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Nurse middle managers' proactive work behavior: antecedents and consequences on innovative work behavior and job performance

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ABSTRACT

Purpose – Healthcare organizations require more proactive behaviors from nursing professionals. However, nurse managers' proactivity has rarely been analyzed in the literature and little is known about the antecedents and consequences of their proactive behavior at work. This study examines the relationships between job characteristics (i.e., job autonomy and job variety), psychological empowerment, proactive work behavior and job effectiveness indicators (i.e., innovative work behavior, job performance). We tested a model in which psychological empowerment and proactive work behavior sequentially mediate the relationship between job characteristics and job effectiveness.

Design/methodology/approach – A cross-sectional study was conducted among nurse middle managers from a French hospital ($N = 321$). A hypothetical model was developed based on existing theory. Structural equation modeling was used to test the hypotheses.

Findings – Results show that psychological empowerment and proactive work behavior fully mediate the relationship between job characteristics and innovative work behavior, and partially mediate the relationship between job characteristics and job performance.

Originality/value – This study provides insights for understanding how job characteristics can contribute to fostering the proactivity of nurse middle managers and how their proactive work behavior can be positively related to innovative work behavior and job performance. Findings raise several implications for hospital administrators and upper management seeking new ways to enhance nurse middle managers' proactive work behavior and push further their effectiveness at work.

Keywords : *proactive work behavior, job characteristics, psychological empowerment, innovative work behavior, job performance, nurse middle managers, healthcare*

INTRODUCTION

French healthcare organizations, like many other similar health institutions around the world, face continuous reforms and transformations in the workplace environment, technologies and practices (Martínez-Rodríguez *et al.*, 2020; Øygarden *et al.*, 2019; Qatawneh, 2016). Due to all these changes, hospital employees are constantly dealing with new organizational structures and work arrangements (Martínez-Rodríguez *et al.*, 2020; Øygarden *et al.*, 2019). As a result, this context has increased the demand for proactive behaviors as a way to maintain high-quality services, reduce waste and improve patients' care and safety (Qatawneh, 2016). Thus, all professionals working in hospitals are encouraged to act proactively, that is to say, to identify problems and find solutions, make suggestions to diminish the occurrence of errors, act on their own initiative, and introduce constructive changes rather than adapting to the existing circumstances (Kessel *et al.*, 2012).

In particular, the proactive work behavior (PWB) of nurse middle managers appears to be important to achieve this goal (Rashkovits, 2019). Regardless of the type of organization, middle managers' proactive actions (e.g. anticipate problems, find solutions, implement proactive actions and innovative ideas) are essential and highly contribute to organizational efficiency (Helland *et al.*, 2021). Due to their hierarchical position, they are widely acknowledged as an essential group of employees who occupy a central role in fostering organizational innovation (Mustafa *et al.*, 2022; 2023). Indeed, they are ideally positioned to identify new ideas and are well placed to find the resources needed to introduce positive change and implement innovative ideas (Mustafa *et al.*, 2023). Furthermore, they serve as a bridge connecting the strategic directives established by top-level management to their staff (Mustafa *et al.*, 2023). Specifically, in the healthcare sector, nurse middle managers are responsible for organizing care and services in a relevant and efficient way, and are responsible for creating motivating work environments for nursing staff. They hold a strategic

position that enables them to make decisions regarding solutions within healthcare organizations and find the support needed to implement their ideas. As a result, nurse middle managers' PWB is recognized as being of great importance, as they are known for making a significant contribution to improving the quality of care and the efficiency of healthcare organizations (Niskasaari *et al.*, 2022). For instance, proactive nurse managers implement new practices to improve care quality, delivery and safety even under unfavorable working conditions; and contribute to the creation of stimulating work environments for their team (e.g., mobilize resources, provide support and assistance, opportunity, and information) (Qatawneh, 2016; Rashkovits, 2019; Warshawsky *et al.*, 2012). On the other hand, less proactive nurse leaders simply adapt to the high workloads of their team, accept staff members' disengagement and routine work demands, and renounce engaging in stimulating behaviors (Rashkovits, 2019).

Despite the recognized importance of nurse middle managers' PWB, surprisingly, this topic is understudied in literature (Warshawsky *et al.*, 2012). Previous studies on proactivity in the healthcare sector mostly focused on midwives (Mestdagh *et al.*, 2019) and nurses' PWB (Galleta *et al.*, 2019; Porto and Dall'Agnol, 2016) while nurse managers – and more broadly leaders' – proactivity has rarely been examined (Wu and Wang, 2011). Only a few studies have specifically focused on nurse middle managers' proactivity (Jankelová *et al.*, 2021; Khatri *et al.*, 2017; Warshawsky *et al.*, 2012). These studies reveal that factors such as interpersonal relationships (Warshawsky *et al.*, 2012), HR capabilities (Khatri *et al.*, 2017), and organizational support (Jankelová *et al.*, 2021) positively contribute to enhancing nursing middle managers PWB. Although, these results make a significant contribution to our knowledge of the determinants of healthcare middle managers' PWB, there is room for improving understanding of how organizational factors can influence nurse middle managers' PWB. As a result, little is known about organizational factors that can encourage nurse middle

managers' proactivity as well as the mechanisms leading to nurse middle managers' PWB are still unclear. Likewise, it is generally assumed that health professionals' PWB increases their efficiency and effectiveness at work. However, there is a lack of knowledge of the outcomes associated with their PWB. Given the importance of nurse middle managers' PWB, there is a need to provide empirical evidence on the mechanisms that lead to its activation and the associated outcomes (Jankelová *et al.*, 2021; Warshawsky *et al.*, 2012).

The purpose of this study is to gain a more precise and complete understanding of how nurse middle managers' PWB emerge, and examine in turn whether it can be beneficial for their effectiveness at work. Building on Bindl and Parker (2010) proactivity model, we proposed and tested a research model of PWB from antecedents (i.e. job characteristics) to consequences (i.e. job effectiveness). Specifically, the study examines whether psychological empowerment and PWB sequentially mediate the relationship between job characteristics (i.e. job autonomy, job variety) and job effectiveness (i.e. innovative work behavior, job performance). To this end, we focus on the role of job characteristics as distal antecedents of nurse middle managers' PWB. Indeed, literature reveals that job characteristics may be especially important in helping individuals to be self-starting, make suggestions, and introduce changes (Albrecht *et al.* 2021; Zhou *et al.*, 2019). However, we suggest that job characteristics alone fail to provide a comprehensive explanation of how nurse middle managers' PWB emerge. Prior research has shown that the relationship between distal antecedents and PWB is not necessarily direct but rather, individual cognitive motivational states “*can do*”, “*reason to*”, or “*energy for*” are important explanatory mechanisms to consider in the proactivity process of activation (Parker *et al.*, 2010; Wu *et al.*, 2018). In accordance, we studied nurse middle managers' psychological empowerment as a ‘can do’ motivational cognitive process that mediates the relationship between job characteristics and PWB. We propose that nurse middle managers' sense of feeling psychologically empowered may contribute to explaining why they engage in PWB in response

to favorable job characteristics (autonomy, task variety). Indeed, as Pieterse, Van Knippenberg, Schippers and Stam (2010) argued, “psychologically empowered individuals see themselves as competent and able to influence their jobs and work environments in meaningful ways, facilitating proactive behavior, showing initiative, and acting independently” (p. 613). Furthermore, we integrated the analysis of the consequences of PWB and proposed that nurse middle managers’ PWB is not at the end of the process. Rather, because it is associated to positive behaviors, we suggested that nurse middle managers’ PWB will intervene like a driver to enhance their effectiveness (innovative work behavior and job performance). Moreover, we also focus on effectiveness, given that proactivity is defined as a behavior aimed at maximizing the effectiveness in the workplace (Unsworth and Parker, 2003).

By jointly studying the mechanism leading to nurse middle managers’ PWB activation and its outcomes on their work effectiveness (innovative work behavior and job performance), this study makes several significant contributions to the existing literature. First, this study contributes to bridge the largely fragmented literature on PWB antecedents and consequences. In the general literature on proactivity, a growing body of research expressly focused on the determinants of PWB (Cai *et al.*, 2019) meanwhile other studies solely examined the consequences of proactive behavior (Strauss *et al.*, 2015). All these studies undertaken independently contribute to advanced knowledge of proactive behavior. However, much work is needed to bring together previous findings in order to provide a comprehensive understanding of the mechanism leading to proactive behavior and in turn to positive outcomes. By analyzing both antecedents, motivation mechanisms and consequences in a single research model, this study opens new opportunities for understanding why and under which circumstances PWB can emerge and can lead to improve effectiveness. This study is also in line with recent scholars call for more integration in the PWB literature (Cai *et al.*, 2019; Mustafa *et al.*, 2023). Second, this study contributes to improve knowledge in PWB literature

by highlighting the powerful role of psychological empowerment as a proactive motivational state in the emergence of middle managers' PWB. In the existing literature, considerable attention has been given to exploring the situational factors that influence middle managers' PWB, while the psychological mechanisms underlying these effects, are not well known (Mustafa *et al.*, 2023). As a result, research investigating the psychological drivers of middle managers' PWB is considerably underexplored (Helland *et al.*, 2021). By integrating middle managers motivational state, rather than focusing solely on their working conditions, this study contributes to fill this gap by highlighting that working conditions alone are not enough to enhance middle managers' PWB, but it emphasizes the crucial role of psychological motivational state (psychological empowerment) as an essential element that organizations need to foster and that scholars need to integrate when focusing on middle managers' PWB. Also, findings from this study also answer scholars recent call for more research on the role of psychological empowerment in the proactivity process (Cai *et al.*, 2019). Third, this study also expands the body of knowledge on innovative work behavior (IWB) literature and job performance literature by revealing that in response to favorable job characteristics, psychological empowerment and PWB drive middle managers' IWB and job performance. Fourth, the principal contribution of this research lies in presenting empirical data valuable for the advancement of literature on PWB in the nursing management context. Despite the important role of nurse middle managers' PWB, surprisingly this topic is underexplored. This study contributes to clarifying the mechanisms leading to nurse middle managers' PWB and analyzes its outcomes for their effectiveness. To date, to the best of our knowledge, this study is the first to analyze nurse middle managers' PWB from antecedents to consequences in a single research model. Therefore, the results bring novel and crucial insights into nurse middle managers' PWB and provide important knowledge that can help nursing Human Resource Management (HRM) identify what can be done to promote nurse middle managers' PWB and

what can be made to help them remain efficient and innovative despite their limited resources. Findings from this study can also help them to implement new strategies to create favorable work contexts that psychologically encourage nurse middle managers' PWB or develop strategic training programs to maximize the benefit related to nurse middle managers' PWB.

BACKGROUND

Job characteristics as key antecedents of PWB

The role of job characteristics as an important work resource has been theorized in many studies (Karasek, 1979). Even if no consensus was established concerning all the determinants of proactive behaviors, the literature demonstrates that job design/job characteristics have a crucial role in activating or restraining all different forms of proactive behavior (Bindl and Parker, 2010; Grant *et al.*, 2009; Parker *et al.*, 2010). In the proactivity literature, much attention is given to job characteristics such as job autonomy (Ohly and Schmitt, 2017) and job variety (Salanova and Schaufeli, 2008). Jobs with high autonomy and task variety are referred to as “enriched jobs” and include the ideas that employees are being able to decide how to carry out their work effectively, with the freedom to implement new ways to achieve tasks and opportunities to exercise different work tasks; and that work provides stimulation.

Job autonomy and job variety are often considered the two major job characteristics capable of improving the satisfaction and effectiveness of employees (Parker, 1998). They are also perceived as the main predictors for understanding proactive behavior in a wide variety of contexts and situations, notably in rapidly changing environments and politicized climates (Parker *et al.*, 2010; Parker *et al.*, 2006; Salanova and Schaufeli, 2008). As stated by Grant and Ashford (2008) “proactive behavior is more likely to occur in situations of autonomy or freedom and discretion regarding what to do, when to do it, and how to do it” (p. 16).

In the literature, the positive relationship between job autonomy, job variety and PWB was demonstrated in several studies. For instance, Parker *et al.* (2006) found a positive relationship between job autonomy and PWB. Similarly, Tornau and Frese (2013) provided meta-analytic support for this in demonstrating that job autonomy was positively related to specific forms of PWB such as voice and taking charge. Similar results were also found in the healthcare sector. Van Dorssen-Boog *et al.* (2020, 2022) highlighted that perceived job autonomy is related to self-leadership behavior of healthcare professionals (e.g. solve problems without waiting for supervisor approval, take initiatives, assume responsibilities). Jønsson *et al.* (2022) found that perceived job autonomy among hospital employees was related to the implementation of innovative ideas. In parallel, positive relationship was also found between job variety and specific forms of proactive behavior such as personal initiative (Frese *et al.*, 1996; Salanova and Schaufeli, 2008) and problem-solving (Salanova and Schaufeli, 2008).

These positive relationships can be explained by the fact that people generally have a basic need for autonomy and stimulation in their job, which they aspire to fulfill (Van Dorssen-Boog *et al.*, 2022). Therefore, when people perceive their work as autonomous and varied, it acts as a strong source of motivation (Zhou *et al.*, 2019). The perception of freedom and stimulation encourage employees to take more responsibility (Albrecht *et al.* 2021) and energize them to actively implement changes in organizing their job tasks to better align with their personal preferences (Cai *et al.*, 2019). In this context, when jobs are perceived as enriched, employees are more inclined to show self-leadership (Müller and Niessen, 2019) and are also more likely to use personal initiative to achieve their working goals (Marta *et al.*, 2019) and self-direction strategies to overcome high workload in order to perform well (Van Dorssen-Boog *et al.*, 2020, 2022). In the hospital environment, due to economic restrictions, control culture and strict quality-of-care rules, proactive initiatives of hospital employees can

be constrained. Hospital middle managers like all other healthcare workers are not spared. Despite their apparent freedom and responsibility, they are caught between top administration directives and their teams, while their work is regularly controlled. In this challenging work context, we suggest that the perception of an enriched work (job autonomy, variety) can be a resource that contributes to providing stimulation and encourage them to introduce positive changes, and implement innovative ideas in their work unit.

Psychological empowerment as a mediating factor in the proactivity process

In literature, much attention is given to analyzing the determinants that contribute to enhancing PWB. As mentioned earlier, literature indicates that situational factors, such as job characteristics, can enhance PWB. However, these direct linkages have failed to clearly explain why and under which circumstances PWB is motivated (Parker *et al.*, 2006). In this line, Parker *et al.* (2010) developed a proactive motivation process model where PWB is conceptualized as a goal-driven process. In this framework, distal antecedents such as individual differences and situational factors play a crucial role in influencing proactive motivational states, thereby enhancing, or inhibiting PWB. Following Parker *et al.* (2010) model, researchers have emphasized the importance of motivational processes, also referred to as cognitive motivational states, in the proactivity process to provide insights into the motivation behind proactive behavior. Bindl and Parker (2010) identified three categories of cognitive motivational states: 'can do' (employees believe they are capable of introducing constructive changes and being proactive), 'reason to' (employees' motivation to engage in proactive actions), and 'energy for' (employees evaluate that they have sufficient energizing force to engage in proactive actions). Research has shown that individual motivational states play a crucial role in explaining the relationship between situational factors and PWB (Bindl and Parker, 2010; Parker *et al.*, 2010; Parker *et al.*, 2006).

Specifically, scholars have identified psychological empowerment as a 'can do' intrinsic motivational state (Khan *et al.*, 2022; Mustafa *et al.*, 2023; Parker *et al.*, 2010). Spreitzer (1995) defined psychological empowerment as a motivational psychological state manifested in four cognitions (meaning, competence, self-determination, and impact) reflecting an individual's orientation to his or her work role. Literature suggests that psychological empowerment plays a crucial role in activating PWB (Ahmed and Khalid, 2019; Arefin *et al.*, 2015; Zhang *et al.*, 2018). This is due to its proactive and action-oriented nature, which enhances individual motivation to initiate changes proactively (Parker *et al.*, 2010; Spreitzer, 1995). Indeed, to initiate changes, find solutions to problems, or overcome obstacles, individuals need strong motivation and the conviction that they can accomplish these tasks (Parker *et al.*, 2010). Furthermore, drawing on self-determination theory (Deci and Ryan, 2000; Ryan and Deci, 2000) and proactivity models (Bindl and Parker, 2010; Parker *et al.*, 2010), scholars have found that psychological empowerment acts as a mediator in the proactivity process, playing a vital role in linking situational factors to PWB. For example, Luth (2012) found that psychological empowerment mediates the relationship between job stressors and PWB. Zhang *et al.* (2018) discovered that psychological empowerment mediates the relationship between authentic leadership and PWB. Other studies have also found that psychological empowerment mediates the relationship between high-performance work systems (Arefin *et al.*, 2015), empowering leadership (Ahmed and Khalid, 2019), and PWB.

These studies emphasize that when situational factors foster employees' psychological empowerment, this encourages them to adopt proactive behavior. This is because they believe they have the ability to influence their work and work environment, and possess the skills and autonomy to make a significant impact (Parker *et al.*, 2010; Spreitzer, 1995; Usman *et al.*, 2019). Arefin *et al.* (2015) provide additional insights into the mediating

role of psychological empowerment. They argue that employees who perceive their job as meaningful are more committed and action-focused, leading to enthusiastic information collection and deliberate problem-solving. Confidence in their competence helps them overcome encountered problems. Self-determination and impact can encourage conscientiousness, leading individuals to identify more with their jobs and feel less constrained by them. This motivation can drive proactive behavior aimed at helping both others and the organization. Scholars also suggest that the sense of self-determination and impact gives individuals a feeling of control (Khan *et al.*, 2022). This motivates them to challenge the status quo, prevent the recurrence of problems using self-defining methods, and improve circumstances around themselves (Frazier and Fainshmidt, 2012).

In existing literature, the influence of employees' psychological empowerment in the proactivity process is well documented. However, little attention has been given to understanding the psychological factors and processes that contribute to middle managers' PWB (Mustafa *et al.*, 2023; Wu and Wang, 2011). This observation is particularly true in healthcare literature. There is a lack of knowledge regarding the effect of psychological empowerment of nurse middle managers in the proactivity process.

In this study, we theorize that positive working conditions may lead to higher levels of psychological empowerment among nurse middle managers, which may motivate them to engage in PWB. This is consistent with Bindl *et al.* (2010) model and the literature described above. When experiencing psychological empowerment, nurse middle managers may be more inclined to engage in PWB. This feeling may allow them to perceive themselves as competent to influence their work environment and provide the confidence needed to identify new opportunities, introduce ideas, take risks, analyze areas for improvement, and seek support to introduce innovative ideas despite potential obstacles (Coun *et al.*, 2022; Mustafa *et al.*, 2023).

Proactive behavior as a precondition for IWB and job performance

Research has primarily directed its focus towards analyzing the antecedents of PWB, given its widely acknowledged benefits for both employees and organizations. However, in contrast research has disproportionately neglected the analysis of its consequences (Sun *et al.*, 2021). However, while attention is traditionally still centered on examining the antecedents of PWB, in recent years, there has been a noticeable shift in trends. Researchers are increasingly delving into the analysis of its consequences (Cangiano *et al.*, 2019; Strauss *et al.*, 2015; Sun *et al.*, 2021). Research has mainly found that proactive behavior is associated with a range of beneficial outcomes at the individual, team and organizational levels (Belschak and Den Hartog, 2010; Wu and Parker, 2012). For instance, at the individual level, PWB is positively associated with indicators of efficacy at work such as self-rated job performance (Belschak and Den Hartog, 2010), as well as superior ratings of job performance (Grant *et al.*, 2009). Additionally, the extant literature has also found links between PWB and IWB (Déprez *et al.*, 2021; Mustafa *et al.*, 2023; Strauss *et al.*, 2015). Indeed, when individuals engage in proactive behavior, they actively try to bring solutions, soliciting information enabling them to better understand themselves, and adjust their work behavior to the expectations of the organization and the supervisor, which leads to higher individual performance and innovation (Carnevale *et al.*, 2017). Thus, scholars have concluded that proactive behavior is an essential component in enhancing job performance (Crant, 2000) and a key precondition or driver to enhance individual innovation (Carnevale *et al.*, 2017; Déprez *et al.*, 2021; Strauss *et al.*, 2015).

Aim and hypotheses

In the context of high quality of care, nurse middle managers' PWB has shown to be vital (Rashkovits, 2019). However, little is known about the antecedents and the consequences of their PWB. Building upon existing evidence in the literature, the present study aims to explore a model of PWB among nurse middle managers. We first suggest that nurse middle

managers' sense of feeling psychologically empowered may help explain why they engage in PWB in response to favorable job characteristics (i.e., job autonomy and task variety).

Besides, we posit that PWB is not at the end of the process but rather, because it is related to other positive behavioral outcomes, it will intervene as a second driver enhancing IWB and job performance. Taken together and based on Bindl and Parker's (2010) theoretical model of proactivity, we propose a sequential mediation model with the following hypotheses:

Hypothesis 1. Psychological empowerment and *PWB* will sequentially mediate the relationship between job autonomy and (a) IWB and (b) job performance.

Hypothesis 2. Psychological empowerment and *PWB* will sequentially mediate the relationship between job variety and (a) IWB and (b) job performance.

These hypotheses are summarized in Figure 1.

[Insert Figure 1 about here]

METHODOLOGY

Context

The study was conducted in a French university hospital. To remain competitive while offering quality care to patients, this university hospital was undergoing an organizational restructuring to improve the Quality of Work Life (QWL) and the effectiveness at work of all their workers. While actions were taken for all hospital employees, there were no actions for hospital managers. However, hospital efficiency, quality of care and the QWL of the staff members strongly depend on the ability of hospital managers to manage, innovate, and carry out change, anticipate problems, and proactively find solutions to problems. In this line, we propose to conduct a study focusing on this specific category of personnel. We obtained the authorization to conduct the research by the Human Resources (HR) department of the hospital. They provided us with a completed list of all their personnel in managerial positions but for security reasons, the email address was not included. To collect the data, a

link to the questionnaire, cover letter and follow-up letters were directly sent to the nurse middle managers by the communication department of the hospital using the internal mailing system. In this study, nurse middle managers refer to nurse first-line managers ‘positioned between the ward and higher management with first-line responsibilities regarding the quality of patient care, supervision of care workers and management of finances’ (Hewison, 2006, p.1).

Sample and procedure

A cross-sectional design with a self-administered questionnaire was used. Email invitations were sent to the 479 hospital middle managers working in this hospital inviting them to voluntarily participate to the online survey. The self-report questionnaire was accompanied by a cover letter explaining the objective of the study and providing guarantees of confidentiality. Follow-up letters were also sent to remind nurse middle managers to participate in this study. In this study ethical approval was not required, however, this study was conducted in the strict compliance with the Helsinki Declaration.

The final sample comprised 321 nurse managers who completed the survey (response rate of 67.01%). The mean age was 47.08 years old ($SD = 8.47$, range 24 to 64). The majority of participants were women (73.8%). Regarding job tenure as middle managers, 29.8% had 2–5 years of experience, 25.3% had 6–10 years of experience and 20.5% had 11–15 years of experience (range ≤ 1 to 36–40 years). The majority declared having equal or fewer than 10 people to manage (29.8%) (range of 1–10 to 141 and over).

Measures

Job characteristics. Job autonomy (three items, subscale decision-making autonomy) and job variety (four items) were assessed using the French version of the Work Design Questionnaire (WDQ) of Bigot *et al.* (2014), originally developed by Morgeson and Humphrey (2006). Items were rated on a five-point scale ranging from 1 (strongly disagree) to

5 (strongly agree). A sample item for job autonomy is, 'The job allows me to decide on my own how to go about doing my work' ($\alpha = .78$). A sample item for job variety is, 'The job requires the performance of a wide range of tasks' ($\alpha = .91$).

Psychological empowerment. Psychological empowerment was measured using the 12 items of the French version of Boudrias *et al.* (2010) originally developed by Spreitzer (1995). Participants were invited to respond on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to the four subscales of psychological empowerment: meaning ($\alpha = .83$), competence ($\alpha = .75$), self-determination ($\alpha = .81$), and impact ($\alpha = .87$). A sample item is, 'I am confident about my ability to do my job' (global scale, $\alpha = .86$).

PWB. To assess PWB, we used voice behavior, taking charge and problem prevention. Voice was assessed with the five items from the constructive voice dimension of Maynes and Podsakoff (2014). An example item is, 'I frequently make suggestions about how to do things in new or more effective ways at work' ($\alpha = .93$). Taking charge was measured using the ten items from Morrison and Phelps (1999) scale. An example item is, 'I often try to correct a faulty procedure or practice' ($\alpha = .85$). Problem prevention was assessed using the three items from Parker and Collins (2010). A sample item is, 'I try to find the root cause of things that go wrong' ($\alpha = .76$). Items for constructive voice, taking charge and problem prevention were rated on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). We assessed these three proactive behaviors using the French version of Déprez *et al.* (2019).

IWB. We assessed IWB using the nine items from Janssen (2000). The French version used by Déprez (2019) was used. Responses were given on a five-point scale ranging from 1 (never) to 5 (always). An example of item is, 'Searching out new working methods, techniques, or instruments' ($\alpha = .92$).

Job performance. Job performance was measured with the seven items from Williams and Anderson (1991). The French version of Lapointe *et al.* (2014) was used. A 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) was used. An example of item is, 'I adequately complete assigned duties' ($\alpha = .70$).

Control variables. Age, gender, professional category and job tenure were included as control variables since previous studies (Grant and Ashford, 2008; Warr and Fay, 2001) found that they are related to proactive behavior.

Results

Descriptive statistics

Descriptive analysis, correlation analysis, and reliability analysis were performed using the Statistical Package for Social Sciences (SPSS 23). Table 1 presents the means, standard deviations, intercorrelations among study variables and coefficient alphas ($\geq .70$).

[Insert Table 1 about here]

Confirmatory factor analysis

A confirmatory factor analysis (CFA) was conducted using Mplus8 (Muthén and Muthén, 2017) to examine the factorial structure of the proposed six-factor model. Following Parker and Collins (2010) and other researchers (Grant *et al.*, 2009; Wu and Parker, 2017), we assessed PWB as a higher-order category of behavior including voice, taking charge and problem prevention. To evaluate the best model fit, we compared the proposed model to alternative models. As shown in Table 2, the proposed model demonstrates an acceptable fit ($\chi^2 = 1700.45$; $df = 931$; CFI = .91; TLI = .90; RMSEA = .05; SRMR = .05). CFA was also conducted to examine common method variance by following Podsakoff *et al.* (2003; 2012) statistical recommendations. Results of alternative models showed poorer fit to the data and also showed that the current study does not suffer from common method bias. Thus, the proposed model was maintained.

[Insert Table 2 about here]

Structural and alternative models

We tested the hypothesized model structure as displayed in Figure 1 using path analysis. The mean score of each construct was used for analyses because the sample size-to-parameters ratio did not meet the standard requirements. The results (Table 3) revealed that the hypothesized full mediation model (M1) displayed an acceptable fit to the data ($\chi^2 = 398.15$; $df = 174$; CFI = .92; TLI = .91; RMSEA = .06; SRMR = .05). Three additional structural models (M2, M3, M4) were compared to the hypothesized model (M1). Results revealed that M3 (which included direct paths from psychological empowerment to IWB and job performance) and M4 (which included direct paths from job autonomy, job variety to IWB and job performance) fitted the data slightly better than the full mediation model (M1) and M2 (which included additional direct paths from job autonomy, job variety to PWB). Further, findings also revealed that M3 showed a similar fit to the data as M4. To find which model was the best representation of the data, we used the analysis of the Akaike information criterion (AIC) and the Bayesian Information Criterion (BIC). However, the AIC difference of less than 2 between M3 and M4 (Burnham and Anderson, 2004; Raftery, 1995) did not provide sufficient evidence for the final model selection. Therefore, we also considered the BIC and followed Raftery's (1995) recommendation. Literature indicates that a BIC difference of >10 provides strong evidence against the model with the highest BIC value. Here, findings indicated that M3 had the smallest BIC. Considering M3 parsimony over M1, M2 and M4, the partial mediation model M3 was preferred as the best representation of the data and used to test the hypotheses. The results associated with this model are presented in Figure 2.

[Insert Table 3 about here]

[Insert Figure 2 about here]

Test of hypotheses

To provide support to hypotheses, we examined the significance of indirect effects (Hayes, 2009; Shrout and Bolger, 2002) using 5000 bootstrap replications with 95% confidence intervals (Table 4). The results indicated the existence of a significant indirect effect from job autonomy ($\beta = .18, p < .001$) to IWB through the two sequential mediators (i.e. psychological empowerment and PWB). The results also showed a significant indirect effect from job variety ($\beta = .06, p < .001$) to IWB through psychological empowerment and PWB. Thus, the findings supported Hypotheses 1a and 2a. In addition, findings revealed a significant indirect effect from job autonomy ($\beta = .03, p < .05$) to job performance through the sequential mediation of psychological empowerment and PWB. The results also showed a significant indirect effect from job variety ($\beta = .01, p < .05$) to job performance through psychological empowerment and PWB. However, an indirect effect was also found between job autonomy and job performance through psychological empowerment as a unique mediator ($\beta = .17, p < .001$). Similarly, an indirect effect was also found between job variety and job performance through psychological empowerment as a unique mediator ($\beta = .06, p < .001$). Thus, Hypotheses 1b and 2b were partially supported (Table 5).

We, therefore, concluded that the relationship between job characteristics (i.e., job autonomy, job variety) and nurse middle managers' IWB was fully mediated in sequence by psychological empowerment and PWB. While the relationship between job characteristics (i.e., job autonomy, job variety) and nurse middle managers' job performance was partially mediated by both psychological empowerment and PWB. Indeed, findings suggested the most plausible relationship between job characteristics and nurse middle managers' job performance was with psychological empowerment as a unique mediator.

[Insert Table 4 about here]

[Insert Table 5 about here]

DISCUSSION

Nurse middle managers' PWB is essential for maintaining high quality services in healthcare institutions (Ferreira *et al.*, 2016; Rashkovits, 2019; Qatawneh, 2016). They are in an ideal position to facilitate patient-centered care by balancing 'organizing work' and 'caring work' (Lalleman *et al.*, 2017). Nurses also play a critical role in initiating, guiding, promoting, facilitating, and sustaining patient-centered practices (Lalleman *et al.*, 2017). Middle managers serve as key catalysts in organizational dynamics, translating strategic goals into actionable plans and fostering cohesion between frontline staff and senior management (Mustafa *et al.*, 2023). Their role in healthcare organizations is particularly critical, influencing the delivery of quality services and the promotion of patient-centered care. However, despite the recognized importance of nurse middle managers' PWB, the literature has mainly focused on analyzing factors that enhance nurses' PWB, while nurse managers and, more broadly, leaders' proactivity have rarely been examined (Wu and Wang, 2011). Drawing on previous research and Bindl and Parker's (2010) theoretical framework of proactivity, we proposed and tested a model of proactivity among nurse middle managers. In this discussion, we explore the implications of our study on the PWB of nurse middle managers, address gaps in the literature, and highlight practical implications for healthcare management. We also suggest managerial implications to promote the proactivity of nurse middle managers and enhance their IWB and job performance. Limits and future orientation are discussed.

Theoretical implications

The current study meaningfully extends the existing theory of proactive behavior literature in the field of managerial psychology (e.g., Chamberlin *et al.*, 2017; Fuller *et al.*, 2015) by proposing specific path relationships between the variables studied and applying them to nursing. To our knowledge, except for Warshawsky *et al.* (2012), who specifically

examined the antecedents of PWB in mid-level nurses, no study has yet focused on this group to analyze the antecedents and consequences of PWB. Thus, this study addresses the limited attention given to the PWB of nurse middle managers in the literature (Mustafa *et al.*, 2023). The relationships between job characteristics, psychological empowerment, PWB, and organizational outcomes within healthcare contexts were investigated by applying theoretical frameworks such as that of Van Dorssen-Boog *et al.* (2022).

First, we found that job characteristics, such as job autonomy and variety, enhance nurse middle managers' psychological empowerment, which in turn contributes to their positive work behavior. The results suggest that favorable working conditions alone are insufficient, but they do contribute to building nurse middle managers' self-confidence, which fosters their PWB. These findings support the existing literature that suggests job characteristics may predict higher levels of PWB through motivational states (Parker, 1998; Salanova and Schaufeli, 2008). This highlights the significance of offering favorable working conditions to promote proactive engagement and well-being among nurse middle managers (Van Dorssen-Boog *et al.*, 2022).

Second, although, previous studies have identified the 'can do' motivational states as important mechanisms leading to PWB (Crant, 2000; Parker *et al.*, 2006), by focusing explicitly on the PWB of nurse middle managers, this study provides evidence to support findings from other proactive behavior studies conducted in different countries and with different samples. Our research reveals that psychological feelings experienced by nurse middle managers (i.e., meaningfulness, competence, impact, choice) are particularly important in stimulating and reassuring them to take control of their work and to make constructive changes in response to positive work conditions (e.g., autonomy and variety). This is consistent with the literature, which postulates that individuals can work in an adequate work environment, but if they do not "feel able to" (i.e., can do), do not "want to"

(i.e., reason to), and/or do not have “sufficient energy to” (i.e., energy for) engage in proactive actions, they will not (Parker *et al.*, 2006). These findings go further by supporting previous research on the relationship between proactivity and emotional exhaustion over time (Chung *et al.*, 2017). The results offer insights into the factors that require further study and intervention to mitigate the long-term negative effects of proactivity in demanding contexts (Sun *et al.*, 2020) such as hospitals, which require the implementation of change-oriented and innovative behaviors but may not provide adequate support (Chung *et al.*, 2017; Sun *et al.*, 2020). Then, our results highlight important elements for “how to” and “is it time” and “wise to” to manage demanding organizations (Parker *et al.*, 2019), such as hospitals, on an ongoing basis.

Third, the results of our study add knowledge to the literature by showing that nurse middle managers' PWB is related to job effectiveness indicators (i.e., innovation, performance). In terms of IWB behaviors of nurse middle managers, PWB seems to be a key driver. To innovate, they need to engage in proactive actions, take initiative, and so on. These findings are consistent with studies showing that change-oriented behaviors ensure the promotion and implementation of innovations (Bindl and Parker, 2010; Déprez *et al.*, 2021; Parker and Collins, 2010; Strauss *et al.*, 2015). In terms of nurse managers' job performance, the results also showed a relationship with PWB. However, the sequential mediation showed that PWB as a second mediator can contribute to improving job performance, but to a lesser extent, while psychological empowerment is strongly related to nurse managers' job performance. Additionally, our study underscores the crucial significance of psychological empowerment in promoting proactive behavior and enhancing job effectiveness. Based on Mustafa *et al.* (2023) observations, we emphasize the importance of empowering middle managers to navigate complex healthcare environments effectively by promoting autonomy, competence, and meaningfulness in their roles. These findings are also consistent with

previous studies that have highlighted the importance of psychological empowerment in improving task performance (Seibert *et al.*, 2011) and other behavioral outcomes. Regarding healthcare literature, our findings highlight the importance of creating an organizational context that promotes autonomy (Cangialosi *et al.*, 2021) to empower individuals. This, in turn, leads to the emergence of PWBs, which ensure factors of retention (Déprez *et al.*, 2021) and health (Mustafa *et al.*, 2023) for nurse middle managers, as well as other organizational actors and for patients (Mustafa *et al.*, 2023; Van Dorssen-Boog *et al.*, 2022).

Finally, the contribution of this study is scarce as it examines the indirect benefit of job characteristics (i.e., autonomy and job variety) and the sequential mediating role of psychological empowerment and PWB to enhance IWB and job performance of nurse middle managers. Our findings also have significant implications in answering the call for additional studies on how individuals adopt proactivity and to better understand the consequences of proactive behavior (Liu *et al.*, 2018). The integration of contextual, cognitive motivational state, and performance factors related to PWB into a single research model provides new insights to improve the literature. The findings support the fact that this model is consistent with the literature on wise proactivity (Parker *et al.*, 2019). Our study also shows that psychological empowerment and PWB have a double mediation effect on enhancing the job effectiveness of nurse middle managers. This highlights the significance of creating a supportive work environment and empowering middle managers to drive organizational success, which is consistent with relevant literature.

Practical implications

The article presents practical implications for improving HRM practice in the nursing context. Our findings revealed that job characteristics (i.e., job autonomy, job variety) contribute in an indirect way to improving PWB of middle managers in nursing. In the context of the European crisis for access to care and public and private health services (Thomson *et al.*,

2015), Hospital governance and HRM should be more aware that providing favorable working conditions for nurse middle managers is also essential to enhance their proactive behavior. Moreover, as demonstrated in the literature, individuals working in unsafe or unsupportive environments are unlikely to take the risk of being proactive (Bindl and Parker, 2010; Parker *et al.*, 2019). In a complex context such as that experienced by health services in recent years, to stimulate and encourage autonomy and avoid the routine and repetitive nature of their work, HRM should strive to create opportunities/activities that promote task variety and autonomy to broaden and enrich their work without overburdening them, as PWB is considered a crucial component for the success and competitiveness of health institutions (Ferreira *et al.*, 2016; Qatawneh, 2016). For example, as VanVactor (2012) suggests, they could 1) encourage collaboration among managers, 2) invite them to work on secondary projects, 3) provide opportunities that enable nurse managers to learn new tasks and develop new skills, 4) offer more flexibility (e.g. less traditional/restrictive culture, policies and procedures) and 5) clearly communicate expectations and goals so that healthcare managers can easily act on their own.

Our study also indicates that psychological empowerment such as the « can do » motivational state fully mediates the relationship between job characteristics and PWB and is a strong psychological resource to enhance nurses' job performance. Therefore, HRM should pay more attention to the psychological states of nurse middle managers. For instance, they could work to enhance nurse middle managers' sense of empowerment by providing empowering work structures, helping them to achieve their objectives, enabling them to participate in training programs to acquire new skills and knowledge, giving them feedback on their performance, providing encouragement, supporting them, and being available when needed.

Finally, we found that PWB is positively related to IWB and job performance among mid-level nurses. Therefore, healthcare institutions and HRM should pay more attention to and value this behavior. In addition, they could work to implement management practices that

promote PWB among mid-level nurses. For example, by redesigning HR strategies so that proactive mid-level nurses are never prevented from introducing change, by encouraging and valuing their proactive initiatives, by providing good working conditions and support to encourage them to take initiative, and by creating opportunities for them to be creative.

Limitations and future research

This study has several limitations that suggest directions for future research. First, the cross-sectional nature of the design precludes causal inference from the data. Although there is consistent conceptual and empirical evidence to support the proposed hypothesized model, future research should replicate the findings and potentially test the causal relationship between job characteristics and outcomes using longitudinal research designs (e.g., panel, cross-lag, diary). This will allow causal relationships to be inferred and give greater strength to these findings.

Second, self-rated questionnaires were used. In literature, self-rating is often associated with common method bias (Podsakoff *et al.*, 2012). However, we used several methods to remedy and reduce common method bias (e.g., by mixing questions of different scales and guaranteed anonymity) and followed Podsakoff *et al.* (2012) statistical recommendations. Statistical analyses showed that the current study does not suffer from common method variance. Nevertheless, due to the limitations associated with self-report data, we recommend that future research combine data from different sources (e.g., self-rated, peers, supervisors and staff members) to avoid or minimize common method variance.

Thirdly, the study took place within one healthcare organization and in a French context. The analysis of nurse PWB in a fixed and national context may offer the advantage of examining a behavior that can be influenced by the work context, HRM practices or culture. However, because the results of this study are based on a sample of nurse middle managers working in one hospital and in a French setting, findings can remain limited to the studied

population, or specific to the French context and may not be representative of a larger sample of nurse middle managers. Thus, for more generalization, scholars should replicate this study on a larger sample of nurse middle managers working in different hospitals and countries.

To go further, it should be noted that there might be additional antecedents, cognitive motivational states that foster nurse middle managers' PWB and moderating factors that strengthen or weaken the relationship between the antecedents and PWB. Likewise, there might be other outcomes related to nurse middle managers' PWB and moderating factors that strengthen or weaken the relationship between PWB and outcomes. Therefore, we recommend that future researchers integrate these elements when conducting research on the PWB of nurse middle managers.

CONCLUSION

Despite the important role of nurse middle managers' PWB, surprisingly this topic is underexplored. This study contributes to clarifying the mechanisms leading to nurse middle managers' PWB and analyzes its outcomes for their effectiveness. To do so, we examined the sequential mediation of psychological empowerment and PWB in the relationship between job characteristics (job autonomy, job variety) and job effectiveness (IWB and job performance). The novelty of this article lies in the fact that it contributes to expanding the body of knowledge on nurse middle managers' PWB literature by revealing that in response to favorable job characteristics, psychological empowerment and PWB are essential drives for middle managers' IWB and job performance. Specifically, this study carries important theoretical and practical implications and paves the way for additional research to understand why and how nurse middle managers' PWB can emerge and leads to their effectiveness. In addition, compared to the existing literature, this study identified the important value of nurse middle managers' psychological empowerment in the proactivity process as well as for their effectiveness at work. Psychological motivational state of nurse middle managers is often

neglected. However, findings from this study contribute to showing its pivotal role and view its effects on PWB, as well as on IWB and job performance. Findings from this study also bring novel and crucial insights about nurse middle managers' PWB and provide important knowledge that can help nursing HRM to identify what can be done to promote nurse middle managers' PWB and what can be done to help them remain efficient and innovative despite their limited resources. Findings from this study can also help them to implement new strategies to create favorable work contexts that psychologically encourage nurse middle managers' PWB or develop strategic training programs to maximize the benefit related to nurse middle managers' PWB.

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FIGURES AND TABLES

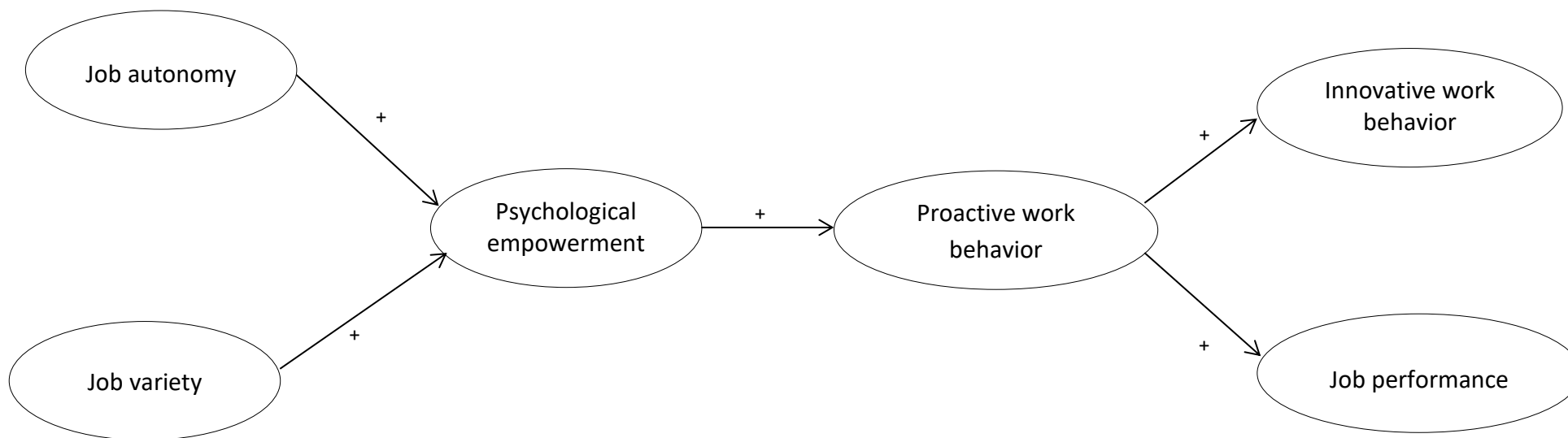


Figure 1

Hypothesized model of proactive work behavior from antecedents to consequences.

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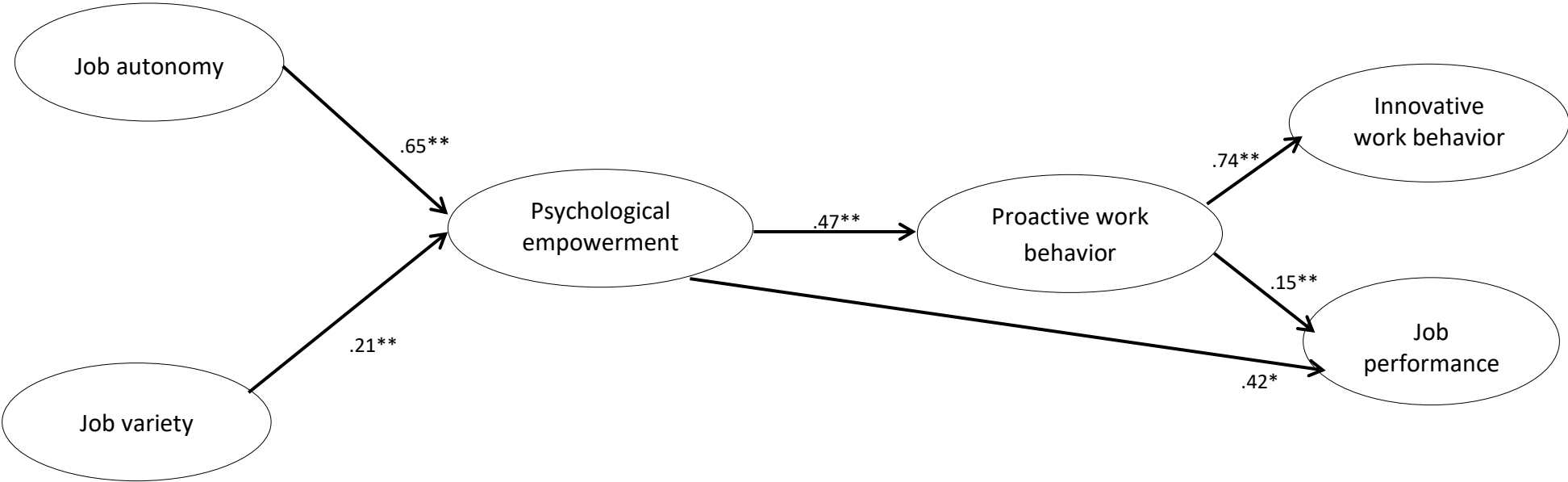


Figure 2

Structural model with standardized path coefficients.

Note. $n = 321$; ** $p < .001$, * $p < .05$. The n.s are not presented

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Table 1.

Means, correlations among variables and reliability coefficients

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1.Age	47.08	8.47	-											
2.Gender ^a	-	-	-.10	-										
3.Tenure ^a	-	-	.59**	-.08	-									
4.Pc ^a	-	-	-.14**	.40**	-.12*	-								
5. AUT	3.26	.83	.03	.06	-.01	.14*	(.78)							
6.VA	4.33	.79	-.03	-.01	.06	-.01	.34**	(.91)						
7.PE	3.83	.59	.01	.00	.07	.10	.72**	.44**	(.86)					
8.VC	3.74	.74	-.05	-.06	.02	-.02	.26**	.28**	.36**	(.93)				
9.TC	3.58	.65	-.03	-.12*	.04	-.12*	.32**	.24**	.44**	.55**	(.85)			
10.PP	3.91	.63	-.04	-.10	-.00	-.16**	.15**	.12*	.26**	.48**	.68**	(.76)		
11.IWB	3.44	.69	-.00	-.08	.05	-.12*	.29**	.17**	.35**	.53**	.61**	.54**	(.92)	
12.PERF	3.88	.54	.01	-.00	.05	.06	.38**	.17**	.49**	.35**	.28**	.24**	.30**	(.70)

Note: $n = 321$. PC = Professional category; AUT = Job autonomy; VA = Job variety; PE = Psychological empowerment; VC = Voice; TC = Taking charge; PP = Problem prevention; IWB = Innovative work behavior; PERF = Job performance. a. Gender, tenure and professional category are categorical variables. * $p < .05$, ** $p < .001$. Reliability coefficients for the scales are in parentheses along the diagonal.

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Table 2.

Confirmatory factor analysis

Measure	AIC	BIC	X²	df	Δχ²	Δdf	RMSEA	CFI	TLI	SRMR
Hypothesized six factor model	30518.86	31258.06	1700.45*	931	-	-	.05	.91	.90	.05
Five factor model										
Combining IWB and PERF	31012.40	31649.78	2248.00*	958	547.55*	27	.06	.85	.84	.07
Combining AUT and VA	31116.79	31818.28	2318.38*	964	617.93*	33	.06	.82	.81	.07
Four factor model										
Combining AUT and VA; and IWB and PERF	31610.44	32221.41	2860.03*	965	1159.58*	34	.07	.78	.76	.08
Combining PWB, IWB and PERF	32190.35	32790.01	3445.95*	968	1745.49*	37	.08	.71	.69	.08
Three factor model										
Combining AUT, VA and PE; and IWB and PERF	32308.51	32851.60	3594.11*	983	1893.65*	52	.09	.70	.68	.09
Two factor model										
Combining AUT, VA and PE; and PWB, IWB and PERF	33489.66	34013.89	4785.26*	988	3084.82*	57	.10	.56	.54	.09
<i>Single factor model</i>	34583.46	35103.92	5881.06*	989	4180.61*	58	.12	.44	.41	.11

Note : $N = 321$. $*p < .001$. AIC = Akaike Information Criterion; BIC= Bayesian Information Criteria; X^2 = Chi-square value; df = Degrees of freedom; RMSEA = Root mean square error of approximation; CFI = Comparative fit index; TLI = Tucker–Lewis Index; SRMR = Standardized root mean square residual; AUT= Autonomy; VA = Job variety; PE = Psychological empowerment; PWB = Proactive work behavior; IWB = Innovative work behavior; PERF = Job performance.

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Table 3.

Indices of fit of structural model and alternative models

Model	AIC	BIC	χ^2	<i>df</i>	$\Delta\chi^2$	Δdf	RMSEA	CFI	TLI	SRMR
M1 (hypothesized full mediation model)	8802.00	9019.10	398.15	174	-	-	.06	.92	.91	.05
M2 (alternative model)	8804.40	9028.98	396.54	172	1.61	2	.06	.92	.91	.05
M3 (alternative model)	8759.33	8991.40	347.47	170	50.68*	4	.05	.94	.93	.05
M4 (alternative model)	8759.62	9006.65	339.76	166	58.39*	8	.05	.94	.93	.05

Note: $n = 321$. $*p < .001$. AIC = Akaike Information Criterion; BIC = Bayesian Information Criteria; χ^2 = Chi-square value; *df* = Degrees of freedom;

RMSEA = Root mean square error of approximation; CFI = Comparative fit index; TLI = Tucker-Lewis Index; SRMR = Standardized root mean square residual.

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Table 4.

Bootstrap (5000) indirect and total effects results, and 95% CI

Model pathways	Mediators	Point estimate and bootstrapping bias-corrected 95% CI
AUT to IWB	PE	-.01 [-.08, .05]
	PWB	.01 [-.07, .12]
	Both PE and PWB	.18** [.12, .27]
	Total indirect effect	.19** [.10, .27]
VA to IWB	PE	-.04 [-.03, .01]
	PWB	.05 [-.02, .12]
	Both PE and PWB	.06** [.03, .10]
	Total indirect effect	.11** [.02, .18]
AUT to PERF	PE	.17** [.11, .23]
	PWB	.00 [-.01, .02]
	Both PE and PWB	.03* [.00, .06]
	Total indirect effect	.21** [.15, .25]
VA to PERF	PE	.06** [.03, .09]
	PWB	.00 [-.00, .03]
	Both PE and PWB	.01* [.00, .02]
	Total indirect effect	.08** [.05, .12]

Note: $n = 321$; ** $p < .001$, * $p < .05$. Confidence intervals (CI) are in brackets; AUT = Job autonomy; VA = Job variety; PE = Psychological empowerment; PWB = Proactive work behavior; IWB = Innovative work behavior; PERF = Job performance.

Table 5.

Summary of the main hypotheses

Hypotheses	Results
<i>Hypothesis 1.</i> Psychological empowerment and <i>PWB</i> will sequentially mediate the relationship between job autonomy and (a) IWB and (b) job performance.	1a: Fully supported 1b: Partially supported
<i>Hypothesis 2.</i> Psychological empowerment and <i>PWB</i> will sequentially mediate the relationship between job variety and (a) IWB and (b) job performance.	2a: Fully supported 2b: Partially supported