD–R model does not consider the effect of changes in psychological demands over time (i.e., increases or decreases in psychological demands). Moreover, the role resources could play as moderators (buffering hypothesis) has long been included in the JD–R model [8]. Similarly, to the JD–R model, the Conservation of Resources (COR) theory stipulates that such resources (personal and social) can help attenuate the negative impact of job demands on burnout. According to the COR theory, people build a "reservoir" of resources to shield them from entering a negative cycle. In line with the JD–R model, the COR theory does not examine changes in psychological demands over time.

The negative association between job demands and burnout has been previously demonstrated [9–12]. However, to the best of our knowledge, the contribution of changes in psychological demands over time to burnout remains empirically unexamined. Even though several studies have investigated the moderating role resources could play in burnout [11,13–15], none have examined the moderating role resources could play between changes in psychological demands over time and burnout. To the best of our knowledge, no longitudinal study has examined the moderating role of resources in the demands–strain relationship. A comprehensive model that accounts for changes in psychological demands could help expand the JD–R model [7] and the COR theory [16]. The new model evaluated in this study will help account for the changing nature of job demands (as opposed to a static view). Our interest in changes in psychological demands over time is in line with the results of a recent meta-analysis [17]. In this meta-analysis, the authors highlighted the importance of examining changes in job demands over time, as opposed to evaluating stable job demands measured at one point in time [17]. Examining whether changes in job demands affect employees differently compared to stable job demands (measured at one point in time) remains relatively unknown [17]. It is important to mention that Downes et al.'s [17] meta-analysis focused on daily diary studies as opposed to longitudinal studies. In other words, the researchers focused on within-person variability instead of changes in job demands over time. Based on these perceived gaps, the following question emerges: "What effect do changes in psychological demands have on employee burnout?" Although our study should be distinguished from Downes et al. [17], we still hope to contribute to this body of knowledge. By conducting this study, we hope to maximize the benefits of having a secondary dataset to explore the contribution of changes in job demands over time to burnout.

2. Background

2.1. Burnout

Burnout refers to a cluster of symptoms resulting from chronic emotional and interpersonal stressors in one's workplace [18]. Burnout is described as a work-related state which originates from a state of mental and emotional fatigue related to the employee's coping strategies. Burnout symptoms usually include fatigue, anxiety, and irritability. Although some of these symptoms are similar to those of psychological distress and depression, this work-related state is unique in that it pertains to the workplace and its workers. Burnout is composed of three main dimensions: emotional exhaustion, cynicism, and lack of professional efficacy [18]. Emotional exhaustion is the cornerstone of burnout and the most visible manifestation of the work-related state [18]. As such, emotional exhaustion is the first dimension of burnout. This negative mental state refers to a feeling of being overstrained and fatigued and usually results from an extended involvement in an over-demanding work situation [19]. Cynicism is the second dimension of burnout and is usually characterized by a negative attitude toward work or an excessively detached response to other people at work (also termed depersonalization). Cynicism usually includes indifference,

disengagement, lack of enthusiasm, or aloofness toward work in general [19,20]. Lastly, lack of professional efficacy (also termed reduced personal accomplishment) is the third dimension of burnout and refers to a reduced perception of self-efficacy and productivity at work. It is worth mentioning here that the three dimensions of burnout are distinct and mutually exclusive. Professional efficacy (positively worded) is considered distinct from the other two dimensions [20]. Based on these noted differences, our statistical analysis will treat the three dimensions of burnout as distinct outcomes.

2.2. Changes in Psychological Demands over Time and Burnout

Psychological demands generally refer to work variables putting strain on a worker's mental capacities. These variables could include contradictory demands, workload assigned, and timeframe. Job demands can deplete workers' mental and physical resources, increasing one's risk of suffering from health problems [7]. Numerous empirical studies have demonstrated the direct association between high job demands and burnout [9–12]. For instance, Ståhl et al. [21] demonstrated that burnout and psychological demands at baseline were associated with burnout at follow-up. A recent study also demonstrated that significant increases in one's workload negatively affects one's sense of self-efficacy [22]. According to Mühlenmeier et al. [23], the level of time pressure as well as the temporal pattern of change across one's work week are both important in terms of mental well-being. Despite numerous studies demonstrating the link between psychological demands at work and burnout, a gap remains. This gap is two-fold. The first aspect pertains to the association between changes in psychological demands over time (e.g., increasing or decreasing psychological demands) and burnout. The second aspect pertains to a lack of longitudinal studies evaluating the moderating role of resources in the demands–strain relationship. According to Downes et al. [17], changes in job demands may be a particularly important factor to consider, with jobs changing more rapidly than ever in today's work environment. That could be experienced as a source of uncertainty and stress, especially for employees with low levels of personal and social resources. As such, changes in psychological demands (especially when psychological demands increase over time) could exert pressure on employees' resources. In this study, we will examine the association between changes in psychological demands over time and burnout. We will also evaluate the moderating role of personal and social resources in the demands–strain relationship over time.

2.3. Personal and Social Resources' Moderating Role

Stress at work can affect employees differently. An employee's response to a stressful situation, such as high job demands, depends in part on that person's perception of the situation [24]. Depending on an employee's interpretation, job demands could be perceived as more or less controllable [24]. To face these job demands, employees usually rely on their personal resources [25]. Among these personal resources are specific personality traits such as high self-esteem and an internal locus of control, which can moderate the impact of changing psychological demands over time on burnout. We are focusing on these traits because they are amenable to change over the course of one's life and can help an individual adapt to their circumstances (coping) [26,27]. Self-esteem refers to an individual's personal assessment of themselves that usually translates into an attitude of self-approval or disapproval [28]. As for locus of control, this personality trait refers to the degree to which individuals perceive that they have control over important events in their lives [29]. Johnson et al. [30] found that self-esteem plays a direct as well as an indirect role (via stress) in burnout. Similarly, internal locus of control seems to play a key role in how nurses cope with stress and burnout [31] and a moderating role between job demands and job satisfaction [32].

A second resource to consider is social support. Working entails a certain level of interaction with other people. The quality of these interactions could play a role in employees' well-being [33]. More specifically, employees facing changes in job demands could rely on social support from their supervisor and coworkers to moderate the effects

of such demands. Previous studies have highlighted the importance of social support in employees' mental health. In a sample of nurses, job resources, including social support, seemed to play a moderating role between job demands and burnout [34]. Social support also seems to play a moderating role between job demands and an individual's appraisal of these demands [35], as well as work absenteeism [36]. In a sample of teachers, social support from supervisors was associated with a lower risk of burnout [37]. The same findings also extended to a sample of nurses, with social support from supervisors and coworkers playing an important role in burnout prevention [38]. Those same studies pointed to the negative impact that a lack of social interaction (between employees and their supervisors, as well as among themselves) could have on mental health [7]. Based on these previously presented findings, individual and social resources could play a role in the relationship between a stressor (e.g., increase in job demands) and its repercussions on an employee's mental health (e.g., burnout). More specifically, personal and social resources could determine how employees respond to changes in job demands over time and the resulting association with burnout.

2.4. Theoretical Model

As mentioned earlier, we were interested in the effect of changes in psychological demands over time on burnout. According to the JD–R model [7], demanding jobs drain an individual's resource reservoir. This resource depletion could result in exhaustion and cause health problems (i.e., hypothesis of impaired health). A recent study demonstrated that employees facing high job demands and low job resources presented an almost 10-fold increase in their odds of experiencing burnout [39]. Based on this body of literature, we have proposed the following hypothesis: *changes in psychological demands over time are directly associated with burnout (H1)*.

We were also interested in examining the moderating role resources could play between changes in job demands over time and employee burnout. Most previous studies in occupational health have assumed that employees are passive and endure their work conditions (e.g., psychological demands) [40]. Contrary to common belief, employees do not simply react to their work environment (e.g., job demands). These employees influence their job characteristics by using adaptive or maladaptive strategies [25]. Stress models attempt to explain an individual's contribution to their job characteristics. According to some stress theories [24,41], the effect of stressors (e.g., increases in psychological demands over time) on an individual varies based on their perception of these stressors. In other words, some employees have personal resources (e.g., self-esteem, internal locus of control) which allow them to cope better with work stressors. In line with the JD–R model, the COR theory [16] specifies that having an abundance of resources creates a "reservoir" that could be used in future stressful situations, serving as a burnout predictor. Among those resources is social support. The COR theory [16] suggests that social resources (e.g., social support) can color an employee's perception of their ability to face their job demands. When job demands change (e.g., accentuate) over time, an employee could enter a negative spiral, potentially resulting in burnout. Preventing employees from entering this negative spiral could be one way of preventing burnouts. According to the JD–R model, resources can help mitigate the negative impact of job demands on job strain (buffering hypothesis). Resources can help an individual face those requirements and bolster their confidence in their ability to impact their work environment [8]. Based on these previously presented findings and theories, we have proposed the following two additional hypotheses: *Personal resources (i.e., self-esteem and internal locus of control) moderate the impact of changes in psychological demands over time on burnout (H2). Social resources (i.e., social support from coworkers and social support from a supervisor) moderate the impact of changes in psychological demands over time on burnout (H3).* Figure 1 provides an overview of our proposed theoretical model. Source: Author's own work.

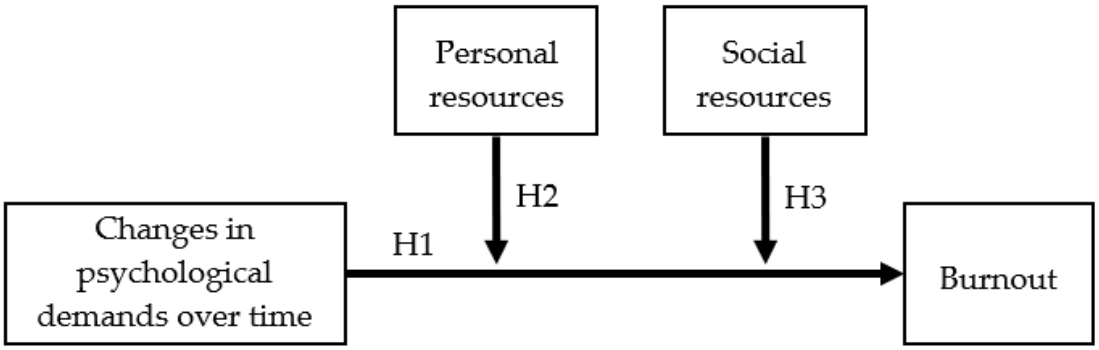

Figure 1. Hypothetical model.

3. Methods

3.1. Procedure and Participants

This study was based on secondary data from a research project that received ethical approval from the following universities: University of Montreal, McGill University, Laval University, Bishops University, and Concordia University. The overall objective of the SALVEO project was to document and evaluate the effect of work organization conditions on Canadian workers' mental health. The SALVEO project includes a broad set of useful data that can be utilized and disseminated in different research projects. This large database was made available to us to carry out the analyses needed to answer our research question. Although our research objectives fall under the initial and broader objectives of the SAVLEO project, they are still distinct. The sample recruited was constituted of Canadian workers from 34 firms. The participating firms were randomly selected from an insurance company clients' list. The participating companies were quite heterogenous in terms of products, services, and markets covered (e.g., engine production, software development, plumbing supplies). From a random sample of employees (white- and blue-collar workers), 401 individuals were selected to fill out questionnaires (T1). The same respondents were invited back 12 months later to complete the same questionnaires (T2). Please note that we matched participants' data across the two measurements' points. Before completing the study's questionnaires, participants were instructed to read confidentiality-related information and sign an informed consent. Overall, 289 individuals agreed to participate in this study (response rate = 72.1%). The final sample was 58.8% female, with a mean age of 41.5 years old. Additionally, 75.78% were part of a couple, 50.87% had children under 18 years of age still living with them, 6.23% had an irregular work schedule, and they worked 39.03 h per week on average.

3.2. Measures

3.2.1. Burnout

In order to measure the three dimensions of burnout (emotional exhaustion, cynicism, and professional efficacy), we used the Maslach Burnout Inventory–General Survey (MBI–GS) [42]. This questionnaire was composed of five items to assess emotional exhaustion (e.g., "Working all day is really a strain for me"; $\alpha = 0.90$), cynicism (e.g., "I just want to do my job and not be bothered"; $\alpha = 0.80$), and professional efficacy (e.g., "I can effectively solve the problems that arise in my work"; $\alpha = 0.80$). All items were scored on a seven-point scale ranging from 0 (*never*) to 6 (*daily*). Schaufeli's [42] validation study, as well as extensive international research [43], support the scale's factorial structure, reliability, and validity.

3.2.2. Psychological Demands

To measure *Psychological demands*, we relied on nine items evaluated on a four-point additive scale (e.g., "My job is very hectic"; $\alpha = 0.73$). These items were derived from the Job Content Questionnaire (JCQ) [44]. To measure change in psychological demands, the

distribution of psychological demands at T1 and T2 were dichotomized at the T1 median. Following this dichotomization, four groups were created: low T1 and low T2; high T1 and low T2; low T1 and high T2; high T1 and high T2, and the psychological demands variable was treated as categorial. In our statistical analyses, the first group (i.e., low T1 and low T2) served as a reference group/category.

3.2.3. Personal Resources

The Rosenberg Self-Esteem Scale [44] measured *self-esteem* with six items evaluated on a five-point scale (Strongly agree/Strongly disagree, e.g., "You feel that you have a number of good qualities": $\alpha = 0.87$). As for *locus of control*, we employed a scale developed by Pearlin and Schooler [45]. This questionnaire was constituted of seven items evaluated on a five-point additive scale (e.g., "You have little control over the things that happen to you"; $\alpha = 0.84$).

3.2.4. Social Resources

In terms of social support, we measured both social support garnered from one's coworkers as well as one's supervisor. Social support from coworkers was measured using four items evaluated on a four-point additive scale (e.g., "The people I work with are friendly"; $\alpha = 0.83$), while *social support from one's supervisor* was measured with four items evaluated on a four-point additive scale (e.g., "My supervisor pays attention to what I'm saying"; $\alpha = 0.89$). These items were derived from the Job Content Questionnaire (JCQ) [44].

3.2.5. Control Variables

Based on the findings of previous mental health at work studies, our research design included several confounding variables. By controlling for these covariates, we were able to focus on our main variables to fully capture their effect on burnout. Based on previous studies, we included the following variables: skill utilization [46], decision authority [47], physical demands [48], work schedule (irregular) [46], job insecurity [49], job recognition [12], job promotion [50], number of hours worked [51], gender and age [52], physical activity, marital status, parental status, educational level, household income [53], social support outside the workplace [54], marital and parental tensions [55], and stressful childhood life events [56].

In order to measure skill utilization and decision authority, we relied on the Job Content Questionnaire (JCQ) [44]. To that effect, four-point Likert scales were used (strongly disagree/strongly agree). *Skill Utilization* consisted of six items (e.g., "My job requires a high level of skill"; $\alpha = 0.80$). *Decision Authority* contained three items (e.g., "I have a lot to say about what happens on my job"; $\alpha = 0.79$). To measure physical demands, job insecurity, job recognition, and job promotion, we relied on the Effort–Reward Imbalance Questionnaire [57]. Responses were based on a four-point Likert scale (strongly disagree/strongly agree). *Physical Demands* were based on a single item (e.g., "My work requires physical effort"). *Job Insecurity* was measured with two items (e.g., My employment security is poor"; $\alpha = 0.65$). *Job Recognition* consisted of six items (e.g., "I am treated unfairly at work", reverse coded; $\alpha = 0.82$). *Job promotion* included four items (e.g., "My current occupational position adequately reflects my education and training"; $\alpha = 0.69$). *Number of Hours Worked* was estimated by summing the number of hours worked per week in all jobs. Lastly, we relied on the Quebec Health and Social Survey (QHSS-98) to evaluate *Irregular Work Schedule.* Relatedly, this variable was measured with a single item based on a four-point additive scale (Never/All the time), derived from the QHSS-98.

Regarding the coding of our variables, *Gender* was coded as 0 = Men and 1 = Women. *Age* was based on the number of years of age. *Educational Level* was evaluated based on the highest academic degree obtained. This variable comprised 10 categories that referred to the number of years necessary to obtain a degree in ascending order (1 = None, 2 = High school, 3 = Professional school, 4 = College (General), 5 = College (Technical), 6 = University (Undergraduate certificate), 7 = University (Bachelor's degree), 8 = University (Graduate

diploma), 9 = University (Master's degree), 10 = University (Doctorate). *Household Income* was computed before tax deduction and was based on the income earnt the year preceding this study (1 = Less than $20,000 to 12 = $120,000 or more). *Marital Status* was coded as 0 = Single, 1 = Being part of a couple. *Parental Status* was coded as 0 = No, 1 = Yes. *Marital Stress* was based on four items evaluated on a two-point additive scale (Yes/No) (e.g., "Your partner is not committed enough to your relationship"; $\alpha = 0.70$) [58]. *Parental Stress* comprised three items answered as either (Yes/No) (e.g., "One of your children seems very unhappy"; $\alpha = 0.60$) [58]. *Social Support* garnered outside of the workplace was based on a four-item additive scale (Yes/No) (e.g., "Among family and friends, is there someone who would help you in time of need?"). *Stressful Childhood Events* that occurred before reaching the age of 18 was measured with seven items on a two-point scale (Yes/No) (e.g., "Did either your parents drink or use drugs so often that it caused problems for the family?") [58]. Lastly, *Physical Activity* was based on the frequency of 20 min workouts spanning the three months preceding this study.

Please note that all measures were available in either English or French, depending on the participant's first language. Below are some additional references pertaining to the validated versions of the questionnaires in French: Maslach Burnout Inventory–General Survey (MBI–GS) [59], Job Content Questionnaire [60], Rosenberg Self-Esteem Scale [61], Effort–Reward Imbalance Questionnaire [62], Pearlin and Schooler's locus of control scale [61], and Quebec Health and Social Survey (QHSS-98) [63].

3.3. Data Analysis

Multilevel regression analyses of repeated measures [64] using Stata 15 software (Stata 15.1) were conducted to capture the hierarchical structure of the data whereby repeated measurement (Level 1, n = 537) was nested in employees (Level 2, n = 289) which, in turn, were nested in firms (Level 3, n = 34). Self-esteem, locus of control, social support outside the workplace, education level, and stressful childhood events were only measured at T1. These same measures were imputed at T2 as they were expected to remain stable over a 12-month period. These analyses allowed us to: (a) evaluate the contribution of changes in psychological demands over time to burnout, while controlling for confounding variables; (b) estimate the moderating role personal and social resources play in burnout. As a first step, we entered three groups of psychological demands changing over time (using low psychological demands at T1 and T2 as reference categories). We also entered personal resources and social resources into a variance component model. This first model allowed us to estimate the main effects of these variables on burnout. Confounding variables were also controlled for us to be able to isolate the effect of our main variables on our dependent ones. As a second step, we introduced interaction variables into our models and applied a Bonferroni correction. Based on the Bonferroni correction, the significance threshold was set at $p < 0.01$. This threshold allowed us to account for the large number of interactions. More specifically, we evaluated four interactions, one for each moderator (i.e., self-esteem, locus of control, social support from coworkers, social support from supervisor) interacting with psychological demands. Unlike a direct effect, a moderating effect occurs when a third variable (i.e., social support) affects the strength of the relationship between an independent variable (i.e., changing psychological demands over time) and a dependent one (i.e., burnout).

4. Results

Table 1 provides descriptive statistics (mean/proportion, standard deviation) and correlations for our variables. Given that no correlation coefficient exceeded 0.70, none of our variables were strongly correlated with one other. For instance, recognition was negatively correlated with emotional exhaustion ($r = -0.33$, $p \leq 0.01$). These variables also varied in opposite directions. When recognition increases, emotional exhaustion decreases. Based on those findings, multicollinearity was not an issue [65].

Table 1. Descriptive and correlational statistics.

		M/%	SD	1		2		3		4		5		6		7		8		9		10		11		12		13	
1	Emotional exhaustion	1.63	1.26	1																									
2	Cynicism	1.37	1.16	0.61	***	1																							
3	Professional efficacy	4.81	0.94	−0.35	***	−0.48	***	1																					
4	Psychological demands	23.36	3.76	0.43	***	0.19	***	0.02		1																			
5	Self-esteem	19.83	3.35	−0.27	***	−0.28	***	0.41	***	−0.07	*	1																	
6	Locus of control	20.02	4.21	−0.35	***	−0.41	***	0.30	***	−0.11	**	0.58	***	1															
7	Social support from coworkers	12.77	1.77	−0.17	***	−0.24	***	0.28	***	−0.08	*	0.29	***	0.31	***	1													
8	Social support from supervisor	12.25	2.45	−0.29	***	−0.43	***	0.24	***	−0.18	***	0.17	***	0.28	***	0.42	***	1											
9	Skill utilization	18.21	3.00	−0.19	***	−0.34	***	0.38	***	−0.20	***	0.31	***	0.33	***	0.19	***	0.30	***	1									
10	Decision authority	8.77	1.77	−0.19	***	−0.29	***	0.32	***	0.06		0.24	***	0.33	***	0.17	***	0.36	***	0.66	***	1							
11	Physical demands	1.63	0.78	−0.05		0.01		0.07	*	−0.08	*	−0.05		−0.12	***	−0.13	***	−0.09	**	0.02		0.01		1					
12	Work schedule (irregular)	0.06	-	0.11	**	0.06		−0.01		0.15	***	−0.03		−0.08	*	−0.10	**	−0.12	***	0.02		0.01		0.15	***	1			
13	Number of hours worked	39.27	5.43	−0.06		−0.09	**	0.17	***	0.24	***	0.03		0.10	**	−0.03		0.08	*	0.19	***	0.20	***	0.19	***	0.18	***	1	
14	Recognition	15.99	2.44	−0.33	***	−0.47	***	0.36	***	−0.16	***	0.35	***	0.45	***	0.51	***	0.56	***	0.31	***	0.28	***	−0.24	***	−0.16	***	0.01	
15	Job promotion	10.35	2.47	−0.25	***	−0.37	***	0.31	***	0.01		0.18	***	0.32	***	0.19	***	0.33	***	0.46	***	0.38	***	−0.17	***	−0.10	**	0.16	***
16	Job insecurity	3.87	1.38	−0.31	***	0.43	***	−0.29	***	0.13	***	−0.15	***	−0.24	***	−0.22	***	−0.29	***	−0.20	***	−0.24	***	0.04		0.11	**	−0.11	***
17	Gender	0.60	-	0.16	***	−0.04		−0.12	***	0.02		0.01		−0.04		0.02		−0.02		−0.17	***	−0.20	***	−0.31	***	−0.09	**	−0.33	***
18	Age	42.02	10.44	−0.10	**	0.01		0.06		0.02		0.01		−0.10	**	−0.16	***	−0.12	***	0.02		−0.01		0.09	**	0.06		0.08	
19	Educational level	5.30	2.05	0.02		−0.04		−0.02		0.07		0.17	***	−0.13	***	0.06		0.07	*	0.22	***	0.13	***	−0.26	***	−0.08	*	−0.06	
20	Household income	7.81	3.25	0.01		−0.04		0.03		0.15	***	0.04		0.14	***	−0.03		−0.04		0.21	***	0.23	***	−0.25	***	−0.06		0.21	***
21	Marital status	0.76	-	0.07		0.08	*	−0.06		−0.08	*	−0.09	*	−0.06		−0.10	**	−0.08	*	0.04		0.03		−0.06		−0.12	***	0.03	
22	Parental status	0.52	-	−0.05		−0.06		−0.01		0.10	**	−0.04		−0.03		−0.10	**	−0.05		−0.04		−0.03		0.04		−0.05		0.09	**
23	Marital stress	0.47	-	0.10	**	0.15	***	−0.11	**	0.01		−0.21	***	−0.25	***	−0.16	***	−0.12	***	−0.06		0.09	**	0.01		−0.01		−0.01	
24	Parental stress	0.22	-	0.07		0.08	*	−0.13	***	0.08	*	−0.24	***	−0.16	***	−0.13	***	−0.06		−0.10	**	−0.05		0.02		0.02		0.06	
25	Social support outside the workplace	0.84	-	−0.16	***	−0.16	***	0.13	***	0.02		0.17	***	−0.23	***	0.18	***	−0.09	**	0.10	**	0.07		−0.07		−0.06		−0.06	
26	Stressful childhood events	1.06	1.20	0.20	***	0.14	***	−0.06		0.14	***	−0.11	***	−0.14	***	−0.07		−0.18	**	−0.10	**	−0.10	**	−0.01		0.05		0.08	*
27	Physical activity	4.32	2.01	0.08	**	0.01		0.07	*	0.01		0.15	***	0.18	***	−0.01		−0.02		0.03		0.04		−0.14	***	−0.06		0.01	

		14		15		16		17		18		19		20		21		22		23		24		25		26	
14	Recognition	1																									
15	Job promotion	0.43	***	1																							
16	Job insecurity	−0.37	***	−0.29	***	1																					
17	Gender	0.05		−0.15	***	0.06		1																			
18	Age	−0.11	**	0.01		0.16	***	−0.09	**	1																	
19	Educational level	0.10	**	0.08	*	−0.02		0.12	***	−0.24	***	1															
20	Household income	0.03		0.22	***	−0.0.		−0.11	**	0.14	***	0.20	***	1													
21	Marital status	−0.08	*	−0.01		−0.02		−0.09	**	0.02		−0.04		0.48	***	1											
22	Parental status	−0.04		−0.05		0.04		−0.04		0.10	**	−0.15	***	0.15	***	0.24	***	1									
23	Marital stress	−0.19	***	−0.16	***	0.15	***	0.02		0.03		−0.09	**	0.08	*	0.30	***	0.18	***	1							
24	Parental stress	−0.16	***	−0.12	***	0.14	***	0.02		0.10	**	−0.10	**	0.09	**	0.07		0.36	***	0.19	***	1					
25	Social support outside the workplace	0.11	***	0.14	***	−0.10	**	0.03		−0.08	**	0.04		0.01		−0.06		−0.04		−0.29	***	−0.03		1			
26	Stressful childhood events	−0.18	***	−0.10	**	0.07		0.13	***	−0.02		−0.06		−0.02		−0.03		0.03		0.16	***	0.03		−0.07	*	1	
27	Physical activity	0.07	*	0.01		0.01		−0.02		0.05		0.16	***	−0.13	***	0.03		−0.06		−0.10	**	−0.03		0.01	***	−0.02	

Source: Author's own work. * $p \leq 0.10$, ** $p \leq 0.05$ and *** $p \leq 0.01$

In terms of direct associations, the results presented in Table 2 indicate that low psychological demands at T1 and high at T2 were associated with higher emotional exhaustion and cynicism but not professional efficacy. These same relationships were observed for high psychological demands at T1 and T2. Furthermore, high psychological demands at T1 and low at T2 were not significantly associated with burnout. On the one hand, self-esteem was found to be associated with higher professional efficacy. On the other hand, locus of control was found to be associated with lower emotional exhaustion and cynicism. As for social support, social support garnered from one's coworkers was not significantly associated with emotional exhaustion, nor was it associated with cynicism. However, this form of support was significantly associated with a higher level of professional efficacy. While social support garnered from one's supervisor was not significantly associated with professional efficacy, it was associated with a lower level of emotional exhaustion and cynicism.

Table 2. Main effects of changes in psychological demands over time and personal and social resources on burnout.

Fixed Part	Emotional Exhaustion	Cynicism	Professional Efficacy
Constant	4.865 **	5.615 **	0.321
PSYCHOLOGICAL DEMANDS			
Low at both T1 and T2 (category of reference)	1.000	1.000	1.000
Low at T1 and high at T2	0.666 **	0.326 **	−0.009
High at T1 and low at T2	−0.028	−0.037	−0.084
High at both T1 and T2	0.728 **	0.280 **	−0.099
PERSONAL RESOURCES			
Self-esteem	−0.021	−0.000	0.078 **
Locus of control	−0.048 **	−0.049 **	−0.017
SOCIAL RESOURCES			
Social support from coworkers	0.017	0.019	0.056 *
Social support from supervisor	−0.047 *	−0.085 **	0.002
Intraclass correlations			
Firms	0.042	0.010	0.074
Employees	0.593	0.740	0.407
RANDOM PART			
σ^2 (companies)	0.000	0.000	0.040
σ^2 (employees)	0.490 **	0.317 **	0.197 **
σ^2 (measures)	0.523 **	0.433 **	0.353 **
FIT			
X2 (df = 26)	247.77 **	354.28 **	226.57 **

Source: Author's own work. Note a: * $p \leq 0.05$ and ** $p \leq 0.01$. Note b: The following variables were controlled for: skill utilization, decision authority, physical demands, work schedule (irregular), job insecurity, recognition, job promotion, number of hours worked, gender, age, educational level, household income, social support outside the workplace, stressful childhood events, marital status, parental status, marital stress, parental stress, and physical activity (unstandardized coefficients).

As for interaction effects, social support from coworkers played a moderating role between increasing psychological demands over time and cynicism (χ^2 = 8.54; df = 3; p = 0.036) (β = −0.144; p = 0.006). After applying the Bonferroni correction, the other moderators did not end up playing a moderating role between changes in psychological demands over time and burnout. Even though we did not initially formulate a specific hypothesis to that effect, the moderators did not play a moderating role between persisting psychological demands over time (i.e., high psychological demands at T1 and at T2) and burnout.

5. Discussion

The originality of the present study lies in its analysis of change in psychological demands over time (i.e., increasing and decreasing psychological demands), as well as in the verification of the effects of personal and social moderators in these relations, necessitating

two data points. For one, this framework allowed us to consider time variations with regard to each employee; for two, it allowed us to create four groups. Our first hypothesis (H1) proposed that changes in psychological demands over time were directly associated with burnout. Our results indicate that an increase in psychological demands over time was associated with greater emotional exhaustion and cynicism. Although no specific hypothesis was formulated to that effect, the same results were noted when psychological demands were high at T1 and at T2 (persisting psychological demands over time). That said, a decrease in psychological demands over time was not significantly associated with burnout. Additionally, psychological demands (i.e., all three groups/categories) were not associated with professional efficacy. These findings indicate that our first hypothesis is partially supported. The results obtained are consistent with those of previous studies demonstrating a direct relationship between high job demands and burnout [9–12,21]. These results are also coherent with the JD–R model [7], which postulates that demanding jobs deplete an individual of their physical and mental resources. This, in turn could lead to energy depletion, a state of exhaustion, and health problems (i.e., burnout; hypothesis of impaired health). Our results indicate that this is also true when job demands are changing/increasing over time, therefore expanding the JD–R model and the COR theory. Even though we did not formulate specific hypotheses pertaining to the JD–R model and the COR theory, our results align with these models. This is mostly true when job demands are high over an extended period of time (high at both T1 and T2). This is not the case when job demands are low. These results are interesting. The deleterious long-term impact of high job demands take some time to dissipate and play a protective role in burnout. These results indicate that the reduction of job demands does not have an immediate but rather a delayed effect.

Our second hypothesis (H2) proposed that personal resources play a moderating role between changes in psychological demands over time and burnout. Our results suggest that internal locus of control and self-esteem do not play a moderating role between changes in psychological demands over time and burnout. As such, our second hypothesis was not supported. These results are surprising and do not align with those of previous studies [30–32]. As previously stated, employees do not simply react to their work environment (e.g., job demands), but can also influence their own job characteristics by using adaptive or maladaptive coping strategies [25]. These results do not align with stress theories [24,41]. Our results indicate that locus of control was associated with lower emotional exhaustion and cynicism, while self-esteem was associated with higher professional efficacy. One could argue that internal locus of control is more important than a high self-esteem in helping employees cope with stressful situations. Internal locus of control refers to a perception of control, while self-esteem refers to an attitude of approval or disapproval of oneself. An individual's perception of control is important because it could influence their adjustment to a stressful situation. Also, our results regarding the moderating role of personal resources do not align with the JD–R model. According to the JD–R model, resources can weaken the influence of job demands on job strain. More specifically, resources can help an individual face these strains and increase their confidence in their ability to impact their work environment [8]. This is not the case when job demands are changing (e.g., increasing) over time. According to Bakker and de Vries [25], employees facing increased job strain are less likely to use adaptive self-regulation strategies. Bakker and de Vries [25] results could, in part, explain our findings. Even though we were not able to demonstrate that personal resources could help attenuate the negative effect of psychological demands over time on burnout, our results are still pertinent. Alternative personal resources, such as emotional intelligence, may be useful when psychological demands increase or persist over time. It is possible to assume that employees with high emotional intelligence could be better equipped to recognize their own job strain and fatigue and, in turn, be better able to regulate their strain [25].

Our third hypothesis (H3) proposed that social resources moderate the association between changes in psychological demands over time and burnout. Our results partially

support this hypothesis. More specifically, social support from coworkers moderates the association between increasing psychological demands over time and cynicism. Inversely, social support from supervisors did not seem to play a moderating role between psychological demands over time and burnout. The results pertaining to social support from coworkers align with those of previous studies [34,35,37,38], as well as with Demerouti et al.'s (2001) and Hobfoll's (1989) theoretical frameworks [7,16]. The COR theory [16] suggests that social resources (e.g., social support) can color employees' perception of their ability to meet their job demands. Those results support the JD–R model's buffer hypothesis. According to this model, job resources weaken the influence of over-demanding jobs on perceived job strain [8]. Even though social support from supervisors did not moderate the association between changes in psychological demands over time and burnout, it was still directly associated with lower emotional exhaustion and cynicism, while social support from coworkers was associated with higher professional efficacy. Based on these findings, social support garnered from coworkers and supervisors should be considered targets to help reduce burnout levels.

5.1. Theoretical Implications

As mentioned in the introduction, the JD–R model [7] postulates that job demands could lead to burnout via health impairment as well as a reduced motivation. Although informative, this model does not consider the effect of changes in psychological demands over time. In the same vein, the COR theory indicates that resources could help attenuate the negative impact of job demands on burnout. According to the COR theory, people build a "reservoir" of resources to shield them from entering a negative cycle. However, the COR theory does not specify that this "reservoir" would help prevent burnout if psychological demands changed (e.g., increased) over time. Based on these perceived gaps, the results obtained from this study bring innovative theoretical advancements. First, by accounting for the changing nature of job demands rather than only considering them as static, we have demonstrated that the Job Demands–Resources model [7] could be expanded. Our results also indicate that the "health impairment hypothesis" applies to increasing psychological demands over time. In our study, an increase in job demands led to emotional exhaustion and cynicism. Second, we have demonstrated that social support from coworkers (i.e., a social resource) could help attenuate the negative effect of increasing psychological demands over time on cynicism. Social resources could therefore help attenuate the negative effect of changes (i.e., increases) in job demands and avoid entering a negative burnout spiral. In sum, a model that accounts for both changes in psychological demands over time and resources helps expand the JD–R model [7] as well as the COR theory [16]. These findings are even more important given the significant changes witnessed in today's work environments [17].

5.2. Practical Implications

In addition to its theoretical implications, this study provides meaningful insights into lowering burnout levels. Psychological demands, low social support, low internal locus of control (also termed external locus of control), and low self-esteem could be considered valuable intervention targets. More specifically, this study demonstrates the role that increasing and persisting psychological demands over time could play in the development of burnout. Organizations should avoid overloading their workers and identify ways to better distribute the workload over time. Creating an inventory of job demands and tasks periodically could ensure that the workload does not increase or persist over time. Surveying employees regularly could help alert managers to increasing workloads. Another suggestion for some organizations is to reduce the number of work mandates. Faced with significant labor shortages, organizations should pay attention to the potential risk that changes in job demands (i.e., increasing job demands) could have on employees. Overloading employees could have undesirable mental health effects. This, in turn, could negatively impact their work performance and, more broadly, the organization

itself. Based on these findings, organizations are advised to reduce their production rate to keep their employees healthy and productive. Employers are also advised to reduce the psychological demands placed on their employees proactively. Continuously monitoring and optimizing job demands and setting realistic goals while providing sufficient resources are possible options that have been proven to be effective by studies which have evaluated their effects [9,25,66,67]. In the same line of reasoning, employers should consider limiting the number of tasks assigned to their employees while offering them more time to complete them [68]. Allocating the same tasks to more employees could also be pertinent [68]. As for companies enjoying financial success, intervention targets could include task restructuring, working remotely, and greater latitude in terms of work scheduling and work volume [69]. Similarly, employers are encouraged to set up coworkers' support groups. These support groups could offer a safe platform to discuss difficulties and challenges faced at work [70]. Another way to promote and strengthen employee bonds is by organizing social activities. On another note, leadership training is also worth considering. A recent meta-analysis demonstrated that leadership training leads to actual improvements in leadership style [71]. Based on these findings, leadership training could be offered to help supervisors and leaders be supportive of their employees. Such programs could help improve employees' health and work outcomes [72]. Also, organizations are encouraged to provide stress management training since locus of control seems to be amenable to change through training and interventions [73,74]. Fostering employees' internal locus of control through industrial psychologists' workplace coaching could help attenuate the deleterious effects of increasing psychological demands over time on burnout. Lastly, the same logic applies to self-esteem, as it is also amenable to change via training [75,76].

5.3. Limitations and Recommendations for Future Research

This study has several limitations. First, we were limited in our choice of measures and variables due to the availability of secondary data. Other variables might be important. Examples of such variables include, but are not limited to, examining how human resources' policies and procedures, such as compensation, career development plan, flexible human resource policies, etc., could play a moderating role between work organization conditions and burnout. While social support is an important social resource, alternative resources could have been considered in this study, such as feedback and task significance. These variables were not available in our secondary dataset. Second, it is important to acknowledge the possibility of a common variance bias since all variables were collected from the same source. Despite this possibility, we believe that the risk of a common variance bias was low given the diversification in our sample. More specifically, the organizations included in our sample operated in different economic sectors, had different company sizes, and some offered unionization to their employees. Third, in terms of methodology, data were gathered by means of self-reported questionnaires completed by employees who volunteered to participate in this study. Complementing the data obtained with interviews conducted with supervisors could have limited response bias. Interviewing supervisors could have allowed us to gather their points of view regarding their employees' working conditions. Fourth, it is also important to acknowledge the possibility of a selection bias due to the voluntary nature of this study. Because participation in this study was voluntary, employees with higher burnout levels could have opted out due to confidentiality concerns. As a result of this selection bias, employees with low levels of burnout could have been over-represented in our sample. Fifth, as previously mentioned, the companies included in our sample were recruited through a large insurance company. Our final sample was constituted of 34 organizations in the private sector. Even though the organizations included in our sample were quite varied, our results cannot necessarily be generalizable to the general workforce. Sixth, although we controlled for gender in our statistical analysis, the same variables could influence men and women differently. These patterns of associations with gender should be investigated in future studies. Seventh, this study includes two measurement times. It would be relevant for further studies to verify the effect of changing

psychological demands over time with several further measurement times to better capture the changes of psychological demands' variability over time. Additionally, within-person variability, measured with daily diaries, should be examined in the future. This variable was also not available in our secondary dataset.

6. Conclusions

Despite these limitations, the findings obtained from this longitudinal study contribute to the meagre body of literature on the effect of changing job demands over time on burnout. The results offer additional answers as to the role personal and social resources could play between changing psychological demands and burnout levels. In this study, we were able to demonstrate the effect of changes in psychological demands over time on burnout. We also demonstrated the moderating role social resources played between changes in job demands over time and employee burnout. While most previous studies relied on an average score of psychological demands computed as a single data point, we decided to push this further by considering the effect of three groups (i.e., low psychological demands at T1 and high at T2; high psychological demands at T1 and low at T2; high psychological demands at both T1 and T2) in comparison to one reference group (i.e., low psychological demands at T1 and T2) in job demands over time. In doing so, we were interested in the association between changing job demands and burnout. Although our study represents a step in the right direction, we encourage future researchers to explore how additional personal and social resources, and other managerial- and organizational-level resources, could influence employee adaptation to increasing and persisting psychological demands over time. Among these additional resources are resilience, emotional intelligence, leadership style, and human resources practices. Emotional intelligence represents a trait that facilitates emotional regulation. This social–emotional skill can help employees face work-related stressors. Most importantly, emotional intelligence presents the advantage of being trainable over the course of one's lifetime [77]. Lastly, exploring individual-level variations in burnout levels (intra-variability) over time is also worth examining. Given that burnout could result in a serious mental health impairment, understanding factors that could mitigate the effects of increasing psychological demands over time is worth undertaking. We hope that the results obtained from this study represent a step in the right direction.

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