

Supervisor Support, Role Ambiguity and Productivity Associated with Presenteeism:
A Longitudinal Study

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Abstract

Integrating the social informational processing perspective and conservation of resources theory, we proposed and examined the impact of supervisor support and role ambiguity on productivity associated with presenteeism and the mediating effect of role ambiguity on the link between supervisor support and productivity associated with presenteeism. The results based on the longitudinal data from 99 employees from an IT consulting company showed that role ambiguity was negatively related to productivity associated with presenteeism (SPS-6). In contrast, supervisor support indirectly influenced productivity associated with presenteeism via reducing role ambiguity

Keywords: productivity, presenteeism; supervisor support; role ambiguity; IT companies

Introduction

Presenteeism (i.e., employees attending work while sick) has attracted increasing attention among practitioners as well as researchers (Aronsson, Gustafsson, & Dallner, 2000; Hemp, 2004; Whitehouse, 2005). Much research has predominantly seen presenteeism as a negative factor in the workplace due to the documented links between presenteeism and productivity loss (see Johns, 2010, for a review, also, Hemp, 2004; Hummer, Sherman, & Quinn, 2002; Turpin et al., 2004). Sponsored mainly by pharmaceutical companies, this line of research aims to identify medical interventions that may help reduce the occurrence of presenteeism. Little attention however has been given to organizational interventions that may help mitigate productivity losses among employees who have been affected by illness. This is particularly unfortunate given the prevalence of presenteeism in contemporary organizations (Aronsson & Gustafsson, 2005; Gosselin, Lemyre, & Corneil, 2013; Jourdain & Vézina, 2014).

Meanwhile, some scholars have recently argued that presenteeism can be seen as employee's commitment or a type of organizational citizenship behavior (Demerouti, Le Blanc, Bakker, Schaufeli, & Hox, 2009; Johns, 2010), ultimately leading to organizational effectiveness. Therefore, to understand how to provide support for this particular group of employees is not only necessary but also important for organizations. Indeed, some promising research evidence has emerged suggesting that the organizational context may help employees' performance while being ill. For example, in their study of presenteeism, Patel, Budhwar, and Varma (2012) reported that organizational justice reduced productivity losses associated with presenteeism. Despite these efforts, many questions have been left unanswered. For example, research has yet to empirically test whether and how supervisor support, a critical contextual factor influencing employee's presenteeism behavior (Halbesleben, Whitman, & Crawford, 2014) may lead to employees' productivity when they attend work while ill. Drawing on the social information processing perspective (Salancik &

Pfeffer, 1978) and conservation of resources theory (Hobföll, 1989), we theorize and examine the impact of supervisor support on productivity associated with presenteeism.

Research on presenteeism has investigated this phenomenon mainly from two perspectives: (1) frequency of presenteeism and (2) productivity loss associated with presenteeism. For the former, the focus of research is to identify factors (e.g., job demands, social pressure, job insecurity) that may influence the act of presenteeism (e.g., Aronsson et al., 2000, Demerouti et al., 2009, Jourdain & Vézina, 2014). Presenteeism is assumed to always have negative consequences thus needs to be reduced — if not eliminated. Thus, productivity losses associated with presenteeism is implied rather than directly measured. For the latter, researchers examine productivity losses associated with presenteeism directly (Amick, Lerner, Rogers, Rooney, & Katz, 2000; Lerner et al., 2001) by asking study participants to estimate how their health has affected their work performance, especially their ability to concentrate and accomplish tasks (Koopman et al., 2002). The emergence of this line of research has been driven by pharmaceutical industries to understand the impact of certain drugs on people's performance. More recently, researchers have applied this approach in the organizational context (Patel et al., 2012). Given our focus on employee performance while ill in the organizational context, we investigated productivity associated with presenteeism rather than the frequency of presenteeism. It is important to note that we use 'productivity associated with presenteeism' rather than 'productivity loss associated with presenteeism' to avoid the negative implications.

To bring about productivity while overcoming illness can be a stressful situation for employees as being ill constitutes a threat to one's performance (Wright & Cropanzano, 1998). Employees who are exposed to such a situation are likely to experience psychological stress (Demerouti et al., 2009) as they are prone to be worried about how their illness may affect the quality and quantity of their work. Although the literature on the impact of stress on

performance has predominantly suggested that stressful circumstances have a linear negative effect on performance (Gilboa, Shirom, Fried, & Cooper, 2008; see Kahn & Byosiere, 1991, for a review), some researchers have observed that such an effect is more consistent in laboratory settings than in organizational settings (cf. Sonnentag & Frese, 2003). It is possible that individuals in the real-life settings can be more flexible dealing with their tasks than those in laboratories (Hockey, 2000) and adopt different strategies to achieve their tasks (Sperandio, 1971). For example, individuals may achieve desired performance by giving priority to their most relevant job responsibilities (Jex, 1998; Sonnentag, 2003). This is in line with conservation of resources theory which suggests that people use resources conservation strategy in stressful situations and invest available resources on priority tasks. However, literature has been quiet about the external support one may draw on in order to identify those important tasks. In light of the social information process perspective, we argue that supervisors provide critical and salient social cues in the work environment regarding what to achieve at work (Salancik & Pfeffer, 1978). Such social cues serve as informational support resources (Cohen & Wills, 1985) helping employees adopt effective coping strategy in accomplishing their tasks. In other words, for employees who work while ill, supervisor support helps reduce uncertain performance expectations or vague daily tasks and responsibilities (i.e. role ambiguity). In turn, employees are more likely to conserve their resources for their priorities and be productive at work (Ayyagari, Grover, & Purvis, 2011; Katz & Kahn, 1978; Rizzo, House, & Lirtzman, 1970). Therefore, we propose and test the impact of supervisor support on productivity associated with presenteeism via the mechanism of role ambiguity.

For social support to have its effect on role ambiguity and the consequent productivity, a temporal dimension need to be considered as to draw a causal link (Sonnentag & Frese, 2003; Zapf, Dormann, & Frese, 1996). Meanwhile, scholars have called for longitudinal studies in

order to understand the impact of organizational factors on presenteeism (Johns, 2010). Consequently, we seek to contribute to the literature by testing our model with data collected at two points in time with an interval of six months. A schematic representation of the hypothesized relationships is presented in Fig. 1.

Insert Fig. 1 about here

There are two primary theoretical contributions of the present study. First, by examining the impact of supervisor support on productivity associated with presenteeism, our research extends the presenteeism literature to include social support as a contextual factor to reduce the adverse impact of presenteeism on productivity. Second, by integrating the social information processing perspective and the conservation of resources theory, we identify the circumstances in which employees may still function effectively despite health problems and what organizational interventions can be employed. The findings of our study will provide useful and actionable knowledge to managers who are to reduce productivity loss associated with presenteeism.

Theoretical background and hypotheses development

According to the social information processing theory, employees rely on significant others (i.e., supervisors) as the main sources of information cues about their role expectations (Salancik & Pfeffer, 1978; Thomas & Griffin, 1983). This is particularly important for employees who work while ill. Illness may impair affected employees' cognitive, physical and psychological resources. In order to preserve their limited resources, employees with health problems will have to draw on external resources such as social support in order to accomplish their tasks (Hobföll, 2001). So far, the research on the impact of supervisor on employee performance has predominantly drawn on social exchange theory (e.g., Aryee &

Chen, 2006, Blau, 1964, DeConinck, 2010, Rhoades & Eisenberger, 2002). That is, employees will reciprocate supervisor support by bringing out better performance so as to return the favor. The social exchange perspective contributes significantly to our understanding of the impact of supervisor support on employee outcomes. However, the assumption that employees are always in a position to improve their performance may not necessarily be sustained in the presenteeism context. In such a scenario, employees are not in their full capacity to accomplish what have been expected of them and are less likely to repay supervisor's support by enhanced performance. Instead of expecting reciprocal behavior on the part of the employees, supervisors may need to focus on how to help the affected employees function effectively. We posit that supervisor support constitutes an external support resource that helps employees with health problems achieve desired performance by reducing role ambiguity (Kessler, Price, & Wortman, 1985). In turn, employees who attend work while ill can focus on their priorities and achieve their work goals. In the following paragraphs, we first explain the impact of supervisor support and role ambiguity on productivity associated with presenteeism. We then explain how role ambiguity may mediate the impact of supervisor support on productivity associated with presenteeism.

Supervisor support and Productivity Associated with Presenteeism

To bring about productivity while ill, employees need to deal with the cognitive, emotional and behavioral challenges entailed by their health problems (Koopman et al., 2002). More specifically, they need to focus on work processes (without being distracted) as well as achieve work outcome (completing work) despite having health problems. In line with conversation of resource theory (Hobföll, 1989, 2001), we posit that employees work while ill will rely on external support resources to reverse the negative impact of health problem so as to function effectively and argue that supervisor support plays a pivotal role in influencing employees' productivity in presenteeism. Firstly, given their hierarchical position,

it is plausible for supervisors exert influence on the extent to which workers' ability to stay focused on work process and work outcome. Empirical studies have provided supportive evidence. For instance, Mayer and Gavin (2005) reported that employees' ability to focus on tasks was influenced by the quality of their interactions with managers. It is arguable that employees' concentration is likely to be affected if the immediate social environment, such as supervisors, is not supportive because employees may spend cognitive, emotional and behavioral resources to draw up mechanisms to protect themselves or to worry excessively about how to reduce potential risks. This may be particularly the case for employees who come to work when ill as they may worry whether their performance will be affected by their illness and their effort to come to work will not be appreciated or rewarded, or they may be victimized because of their underperformance due to illness. These concerns if not appeased will eventually undermine the employees' concentration. Secondly, supervisor support meets employees' socio-emotional needs. As Yukl (1994, p. 118) stated, "supporting includes a variety of behaviors by which a manager shows consideration, acceptance, and concerns for the needs and the feelings of other people (...)". Under high supervisor support condition, employees who have health problems at work are likely to feel that they are being taken care of and they can trust the supervisor to support them when needed. Furthermore, as supervisors are the agents of the organization, employees will perceive that the organization as a whole values their contribution and rewards their effort, even if they may underperform. Consequently, experiencing a sense of stability and self-worth, employees in presenteeism are more likely to be able to concentrate on the tasks at hand regardless of their health problem. Thus, we hypothesize that:

H1. Supervisor support (Time 1) has a positive relationship with productivity associated with presenteeism (T2).

Role Ambiguity and Productivity Associated with Presenteeism

Much research on productivity in presenteeism has focused on the links between various health conditions (physical and psychological) and productivity losses (see Johns, 2011, for a review). As noted earlier, most of such research has been funded by pharmaceutical interests and the ultimate objective is to identify medical interventions. Differently, this research focuses on employees' experience at work that may influence employee productivity when they attend work while ill. Drawing on the stress literature, we argue that role ambiguity may lead to decreased productivity for employees in presenteeism. Classical role theory defines role ambiguity as a lack of the necessary information available to a specific function in the organization (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). More specifically, role ambiguity indicates a lack of clarity concerning employees' roles, responsibilities and/or the procedures to achieve what are expected of them (Biddle, 1979; Lazarus & Folkman, 1984; Van Sell, Brief, & Schuler, 1981). As role ambiguity has been related to employee outcomes such as uncertainty, reduced work satisfaction, higher levels of anxiety and job stress when they experience role ambiguity (Getzels & Guba, 1954; Kahn et al., 1964; Kelloway & Barling, 1990; Quah & Campbell, 1994), we propose that role ambiguity may particularly be predictive of employees' productivity for those who attend work while ill.

Attending work while ill, employees' personal resources in terms of energy and cognitive resources are likely to be affected by the illness. To cope with such stressful situation, employees may tend to conserve limited resources for priorities (Hobföll, 1989). When role ambiguity is high, the affected employees may not be able to conserve their resources as they have to employ their limited resources and time to make sense of what are expected of them (Dierdorff & Rubin, 2007; Jaramillo, Mulki, & Boles, 2011). Additionally, the depletion of emotional and cognitive resources due to role ambiguity may further lead to tension and stress such as emotional exhaustion (Lee & Ashforth, 1996) and physical strain (Nixon,

Mazzola, Bauer, Krueger, & Spector, 2011). Consequently, it becomes difficult for affected employees to come up with coping strategies, as there is no room for cognitive conciliation (Bauer & Simmons, 2000). In sum, for employees who attend work while ill, high level of role ambiguity depletes their cognitive and emotional resources and cause further stress and strains, leading to reduced productivity. In contrast, when role ambiguity is low, employees are clear what are expected of them and able to prioritize their job responsibilities and use their available personal resources to focus on those tasks that are expected to be done.

Accordingly, we propose that:

H2. Role ambiguity (T1) has a negative relationship with productivity associated with presenteeism (T2).

The Mediating Influence of Role Ambiguity

Supervisor support refers to employees' evaluation of the degree to which supervisors value their contributions and care about their wellbeing (Kottke & Sharafinski, 1988). Supervisor support can influence role ambiguity in several ways. The impact of supervisor support on role ambiguity can be explained from the social information processing perspective (Salancik & Pfeffer, 1978). As agents of the organization, supervisors are able to influence employees' perception of their role responsibilities by directing a person's attentional processes to expected goals and making role requirements salient and unambiguous (Salancik & Pfeffer, 1978). Furthermore, supervisor support can reduce employees' role ambiguity by encouraging and rewarding positive behaviors, providing informational feedback to attenuate employees' perceptions of the job. Finally, supervisor can provide day-to-day guidance and directions to employees so as to ensure that employees are clear what to achieve. Moreover, when employees perceive that supervisors appreciate their contributions and care for their well-being, they are more likely to internalize the goals and

expectations imparted by the supervisors leading to low level of role ambiguity. In contrast, when supervisor support is low, employees are less likely to receive clear feedback with regard to their job responsibilities and how to achieve performance goals. Meanwhile, low level of supervisor support may lead to negative reactions from employees, such as neglecting supervisor's feedback and ignoring information that pertains to their job responsibilities. Empirical studies have providing supporting evidence. In a meta-analysis, Jackson and Schuler (1985) reported that leaders' supportive behaviors such as initiating structures, consideration and employees' satisfaction with supervision were negatively related to role ambiguity. In another metaanalysis, Gerstner and Day (1997) reported that leader-member exchange (LMX), a construct that implies high level of supervisor support, is positively related to role clarity, the reverse coded construct of role ambiguity. Taken together, we propose that:

H3. Supervisor support (T1) has a negative relationship with role ambiguity (T2).

So far, we have argued that role ambiguity may have an adverse impact on productivity associated with presenteeism (H2) and that supervisor support may help reduce role ambiguity (H3). Thus, in line with the notion that social support such as supervisor support influences stressful situations by providing what is specifically needed in those situations (Cohen & Wills, 1985; Hobföll, 1989), we suggest that a potential route for supervisor support to influence productivity associated with presenteeism is via reducing role ambiguity. Accordingly, we propose that:

H4. Role ambiguity (T2) mediates the relationship between supervisor support (T1) and productivity associated with presenteeism (T2).

Method

Participants and procedures

The data for this study were collected in a multinational IT company located in Lisbon and Porto, the two most economically important cities in Portugal. The country has been going through significant economic recession since 2007, reporting the highest level of unemployment rate of over 12% over decades (OECD, 2010). The participating company is a consulting firm in management and technological systems (e.g., SAP) and ranked among one of the top five companies by the Great Place to Work® Institute, 2012. Given such a context, employees in this company are likely to experience the pressure to engage in presenteeism to safeguard their job (MacGregor, Cunningham, & Caverley, 2008). Moreover, like typical knowledge workers, employees in the IT sector often work in teams and on job responsibilities that are difficult to find substitutes. Thus, they are prone to attend work while ill due to perceived social pressure from their team members (Grinyer & Singleton, 2000). The data were collected in two points in time. Questionnaires were sent to all company employees (a total of 450 individuals) who were informed of the voluntary nature of participation in the survey and assured of the confidentiality of their responses. Between Time 1 and Time 2 there was an interval of six months (T1: June 2011 and T2: December 2011). In Time 1, 187 (41.6%) responses were collected whereas in Time 2, 154 (34.2%) responses were returned. However, only 117 respondents (26%) participated in both waves, among which eighteen responses were excluded due to missing values and employees that reported suffering from no health condition, leaving 99 usable responses to be included in the final analysis. In line with previous longitudinal studies that focused on presenteeism (e.g., Lu, Peng, Lin, & Cooper, 2014), we opted for a six-month lag between Time 1 and Time 2. The sample included 58 men (58.6%) and 41 women (41.4%) with an average age of 33.5

years ($SD = 6.0$). The majority (95, 96%) of the participants have worked for the organization for at least one year.

Measures

The survey instrument was administered in Portuguese but was originally constructed in English. We used a standard translation and back-translation procedure to assure the equivalence of the measures in the English and Portuguese versions (Brislin, 1980).

Productivity associated with presenteeism. We used Stanford Presenteeism Scale (SPS-6) — the SPS-6 scale (Koopman et al., 2002), a short form of the full Stanford Presenteeism Scale to measure productivity associated with presenteeism. Response options ranged from “1 = strongly disagree” to “5 = strongly agree”. This scale seeks to determine “the employee's ability to focus on work without being distracted by health problems” (Koopman et al., 2002, p. 19). Each participant is asked to mention one or more health conditions that affected their performance at work. Accordingly, she/he answered the SPS-6 scale while considering that (those) specific condition(s). We assure that every respondent who was included in the analyses has had at least one physical and/or psychological health condition that might have affected her/his work performance. It includes two dimensions: completing work, i.e. accomplishing tasks despite health problems, and avoiding distraction, i.e. being able to concentrate in the process of doing work despite health problems. A sample item for completing work is “despite having my health problem, I was able to finish hard tasks in my work” and that for avoiding distraction is “at work, I was able to focus on achieving my goals despite my health problem”. Like prior research, we combined these two dimensions to form a global SPS-6 scale to capture individuals' work performance while they are affected by health problems. Higher scores in SPS-6 mean that people's work was less affected by presenteeism. The validation of the scale to the Portuguese population revealed good psychometric properties, with Cronbach's alphas ranging from .78 to .82 (Ferreira, Martinez,

Sousa, & Cunha, 2010). The Cronbach alpha scores for this scale were .76 in T1 and .83 in T2.

Role Ambiguity. We used a six-item scale developed by Rizzo et al. (1970) to measure role ambiguity. Response options ranged from “1 = never” to “7 = nearly all the time”. Sample items are “in my job I know exactly what is expected of me (reverse coded)” and “I know what my responsibilities are” (reverse coded). The Cronbach alpha values for this scale were .92 in T1 and .91 in T2.

Supervisor support. We used an eight-item scale adopted from Oldham and Cummings (1996) to measure supervisor support. Response options ranged from “1 = strongly disagree” to “7 = strongly agree”. Sample items are “my supervisor help me solve work-related problems” and “my supervisor rewards me for good performance”. The Cronbach alphas for this scale were .87 in T1 and .86 in T2.

Controls. We controlled for gender and age, which have been found to be related to presenteeism (Martinez & Ferreira, 2012; Simpson, 1998). Additionally, we controlled for another two role stressors, role overload and role conflict which may influence productivity (Abramis, 1994; Jackson & Schuler, 1985). Both role overload and role conflict were measured at Time 1. For role overload, we used a 3-item scale adopted from Bacharach, Bamberger, and Conley (1990). Response options ranged from “1 = definitely false” to “4 = definitely true”. Sample items are “I don't have time to finish my job” and “I'm rushed in doing my job”. The Cronbach alpha for this scale was .69. For role conflict, we used an 8-item scale by Rizzo et al. (1970). Response options ranged from “1 = strongly disagree” to “7 = strongly agree”. Sample items are “I receive incompatible requests from two or more people” and “I receive assignments without adequate resources and material to execute them”. The Cronbach alpha for this scale was .85.

Results

As the data for all study variables were collected from employees, common method variance could potentially influence the relationships examined (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We thus conducted a chi-square difference discriminant validity test to examine the distinctiveness of the study variables (Yuan & Bentler, 2004). Specifically we compared a measurement model with the SPS-6, role ambiguity and supervision items loadings on separate factors against a model with all items loading on a common factor. A chi-square difference test showed that the three-factor model was superior than the onefactor model for both Time 1 (χ^2 difference (1, N = 99) = 211.611, $p < .001$) and Time 2 (χ^2 difference (1, N = 99) = 252.993, $p < .001$) data, indicating discriminant validity for our measures. Descriptive statistics and zero-order correlations for the study variables are presented in Table 1. As shown, supervisor support at T1 was positively correlated with productivity in Time 1 ($r = .43$, $p < .01$) and Time 2 ($r = .21$, $p < .05$) but negatively correlated to role ambiguity at T2 ($r = -.51$, $p < .01$). Both role ambiguity at T1 and T2 were negatively correlated to productivity associated with presenteeism at T2 ($r = -.51$ and $r = -.44$ respectively, both $ps < .01$), providing a preliminary support for our hypotheses.

 Insert Table 1 about here

To test the hypotheses, we conducted a series of hierarchical regression analyses. The results for H1 and H2 were reported in Table 2. As shown in Model 1, supervisor support (T1) was not related to productivity associated with presenteeism (T2) ($\beta = .02$, ns) after gender, age, role overload, role conflict and productivity associated with presenteeism (T1) were controlled for. In contrast, role ambiguity (T1) was negatively related to productivity

associated presenteeism (T2) ($\beta = -.33, p < .01$) in Model 2 after the same set of variables was controlled for. Thus, while H1 was rejected, H2 received support.

 Insert Table 2 about here

To test for the hypothesized mediating effect of role ambiguity, we first followed the procedure suggested by Kenny, Kashy, and Bolger (1998). According to Kenny et al. (1998), mediation is supported when two essential conditions are met: (1) the path between the independent variable, i.e. supervisor support (T1) and the mediator, i.e. role ambiguity (T2) should be significant (path a); and (2) the path between the mediator and the dependent variable, i.e. productivity associated with presenteeism (T2) (path b) should be significant while the independent variable is controlled for. We then conducted the distribution-of-product test suggested by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) to ascertain whether the mediated effect (the product of paths a and b) is significant. This approach involves the calculation of the 95% confidence intervals (CIs) of the observed indirect effect. If the 95% confidence interval for a regression coefficient excludes zero, the coefficient is statistically significant at the .05 level. The results for H3 and H4 were presented in Table 3. As shown, supervisor support (T1) was negatively related to role ambiguity (T2) ($\beta = -.51, p < .01$) in Model 3, after gender, age, role overload, role conflict, and productivity associated with presenteeism (T1) were controlled for, supporting H3. In Model 4, role ambiguity (T2) was significantly related to productivity associated with presenteeism (T2) ($\beta = -.42, p < .01$) after gender, age, role overload, role conflict, productivity associated with presenteeism (T1) and supervisor support (T1) were controlled for, indicating that both essential conditions for mediation effect were satisfied.

We used the web application provided by Tofighi and MacKinnon (2011) for the calculation of the confident interval. Specifically, we entered the regression coefficient and standard error for the path between supervisor support (T1) and role ambiguity (T2) and for the path between role ambiguity (T2) and productivity associated with presenteeism. Results showed that the indirect effect of supervisor support on productivity associated with presenteeism via the mechanism of role ambiguity was significantly different from zero (indirect effect = .14, SE = .05, 95% CI = .067 to .258). Thus, H4 was supported.

 Insert Table 3 about here

Discussion

Integrating the social information processing perspective and conservation of resources theory, this study sought to investigate the impact of supervisor support and role ambiguity on productivity associated with presenteeism. Using the data collected from two points in time, we found that role ambiguity is negatively related to productivity associated with presenteeism and supervisor support indirectly influences productivity associated with presenteeism via the mediating mechanism of role ambiguity.

Theoretical implications

While prior research has contributed significantly to our understanding of the factors that lead to the act of presenteeism and health problem related productivity losses, this research focused on organizational factors such as supervisor support and role ambiguity that may influence the productivity of those employees who attend work while ill. Additionally, we conceptualized productivity in presenteeism as a neutral rather than negative construct which has been widely adopted in prior research. Moreover, unlike prior research which has predominantly examined the influence of supervisor support on employee outcomes from a

social exchange theory perspective, our research investigated the mediating function of role ambiguity on the relationship between supervisor support and employee productivity associated with presenteeism. The findings of our study have important theoretical implications.

First, the finding that role ambiguity was negatively related to productivity associated with presenteeism has important implications for the stress literature. This finding is consistent with that of Harris, Artis, Waters, and Licata (2006) who reported that role ambiguity impaired individual's ability to effectively employ their resources (i.e. be resourceful) affecting performance. Moreover, although research has shown that employees in a stressful situation such as presenteeism may adopt coping strategies such as conserving available resources for core tasks (Demerouti et al., 2009), our finding highlights that without a clear understanding of what are expected of them, i.e. high role ambiguity, employees will not be able to adopt such coping strategy thus will become ineffective in their performance.

We found that role ambiguity mediated the relationship between supervisor support and productivity associated with presenteeism. By going beyond the demonstration of main effect, we further delineate the process through which supervisor support may influence employee productivity when they attend work while ill. Additionally, departing from the conventional social-exchange perspective (Blau, 1964) in explaining the impact of supervisor support on employee outcomes, we identified an alternative underlying mechanism through which supervisors influence employee productivity. This mechanism is particularly important for employees whose performance may suffer due to their health problems and who need support in order to function effectively. We argued that the social exchange perspective may help shed light on why employees attend work while ill but it does not explain whether and how supervisor support works in terms productivity associated with presenteeism. Our finding is in line with the stress literature in that social support needs to supply what is

needed in a stressful situation in order to be influential (Cohen & Wills, 1985). By providing useful information on role responsibilities, supervisor support may help employees with health problem focus on core tasks and be effective despite illness.

Practical implications

The findings of this study provide actionable knowledge that organizations can use to support employees who attend work while ill and avoid productivity losses attributed to presenteeism. Specifically, our finding suggests that supervisor support can indirectly influence employee productivity via reducing role ambiguity. Frontline supervisors should be encouraged to provide support to employees who attend work while ill especially by delineating clear goals and responsibilities so that employees can strategically focus on their priorities and remain effective despite health problems. Therefore, management development programs should include elements that focus on leadership skills (such as communication and feedback) and behaviors that help facilitate clear communication and understanding between the supervisor and the employees with regard to role responsibilities and expectations.

Limitations and direction for future research

As with any research, this study has some limitations which must be highlighted. First, data on all study variables were based on self-reports giving rise to concerns about the potential influence of common method variance (CMV) on the findings reported in our paper.

However, CFA results revealed that these findings are not likely attributable to CMV. Future research nevertheless should endeavor to obtain data from multiple sources (such as peers) so as to mitigate the potential influence of CMV. Second, due to the inevitable attrition in the longitudinal design and employees' potential reluctance to disclose their health problems (Hemp, 2004) our final sample size was small compared to most individual level cross-

sectional studies. This thus raises a concern about whether there was enough statistical power to validate the relationships examined in this study. Studies of productivity associated with presenteeism in the organizational contexts are relatively rare. Although longitudinal research on presenteeism is emerging (e.g., Demerouti et al., 2009, Lu et al., 2014), to our knowledge, our study was the first to use longitudinal design to examine productivity associated with presenteeism in the organizational contexts. Although our results lend support to our cross-lagged regression hypotheses suggesting that the sample size was sufficient for statistical power considerations, they do not address the issue of generalizability. Future research should use a larger sample to replicate the relationships reported in this study.

Another limitation of this study is that the instrument we used to measure productivity associated with presenteeism does not differentiate health problems and their varied impact on productivity. It is possible that some health conditions (e.g., depression) may affect one's productivity more than others (e.g., cold) (Goetzel et al., 2004) thus requiring different social support and resources. Future research may contribute to the literature by examining the productivity and support issues related to more specific health problems.

Supervisor support plays a critical role in employees' decision to engage in presenteeism or not, i.e., to work while ill or to be absent (Halbesleben et al., 2014). Our consideration of supervisor support's role in ensuring employee effective performance in presenteeism may constitute only one fraction of the dynamics in the relationship between supervisor support and the productivity issues associated with presenteeism. It is possible that supervisor support may have a positive impact on productivity in a short term (e.g., six months) and this positive effect may disappear or turn negative in a longer term. In other words, supervisor support may work as a double-edged sword. On the one hand, employees with health problems may be able to engage in their work as normal when they receive support from their supervisor. On the other hand, employees may be encouraged to attend work while ill, which in a long term

may lead to exhaustion or burnout (Demerouti et al., 2009; Ferreira & Martinez, 2012) and, ultimately, productivity losses (Michel, 2012). This point perhaps can help explain the reported non-significant relationship between supervisor support and productivity associated with presenteeism (H1) and the relatively small indirect effect (H4). It is possible that supervisor support in the presenteeism context, while helpful in defining task goals and responsibilities and ensuring eventual productivity may simultaneously encourage employee to neglect their health problems leading to long-term fatigue and productivity losses. Future research should further explore the contradictory roles that supervisor support may play in presenteeism's context.

Conclusion

We proposed and tested the impact of supervisor support and role ambiguity on employee productivity among those who attend work while ill. Integrating the social information processing perspective and conservation of resources theory and departing from the social exchange perspective, we investigated role ambiguity as a mediating mechanism through which supervisor support influences employee productivity. Given the potential productivity losses attributed to the act of presenteeism, more research is needed to identify other organizational factors that may influence productivity associated with presenteeism and unpack the complex process through which organizational interventions influence this particular employee outcome.

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APPENDIX – Measurement constructs

Productivity associated with presenteeism (SPS-6)

1. Because of my (health problem)[†], the stresses of my job were much harder to handle.*
2. Despite having my (health problem)[†], I was able to finish hard tasks in my work.
3. My (health problem)[†] distracted me from taking pleasure in my work.*
4. I felt hopeless about finishing certain work tasks, due to my (health problem)[†].*
5. At work, I was able to focus on achieving my goals despite my (health problem)[†].
6. Despite having my (health problem)[†], I felt energetic enough to complete all my work.

[†] Note that the words “back pain”, “cardiovascular problem”, “illness”, “stomach problem”, or other similar descriptors can be substituted for the words “health problem” in any of these items.

Supervisor support

1. My supervisor helps me solve work-related problems.
2. My supervisor encourages me to develop new skills.
3. My supervisor keeps informed about how employees think and feel about things.
4. My supervisor encourages employees to participate in important decisions.
5. My supervisor praises good work.
6. My supervisor encourages employees to speak up when they disagree with a decision.
7. My supervisor refuses to explain his/her actions.*
8. My supervisor rewards me for good performance.

Role ambiguity

1. [In my job] I know exactly what is expected of me. *
2. I know that I have divided my time properly [in my job]. *
3. Explanation is clear of what has to be done [in my job].*

4. I feel secure about how much authority I have [in my job]. *
5. I know what my responsibilities are [in my job]. *
6. Clear, planned goals and objectives exist [for my job]. *

Role overload

1. I don't have time to finish my job.
2. I'm rushed in doing my job.
3. I have a lot of free time on my hands. *

Role conflict

1. I have to do things that should be done differently.
2. I have to buck a rule of policy in order to carry out an assignment.
3. I receive incompatible requests from two or more people.
4. I do things that are apt to be accepted by one person and not accepted by others.
5. I work on unnecessary things.
6. I work with two or more groups who operate quite differently.
7. I receive assignments without the manpower to complete them.
8. I receive assignments without adequate resources and material to execute them.

Note: * Indicates reverse-scored items. *SPS-6* items were measured on a 5-point scale, where "1" = "Strongly disagree" and "5" = "Strongly agree". *Supervisor support* and *role ambiguity* items were measured on a 7-point scale, where "1" = "Totally disagree" and "7" = "Totally agree".

Table 1

Means, standard deviation and correlations of study variables.

	Mean	S.D.	1	2	3	4	5	6	7	8
1 Gender ^a	--	--								
2 Age	33.45	5.98	-.03							
3 Role overload T1	2.67	.68	-.19	-.17						
4 Role conflict T1	2.54	1.02	.06	-.13	.18					
5 Productivity T1	3.78	.75	.10	.08	-.14	-.47**				
6 Role Ambiguity T1	3.05	1.26	-.06	.01	.18	.42**	-.62**			
7 Role Ambiguity T2	2.96	1.19	-.07	.11	-.02	.53**	-.28**	.53**		
8 Supervisor support T1	5.27	1.13	.00	.13	-.10	-.51**	.43**	-.61**	-.51**	
9 Productivity T2	3.69	.81	.05	-.05	-.07	-.22*	.47**	-.51**	-.44**	.21*

Note: $N = 99$. ^a0 = male, 1 = female; * $p < .05$, ** $p < .01$.

Table 2

Results of Hierarchical Regression Analyses^a for Hypotheses 1-2.

	Model 1	Model 2
	(Productivity T2)	(Productivity T2)
<i>Step 1: Controls</i>		
Gender ^b	.00	.01
Age	-.02	-.08
Role overload T1	-.01	-.08
Role conflict T1	.00	.04
Productivity T1	.46***	.28*
$R^2/\Delta F$.22/5.227***	.22/5.230***
<i>Step 2: Predictors</i>		
Supervisor support T1	-.02	--
Role ambiguity T1	--	-.38**
$\Delta R^2/\Delta F$.00/.025 ^{ns}	.085/11.212**

Note: $N = 99$. ^a standardized coefficient. ^b 0 = male, 1 = female; * $p < .05$, ** $p < .01$,

*** $p < .001$.

Table 3

Results of Hierarchical Regression Analyses^a for Hypotheses 3-4.

	Model 3	Model 4
	(Role Ambiguity T2)	(Productivity T2)
<i>Step 1: Controls</i>		
Gender ^b	-.08	-.04
Age	.12	.03
Role overload T1	-.06	-.03
Role conflict T1	-.06	-.02
Productivity T1	-.11	.42***
$R^2/\Delta F$.11/2.239	.22/6.611***
<i>Step 2: Predictors</i>		
Supervisor support T1	-.54**	-.20
Role ambiguity T2	--	-.38**
$\Delta R^2/\Delta F$.18/23.687***	.12/17.430***

Note: $N = 99$. ^a standardized coefficient. ^b 0 = male, 1 = female; * $p < .05$, ** $p < .01$,

*** $p < .001$.

Fig 1. A Schematic Representation of Hypothesized Relationships.

