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The COVID-19 pandemic: Workplace safety management practices, job insecurity, and employees' organizational citizenship behavior

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ABSTRACT

How do organizations and employees react to the COVID-19 pandemic? Can workplace safety management practices (WSPs) maintain employees' organizational citizenship behavior (OCB) in this time of global health crisis? Can employees' perceptions of the risk associated with COVID-19 and job insecurity mediate the WSPs–OCB relationship? Drawing upon social exchange and protection motivation theories, this research aims to answer such questions. Analyzing the survey data from 501 Vietnamese employees using SmartPLS software, we find that WSPs positively influence the OCB and negatively influence the perceived job insecurity. Furthermore, the perceived risk associated with COVID-19 positively affects perceived job insecurity and OCB. Unexpectedly, in the context of Vietnam, a developing country with a collectivist culture, WSPs increase the employees' perceived risk associated with COVID-19 instead of reducing their fear. Also, employees' perceptions of job insecurity are not statistically correlated with OCB. In addition, we reveal a partial mediating role of the perceived risk associated with COVID-19 in the WSPs–OCB relationship. This research highlights the power of WSPs as well as measures to psychologically reassure employees during the pandemics.

1. Introduction

Coronaviruses (CoVs) are enveloped positive-strand ribonucleic acid viruses that can infect a variety of animal species, including humans (Weiss and Leibowitz, 2011). In December 2019, 27 patients with pneumonia of unknown origin were reported by local health authorities in Wuhan, China (Lu et al., 2020). The Chinese Centre for Disease Control and Prevention later confirmed a novel coronavirus named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) or 2019-nCoV; distinct, but closely related to CoVs (Zhu et al., 2020), and highly contagious (Paules et al., 2020). On 30 January 2020, the World Health Organization (WHO) declared it a public health emergency of international concern, and 'COVID-19' was later announced as the interim name of the disease (Lai et al., 2020). On 5 March 2021 (03:47 pm CET), which was nearly thirteen months after the WHO announcement, 115,289,961 people have been infected with COVID-19 in 223 countries, areas or territories, and 2,564,560 people had died (WHO, 2021).

The COVID-19 that had disrupted supply and frozen demand first in China, then in Europe, and subsequently in the Americas, had now caused a global crisis. The functioning of supply chains had been disconnected by the disruption to the global economy. As COVID-19 spread around the world, it became apparent that it could derail the global economy. The collapse forced organizations in all sectors to reduce their budgets, downsize, and merge. Millions of jobs were lost. According to the International Labor Organization (ILO) (2020a), full or partial lockdown measures were already impacting almost 2.7 billion employees, being around 81% of the world's workforce. The ILO (2020a) has estimated that 1.25 billion employees, representing approximately 38% of the global workforce, are now facing a high risk of

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job losses or massive workforce displacement. Many researchers have stated that these social and economic crises will inevitably lead to long-term changes in organizations and the concept of this could be threatening to employees and their sense of job security which is defined as the feeling of threatened by the prospect of unemployment or a reduction in the quality of their job in the future (Frone, 2018; Meyer et al., 2018; Murphy et al., 2013). During COVID-19, employees' awareness of the risks associated with the disease can influence their attitudes and behaviors such as organizational citizenship behavior (OCB), which is described as employees's voluntary and creative actions beyond the formal requirements of their job roles to contribute to developing a long-lived and prosperous organization (Feather and Rauter, 2004; Organ, 1988; Wittig-Berman and Lang, 1990). According to protection motivation theory (Rogers, 1975), behavior adjustment may be achieved by playing to people's fears. Therefore, employees' perceived risk associated with the COVID-19 pandemic could have an impact on their perceived job insecurity and OCB.

The ILO (2020b) has suggested that workplaces are efficient points from which to broadcast information on health and safety, helping to stem the spread of disease. These efforts can, in turn, contribute to minimizing the economic and social impact of an epidemic. Employers and employees can work together to promote prevention and control measures, increase consciousness, and foster capacity to apply workplace safety management practices (WSPs). The latter refer to strategies, policies, procedures, measures, and activities that are implemented for employees' health and safety in the organization (Nordlöf et al., 2017; Wachter and Yorio, 2014). These WSPs, including management's commitment to safety, safety training, safety rules and procedures, and employee involvement, can protect employees' health and wellbeing with complex and dynamic systems of organization and environment during COVID-19 (Hu et al., 2021; Nowacki et al., 2020). According to social exchange theory, when employees realize that by implementing WSPs the organization is taking care of their health and job, they will feel supported by employers. This appreciation adds to employees' optimism, arising from perceived organizational support and reciprocal acts of OCB (Coyle-Shapiro and Conway, 2005; Reader et al., 2017). Research shows that OCB has been linked to overall organizational effectiveness (Psychogios et al., 2019; Podsakoff et al., 2000). Thus, these types of employee behaviors are playing a pivotal role during the COVID-19 pandemic, since all organizations are facing difficulties due to the related market changes and global crisis that are beyond their control (Anderson et al., 2020). At this time of COVID-19, employees' OCB is critical to the survival of many organizations (Vaziri et al., 2020; Yu et al., 2021). However, few studies have examined the effects of WSPs on employees' OCB and the mediating roles of perceived risk associated with pandemics and perceived job insecurity. Therefore, the purpose of this paper is to examine the impact of WSPs on employees' OCB and the mediating roles of perceived risk associated with the COVID-19 – a long and unprecedented global pandemic and perceived job insecurity in the WSPs–OCB relationship. Additionally, we have investigated the mediating role of employees' perceived job insecurity in the path between the perceived risk associated with the COVID-19 pandemic and OCB. This study intends to develop a new theoretical framework to provide meaningful implications for organizations during the pandemics.

2. Theoretical background and hypothesis development

2.1. Workplace safety management practices

Organizations typically adopt occupational health and safety management systems (OHSMS) to control the hazards and ensure a safe environment and the optimum health of their employees. WSPs play a pivotal role in OHSMS, being strategies, policies, measures, procedures, and activities that are implemented for employees' health and safety in the organization (Nordlöf et al., 2017; Wachter and Yorio, 2014). During a pandemic, managers in every organization place greater emphasis on WSPs to mitigate health risks and manage problems specific to the crisis. According to Aldana (2001), WSPs generally focus on hazard assessment and prevention, including health and safety training, wellness programs, health checks, and stress management. Wachter and Yorio (2014: 123) argued that WSPs should be concerned with 'developing and executing processes oriented toward the safety planning, controlling, performing and checking of work.' WSPs create the safety climate in the organization and can be considered as an antecedent of an organization's safety performance. Research in the area of safety management shows several classifications of WSPs. For instance, Mearns et al. (2003) used six components as an audit tool to assess WSPs by each organization, including health and safety policies, organizing for health and safety, management commitment, workforce involvement, health promotion and surveillance, and health and safety auditing. Vinodkumar and Bhasi (2010) concentrated on analyzing six WSPs that positively influence employees' attitudes and behaviors relating to safety. These WSPs included management commitment to safety, safety training, employee involvement, safety communication and feedback, safety rules and procedures, and safety promotion policies. Wachter and Yorio (2014) developed a set of WSPs to test their relationship with accident prevention and safety performance through employee engagement. Those WSPs included employee involvement, pre- and post-task safety reviews, safe work procedures, hiring for safety, cooperation facilitation, safety training, communication and information sharing, accident investigation, detection and monitoring, and safe task assignment. However, according to ILO (2020c), during COVID-19, every organization should concentrate on four dimensions of WSPs: management's commitment to safety, safety training, safety rules and procedures, and employee involvement. Hence, for our study, we measured WSPs during the COVID-19 pandemic via these four dimensions.

Earlier studies have considered management's commitment to safety to be an essential factor in workplace safety management programs (Neal and Griffin, 2004). Neal and Griffin (2004: 27) defined management's commitment to safety as 'the extent to which management is perceived to place a high priority on safety and communicate and act on safety issues effectively.' For example, when the COVID-19 pandemic broke out, the organization urgently established a pandemic prevention committee/team.

There is a wide consensus that health safety training should be provided to all levels of employees to improve their awareness, knowledge, skills, and attitudes to health and safety in the workplace. Also, organizations should provide systematic and comprehensive training programs with warnings and instructions on various topics on health and safety, such as the importance of safe working, the promotion of safety, infectious disease and accident prevention, daily hazards, risks in the workplace, safety rules and procedures, personal protective equipment, accident and emergency responses, etc. (Wachter and Yorio, 2014). For instance, during the pandemic, managers promote internal communication on COVID-19 prevention via newsletter, e-mail, Facebook, and/or other social network applications.

It is broadly agreed that organizations should set up effective safety rules and procedures that allow tasks to be executed free of risk of injury or illness. Well-documented measures can improve the safety behavior of employees, ensure safety inspections by supervisors and managers, and prevent infection outbreaks or accidents from occurring (Vinodkumar and Bhasi, 2010; Wachter and Yorio, 2014). For example, organizations strictly and effectively implement measures to prevent and face COVID-19 (e.g., fill out the travel history form; check the body temperature; apply disinfectant sprays, use handwashing products; wear masks, gloves; practice social distancing; telework if possible).

It should be noted that employee involvement is also regarded as a WSP (Cox and Cheyne, 2000; Ladewski and Al-Bayati, 2019; Wachter and Yorio, 2014). Employee involvement in safety management during a pandemic includes opportunities for all employees to discuss the prevention and control of the pandemic, have a say in all health and safety-related matters, and be consulted about workplace health and safety

regularly. For example, during the pandemic, managers consult with employees regularly about workplace health and prevention of coronavirus.

2.2. Organizational citizenship behavior

The concept OCB first emerged in the late 1970s and was officially defined in the 1980s (Ocampo et al., 2018; Podsakoff et al., 2000). According to Podsakoff et al. (2000), initially, OCB was not explicitly expressed by researchers in the field. However, related concepts, such as prosocial organizational behavior (George and Bettenhausen, 1990), organization-serving behaviors (Wittig-Berman and Lang, 1990), extra-role behavior (Van Dyne et al., 1994), organizational spontaneity (George and Jones, 1997), and contextual performance (Borman and Motowidlo, 1997) have also been used to describe such behavior. Organ (1988: 4) defined OCB as 'individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization. Organ and Ryan (1995) argued that OCB is a concept with five dimensions, including altruism, conscientiousness, civic virtue, courtesy, and sportsmanship. Van Dyne et al. (1994) exposed three dimensions that describe OCB, including obedience, loyalty, and participation. Podsakoff et al. (2000) proposed seven components of OCB: helping behavior, sportsmanship, organizational loyalty, organizational compliance, individual initiative, civic virtue, and self-development. Williams and Anderson (1991) underlined the distinct benefits of OCB for either individuals or organizations. Wittig-Berman and Lang (1990) and Feather and Rauter (2004) suggested OCB as a unidimensional construct. They also recognized that OCB consists of employees' voluntary and creative actions beyond the formal requirements of their job description to contribute to making their organization durable. For instance, employees would be performing OCB when they stay late to carry out their work but they are not particularly requested to do so or go out of their way to support a colleague who faces challenging issues at work when that is not part of their formal role job requirement. In this study, we conceptualized OCB as a unidimensional construct since this approach depicts a more precise estimation of the association between OCB and other variables (Hoffman et al., 2007). Also, this approach of OCB and its measurement scale are commonly used in the recent literature (Chou et al., 2021; Fischer et al., 2020; Kim and Park, 2019).

There are studies on the relationship between safety management systems and OCB (Clark et al., 2014; Lee et al., 2007; Reader et al., 2017). This relationship has been explained by social exchange theory and organizational support theory. According to the former theory, as some receive support and assistance from others, they feel obliged to return them as a norm of reciprocity (Blau, 2017). Organizational exchanges are described as social acts (support, assistance, help, training) that lead to a variety of reciprocal behaviors from workers. Organizational support theory is based on social exchange theory. It proposes that employees express positive attitudes and behaviors because they perceive support from their organization (Podsakoff et al., 2000). Organizational support, recognized as a principle of reciprocity, will encourage employees towards prosocial or organization-serving behaviors. Working with a feeling of gratitude, employees will boost their efforts in favor of their organization (Coyle-Shapiro and Conway, 2005; Reader et al., 2017). During the COVID-19 pandemic, organizations place more emphasis on WSPs to ensure a safe working environment and health for employees (Hu et al., 2021; Nowacki et al., 2020). These WSPs (e.g., management's commitment to safety, safety training, safety rules and procedures, and employee involvement) are regarded as organizational support (Lee et al., 2007). According to social exchange theory, employees will take positive action as OCB in response to organizational support. Reader et al. (2017: 15) argued that when 'organizations engage in more activities to support workforce health (e.g., investing in a high-quality diet), their employees are more likely to engage in safety citizenship behavior and OCBs.' Clark et al. (2014) pointed out that employees, especially those in hazardous working environments, depend greatly on their management to keep them safe. When workers feel protected from danger at the workplace by their organization's WSPs, they will reciprocate by raising their efforts and positive behaviors as OCBs. Thus:

Hypothesis 1. WSPs positively influence employees' OCB.

2.3. Mediating role of perceived risk associated with COVID-19

'Perceived risk' is the belief held by employees about any threat that can directly influence them or their society (Lau et al., 2007; Leppin and Aro, 2009). The threat of a pandemic can affect perceived risk in both positive and negative ways. (1) In the context of the pandemic, the WSPs of the organization can improve employees' perception and knowledge of risks relating to the disease, as well their understanding of virus precautions, which, in turn, helps them to be more proactive in protecting themselves and their neighbors (Brug et al., 2004; Leppin and Aro, 2009). In addition, the introduction by organizations of WSPs regarding a pandemic has directly contributed to the containment of the transmission (ILO, 2020c; Lau et al., 2007). (2) On the other hand, a pessimistic attitude from management, a lack of necessary knowledge about COVID-19, and poor measures to prevent and control viruses at work may induce panic among employees (Brug et al., 2004). Recent studies demonstrated that during the pandemic, health and safety measures given by organizations could decrease employees' fear of COVID-19 (Chi et al., 2020; Hu et al., 2021; Nowacki et al., 2020). Arguably, the effective implementation of WSPs in the organization can reduce the level of perceived risk associated with the COVID-19 pandemic in employees. Therefore:

Hypothesis 2. WSPs negatively influence the perceived risk associated with COVID-19.

During COVID-19, employees' awareness about the level of risk can influence their OCB (Vaziri et al., 2020; Yu et al., 2021). According to protection motivation theory (Rogers, 1975), behavior adjustment may be achieved by playing to people's fears. Protection motivation theory is a social cognition theory that was developed to explain how people respond to danger to their health. It indicates how individuals deal with threats and choose their responses to cope with the risk brought out by those threats (Ling et al., 2019). Rogers and Prentice-Dunn (1997) proposed three constituents of fear arousal: the degree of possible injury, the probability of its occurrence, and the effectiveness of the defensive response. According to Munro et al. (2007: 6), the most recent version of protection motivation theory assumes that 'the motivation to protect oneself from danger is a positive linear function of beliefs that: the threat is severe, one is personally vulnerable, one can perform the coping response (self-efficacy), and the coping response is effective (response efficacy).' Floyd et al. (2000) postulated that the concept of protection motivation involves any threat for which there is an effective recommended response that can be carried out by the individuals. Therefore, when COVID-19 broke out, employees experienced fears for their health risk and insecurity about their jobs, and they acted protectively in response to those threats. OCB is regarded as employees' protective behaviors during the pandemic because these can help them retain their jobs. In addition, during the pandemic, organizations implement WSPs to help decrease employees' fear of risk caused by COVID-19. Hence:

Hypothesis 3. Perceived risk associated with COVID-19 positively influences the OCB.

Hypothesis 4. Perceived risk associated with COVID-19 mediates the WSPs–OCB relationship.

2.4. Mediating role of perceived job insecurity

The COVID-19 pandemic has already transformed into an economic

and labor market crisis, influencing not only demand (consumption and investment) but also supply (production of goods and services) (ILO, 2020b). To survive in a crisis market characterized by declining economic activity, organizational restructuring by downsizing (or 'right-sizing') has become a widespread resolution. Downsizing, as a management arrangement, aims to reduce labor costs (often by cutting the number of employees and/or reducing salaries), streamline operations, and improve organizational effectiveness, productivity, and competitive ability (Green et al., 2016; López Bohle et al., 2018). Many researchers claim that such changes in organizations could threaten employees and their job quality (Frone, 2018; Meyer et al., 2018; Murphy et al., 2013). This threat can evoke a sense of job insecurity, defined as 'perceived powerlessness to maintain desired continuity in a threatened job situation' (Greenhalgh and Rosenblatt, 1984: 438), 'expectations about continuity in a job situation' (Davy et al., 1997: 323), 'perception of a potential threat to continuity in his or her current job' (Heaney et al., 1994: 1431), or employees' estimations of their current employment conditions and their awareness about their future jobs in their current situation from a contrary view (Zeytinoglu et al., 2012). Hellgren et al. (1999) suggested two types of job insecurity in association with two dimensions of perceived loss of permanence in a job position. Quantitative job insecurity implies the perceived threat of losing a job in the future, and qualitative job insecurity denotes perceived threats of impaired quality in the employment relationship, such as lack of occupation development opportunities, worsening of work conditions, and declining salary or bonus augmentation. In the context of the COVID-19 pandemic, employees can perceive a negative impact on all dimensions of life and work. Moreover, in order to prevent transmission of COVID-19, organizations rapidly adopt new smart technology to replace human work (Voorhees et al., 2020), lead to employees' job insecurity. Employees may feel threatened by the prospect of unemployment or a reduction in the quality of their job in the future. Recent studies showed that employees who have a fear of risk caused by COVID-19 could lead to the perception of job insecurity (Chen and Eyoun, 2021; Vo-Thanh et al., 2021). Therefore:

Hypothesis 5. Perceived risk associated with COVID-19 positively influences the perceived job insecurity.

Organizations run WSPs, not only for environmental safety and occupational health but also to retain employees. Typically, WSPs concentrate on the prevention and treatment of disease, illness, and accidents in the workplace (Nordlöf et al., 2017; Vinodkumar and Bhasi, 2010; Wachter and Yorio, 2014). However, when a pandemic breaks out, managers implement WSPs to mitigate the risks for the organization. WSPs help employees understand the level of danger of the pandemic and its potential negative impact, introduce special proactive measures, and rehearse operational scenarios in case of worsening conditions (Wachter and Yorio, 2014). These WSPs make employees feel safer about health and job. In addition, multiple studies indicated that WSPs could generate a climate of safety (Griffin and Curcuruto, 2016; Huang et al., 2006; Neal and Griffin, 2004), which, in turn, makes employees trust in their organization, and then decreases their perception of job insecurity. Consequently:

Hypothesis 6. WSPs negatively influence perceived job insecurity.

Previous research has shown that job insecurity can have an impact on employees' attitudes and behavior at work. Greenhalgh and Rosenblatt (1984: 438) stated that 'workers react to job insecurity, and their reactions have consequences for organizational effectiveness.' Specifically, when employees are uncertain about the future of their job, they tend to emotionally and behaviorally withdraw (Schumacher et al., 2016; Sverke and Hellgren, 2002). Job insecurity relates to, for instance, reductions in job satisfaction, job involvement, trust in an organization, and organizational commitment (Richter and Näswall, 2019; Schumacher et al., 2016), increasing the organizational strain, damaging health and wellbeing, creating stress, anxiety, and depression (Schreurs et al., 2010; Sverke and Hellgren, 2002), and raising the turnover (Bernhard-Oettel et al., 2011; Hellgren et al., 1999). Moreover, perceived job insecurity can also harm an organization when employees display adverse or counterproductive behaviors or non-compliance (Ma et al., 2019; Reisel et al., 2010). By contrast, perceived job security can be the leading cause of positive behaviors, such as OCBs or extra-role behaviors (Kang et al., 2012; Reisel et al., 2010; Wang et al., 2014). This cause-effect relationship relates to social exchange theory (Blau, 2017) in which job security supplied by the organization may induce in employees a sense of reciprocity and perception of obligation to cooperate, as with OCBs. Recent studies also showed that during the COVID-19 pandemic, job insecurity impacts job engagement, job performance, and OCB (Mahmoud et al., 2020; Vo-Thanh et al., 2021). In addition, during the pandemic, the organization's WSPs may help reduce employees' perceived job insecurity, which, in turn, could decreases OCB. Accordingly:

Hypothesis 7. Perceived job insecurity negatively influences the OCB.

Hypothesis 8a. Perceived job insecurity mediates the relationship between WSPs and OCB.

Hypothesis 8b. Perceived job insecurity mediates the relationship between the perceived risk associated with the COVID-19 pandemic and OCB.

The research model and corresponding hypotheses are shown in Fig. 1.

3. Research methodology

3.1. Sampling and data collection

The population of interest in this study was Vietnamese workers. The final sample was 501, which is deemed suitable for studies using a quantitative approach (Hair et al., 2014). The questionnaire was initially prepared in English and then translated into Vietnamese. To ensure the language equivalency, we carried out a back-translation procedure following Brislin (1970). Inconsistencies in translations were resolved by the authors who are bilingual (Vietnamese and English).

Since the items used to assess the four constructs in the research model were validated in other research contexts, the instructions given by Hardesty and Bearden (2004) were carefully respected to ensure their face and content validity. In this regard, as per the COVID-19 context, the items were refined based on the feedback of eight purposefully selected experts from three universities, including two professors, four assistant professors, and two Ph.D. students. All of them are researching in the human resource management and/or organizational behavior fields. The experts examined the adapted items and provided recommendations; the experts approved all items, and some wordings were corrected. Moreover, the Vietnamese version was tested on five Vietnamese employees aged 26 to 53 years and refined based on their feedback.

The final questionnaire comprised two main parts: measurement scales and socio-demographic- and work-related questions. The survey was conducted in March 2020, during which questionnaires were administered online using e-mail and social networks such as Facebook and LinkedIn. All questionnaires were completed voluntarily by full-time equivalent employees. The data collection was also conducted in two stages: (1) the first 100 questionnaires were used for a pilot study; (2) a new collection was made of a further 401 questionnaires to obtain a final sample of 501 Vietnamese employees.

3.2. Measurement scales

Four primary constructs in the research model (Fig. 1), namely WSPs, perceived risk associated with COVID-19, perceived job insecurity, and

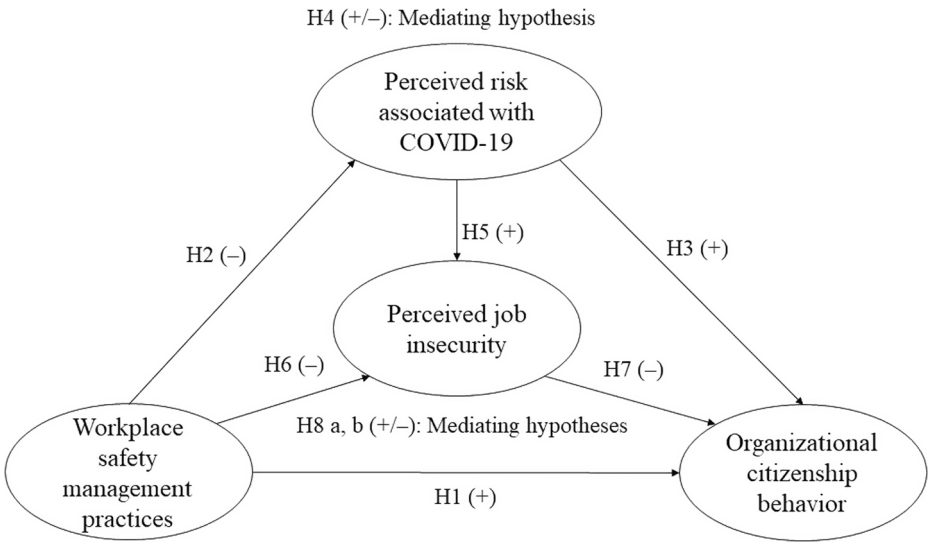

Fig. 1. Research model and hypotheses.

OCB, were measured using scales developed from the literature. As a multidimensional construct, the WSP was assessed via four sub-constructs: management commitment, safety training, safety rules and procedures, and employee involvement. The three remaining constructs were all unidimensional. The constructs and sub-constructs were measured by items adapted from previous studies (Table 2). All the items were rated on a 5-point Likert scale ranging from: 1, 'totally disagree' to 5, 'totally agree' for WSPs; perceived risk associated with COVID-19 pandemic and perceived job insecurity; and from 1, 'never' to 5, 'very often' for OCB.

4. Research results

4.1. Sample characteristics

As presented in Table 1, in terms of age and gender, 85.6% of respondents were equal to, or less than, 40 years, and 70.5% were female. For type of work contract, 83.6% were permanent or had been contracted for more than one year. For work positions, 64.6% were non-management employees, while 35.4% had managerial positions. Concerning the pandemic impact, 59.9% had experienced work changes (i.e., were working online at home entirely or partially) due to COVID-19.

Table 1
Demographic information of respondents (n = 501).

	n	%		*n*	%
Age			*Type of work contract*		
<30	244	48.7	Part-time	23	4.6
30–40	185	36.9	1-year contract or shorter	59	11.8
41–50	66	13.2	A contract from over 1–3 years	124	24.8
>50	6	1.2	Permanent contract	295	58.8
Gender			*Organization size (employees)*		
Male	148	29.5	<50	101	20.2
Female	353	70.5	51–100	73	14.6
			101–200	60	12.0
Industry			201–500	64	12.8
Footwears	14	2.8	501–1 000	98	19.6
Electronics	20	4.0	1001–2000	53	10.6
Manufacturing or processing	56	11.2	> 2000	52	10.4
Tourism, restaurant, hotel, transport, and leisure services	103	20.6			
Warehousing and logistics	34	6.8	*Work changes due to COVID-19*		
Education	163	32.5	Constant (no change)	201	40.1
Finance and banking	76	15.1	Working online at home completely	115	22.9
Other	35	7.0	About half is done online at home	118	23.6
			A small part is done online at home	67	13.4
Work position					
Employee	324	64.6			
First-line manager	78	15.6			
Middle manager	72	14.4			
Top manager	27	5.4			

4.2. Assessment of the measurement model

First, the measurement model was tested for reliability and validity. As indicated in Table 2, WSPs and their four dimensions were formative, so a reliability test using composite reliabilities (CR) and average variance extracted (AVE) were not applicable. For the reflective constructs (perceived risk associated with the COVID-19 pandemic, perceived job insecurity, and OCB), the outer loadings of all observed variables ranged between 0.55 and 0.85, which was above the cut-off value of 0.50 (Hulland, 1999). Moreover, their corresponding bootstrapped *t*-values were higher than 1.96, and within the statistical significance range of 5.73 to 59.80. The AVE values of the three reflective constructs were between 0.54 and 0.62, all higher than the 0.50 limit, suggesting a satisfactory convergent validity. The CR values of the three reflective constructs were from 0.88 to 0.93, indicating that the measurements were reliable.

We evaluated discriminant validity following the procedure suggested by (Fornell and Larcker, 1981). Table 3 shows that apart from the formative constructs (i.e., management commitment, safety training, safety rules and procedures, and employee involvement) where the calculation of AVE was not applicable, the square roots of the AVE values of the three reflective constructs (ranging between 0.74 and 0.78) were well above most of the corresponding bootstrapped correlation coefficients. This result indicates a high level of discriminant validity. For the robustness of the discriminant validity test, we also calculated the Heterotrait–Montrait (HTMT) values based on a bootstrapping

Table 2
Scales' evaluation.

Scales' items/sources	Weigh/ loading	*t*-value
Workplace safety management practices (adapted from Vinodkumar and Bhasi, 2010**)**		
Management commitment[a] (formative construct)		
• Safety is given high priority by the management.	0.17	2.54
• Safety rules and procedures are strictly followed by the management.	0.18	2.41
• Corrective action is always taken when the management is told about unsafe practices.	0.12	1.73
• When the COVID-19 pandemic broke out, the company urgently established a pandemic prevention committee/ team.	0.03	0.43
• When COVID-19 is reported, my management acts quickly to solve the problems.	0.28	3.56
• My company provides sufficient personal protective equipment for the workers.	0.11	1.80
• My company develops a full range of coping scenarios when the COVID-19 pandemic occurs.	0.30	4.55
Safety training[a] (formative construct)		
• My company gives comprehensive training to employees in workplace health and safety issues.	0.16	2.24
• All employees must participate in training programs on COVID-19 prevention.	(0.08)	1.21
• Training programs on COVID-10 prevention given to me are adequate to enable me to assess hazards in the workplace.	0.24	3.33
• Management promotes internal communication on COVID-19 prevention via newsletter, e-mail, Facebook, etc.	0.29	3.58
• Safety issues are given high priority in training programs.	0.50	6.34
Safety rules and procedures[a] (formative construct)		
• The safety rules and procedures followed in my company are sufficient to prevent COVID-19.	0.27	4.21
• My managers always try to enforce safety rules and procedures on COVID-19 prevention at the workplace.	0.40	5.00
• Safety inspections of COVID-19 are carried out regularly.	0.19	2.36
• My company strictly and effectively implements measures to prevent and face COVID-19 (e.g., hand-washing products, masks, telework if possible, etc.).	0.25	3.72
Employee involvement[a] (formative construct)		
• Employees have enough opportunities to discuss the prevention of COVID-19 during the meetings.	0.23	3.17
• Managers promote employees' involvement in safety-related matters.	0.51	5.85
• Managers consult with employees regularly about workplace health and prevention of COVID-19.	0.35	4.53
Perceived risk associated with COVID-19 (CR = 0.88; AVE = 0.56) (adapted from Lau et al., 2007**)**		
• The COVID-19 pandemic has a high fatality rate.	0.73	21.96
• Currently, the treatment methods of COVID-19 are not effective.	0.71	21.35
• We need to wait for a longer time before having a vaccine for COVID-19.	0.76	29.15
• I am worried about the fact that each of us may be reached by COVID-19.	0.84	42.75
• The COVID-19 pandemic is a real threat to everyone.	0.55	10.70
• In general, I know that the COVID-19 pandemic is very dangerous.	0.84	37.92
Perceived job insecurity (CR = 0.92; AVE = 0.62) (adapted from Hellgren et al., 1999**)**		
• I am worried about having to quit my job before I would like to due to COVID-19.	0.63	5.73
• There is a risk that I will have to leave my current job in the near future.	0.79	9.03
• My career development opportunities in the organization are favorable. (R)	0.85	6.85
• I feel that the organization can provide me with a stimulating job content in the near future. (R)	0.83	5.85
• I believe that the organization will still need my competence in the future even if the COVID-19 pandemic breaks out. (R).	0.84	6.35
• My salary, bonus, and other benefits will still be promising in the near future even if the COVID-19 breaks out. (R)	0.75	8.57
• I am afraid that my salary, bonus, and other benefits development will be delayed due to COVID-19.	0.77	9.11
Organizational citizenship behavior (CR = 0.93; AVE = 0.54) (adapted from Wittig-Berman and Lang, 1990**)**		
• Take work home or stay late to finish up your work, even if not specifically asked to do so.	0.77	38.89
• Go out of your way to help a co-worker who is having difficulty in his or her job.	0.80	48.72
• Call in sick to stay home and relax. (R)	0.65	20.94
• Keep aware of everything that goes on around you at your place of work.	0.68	20.36
• Cancel an important social engagement (such as an appointment) because you feel needed in the office.	0.81	51.50
• Postpone your vacation or day off, in spite of personal inconvenience, to meet the needs of your organization.	0.74	34.10
• Use company time to take care of personal matters. (R)	0.63	17.26
• Talk about your work during lunch.	0.67	25.00
• Recall with ease work-related problems, incidents, and information.	0.84	59.80
• Do some extra work for your job which is not really required of you.	0.78	39.77
• I still work hard as the time before the COVID-19 pandemic.	0.69	26.26

Notes: CR: Composite reliability; AVE: Average variance extracted; a: CR and AVE are not applicable for formative constructs; (R) indicates that the item was reverse coded.

routine (Henseler et al., 2015). The HTMT values ranged between 0.11 and 0.32, significantly below 0.85, providing more robust evidence for discriminant validity.

4.3. Common method bias and multicollinearity issues

As we used a single informant approach to collect data, common method bias was a potential issue (Podsakoff et al., 2003). Thus, we employed the Harman single factor test and found that no single factor accounted for the majority of variance (the first factor only accounted for 34.76% of the 68.62% explained variance). The result indicated that common method bias was not a severe concern in our study. In addition, we followed (O'Brien, 2007) to compute the variance–inflation factor (VIF) values of the independent variables to examine possible multi-collinearity issues. The inner VIF values ranged between 1.00 and 1.30, which were well below 10, showing that our study was free from serious multicollinearity problems.

4.4. Hypothesis testing results

We tested the proposed model and hypotheses using a partial least squares (PLS) approach with SmartPLS software (version 3.2.7). The PLS approach, compared with traditional covariance-based structural equation modeling, can generate higher levels of statistical power under the same conditions (Reinartz et al., 2009). Our sample size of 501 was much larger than ten times the maximum number of path relationships directed at any construct, which has become a rule of thumb for robust PLS estimations (Hair et al., 2016). The estimated structural model based on the survey data indicated an acceptable fit as the standardized root mean squared residual value of the composite model of 0.07 was lower than the recommended value of 0.08 (Henseler et al., 2016).

Table 4 shows the indices used to assess the significance of the individual paths following six different path models to test the proposed hypotheses. The indices comprised the β coefficients and *t*-values, as well as the adjusted R^2 for OCB, which were computed using 5 000 bootstrapping sampling times. We found that the adjusted R^2 value of OCB ranges between 0.15 and 0.26 was higher than the recommended level of 0.10. This result indicated that the variance of OCB, the primary dependent variable, was within acceptable levels.

Table 3
Discriminant validity analysis.

	1	2	3	4	5	6	7
1. Management commitment	**N/A**						
2. Safety training	0.72[c]	**N/A**					
3. Safety rules and procedures	0.74[c]	0.71[c]	**N/A**				
4. Employee involvement	0.67[c]	0.67[c]	0.74[c]	**N/A**			
5. Perceived risk associated with COVID-19	0.33[c]	0.28[c]	0.24[c]	0.29[c]	**0.75**		
6. Perceived job insecurity	(0.14)[c]	(0.08)	(0.18)[c]	(0.08)	0.13[c]	**0.78**	
					0.20		
7. OCB	0.36[c]	0.37[c]	0.40[c]	0.41[c]	0.30[c]	(0.05)	**0.74**
					0.32	*0.11*	

Notes: 1st value = Correlation between variables (off diagonal); 2nd value (*italic*) = HTMT ratio; Square root of AVE (bold diagonal); [c]: Correlation is significant at 1% level (two-tailed *t*-test); **N/A**: Square root of AVE is not applicable for formative constructs.

Table 4
Path analysis – PLS-SEM results.

Model/path		Model 1	Model 2	Model 3		Model 4		Model 5		Model 6 (full model)		
		WSPs – OCB	PRC – OCB	WSPs – PJI – OCB		WSPs – PRC – OCB		PRC – PJI – OCB		WSPs – PRC – PJI – OCB		
Dependent variables		OCB	OCB	PJI	OCB	PRC	OCB	PJI	OCB	PRC	PJI	OCB
	Independent variables											
H1, H2, H6, H8a	WSPs	0.42		−0.20	0.42	0.34	0.36			0.33	−0.20	0.36
		(9.74)[c]		(2.33)[b]	(9.81)[c]	(5.77)[c]	(8.52)[c]			(5.38)[c]	(2.75)[c]	(8.38)[c]
H3, H4, H5	PRC		0.31				0.19	0.22	0.31		0.20	0.19
			(6.85)[c]				(4.46)[c]	(2.03)[b]	(6.28)[c]		(2.78)[c]	(4.41)[c]
H7, H8b	PJI				−0.03				−0.04			−0.02
					(0.42)				(0.41)			(0.35)
	Control variables											
	Gender	0.07	0.09		0.07		0.07		0.09			0.07
		(1.71)[a]	(1.96)[c]		(1.66)[a]		(1.75)[a]		(2.05)[b]			(1.64)[a]
	Age	0.07	0.05		0.06		0.05		0.05			0.05
		(1.60)[a]	(1.15)		(1.43)		(1.30)		(1.03)			(1.19)
	Position	0.17	0.23		0.17		0.19		0.23			0.19
		(3.84)[c]	(5.09)[c]		(3.98)[c]		(4.08)[c]		(4.74)[c]			(4.30)[c]
Adjusted R^2 of OCB		0.23	0.15		0.23		0.26		0.14			0.26

Notes: WSPs: workplace safety management practices; PRC: Perceived risk associated with COVID-19; PJI: perceived job insecurity; OCB: organizational citizenship behavior; numbers in brackets: t-values; a, b, c: denotes significance at 10%, 5%, and 1% respectively (two-tailed *t*-test).

Hypothesis H1 conjectures that WSPs positively influences employees' OCB. This hypothesis was supported, as the β coefficient for the WSPs–OCB path was 0.42 and significant at the 1% level (*t*-value = 9.74 – Model 1). While the path between WSPs and PRC was significant at the 1% level in all related models, interestingly, the effect of WSPs on PRC was positive rather than negative ($\beta = 0.34$, t-value = 5.77 – Model 4; $\beta = 0.33$, t-value = 5.38 – Model 6). Therefore, hypothesis H2 was not supported. Hypothesis H3, which posits that PRC positively influences OCB, was supported when the PRC–OCB path was 0.31 and significant at 1% level (*t*-value = 6.85 – Model 2). Hypothesis H4 suggests that PRC mediates the relationship between WSPs and OCB. Model 4 showed that the indirect relationship between WSPs and OCB was significant at 1% level ($\beta = 0.36$, *t*-value = 8.52) but still smaller than the direct relationship between these two variables ($\beta = 0.42$, *t*-value = 9.74 – Model 1). This result indicates that PRC partially mediates the relationship between WSPs and OCB, supporting hypothesis H4. We then further employed the Sobel test to confirm this hypothesis. The Sobel test statistic of 3.34 and significant at 1% level (two-tailed *t*-test) further confirmed hypothesis H4 concerning the mediating role of PRC in the WSPs–OCB relationship.

Hypothesis H5 posits that PRC positively influences PJI. This hypothesis was confirmed as the PRC–PJI path was significant at the 5% level ($\beta = 0.22$, t-value = 2.03 – Model 5) and 1% level ($\beta = 0.20$, t-value = 2.78 – Model 6). Hypothesis H6 conjectures that WSPs negatively influence PJI. When the WSPs–PJI path was negative and significant at 5% level ($\beta = -0.20$, t-value = 2.33 – Model 3) and 1% level ($\beta = -0.20$, t-value = 2.75 – Model 6), this hypothesis was accepted. Hypothesis H7 claims that PJI negatively influences OCB. Interestingly, there was no support for this hypothesis in the context of Vietnam as the PJI–OCB relationship was insignificant in all related models ($\beta = -0.03$, t-value = 0.42 – Model 3; $\beta = -0.04$, t-value = 0.41 – Model 5; $\beta = -0.02$, t-value = 0.35 – Model 6). Hypothesis H8a postulates that PJI mediates the WSPs–OCB path, while hypothesis H8b states that PJI mediates the relationship between PRC and OCB. As the link between PJI and OCB was insignificant, we found no evidence to confirm the mediating hypotheses H8a and H8b. In other words, hypotheses H8a and H8b were rejected.

In terms of control variables, we found a weak positive influence of gender on OCB ($\beta = 0.07$, t-value = 1.64 – Model 6), implying that females seem to have more organizational commitment than males. Moreover, age appears to have no significant effect on OCB ($\beta = 0.05$, t-value = 1.19 – Model 6). Interestingly, it was discovered that work position greatly affects OCB ($\beta = 0.19$, t-value = 4.30 – Model 6), indicating that high-ranking staff were more heavily dedicated to their organizations.

5. Discussion

The goal of this study was to explore the relationships between WSPs, perceived risk associated with COVID-19, perceived job security, and OCB from an employee perspective. The result that WSPs positively influence the OCB is in line with previous studies (Clark et al., 2014; Reader et al., 2017), providing further support to social exchange and organizational support theories in the context of global crisis, health business disruption, and economic hardship. We also found that during the COVID-19 pandemic, WSPs have negatively influenced employees' perceived job insecurity. This result can be explained by the fact that WSPs can create a safety climate (Griffin and Curcuruto, 2016; Huang

et al., 2006; Neal and Griffin, 2004) and reduce employees' feelings of job vulnerability. Furthermore, the findings established that the perceived risk associated with the COVID-19 pandemic is positively associated with job insecurity and OCB. Indeed, COVID-19 is causing both economic and social losses globally, which may lead employees to believe that most organizations will be confronted with economic difficulties in the future if the pandemic continues much longer. This could lead to a perceived threat to jobs and corroborates the arguments advanced by Hellgren et al. (1999). Similarly, to secure their current jobs, employees may think it important to engage more in their organizations' activities to reduce the impact of economic threats and consequently to adopt an OCB. From this perspective, we can argue that perceived risk associated with the COVID-19 pandemic having a positive influence on the OCB supports the protection motivation theory favored by Rogers (1975).

Contrary to our expectations, hypothesis H2 testing revealed that WSPs increase the perceived risk associated with COVID-19 in employees instead of reducing their fear. This result could be for several reasons. First, in the Vietnamese context, which is characterized by high collectivism and low preference for avoiding uncertainty, when receiving information about the COVID-19 pandemic from both official sources (e.g., the government and the organization) and informal ones (e.g., relatives and friends) via social networks or traditional word of mouth, they may become increasingly worried about the health risks from COVID-19. Second, while experiencing WSPs in their organization, they have needed to acquire more in-depth knowledge of the COVID-19 pandemic, for example, through safety training, therefore, understanding the danger caused by COVID-19 at the global level, they would feel more threatened. Third, for Vietnamese employees, currently existing WSPs cannot be effective in calming fear of COVID-19 in light of Vietnam's proximity to China, the country where the first cases were reported; the high fatality rate caused by COVID-19; its persistence; and the rapid increase in the number of cases worldwide. That said, no practice or health system anywhere in the world is yet capable of reducing the perceived risk associated with COVID-19.

We also revealed the partial mediating effect of the perceived risk associated with the COVID-19 pandemic in the WSPs–OCB relationship. In the time of pandemic, the findings showed that WSPs are statistically positively associated with the perceived risk associated with COVID-19, which, in turn, positively influences the OCB. As explained previously, at this stage of the COVID-19 trajectory, WSPs cannot have a negative impact on the perceived risk.

A further outstanding finding was that employees' perceptions of job insecurity were found not to be statistically correlated with OCB. This result is not congruent with many previous studies (Kang et al., 2012; Richter and Näswall, 2019; Schumacher et al., 2016; Wang et al., 2014). This incongruence may be translated by the current context of economic and market labor crises caused by COVID-19. However, though employees may feel that working conditions have deteriorated materially and psychologically due to COVID-19, employees may still keep their OCB as before to retain their jobs, as maintaining an exemplary OCB might constitute a competitive advantage from an individual point of view.

6. Research implications, limitations, and future research

6.1. Theoretical contributions

This study has important theoretical implications. First, it extends the emerging stream of research on the impact of global pandemics such as COVID-19 on organizations and individuals. It also contributes to the growing pool of research on OHSMS and WSPs in the context of pandemics. The study clarifies four crucial components of WSPs during pandemics, including management's commitment to safety, safety training, safety rules and procedures, and employee involvement. This research was mainly based on social exchange and protection motivation theories to formulate the hypotheses and build the research model. While these theories have been extensively mobilized in the sociology and psychology fields and increasingly in the more wide-ranging context of organizational research to date, we are among only a few scholars (e.g., Reader et al., 2017) to apply this theoretical lens to research on workplace safety and health management. Our results show that during the pandemic, when employees perceive WSPs as organizational supports to them, they will adopt positive behaviors like OCB, which consists of employees' voluntary and creative actions beyond the formal requirements of their job description to contribute to the prosperity of their organization, in compliance with the principle of reciprocity.

Moreover, this study provides insights into the relevance of protection motivation theory to enhance our understanding of the influence of perceived risk associated with pandemics like COVID-19 on employees' OCB and its mediating role in the relationship between WSPs and employees' OCB. When the COVID-19 pandemic broke out, employees feared for their health and worried about the insecurity of their jobs. Hence, following protection motivation theory, they will adopt protective behaviors to manage those threats. From this perspective, OCBs are seen as employees' protective behaviors during the COVID-19 pandemic because they could help them retain their current jobs.

Finally, this research also unveiled the power of national culture in explaining the impact of WSPs on the perceived risk associated with pandemics. At the stage where everything is uncertain, and the situation is continuing to deteriorate (i.e., there is no effective treatment and the infection rate is rising), existing WSPs may not be sufficient to reduce the perceived risk associated with the pandemic. In addition, psychologically collectivist societies like Vietnam would seem more deeply affected by the pandemic's impact due to their community lifestyle, which might be more influenced by unofficial sources of information.

6.2. Practical implications

The results of our study have several implications for managers and employees. In the context of COVID-19, a worldwide health pandemic, the worst global crisis since the Second World War (ILO, 2020a), most organizations and individuals are juggling multiple difficulties. Concretely, employees are facing a high risk of infection in the workplace and job insecurity. Organizations can confront the risk of shutdown if employees are infected with COVID-19 or lose the motivation to work during COVID-19. Therefore, organizations must emphasize all dimensions of WSPs to help employees feel secure and safe and express their OCB at work during the pandemic (Vinodkumar and Bhasi, 2010; Wachter and Yorio, 2014). First, explicitly, managers should prioritize the health and safety of employees during the pandemic. Organizations need to establish a pandemic crisis committee and develop a full range of coping scenarios when the pandemic spreads. Organizations need to provide sufficient personal protective equipment (e.g., handwashing products, gloves, and masks) for employees. All managers should strictly follow the safety rules and procedures during the pandemic and quickly remove unsafe practices or other problems related to COVID-19 at the workplace. Second, organizations need to supply adequate safety training programs to enable employees to assess workplace hazards and know how to prevent the epidemic from spreading and protecting themselves. These training programs on COVID-19 prevention and safety issues in which all employees are requested to participate can be achieved online or offline. Moreover, management can promote internal communication on the progress of the pandemic and how to protect against it via newsletter, e-mail, and internal social network. Third, safety rules and procedures need to be put in place to fight COVID-19 (e.g., fill out the travel history form; use the disinfectant sprays, organize social and physical distancing, telework if possible, and take employees' body temperature before and after work). Managers should strictly enforce COVID-19-related safety rules and procedures at the workplace and carry out safety inspections regularly. Fourth, managers should

promote employees' involvement in safety-related matters by providing them with opportunities to discuss the prevention of COVID-19 and consulting with them on workplace health. In addition, managers should help employees understand the difficulties that they are confronting while the COVID-19 pandemic continues, thereby ensuring employees cooperate with the organization in preventing the spread of COVID-19 and participate actively in the organization's disease response measures. In a general way, as demonstrated by this research, a sound system of WSPs can lessen the perception of job insecurity in employees and promote their OCB during the pandemic.

However, WSPs should not make employees fearful. On the contrary, they must be an effective tool, instilling employees with greater confidence to fight against the pandemic. Our research results showed that in the context of Vietnam, WSPs have a positive impact on employees' perceived risk associated with COVID-19. Moreover, from optimistic thinking, the COVID-19 pandemic, or other worldwide diseases, might prove to be a catalyst for increased OCB if adequate WSPs, as well as appropriate measures to reassure employees psychologically, are implemented. Indeed, WSPs help employees better perceive the risks that COVID-19 and other pandemics can generate, which positively influences the OCB in compliance with the mechanism of protection motivation theory. Therefore, in addition to providing them with reliable and official information, it would be judicious to reassure employees psychologically and to encourage them by, for instance, highlighting the people who have been cured of COVID-19, in an effort to quell fears.

Besides, organizations should alert employees to the existence of fake news and inform them of how to access official and reliable information (e.g., from the websites of the Ministry of Health and the Ministry of Labor, Invalids and Social Affairs). In the current context, this type of approach can be valuable to decreasing employees' fear of COVID-19 from a psychological perspective.

Furthermore, to help employees easily accept the "new normal" status, feel more secure with their job during the pandemic, from an employment point of view, managers should discuss with employees the organization's disease response measures and plans during the various stages of the pandemic.

6.3. Limitations and future research

The results of this study should be considered with some limitations. The first relates to the cross-sectional design of the study, which does not allow inferences to be drawn on causal relationships between WSPs and their direct or indirect outcomes in the context of the COVID-19 pandemic. Additionally, this research was conducted during the peak of the COVID-19 pandemic, when many countries were in a containment phase. Therefore, subsequent longitudinal studies could further examine employees' perceptions of job insecurity and their attitudes and behaviors in the post-COVID-19 period. Second, our sample was comprised mostly of female respondents (70.5%). Future research could employ a longitudinal analysis of more data collected from males to make the causal relationships examined here more robust. Third, although the data were collected from employees working in various sectors (e.g., manufacturing and services) and types of organization (e.g., government and non-government), the findings may yet be nuanced by industry-specific or organization-specific forms. Hence, further research might be directed towards the exploration of potential moderators, particularly those related to the organizational context, as well as sector specificity in the relationships between WSPs and their direct and indirect outcomes. Fourth, our study was conducted with Vietnamese employees and could be limited from a cross-cultural perspective. The cultural dimensions of Vietnam, marked by high collectivism, power distance, and low preference for avoiding uncertainty, are different from those of individualist societies in Europe and America. Therefore, our results may not be generalizable to Western nations. Subsequent research should be carried out in contexts similar (e.g., other Asian countries) and dissimilar to Vietnam (e.g., Western countries) to improve the generalization of our findings. Finally, WSPs not only impact employees' perceived risk associated with pandemics, perceived job insecurity, and OCB, but also could affect their psychology and job performance. Prospective studies should examine the relationships between WSPs and such concerns.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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