

When does quality of relationships with coworkers predict burnout over time? The moderating role of work motivation

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Summary

The present prospective study examines the interplay between the quality of relationships with coworkers and work motivation in predicting burnout. Considering self-determined motivation at work as a potential moderator, we investigated whether relationships with coworkers are equally important to all employees in preventing burnout. A total of 533 college employees participated in this study. Data were collected at two time points, two years apart. Results from structural equation modeling indicated negative main effects for high-quality relationships and self-determined motivation on burnout. A significant interaction effect between these two factors on burnout was also revealed, suggesting that high-quality relationships with coworkers is crucial for those employees who exhibit less self-determined work motivation. Implications for burnout research and management practices are discussed (Deci & Ryan, 1985). Copyright © 2009 John Wiley & Sons, Ltd.

Introduction

Burnout constitutes a prominent occupational health problem plaguing organizations today (Schaufeli, 2003). It is defined as an affective reaction to ongoing stress whose core content is emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach, 1982). *Emotional exhaustion* refers to the depletion of one's emotional resources, while *depersonalization* refers to a negative, cynical, and detached attitude toward other people or the job itself, and *reduced personal accomplishment* refers to a decrease in feelings of job competence and productivity. Thus, in addition to being marked by a loss of emotional energy, burnout implies a negative assessment of the self (reduced personal accomplishment) and of others (depersonalization). As such, each dimension captures critical aspects of the burnout syndrome (Schaufeli & Taris, 2005). Over the years, burnout has been linked to several detrimental outcomes, including lower organizational commitment, work satisfaction, and performance, as well as increased turnover, absenteeism, and health care costs (see Halbesleben & Buckley, 2004; Maslach, Schaufeli, & Leiter, 2001).

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Against this background, researchers have devoted considerable attention to the identification of potential causes of burnout and preventive factors. In the present study, we examined the role of health-protecting factors (so-called work-related resources) that possibly shield employees against burnout. Specifically, we focused on the overall quality of relationships with coworkers, defined as those relationships that are qualified as enriching, harmonious, satisfying, and that inspire trust (Senécal, Vallières, & Vallerand, 1992). Special attention is also given to the role of motivation at work which concerns the underlying reasons that moves people to perform their work activities (Deci & Ryan, 1985). In line with past research, we assume that relying on significant others and engaging in a job for the “right” reasons are beneficial for psychological functioning (see Gagné & Deci, 2005).

Although the inverse relationship between work-related resources and burnout is well documented (Bakker & Demerouti, 2007), we focus on it for three reasons. First, much of the existing research on burnout has failed to replicate cross-sectional findings (Schaufeli & Enzmann, 1998). The temporal stability of burnout dimensions, which are typically higher than 0.50 over a year-long period (e.g., Greenglass, Fiksenbaum, & Burke, 1994; Peiro, Gonzalez-Roma, Tordera, & Manas, 2001), has been put forward to explain these inconsistent findings. Second, although a period of at least two years might be required for detecting the longitudinal effect of social factors on psychological strain (Dormann & Zapf, 2002), only a few study has been conducted on such a period (e.g., Hakanen, Schaufeli, & Ahola, 2008). On this basis, our study attempts to extend previous knowledge on the role of health-protecting factors of burnout by utilizing a two-year prospective design among a sample of college employees. Third and more importantly, these prospective effects served as a foundation for the main purpose of this study, which was to investigate the interplay between quality of relationships with coworkers and work motivation on burnout.

When studying burnout, researchers typically focus on either organizational factors (e.g., job demands or job resources) or individual factors (e.g., self-efficacy, self-esteem, and self-determination). As Maslach et al. (2001) pointed out: “the challenge is to extend the job-person paradigm to a broader and more complex conceptualization of the person situated in the job context” (p. 413). Accordingly, we examined whether quality of relationships with coworkers is equally important to everyone in preventing burnout. We contend that significant relationships at work are more crucial for some individuals than for others, and we propose work motivation as a plausible moderating variable. Evidence for this contention would provide organizations with additional cues for preventing burnout, because support for such moderating effects implies that employee well-being may be maintained not only through strengthening social bonds in the workplace, but also through developing and sustaining optimal work motivation. To address these issues we use insights from self-determination theory (SDT; Deci & Ryan, 1985).

Theoretical Background and Hypotheses

Quality of relationships and burnout

SDT (Deci & Ryan, 1985) provides a theoretical basis for understanding how interpersonal relationships may prevent burnout. The theory posits that people engage in interpersonal relationships not only for functional purposes (e.g., goal attainment), but also because they satisfy basic human psychological needs such as the needs for autonomy, competence, and relatedness. Indeed, high-quality relationships based on trust and confidence may nourish employees’ psychological needs by, for

instance, providing positive feedback about one's job competence and through support. Ultimately, high-quality relationships would maintain employees' optimal functioning, while poorer relationships would lead to maladaptive consequences such as burnout.

Studies guided by SDT have examined associations between employee well-being and psychological need satisfaction through managerial behaviors, such as whether managers understand and acknowledge employees' perspective, provide meaningful information, offer opportunities for choice and decision-making, and encourage initiative (e.g., Deci, Connell, & Ryan, 1989). Results indicated that when employees perceived that their manager engaged in such behaviors (Baard, Deci, & Ryan, 2004; Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001) and when managers were trained to act in a more supportive manner (Deci et al., 1989), subordinates displayed greater job satisfaction, as well as better physical and psychological well-being. However, with few exceptions (e.g., Richer, Blanchard, & Vallerand, 2002), research has mostly focused on employees' relationships with superiors that are asymmetrical by nature, and not on relationships with coworkers. In a cross-sectional study, Richer and her colleagues found that high-quality relationships with colleagues were positively related to work motivation, which in turn had a negative association with emotional exhaustion. Given that coworkers constitute one of the most salient aspects of employees' social environment (Dutton & Ragins, 2007), it seems important to better understand whether high-quality relationships with coworkers can lessen burnout over time. Although considerable research focusing on social support has indicated a negative association between interpersonal relationships with coworkers and burnout (e.g., Zellars & Perrewé, 2001), prospective support for this effect remains sparse. Based on SDT assumptions and previous cross-sectional studies, we hypothesized the following:

Hypothesis 1: Controlling for baseline levels of burnout, high-quality relationships with coworkers will be negatively related to emotional exhaustion and depersonalization and positively related to personal accomplishment over time.

Work motivation and burnout

SDT also distinguishes between intrinsic motivation (i.e., doing something for its own sake) and extrinsic motivation (i.e., doing something for an instrumental reason). The theory proposes that extrinsic motivation can be internalized, meaning that the acquisition and acceptance of new values or goals leads people to become autonomously motivated to engage in behaviors that express these values and goals (Ryan, 1995). As such, internalization can give rise to different forms of extrinsic motivation that can be aligned on a continuum. At the low end lies external regulation, which refers to doing an activity to obtain a reward or avoid a punishment, and is therefore non-internalized. Introjected regulation refers to regulation through self-worth contingencies such as ego-involvement and guilt. This type of regulation is partially internalized and remains controlling, not volitional. Next is identified regulation, which refers to doing an activity because one identifies with its value or meaning. Given that identified behaviors are accepted as one's own, they are regarded as autonomously regulated. It is worth mentioning that identified regulation differs from intrinsic motivation in that behaviors are not done to attain inherent enjoyment, but for the instrumental value they represent. Research has shown that we can simplify the assessment of motivational orientation by merging external and introjected regulation into controlled motivation, and by merging identified regulation and intrinsic motivation into self-determined motivation (Deci & Ryan, 2008; Sheldon & Elliot, 1999). More importantly, research in different life domains has evidenced that people who adopt higher self-determined motivation, relative to controlled motivation, evidence higher well-being than those who adopt relatively more controlled motivation (see Ryan & Deci, 2000, for a review). In the workplace,

self-determined motivation has been associated with more job satisfaction (Blais, Brière, Lachance, Riddle, & Vallerand, 1993; Millette & Gagné, 2008), commitment (Lam & Gurland, 2008), as well as less job burnout (Fernet, Guay, & Senécal, 2004) and turnover intentions (Richer et al., 2002).

It is worth noting that self-determined motivation bears some resemblance to several control-related constructs, such as locus of control, perceived control, and self-efficacy (Deci & Ryan, 1985). However, these constructs refer primarily to the perceived contingency between the individual's behavior and an outcome, whereas self-determined motivation refers to the experience of choice in initiating behavior. For instance, employees may perceive control over goal attainment (i.e., I can do it), but do not feel self-determined if they are compelled by interpersonal or intrapersonal pressures (i.e., I am obliged to do it).

Based on SDT, we argue that work motivation is likely to be related to individual reactions to interpersonal relationships as well as to burnout over time. In other words, work motivation may act as either a direct determinant of burnout or as a moderator of the relation between the quality of interpersonal relationships and burnout. According to the first point of view, employees with low self-determined work motivation would be more likely experience burnout symptoms, regardless of other factors. Indeed, Blais et al. (1993) found that all three dimensions of burnout were negatively related to self-determined work motivation, and were positively related to controlled work motivation. Other recent studies have provided similar patterns of results (e.g., Fernet et al., 2004; Fernet, Senécal, Guay, Marsh, & Dowson, 2008). However, no studies to date have investigated the prospective effects of work motivation on burnout. Given this state of knowledge, we hypothesized the following:

Hypothesis 2: Controlling for baseline levels of burnout, work motivation will be negatively related to emotional exhaustion and depersonalization and positively related to personal accomplishment over time.

In addition to the direct effect hypothesis, we argue that work motivation could moderate the relation between quality of relationships with coworkers and burnout, meaning that people with high versus low self-determined work motivation would experience environmental and social contingencies differently. Along this reasoning, employees with initially high levels of self-determined work motivation may have fewer burnout symptoms over time because the pleasure they gain in doing their work activities overcomes the importance they gave to the quality of their work relationships. In contrast, those with low self-determined motivation may benefit the most from a boost in need satisfaction coming from coworkers. This boost may happen because these employees are more sensitive to environmental cues such as tangible rewards, expectations, and approval of others (Ryan & Deci, 2000). Behaviors prompted and valued by coworkers could thus have a greater impact on low self-determined employees because such behaviors preserve their sense of self and help them adapt to work activities, manage work stress, and maintain well-being. This line of reasoning is consistent with the notion of behavioral plasticity, which refers to the extent to which an individual is affected by external factors (Brockner, 1988). Support for the plasticity hypothesis has been provided in several studies, showing that low self-esteem individuals do rely more on their supervisors and coworkers to perform their job than high self-esteem individuals (Pierce, Gardner, Dunham, & Cummings, 1993). More influenced by the external environment, they are also more prone to psychological strain in response to stressors (Ganster & Schaubroeck, 1991).

Regarding work motivation, some empirical evidence has supported the contention that perceptions of interpersonal relationships vary with self-determined motivation. For instance, an experimental study conducted by Guay, Delisle, Fernet, Julien, and Senécal (2008) showed that performance feedback (manipulated by a success or failure condition) activated the perceptions of social inclusion only in participants who were low on self-determined motivation. These perceptions of social inclusion affected their self-esteem. In contrast, social inclusion did not mediate the effect of the feedback

manipulation on self-esteem among participants who were high on self-determined motivation. This is presumably because their self-esteem was less contingent on the approval of others. Similarly, Black and Deci (2000) found that college students taking an organic chemistry course with a supportive instructor saw their self-determined motivation increase over the semester and obtained better course grades after controlling for SAT (i.e., scholastic aptitude test) scores and GPA (i.e., grade point average). Interestingly, this finding was stronger for students with initially low levels of self-determined academic motivation. These findings are consistent with the behavioral plasticity hypothesis (Brockner, 1988) assumption that individuals place different degrees of importance on interpersonal relationships. Accordingly, we hypothesized the following:

Hypothesis 3: Controlling for baseline levels of burnout, work motivation will moderate the relation between quality of relationships with coworkers and emotional exhaustion, depersonalization, and personal accomplishment over time. Specifically, the negative relations between high quality of relationships with coworkers and exhaustion and depersonalization will be stronger for employees presenting lower than higher self-determined work motivation. In addition, the positive relation between high quality of relationships and personal accomplishment will be stronger for employees presenting lower than higher self-determined work motivation.

Method

Procedure and participants

Participants were French-Canadian employees at a college located in Quebec, Canada. All 874 employees were approached to participate in this study at two time points (0 and 24 months). At both time points, participants who agreed to participate were asked to complete a consent form and a questionnaire containing the same measures.

In the first wave (T1), 380 employees (43 per cent of men and 57 per cent of women) completed the questionnaire, for a response rate of 43 per cent. Participants' mean age was 45.1 years ($SD = 8.28$) and mean years of experience was 16 years ($SD = 9.72$). In this sample, 61 per cent were teachers, 27 per cent were support services employees, 7 per cent were educational professionals, and 5 per cent were administrative employees. A total of 73 per cent held a permanent position and 86 per cent worked full-time. In the second study wave (T2), 276 employees completed the questionnaire, among which 153 were new participants. Most participants were women (64 per cent), had a mean age of 44.3 years ($SD = 9.15$), and had mean years of experience of 14.1 years ($SD = 10.1$). A proportion of 60 per cent were teachers, 26 per cent were support services employees, 7 per cent were educational professionals, and 7 per cent were administrative employees. A total of 69 per cent held a permanent position and 86 per cent worked full-time. At both time points, the sample fairly represented the demographic distribution of the entire college staff (i.e., gender, age, job positions, organizational tenure, and employment contract) with the exception of gender. Women were slightly overrepresented at T1 (57 per cent of respondents vs. 54 per cent of college employees) and T2 (64 per cent vs. 60 per cent).

While the response rate is less than optimal (23 per cent), it is worth mentioning that it is partly attributable to the fact that 14 per cent of employees left the organization for retirement during the course of the study. As it is typical in longitudinal studies, missing data could constitute a threat to the validity of this study because participants who did not participate at all time points may have had

particular characteristics. We explored this issue thoroughly and decided to rely on the full sample of 533 participants for which missing values at T1 or T2 were estimated (see below discussion on missing data in the Statistical Analysis Section).

Measures

Quality of relationships with coworkers

These perceptions were assessed by the 4-item Quality of Interpersonal Relationships Scale (QIRS; Senécal et al., 1992). Participants indicated the extent to which each of the items (e.g., harmonious, enriching, satisfying, and inspired trust) corresponded to their current relationships with their coworkers on a 0 (not at all) to 4 (extremely) point scale. The items completed the stem “Currently, my relationships with my colleagues at work are . . .” Cronbach’s alpha was 0.93 at T1. In the original validation, Senécal and her colleagues validated internal and temporal consistencies of scale as well as construct validity by showing scale correlations with various self-reported indicators of mental health (e.g., life satisfaction, self-esteem, and depressive symptoms). Additional support for the construct validity of the QIRS has been recently provided by Philippe, Vallerand, Houliort, Lavigne, and Donahue (in press). In the present study, each item was used as an indicator of the latent interpersonal relationships construct.

Work motivation

Self-determined work motivation was assessed by the short version of the Blais Work Motivation Inventory (BWMI; Blais et al., 1993), which was developed in French. The short version assesses four motivational dimensions of three items each on a 1 (do not agree at all) to 7 (agree completely) point scale. Items complete the stem “Why do you do this job?” with each item representing a reason for working. The subscales assess intrinsic motivation (e.g., “Because I experience satisfaction when my job provides me with interesting challenges”), identified regulation (e.g., “Because this is the type of work that I prefer in order to further my career aspirations”), introjected regulation (e.g., “Because I absolutely want to be good, and if I’m not, I’ll be disappointed”), and external regulation (e.g., “For the pay-check”). Cronbach’s alphas for these subscales ranged from 0.73 to 0.89 at T1, which are similar to those reported by Blais et al. in the full version of the BWMI.

Following the procedure commonly used in the SDT literature (see Deci & Ryan, 2008), we used items from the four subscales to form a latent score representing relative self-determination at work. Since each type of motivation was assessed on the basis of three items, three indicators (indices) were formed to assess the latent construct of self-determination at work. One item was randomly selected from each subscale to create each of the indicators, using the following formula: [(intrinsic item + identified item) – (introjected item + external item)] (e.g., Sheldon & Elliot, 1999). Positive scores indicate greater self-determination, whereas negative scores indicate greater controlled motivation. Thus, scores could vary from –12 to 12.

Job burnout

The French-Canadian version (Dion & Tessier, 1994) of the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986) was used to assess the three dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment) on a 0 (never) to 6 (every day) point scale. The psychometric properties of the French-Canadian version of the MBI are similar to those of the original scale (Maslach et al., 2001). Emotional exhaustion comprised nine items (e.g., “I feel emotionally drained by my work;” Cronbach’s alphas 0.88 at T1 and 0.91 at T2). Five items assessed depersonalization (e.g., “I’ve become more callous toward people since I took this job;” Cronbach’s

alphas 0.70 at T1 and 0.71 at T2). Personal accomplishment included eight items (e.g., “I have accomplished many worthwhile things at this job;” Cronbach’s alphas 0.75 at each time point). We created three latent factors to represent the burnout dimensions. To reduce the number of parameters, three indicators were created for each factor by averaging items from the respective subscale (see Marsh & Yeung, 1998).

Statistical analyses

Structural equation modeling

Adequacy of the models tested in the present study was assessed by structural equation modeling (SEM) using EQS (Bentler & Wu, 1998). All models were tested with standardized coefficients obtained using maximum likelihood estimation. Since the chi-square test of fit is sensitive to sample size – and the probability of rejecting a hypothesized model increases with sample size – the use of relative fit indices is strongly recommended (Bentler, 1990). Following Marsh, Balla, and Hau (1996), we used the comparative fit index (CFI), the non-normed fit index (NNFI), and the root-mean-square error of approximation (RMSEA). Values below 0.05 for RMSEA indicate a close fit, whereas values up to 0.08 represent acceptable errors of approximation (Browne & Cudeck, 1993). The rule of thumb for NNFI and CFI is that values greater than 0.90 indicate a good fit (Hoyle, 1995).

Correlated errors or uniquenesses

Following Marsh and Hau (1996), we predicted *a priori* correlated uniquenesses between same constructs (i.e., burnout dimensions) measured on two occasions. In multiwave studies where the same items are administered to the same participants on multiple occasions, uniquenesses associated with matching measured variables are liable to be correlated. If substantial correlated uniquenesses are not included in the model, estimated correlations between corresponding latent constructs will be positively biased. Therefore, we included correlated uniquenesses between corresponding burnout indicators in the model tested.

Latent interaction based on SEM

The SEM unconstrained approach put forward by Marsh, Wen, and Hau (2004) was used to test the moderating role of work self-determined motivation on the relationships between the quality of relationships and burnout dimensions. Our model (see Figure 1) encompassed one set of endogenous latent factors (emotional exhaustion, depersonalization, and personal accomplishment at T2) and three sets of exogenous latent factors: (a) quality of relationships, work self-determined motivation, and their interaction at T1; (b) burnout dimensions at T1; and (c) demographic variables (i.e., gender and years of experience). Covariances between exogenous factors and endogenous factors were estimated. Each latent factor was assessed by three centered indicators and the latent interaction term (quality of relationships \times work motivation) and was defined by the product of their indicators. To interpret interaction effects, we followed the procedure described by Cortina, Chen, and Dunlap (2001), using standardized path coefficients. Simple slopes were derived for high (+1 *SD*), and low levels (–1 *SD*) of the moderator, self-determined work motivation.

Missing data analyses

In total, 123 participants (23 per cent) completed both time measurements. To verify if these participants were different from those who participated to a single wave, a MIMIC model (*multiple-*

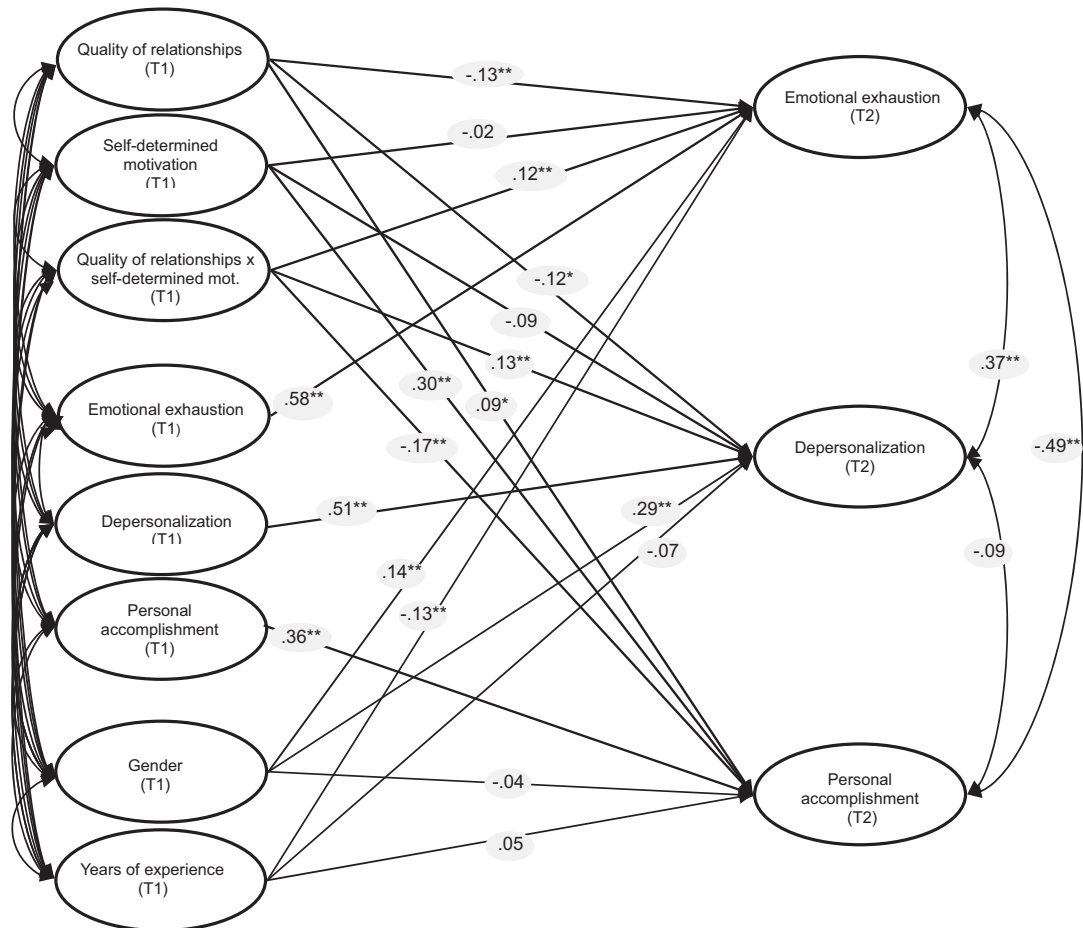


Figure 1. Model testing the moderating effect of self-determined work motivation in the relationships between quality of relationships with coworkers and burnout over time. Note: * $p < 0.05$, ** $p < 0.01$

indicator-multiple-indicator-cause; Jöreskog & Goldberger, 1975; Kaplan, 1999) was conducted. MIMIC analysis is a multivariate regression model in which latent variables are “caused” by grouping variables represented by a single indicator. This approach is stronger than a traditional MANOVA analysis based on measured variables (i.e., scale scores) that are assumed to be measured without error rather than on latent variables. The mimic model tested in this study included the main effect of missing data (no missing data = 0, missing data = 1) which was related to each factor examined in this study (i.e., quality of relationships, work self-determined motivation, and quality of relationships \times work self-determination at T1, as well as emotional exhaustion, depersonalization, and personal accomplishment at both time points), as well as to demographic variables (i.e., age, gender, years of experience, type of occupation, organizational tenure, and employment contract). Fit indices for the MIMIC model were satisfactory ($\chi^2 = 938.732$, $df = 411$, NNFI = 0.993, CFI = 0.995, RMSEA = 0.049 [0.045; 0.053]). Results showed that none of the 15 estimated paths tested were significant ($p < 0.01$), indicating no mean differences between missing and non-missing data.

Nevertheless, it is generally considered inappropriate to disregard missing values by using a listwise deletion of cases (see Peugh & Enders, 2004). According to Davey, Shanahan, and Schafer (2001), "Failure to deal with missing data results in a loss of statistical power because partially complete cases typically are discarded from the analysis. Also, when one or more systematic processes are responsible for the pattern of missing and observed data (as is often the case), parameter estimates will be biased" (p. 501). To circumvent this problem, we used the FIML (Full Information Maximum Likelihood) approach (EQS; Bentler & Wu, 1998) to estimate missing values. In short, this methodology rebuilds the covariance matrix and sample means estimates so that maximum function use is made of all non-missing data, resulting in more accurate results than with other traditional approaches to missing data (Jamshidian & Bentler, 1999). According to Peugh and Enders (2004), "empirical studies have, almost unequivocally, demonstrated the superiority of these methods (ML and Multiple Imputation) over traditional methods such as pairwise and listwise deletion" (p. 552). Thus, all analyses in this study are based on a sample of 533 participants for which missing values at T1 or T2 were estimated.

Results

Descriptive results

A correlational analysis revealed significant relationships between some demographic variables (i.e., gender, age, and years of experience) and burnout dimensions. Because age is confounded with years of experience, we decided to focus on the latter. We therefore controlled for gender and years of experience in the subsequent analyses. Means, standard deviations, and latent correlations between all factors are presented in Table 1. Latent correlations were based on a CFA analysis which provides a good fit to the data ($\chi^2 = 645.553$, $df = 221$, NNFI = 0.977, CFI = 0.982, RMSEA = 0.060 [0.055; 0.065]). Gender was negatively associated with emotional exhaustion at T1 and positively related to personal accomplishment at T1, which indicates that women reported higher exhaustion but lower

Table 1. Means, standard deviations, and latent correlations between all factors

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
Time-1												
1. Gender ^a	1.42	0.49	—									
2. Years of experience	16	9.72	0.18**	—								
3. Quality of relationships	2.67	0.85	-0.05	-0.09*	—							
4. Self-determined motivation	2.89	2.89	0.03	-0.15*	0.29**	—						
5. Emotional exhaustion	2.65	1.21	-0.15*	0.02	-0.37**	-0.22**	—					
6. Depersonalization	1.54	1.08	0.05	0.11*	-0.45**	-0.31**	0.50**	—				
7. Personal accomplishment	4.08	0.95	0.13*	-0.01	0.50**	0.44**	-0.49**	-0.46**	—			
Time-2												
8. Emotional exhaustion	2.13	1.23	0.03	-0.08	-0.34**	-0.13*	0.64**	0.37**	-0.47**	—		
9. Depersonalization	1.24	1.02	0.32**	0.02	-0.39**	-0.33**	0.28**	0.66**	-0.26**	0.48**	—	
10. Personal accomplishment	4.03	0.90	-0.01	-0.02	0.49**	0.32**	-0.38**	-0.49**	0.60**	-0.59**	-0.36**	—

^aGender (women = 1; men = 2). * $p < 0.05$; ** $p < 0.01$.

personal accomplishment than men. However, women exhibited lower depersonalization than men at T2. In addition, years of experiences was negatively related with high quality of relationships and self-determined work motivation, but was positively associated with depersonalization at T1. This indicates that more experienced employees reported lower quality of relationships with coworkers and lower self-determined motivation than their less experienced counterparts. They also showed more depersonalization at T1. More importantly, high quality of relationships with colleagues and self-determined work motivation were negatively associated with emotional exhaustion and depersonalization, but positively related with personal accomplishment at each time point. These findings provide support for Hypotheses 1 and 2.

Test of the moderating effect of self-determined work motivation

SEM analysis results show that the proposed model provides a good fit to the data ($\chi^2 = 723.579$, $df = 322$, NNFI = 0.985, CFI = 0.988, RMSEA = 0.048 [0.044; 0.053]). Results are summarized in Figure 1 (in order to avoid clutter, covariance paths between factors at T1 are not depicted because they are virtually the same as the latent correlations presented in Table 1). The proposed model explains 45 per cent of the variance in emotional exhaustion, 49 per cent of the variance in depersonalization, and 46 per cent of the variance in personal accomplishment, over a two-year period.

Our central hypothesis was that work motivation would buffer the relation between quality of relationships with coworkers and burnout. Controlling for gender, years of experiences, and prior burnout levels (emotional exhaustion, depersonalization, and personal accomplishment at T1), results show significant path coefficients between the interaction term (quality of relationships \times self-determined motivation) and all burnout dimensions at T2.¹ This supports our third hypothesis, which posits the moderating role of work motivation at work. Since the main effects of quality of relationships with coworkers and self-determined motivation are qualified by these interactions, we no longer interpret these main effects.

Figures 2–4 display the significant interactions between quality of relationships with coworkers and work motivation in the prediction of burnout dimensions. First, having high-quality relationships with coworkers was negatively associated with emotional exhaustion over time, but only for employees with low self-determined motivation ($\beta = -0.254$, $p < 0.001$ vs. $\beta = 0.012$, *ns*, for employees with high self-determined motivation). As for depersonalization, high-quality relationships were beneficial only for employees with low self-determined motivation ($\beta = -0.243$, $p < 0.001$ vs. $\beta = 0.009$, *ns*, for employees with high self-determined motivation). Third, high-quality relationships were more positively associated with personal accomplishment over time for employees with low self-determined motivation ($\beta = 0.47$, $p < 0.001$) than for those with high self-determined motivation ($\beta = 0.138$, $p < 0.05$), even though the latter was still significant. Taken together, these findings support Hypothesis 3, which posits that high quality of relationships with coworkers is crucial in psychological adjustment at work, especially for employees with low self-determined motivation.

¹We also tested the proposed model with alternative approaches (e.g., hierarchical moderated multiple regression analysis and SEM with listwise deletion), which both represent more conventional ways of dealing with missing values. Results of the regression analysis showed that interaction terms were statistically significant for exhaustion ($\beta = 0.12$; $p < 0.05$), for depersonalization ($\beta = 0.13$; $p < 0.05$), and for personal accomplishment ($\beta = -0.17$; $p < 0.05$). The SEM analysis with listwise deletion provided satisfactory fit indices ($\chi^2 = 468.582$, $df = 322$, NNFI = 0.912, CFI = 0.931, RMSEA = 0.061). Results indicated that two of the three interaction terms were statistically significant (full results can be obtained from the first author on request). However, the magnitude of the effects was higher than those observed with the missing data imputation; ($\beta = 0.19$; $p < 0.05$) for exhaustion, ($\beta = 0.20$, $p = 0.08$) for depersonalization, and ($\beta = -0.27$, $p < 0.01$) for personal accomplishment. The absence of a significant effect for depersonalization is likely due to lack of power because of our small sample size ($n = 123$).

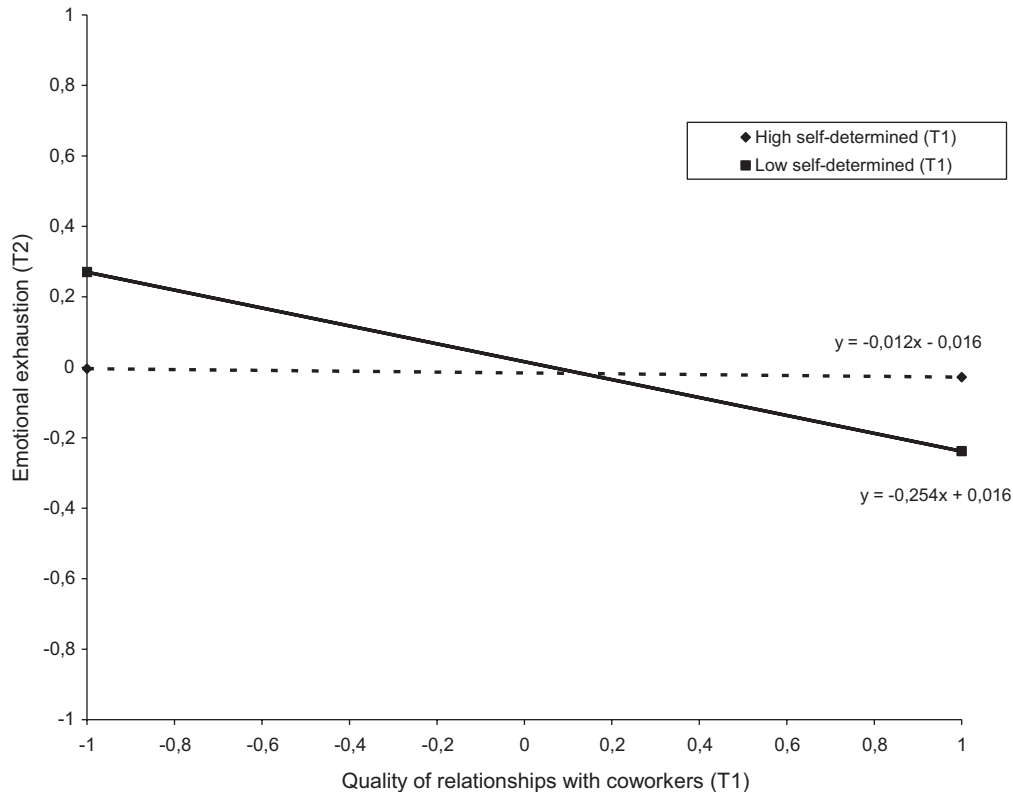


Figure 2. Interaction of quality of relationships with coworkers and work motivation in predicting emotional exhaustion over time

Discussion

In the present study, two patterns were proposed to shed light on the way interpersonal relationships and work motivation predict burnout over time. First, based on the main effect hypothesis, we expected high-quality relationships with coworkers and self-determined work motivation to be inversely related to burnout over time. This was supported despite the relatively high stability of burnout levels over the period of the study. Thus, the more employees reported high-quality relationships with coworkers and the more they valued and enjoyed their work, the less they experienced burnout symptoms over time. Second, and more importantly, we posited that the orientation of motivation at work would moderate the link between quality relationships and burnout dimensions. It was expected that employees with low self-determined work motivation would benefit more from high-quality relationships than those with high self-determined motivation. A two-year follow-up model using SEM analysis supported this hypothesis.

Theoretical implications

Our study makes a number of theoretical contributions. First, our results provide valuable information on how high-quality relationships with coworkers and work motivation may prevent burnout. The

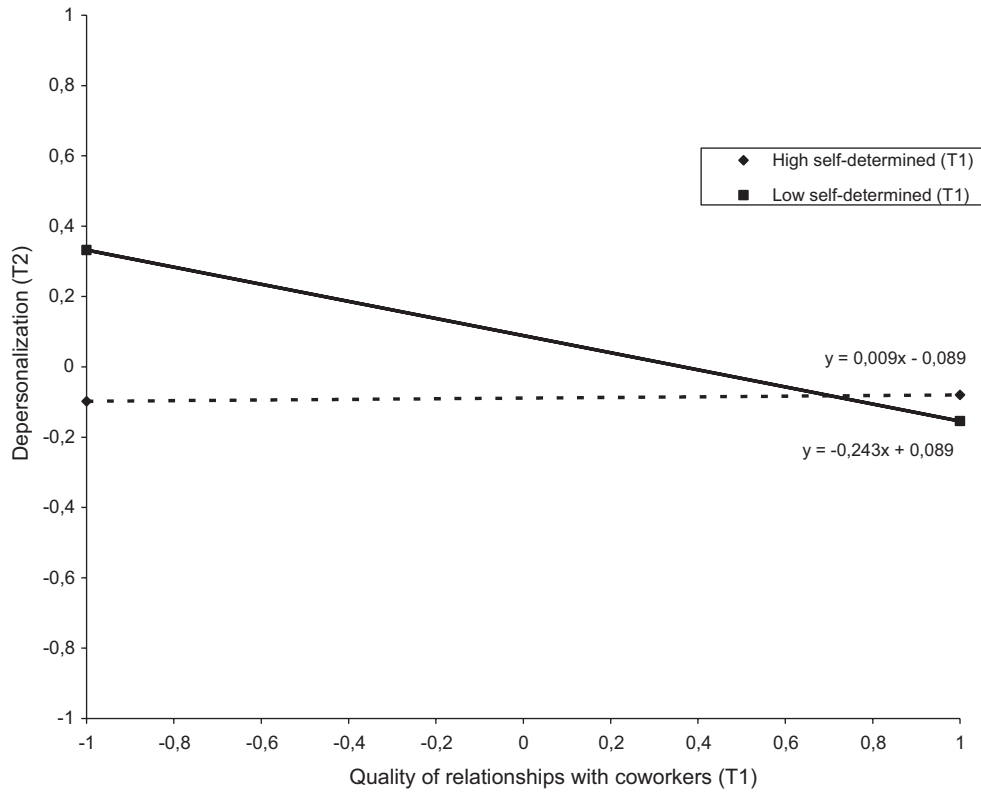


Figure 3. Interaction of quality of relationships with coworkers and work motivation in predicting depersonalization over time

inclusion of self-determined work motivation as an individual difference brings important insights, because it supports the idea that not all people react in the same way to the quality of interpersonal relationships at work. Relying on significant coworkers at work appears to be particularly important to people who are not autonomously motivated to do their work tasks. It appears that for employees who do not experience pleasure or do not find personal meaning in their work, high-quality relationships with coworkers may help them cope with their work experiences and reduce the likelihood of burnout. For people with low self-determined work motivation, high-quality relationships with coworkers may reduce exhaustion and depersonalization over time, in addition to fostering feelings of personal accomplishment at work. These results are in line with the *resource substitution* mechanism proposed by the conservation of resources (COR) theory (Hobfoll, 2002), suggesting that when a valuable resource is lost or absent, other kinds of resources may be substituted. However, our findings offer a more nuanced view of this assertion, since even employees who are not self-determined at work might invest a great deal of time and energy into their job, and therefore still rely on a considerable amount of motivation at work. Presumably, the presence of non-optimal regulations, such as being driven by external and/or internal sources of pressure, would lead such employees to become more exposed to this compensatory avenue. Further examination of the substitution mechanism is clearly needed.

On the other hand, our results suggest that poor interpersonal relationships with coworkers can make people more vulnerable to emotional exhaustion and depersonalization over time, as well as to depletion of feelings of personal accomplishment. However, for people with high self-determined work

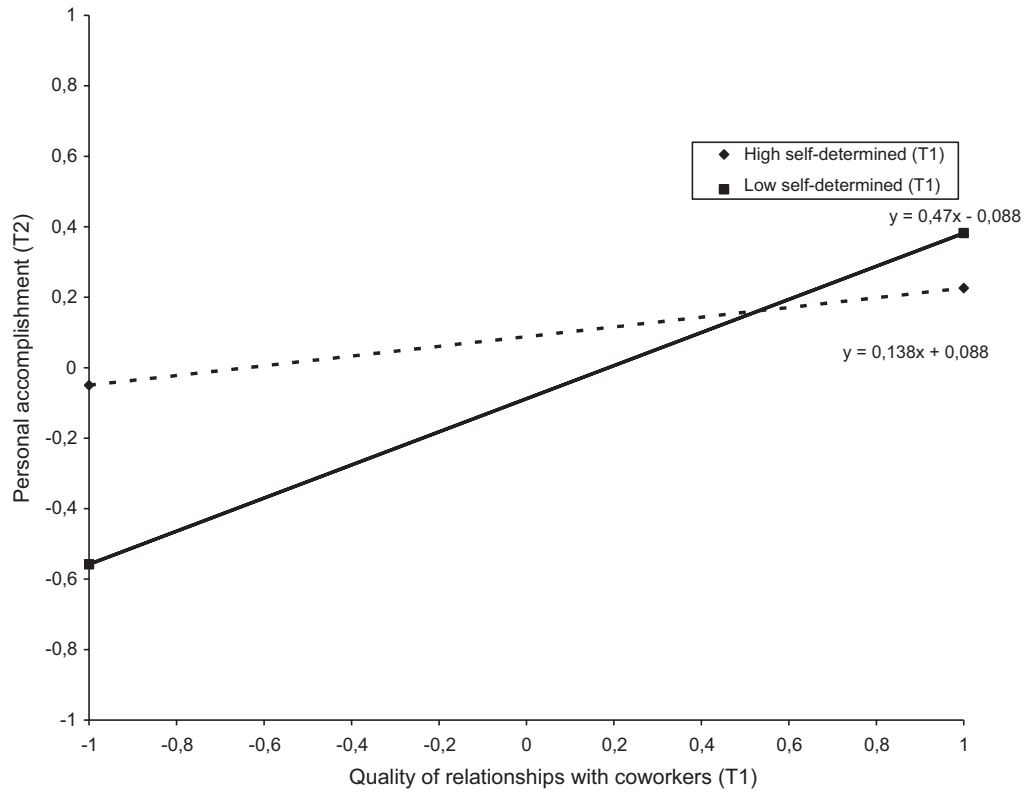


Figure 4. Interaction of quality of relationships with coworkers and work motivation in predicting personal accomplishment over time

motivation, positive interpersonal relationships with colleagues appear unnecessary to avoid burnout, especially for exhaustion and depersonalization. In general, people with high self-determined work motivation initially score lower on burnout (Blais et al., 1993; Fernet et al., 2008). This could imply that, over time, the adaptation of these employees is less contingent on the quality of relationships with colleagues. It may be that, for autonomously motivated employees, the intrinsic value of achieving meaningful and interesting goals is sufficient to protect them against the negative effects of stress. This argument is congruent with Deci and Ryan's (1995; see also Kernis, 2003) view that for some people (i.e., individuals who are not ego-involved and/or individuals with optimal and secure high self-esteem), feelings of self-worth do not depend on specific environmental outcomes and do not require continual validation from others. It is also in line with Brockner's (1988) plasticity hypothesis suggesting that people with suboptimal characteristics (i.e., low self-esteem) are more susceptible to the social environment.

Second, our results underscore the role of work motivation in the relationships between working conditions and burnout. Traditionally, research has put greater emphasis on organizational factors that foster burnout. Among the few studies that have included individual characteristics in their inquiries, most were restricted to the stressors-strain relationship (see Bakker & Demerouti, 2007). Such studies mostly depicted how adaptive individual characteristics (e.g., self-esteem, self-efficacy) mitigate the effects of deleterious working conditions on well-being (e.g., Pierce & Gardner, 2004). Although the present findings need to be further validated, they extend previous research by showing that individual

characteristics are also important in dealing effectively with the social context of the workplace. Regardless of stressors at work, the opportunity to rely on coworkers seems a requisite condition for some employees to prevent burnout symptoms. Our results contribute to extending previous burnout models by revealing that work motivation can interact not only with demands but also with other types of resources as a way to lessen burnout. Future research should seek to investigate the interplay between individual characteristics and other types of social factors (e.g., supervisor and team climate), as well as other work-related factors situated in the larger organizational context (e.g., pay, career opportunities, and job security), the work organization (e.g., role clarity, participation in decision-making), and at the task level (e.g., skill variety, task identity, task significance, autonomy, and performance feedback).

Another theoretical contribution of our study stems from the differentiation of burnout dimensions. It has been typically argued that work resources, such as social support, are differentially related to burnout dimensions (Leiter, 1993). Specifically, work resources appear to be more related to the disengagement component of burnout (i.e., depersonalization and reduced personal accomplishment) and less associated with energy depletion (i.e., exhaustion; Lee & Ashforth, 1996). However, as far as social resources are concerned, results of a recent meta-analysis by Halbesleben (2006) put this assertion into question, revealing that all three dimensions were related to social support at work. Our results concur with these findings, suggesting that for certain individuals, having high-quality relationships is a critical factor to prevent them from burnout.

Limitations

Certain limitations should be taken into consideration when interpreting the results of this study. First, we used self-reported measures, which can give rise to common method variance, and artificially inflate relations between constructs. We tried to minimize this problem by: (a) selecting self-report measures formulated in different terms; (b) using different scale ranges; and (c) correlating uniquenesses between same constructs measured on both occasions (see Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Future research could also use information from other sources, such as perceptions of interpersonal relationships, as reported by coworkers. Second, although the results of this study are consistent with a causal interpretation, the data are correlational in nature, and definitive conclusions about causality are unwarranted. Future research using experimental designs should attempt to replicate the present results. Third, we observed a high number of missing values in this study. Only 23 per cent of participants answered both questionnaires. Results from the MIMIC model indicate no differences between participants with complete data and those with missing data. In addition, we used a sophisticated estimation of missing values (FIML) to resolve the problem. Nevertheless, the present results must be interpreted cautiously. Finally, results cannot be generalized to all employees in the labor market because the participants consisted only of college employees.

Managerial implications

Although the findings of this research need to be further validated, some managerial implications can be drawn. The issue of individual characteristics at work generates unique information about how to develop effective interventions to reduce burnout. For example, work interventions could include ways to promote self-determined work motivation. Supporting work self-determination has been linked to other kinds of adaptive organizational behaviors, including greater job satisfaction (Blais et al., 1993), organizational commitment (Gagné, Chemolli, Forest, & Koestner, 2008), performance (Baard et al., 2004), and lower turnover intentions (Richer et al., 2002). Self-determined motivation can be increased

through enriched job design and effective managerial styles. For example, both the job characteristics model (Hackman & Oldham, 1976) and the psychological empowerment model (Thomas & Velthouse, 1990) have been associated with higher intrinsic work motivation (Gagné, Senécal, & Koestner, 1997). Moreover, autonomy supportive managerial styles (Deci et al., 1989, 2001) and transformational leadership (Bono & Judge, 2003) have been linked to greater self-determined work motivation.

As depicted in this study, another important and parallel route to reduce burnout is through relationships with coworkers. Our findings suggest that interventions must consider individual differences when dealing with interpersonal relationships. Enriching and strengthening social bonds in the work setting seem mostly beneficial for employees who feel more compelled to perform their work activities. Paradoxically, this may also increase or maintain employees' self-determined work motivation. High-quality relationships with coworkers have the potential to enhance functioning at work, since it provides the psychological nutrients that facilitate self-regulated motivation at work (Gagné & Deci, 2005). Moreover, positive relationships might bolster the internalization process (i.e., acquisition and acceptance of values and goals). Thus, controlled employees could become more autonomously motivated to engage in work behaviors, which would then protect them against burnout. Research has provided support for this contention, revealing that internalization is more likely to occur in a context which is supportive (Ryan, Stiller, & Lynch, 1994). Hence, not only can relationships with coworkers be useful in buffering burnout in the short term, but they may further protect against them in the long run by promoting self-determined work motivation.

Given that a shift toward optimal work motivation is not likely to occur in a short lapse of time, it is important to keep in mind that high-quality relationships with coworkers remains a key factor for individuals who feel pressured to engage in their work. Hence, a priority for managers could be to propose educative interventions designed to help employees better understand the potential value of peer relationships and other support systems in their organization.

In sum, this study provides valuable insights on how the quality of relationships with coworkers and work motivation interact to protect employees against burnout over time. By emphasizing their joint effect, it offers additional cues on health-protective factors that may prevent burnout in organizational settings.

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