



JD-R model on job insecurity and the moderating effect of COVID-19 perceived susceptibility

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Abstract

The present research applied a triangulation approach in order to examine the mediating effect of job insecurity and the moderating effect of perceived susceptibility to COVID-19 (PSC) in the Job demands and resources model (JD-R model). Questionnaire and follow-up interview data were collected at two points in time from 292 hotel front-line employees and 15 hotel senior and department managers in Phuket, Thailand. Quantitative results indicated that job insecurity fully mediated the relationship between job demands and job burnout, as well as the relationship between job demands and work engagement. In addition, PSC partially moderated the research model. More specifically, the impact of job insecurity on work engagement is reduced when PSC is low and increased when PSC is high; the impact of job insecurity on job burnout is reduced when PSC is high and increased when PSC is low. Qualitative results further verified the findings of the quantitative study.

Keywords Hotel industry · Job demands · Job burnout · Work engagement · Job insecurity · Perceived susceptibility to COVID-19

Introduction

The COVID-19 pandemic has caused an unprecedented global health disaster, with more than 600 million people diagnosed, and 6 million lives lost (*COVID-19 Map - Johns Hopkins Coronavirus Resource Center, 2022*). As the pandemic continues to spread across the world, many countries have adopted stringent immigration policies to limit the mass movement of people, but the restrictions have wreaked havoc on the global hotel industry (Jiang & Wen, 2020). According to the Thailand Hotel Association, the average hotel occupancy rate dropped from 71.38 percent in 2019 to 14.16 percent in 2021; the average room reservation rate dropped from 31.32 percent in 2019 to 1.84 percent in 2020; and the average room rate dropped from 1709.72 Baht in

2019 to 914.03 Baht in 2021, resulting in a direct economic loss of more than 600 billion Baht.

In the context of the pandemic, hotel industry employees are exposed to the risks of COVID-19 (Lai & Wong, 2020; Vo-Thanh et al., 2021), as the nature of their work often requires them to experience a high visitor flow rate and frequent customer contact (Stergiou & Farmaki, 2021). Meanwhile, when the hotel industry took measures to cope with the crisis, such as downsizing, reducing the number of employees, and cutting wages and benefits, employees were beset by job insecurity in an unpredictable and unreliable work environment (Karatepe et al., 2022). Meanwhile, the above problems caused by the pandemic are likely to lead to subsequent problems such as pandemic-related absenteeism or increased turnover intention (Stergiou & Farmaki, 2021), and the loss of talent may leave the hotel industry permanently weakened leading to a long-term negative impact even if the COVID-19 is fully eradicated.

In recent years, sufficient empirical studies have proved the adaptability of the JD-R model in various working environments, including the cruise industry (Radic et al., 2020), the airline industry (Chen & Chen, 2014), and the education industry (Madigan & Kim, 2021). However, there are only a few studies focused on the JD-R model in the hospitality industry in the context of COVID-19 (Chi et al., 2021; Vo-Thanh et al., 2022).

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Previous studies indicated that job demands play a negative role in employees' work engagement and reduce job burnout (Bakker et al., 2005). However, these studies failed to explain the reason why job burnout and work engagement are the lagging factors of job demands (Yaris et al., 2020). More specifically, the change in job demands is not the direct cause of employees' work disengagement and anxiety. In order to fill the above research gap, this study includes job insecurity in the construct of the JD-R model to discuss whether job insecurity is the cause of lagging between job demands, work engagement, and job burnout. In other words, we suggest that job demands affect work engagement and job burnout through job insecurity. Furthermore, while personal resources have been shown to help employees deal with job demands in an active and efficient manner (Hobfoll et al., 2003), few articles have used personal resources to discuss the above phenomenon (Cheung et al., 2019), especially not while examining the moderating role of personal resources in the JD-R model under the environment of COVID-19. In this study, we suggest the PSC among employees is an important personal resource under crisis because such differences in perception and adaptability directly lead to different work attitudes (Burke et al., 2021). Thus, this study attempts to explore whether PSC can be used as a personal resource in the context of COVID-19 and examines the moderating role of PSC in the JD-R model.

This study presents several contributions to the literature. First, we extend the JD-R model and argue that job insecurity may work as a mediator in the relationship between job demands and job burnout, work engagement. Meanwhile, the present study found that PSC as a kind of personal resource has a partial moderating effect within the research model in the context of COVID-19. Second, this study verifies the applicability of the JD-R model in the pandemic environment of the hotel industry and further expands the application field of the model. Third, this study focuses on a major research gap in which previous studies assume job burnout and work engagement are the lagging factors of job demands (Yaris et al., 2020). Fourth, this study employed a quantitative and qualitative triangulation method. In the quantitative phase, we collected data from Phuket Starred Hotel employees and applied PLS-SEM to analyze the data. Six months after the quantitative phase, in-depth follow-up interviews were conducted to further verify the qualitative results. The qualitative result indicated that the hotel industry still faces many pandemic-related risks in this post COVID-19 era. Operating conditions and strategy have yet to be changed.

Theoretical background

The JD-R model

The JD-R model assumes that employees' physical and mental health is related to a wide range of work conditions, which can be classified as job demands and job

resources (Demerouti et al., 2001). Among them, job demands include social, organizational, psychological and physiological factors that require employees to make a large quantity of physical and psychological efforts to complete work goals or master corresponding skills (Bakker & Demerouti, 2007). The realization of these aspects requires continuous physical, cognitive, and emotional efforts, thus bringing certain psychological and physiological burdens to the individuals (Bakker et al., 2005). Excessive job demands reduce employees' physical and mental resources, thus leading to stress symptoms such as mental or physical fatigue (Bakker et al., 2004). Research has found that excessive job demands will reduce employees' physical and psychological resources, leading to job burnout, job pressure and a series of health problems (Bakker & de Vries, 2021). Employees who have been affected by extensive job demands for a long time may become exhausted and alienated from their work psychologically (Bakker & Demerouti, 2007), which eventually increases their turnover intention (Knudsen et al., 2009). This process is called health impairment (Bakker & Demerouti, 2007). Job resources include social, psychological and organizational factors that help employees achieve their work goals, promote their career growth and improve their work engagement. Meanwhile, work resources can buffer the negative impact of job demands on employees' psychology and physiology. This process is called the motivational process (Bakker & Demerouti, 2007). Research has found that job resources have positive impacts on improving employee performance and work engagement (Bakker et al., 2014).

Although the JD-R model has been successfully applied to many cross-environment, cross-profession, and cross-discipline studies (Britt et al., 2021; Radic et al., 2020), few scholars have verified the application of the JD-R model to the hotel industry in the context of the pandemic (Chi et al., 2021; Vo-Thanh et al., 2022). By reviewing the previous literature and analyzing the realistic situation of the hotel industry, this paper found that the variable of job resources may not be applicable to the hotel industry in the context of COVID-19. The original JD-R model provided a framework to build the relationship between the organizational environment, job burnout and work engagement. However, the initial JD-R model did not investigate the effect of a person-environment interaction to predict work engagement and other organizational outcomes (Kodden & Hupkes, 2019). Meanwhile, most psychological approaches tend to take the interaction between people and their environment into account to predict behavior (Schaufeli & Taris, 2014). Therefore, this study introduced personal resources (person-environment) instead of job resources(work-environment) to better explore the interaction between employees and their working

environment during the pandemic. Personal resources are defined as "self-aspects which are usually related to resilience," which typically refers to the ability to perceive, control, and influence one's environment., (Hobfoll et al., 2003). This study focused on the interaction between hotel employees and the organization environment in the context of COVID-19. In this study, personal resources provide insight into personal differences that affect the way health impairment and motivational processes affect work attitude.

Work engagement and job burnout in JD-R model

Kahn (1990) proposed the term "personal engagement" to describe the psychological state of employees at work. In this psychological state, employees put physiological, psychological, cognitive and spiritual resources into their work, resulting in different outcomes according to the degree of resources used. In this study, work engagement refers to a positive, fulfilling, and work-related mental state (Bakker et al., 2004). Previous research has found that the employees' understanding of the human resource management practices will also affect work engagement to some extent (Saks & Gruman, 2018). The study also showed that employees have the highest work efficiency and work engagement within the first two hours of work and under the condition of free work autonomy (Bakker, 2014).

The term "job burnout" was first proposed by Freudenberger (1989) to describe the emotional exhaustion and loss of work motivation of New York volunteers working in relief organizations. At first, scholars believed that job burnout was a reaction to work emotions and stress. Maslach & Jackson (1981) found that after public service workers spent a lot of time in intensive service work with customers, they would experience negative emotions such as anger, embarrassment, and fear or despair, which ultimately led to insufficient work engagement. In this study, "job burnout" refers to a psychological, physiological or mental state related to work (Saks & Gruman, 2018). In general, job burnout gradually depletes employees' energy, and eventually leads to exhaustion, which reduces work engagement and job satisfaction (Kim & Wang, 2018). After investigating 488 employees in the hotel and tourism industries, Lin et al. (2014) found that job burnout was negatively correlated with job happiness. During the pandemic, the greater the work intensity and the higher the organizational title, the more severe job burnout will be, and employees working in high-risk areas are more likely to have job burnout (Liu et al., 2020).

As important outcome variables in the JD-R model, work engagement and job burnout have been widely discussed in previous studies. (Bakker et al., 2014; Nahrgang et al., 2011; Schaufeli et al., 2009). Salmela-Aro and Upadaya (2018),

based on the JD-R model and the life cycle approach, examined the relationship between job demands, job burnout and work engagement in the early, middle, and last career stages. The study found that work demand was positively correlated with job burnout in the early career stages, and negatively correlated with work engagement. In addition, Ahmad et al. (2020) found that when preschool educators engaged in high-quality education and complex work, job demand was positively correlated with job burnout, and work engagement was negatively correlated with job burnout. The findings suggest that both work engagement and job burnout play a significant role in the JD-R model.

Job insecurity in the JD-R model

Greenhalgh & Rosenblatt (1984) first proposed the concept of job insecurity, defining it as a psychological phenomenon that when employees' job stability is threatened, their work will be weakened. Rosenblatt and Ruvio (1996) defined it as "the overall concern for future work." Staufenbiel and König (2010) believed that the sense of job insecurity was the threat of unemployment and the fear of losing their current jobs and was the obstacle and source of pressure hindering employees' personal growth and development. These definitions all regard the sense of job insecurity as a unique source of stress different from unemployment or other work-related pressures. Thus, in this study "job insecurity" refers to a phenomenon where the current work situation is threatened due to changes in the current social, economic, organizational, or supervisory environment (Lee et al., 2018).

In recent years, the prevalence of COVID-19 has had a huge impact on the global hotel and tourism industry. Therefore, the concept of job insecurity has been widely used in the research on employees in the hotel and tourism industry during the pandemic. For example, Chen and Eyoun (2021) found that fear of the pandemic among front-line employees in restaurants significantly affected their sense of job insecurity and emotional exhaustion. In the JD-R model, employees required more physical and psychological resources to deal with the sense of pandemic-related job insecurity, while job demands included the physical, psychological and other negative effects of work during COVID-19 (Radic et al., 2020). Meanwhile, Aguiar-Quintana et al. (2021) found that employees' job insecurity during the pandemic had a significant impact on anxiety and depression. Similarly, the sense of job insecurity of employees in luxury hotels significantly affected their work engagement and turnover intention (Jung et al., 2021). Thus, employees with high job insecurity should expect high job demands, and excessive job demands reduce employees' physical and psychological resources, leading to job burnout. Therefore, the current study assumes that job

security mediates the health improvement process in the JD-R model and proposes the following hypotheses:

H1a: Job insecurity mediates the link between job demands and work engagement.

H1b: Job insecurity mediates the link between job demands and job burnout.

Perceived susceptibility to COVID-19 as personal resource

Personal resources are defined as "self-aspects usually related to resilience," which typically refers to the ability to perceive, control and influence one's environment (Kattentbach & Fietze, 2018). Previous studies have shown that personal resources are not only related to stress resistance but also have a positive impact on physical and emotional health (Xanthopoulou et al., 2007). People's perception of and adaptability to the environment depends on their level of personal resources. (Bandura, 2000). In the context of COVID-19, perceived susceptibility refers to an individual's subjective perception and adaptability on whether his or her environment is susceptible to disease infection (Suess et al., 2022). When an individual perceives the potential harm of a disease to his health, the perception will stimulate positive health behaviors to prevent disease (D'Souza et al., 2011). Thus, in this study, we considered PSC as a kind of personal ability to perceive external environmental change in the context of COVID-19.

Previous investigations report "perceived susceptibility" in different contexts of health environmental situations. For example, Chinese Hong Kong citizens with low susceptibility to SARS during the epidemic were found to have poor personal hygiene habits (Tang & Wong, 2003). Similarly, Coe et al. (2012) found that employees' perceived risk of the H1N1 virus was positively correlated with their willingness to be vaccinated. In the COVID-19 context, the PSC is also often mentioned. Self-enhancing biases hinder accurate perception of disease susceptibility, and subclinical narcissistic personality will lead to low PSC (Venema & Pfattheicher, 2021). Race, gender and education level were significantly correlated with PSC (Scarinci et al., 2021). In the context of tourism during the pandemic, PSC was positively correlated with travel fear (Zheng et al., 2021). When tourists take vaccinations as a prerequisite for travel, PSC is positively correlated with vaccination intention (Suess et al., 2022).

Finally, the moderating role of perceived susceptibility has been studied in different contexts of health risks. The present study proposes that PSC may play a moderating role by which all the above hypothetical relationships are expected to be moderated. Meanwhile, previous studies

have found that job demands would be negatively related to employees' work attitude and that job resources or personal resources could buffer this relationship (Tadić et al., 2015). In other words, it is suggested that personal resources can be used as the moderator of the relationship between environmental factors and (organizational) results (Xanthopoulou et al., 2007). Therefore, this study further hypothesizes that:

H2a: The higher the hotel employees' PSC, the stronger the impact of job demands on work engagement.

H2b: The higher the hotel employees' PSC, the stronger the impact of job insecurity on job burnout.

H2c: The higher the hotel employees' PSC, the weaker the impact of job insecurity on work engagement.

Method

Sample and data collection

The hotel industry is extremely sensitive to the external information (Türkay et al., 2011), such as marketing environment and relevant policies (Gu et al., 2012; Wang et al., 2012). Therefore, this study solved the limitations and problems of a single method through triangulation approach, complemented the advantages and disadvantages of each method, and obtained more reliable and richer results (Venkatesh et al., 2016). More specifically, seek the consistency and evidence of the results of different methods and designs to study the same phenomenon. This convergence may improve the credibility of the research results. The findings and results obtained through triangulation are more likely to be effective and credible (Koc & Boz, 2014). Therefore, in order to avoid the impact of the external environment on the research results, this study conducted a questionnaire survey of hotel staff from June to July 2022 and semi-structured in-depth interviews with hotel leadership in February 2023. Quantitative and qualitative triangulation methods help eliminate bias and further verify results (Kwok, 2012; Wong & Pan, 2023).

In the quantitative phase, in order to find out the possible translation problems between the English and Thai versions of the initial questionnaire and ensure the reliability and validity, this study conducted a questionnaire pilot test in May 2022. The pilot test invited forty Phuket hotel employees to fill in the questionnaire and then report the problems encountered in filling it in via social networking sites (e.g., readability and understandability of the items). These participants reported no difficulty regarding the above issues. During the formal data collection phase, the Thai government had issued a strict pandemic prevention policy to restrict the movement of people during COVID-19, which made it difficult to issue formal questionnaires.

Table 1 Demographic characteristics of respondents ($N=292$)

Item	Category	Frequency	Percentage
Gender	Female	156	53.4
	Male	136	46.6
Age	18–20	12	4.1
	21–25	109	37.3
	26–30	97	33.2
	31–35	38	13.0
	36–40	22	7.5
	41–45	9	3.1
	46–50	2	0.7
	51–55	2	0.7
Department	55 and above	1	0.3
	Front office	102	34.9
	Marketing	93	31.8
	Food and beverage	56	19.2
	Housekeeping	19	6.5
Monthly income	Other	22	7.5
	10,000THB and above	19	6.5
	10,000THB to 20,000THB	144	49.3
	20,000THB to 30,000THB	61	20.9
	30,000THB to 50,000THB	39	13.4
Length of tenure	50,000THB and above	29	9.9
	Under 1 year	87	29.8
	1–3 years	132	45.2
	4–6 years	31	10.6
	Above 6 years	42	14.4

In order to ensure the data was sufficient, this study adopted the method of convenient sampling to obtain data. First, two research assistants who were working in the hotel industry

in Phuket were invited to collect the questionnaires. After obtaining their consent, they were trained on questionnaire collection (e.g., introduce the purpose of this study, protect the anonymity of the respondents). Second, we contacted the heads of the hotels in Phuket. After obtaining permission, the research assistants collected questionnaire data online and offline from full-time, front-line hotel employees simultaneously. Finally, a total of 250 questionnaires were distributed, and 213 valid questionnaires were collected. Secondly, 100 questionnaires were collected via social media platforms, and 79 valid questionnaires were recovered. Table 1 presents the demographic information of the participants.

To further verify the reliability of the quantitative results, this study conducted further qualitative research based on the results of the quantitative phase. As shown in Table 2, 15 interviewees from 7 different starred hotels leadership were invited to participate in the follow-up in-depth interviews. The formal interviews started with asking demography (e.g., departments, working tenure) and evolved into details of the employee working situation during Covid-19 (e.g., Is there any difference between the working environment of employees during the pandemic and that before the pandemic?), and the external environment of the hotel during the pandemic (e.g., Is the current situation of the hotel improved compared with the early stages of the pandemic?). Meanwhile, extended questions were asked according to interviewees' answer. The follow-up interviews lasted 32 min on average.

Measures

The present study was conducted with a slight modification of the original questionnaire developed by several authors to measure all constructs in the context of Phuket,

Table 2 Profile of the interviewees

Interviewees	Gender	Hotel	Working tenure	Job position
Interviewee 1	F	Hotel 1	10 years	Deputy managing director
Interviewee 2	F	Hotel 2	14 years	Human resource manager
Interviewee 3	M	Hotel 3	6 years	Assistant manager
Interviewee 4	M	Hotel 4	17 years	General manager
Interviewee 5	F	Hotel 5	7 years	Front office manager
Interviewee 6	F	Hotel 6	20 years	Room division manager
Interviewee 7	M	Hotel 7	10 years	Front office manager
Interviewee 8	M	Hotel 8	15 years	General manager assistant
Interviewee 9	F	Hotel 9	12 years	Food and beverage manager
Interviewee 10	F	Hotel 10	14 years	Human resource manager
Interviewee 11	M	Hotel 11	24 years	Event manager
Interviewee 12	F	Hotel 12	9 years	Human resource manager
Interviewee 13	F	Hotel 13	12 years	Assistant front office manager
Interviewee 14	F	Hotel 14	4 years	HR director assistant
Interviewee 15	F	Hotel 15	10 years	Human resource manager

Thailand for predicting hotel employees' job demands, work engagement, job burnout, job insecurity and PSC. All items of each construct were measured by a seven-point Likert scale from "strongly disagree" to "strongly agree." We utilized the back-translation approach to ensure that the English-language measures were translated into Thai accurately.

Job demands were operationalized by eleven items from Chen and Chen (2014). Example items are "I often have to do more work than I can do well during the pandemic of COVID-19" and "I express my sympathy towards those affected during the pandemic (e.g., saying "I understand your trouble," or "I am sorry to hear that" toward customers). The Cronbach's alpha for this scale was 0.86. Work engagement was measured by nine items from Balducci et al. (2010). Sample items include "I am bursting with energy at work during the pandemic" and "I am immersed in my job during the pandemic." The Cronbach's alpha for this scale was 0.92. Job burnout was measured by six items from Lin et al. (2014). Example items are "I feel emotionally drained from my work during the pandemic" and "I feel I have become uncaring toward people since the beginning of the pandemic." The Cronbach's alpha for this scale was 0.89. Seven items were used to operationalize job insecurity via Vo-Thanh et al. (2021). Example items are "COVID-19 makes me worried about losing my job" and "I am afraid that my salary, bonuses, and other benefits will be delayed due to COVID-19." The Cronbach's alpha for this scale was 0.92. Lastly, PSC was measured by three items from Venema and Pfattheicher (2021). Example items are "I worry a lot about contracting COVID-19 at work." The complete questionnaire is shown in Tables 3 and 4. The Cronbach's alpha for this scale was 0.86.

Strategy of analysis

Following the two methods developed by Kline (2015), the researchers conducted structural equation modeling (SEM) data analysis and proposed a theoretical model by using Smart PLS 3.0 to verify the applicability of the collected data. First, the sufficiency and quality of the measurement model were tested by confirmatory factor analysis (CFA) to ensure the structural reliability, discriminant validity and convergence validity of the study. Secondly, a structural equation model was used to test assumptions to determine the causal relationship between potential variables.

Results

Reliability and validity

The results of Cronbach's alpha, average variance extracted (AVE), and construct reliability (CR) are shown in Table 1. All the constructs exceed the recommendation level of 0.7, 0.5, and 0.7, indicating all constructs show good reliability (Hair et al., 2014). In addition, the squared roots of the AVE for each construct are greater than the correlations between paired constructs as shown in Table 2. Therefore, all measures of this study showed strong convergency and discriminative validity (Hair et al., 2011).

Results of PLS-SEM analysis

The non-parametric bootstrapping technique was used in this study with 292 cases and 5,000 subsamples (Hair et al., 2014). The R square of job insecurity, job burnout, and work engagement were 0.411, 0.441, and 0.271, respectively, indicating that the dependent variables are well explained (Hair et al., 2011). The correlation among all the constructs was found less than 0.9 (see Tables 5). Thus, common method variance is not an issue in this study (Bagozzi et al., 1991; Tehseen et al., 2017).

As shown in Table 6 and Figs. 1 and 2, the structural equation model reveals that the path coefficients from JD → JI ($t = 5.250, p < 0.05$), JI → WE ($t = 8.668, p < 0.05$) and JI → JB ($t = 8.907, p < 0.05$) are all statistically significant. The data demonstrated that job insecurity is influenced by job demands and it influences job burnout and work engagement. Mediated relationships and indirect effects between two constructs are essential to an explanation of SEM. The path coefficients from job demands, job burnout and work engagement with the mediation of job insecurity are all statistically significant (Path JD → JI → WE $t = 4.495, p < 0.05$, Path JD → JI → JB $t = 4.717, p < 0.05$). Thus, H1a and H1b were supported.

In addition, H1a and H1b were supported, and the paths JD → WE ($\beta = -0.019; t = 0.298; p > 0.05$) and JD → JB ($\beta = 0.029, t = 0.509, p > 0.05$) were not statistically significant. Therefore, JI fully mediates the relationship between JD and WE, JD and JB according to the steps of the mediating effect verification processes of Zhao et al. (2010).

Moderating effect

The relationships between job demands and PSC were not supported ($\beta = -0.098, t = 1.360, p > 0.05$). Furthermore, the interactions between job insecurity and PSC significantly influenced work engagement negatively ($\beta = 0.133, t = 3.003, p < 0.05$). In addition, the interactions between job insecurity

Table 3 Reliability and validity

Construct	PLS loading
Job demands (Cronbach's alpha 0.924 AVE 0.564 and CR 0.936)	
JD1 I often have to do more work than I can do well during the pandemic	0.713
JD2 There is a great deal of work to be do during the pandemic	0.737
JD3 My job requires me to perform my work faster during the pandemic	0.708
JD4 My job requires me to work harder during picnic	0.720
JD5 I need to reassure customers who are upset or in distress during the pandemic	0.735
JD6 I need to remain calm even when I am in a distressful situation during the pandemic	0.792
JD7 I express my sympathy toward those are affected during the pandemic	0.778
JD8 I express my sympathy towards those are affected during the pandemic	0.767
JD9 I express positive expressions during the pandemic	0.732
JD10 I hide the feelings of anger or disapproval about something someone has done to me	0.802
JD11 I hide my dislikes of something someone has done during the pandemic	0.812
Job burnout (Cronbach's alpha 0.937 AVE 0.760 and CR 0.950)	
JB1 I feel emotionally drained from my work during the pandemic	0.866
JB2 I feel completely exhausted at the end of the workday during the pandemic	0.865
JB3 I feel burned out from my work during the pandemic	0.881
JB4 During the pandemic I feel I treat some customers as if they are impersonal "objects"	0.876
JB5 I feel I have become uncaring toward people since the beginning of the pandemic	0.876
JB6 During the pandemic, I worry that this job makes me desensitized	0.870
Job insecurity (Cronbach's alpha 0.918 AVE 0.672 and CR 0.935)	
JI1 Pandemic makes me worried about losing my job	0.749
JI2 I may lose my current job in the near future due to pandemic	0.809
JI3 My career development opportunities in the organization are unfavorable due to pandemic	0.826
JI4 I feel that the organization will not provide me with job opportunities in the near future	0.830
JI5 I am afraid that my job will be made redundant in the near future due to pandemic	0.876
JI6 My salary, bonuses, and other benefits will be reduced due to pandemic	0.810
JI7 I am afraid that my salary, bonuses and other benefits will be delayed due to pandemic	0.840
Work engagement (Cronbach's alpha 0.945 AVE 0.695 and CR 0.953)	
WE1 I am bursting with energy at work during the pandemic	0.733
WE2 I feel strong and vigorous at work during the pandemic	0.823
WE3 I am enthusiastic about my job during the pandemic	0.850
WE4 My job inspires me to keep working during the pandemic	0.857
WE5 When I get up in the morning, I am looking forward to work during the pandemic	0.843
WE6 I feel happy when I am working intensely during the pandemic	0.846
WE7 I am proud of the work that I do during the pandemic	0.862
WE8 I am immersed in my job during the pandemic	0.854
WE9 I get carried away in my work during the pandemic	0.840
Perceived susceptibility to COVID-19(Cronbach's alpha 0.872 AVE 0.796 and CR 0.921)	
PSC1 I worry a lot about contracting COVID-19 at work	0.854
PSC2 The chances are I will get COVID-19 if I work is great	0.919
PSC3 My state of health makes it more likely that I will contract COVID-19 if I work	0.903

and PSC significantly influenced job burnout positively ($\beta = -0.120$ $t = 2.981$ $p < 0.05$). Thus, H2b and H2c were supported and H2a was rejected. As the simple slope analysis shows below, the impact of job insecurity on work engagement is reduced when PSC is low and increased when PSC is high. Meanwhile, the impact of job insecurity on job burnout is reduced when PSC is high and increased when PSC is low.

Follow-up interviews

The quantitative findings showed that job insecurity fully mediates the relationship between job demands and working engagement, as well as the relationship between job demands and job burnout; the findings also confirmed the partially moderating roles of PSC. To confirm the reliability

Table 4 Result of a measurement model for the study

Latent variables	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Job demands	0.924	0.963	0.564
Job insecurity	0.918	0.935	0.672
Work engagement	0.945	0.953	0.695
Perceived susceptibility to COVID-19	0.872	0.921	0.796
Job burnout	0.937	0.950	0.760

and validity of the quantitative results, this study conducted follow-up interviews to further verified quantitative results. We invited three senior leaders and ten department leaders from different starred hotels in Phuket to participate in the follow-up interview.

In terms of job insecurity, the results of follow-up interviewees showed that hotel employees often complained and were dissatisfied with their work situation during the pandemic, which further led to negative working attitudes. The follow-up interviews are consistent with the quantitative results. As one front office manager said:

“The pandemic has led to chaos in the whole hotel industry. Employee benefits and compensation have been reduced to varying degrees.... In this case, you can't expect employees to maintain a good working attitude.” (Interviewee 5, hotel 3, front office manager)

In addition, the change in work content may also be one of the reasons the employees feel insecure about their jobs, according to the follow-up interview results. Employees' work content increased, but their wages decreased. As one room division manager said:

“The situation has been completely changed. Many employees resigned their jobs during the pandemic, the remaining employees need to undertake the extra work of the former employees.” (Interviewee 6, hotel 3, Room division manager)

Meanwhile, we got a similar answer from a hotel senior leader perspective:

Table 5 Latent variable correlations

Construct	JD	JB	JI	WE	PSC
Job demands	0.756				
Job burnout	0.286	0.872			
Job insecurity	0.451	0.579	0.819		
Work engagement	-0.246	-0.509	-0.483	0.834	
Perceived susceptibility to COVID-19	0.195	0.532	0.504	-0.331	0.892

Table 6 Results of the structural model of the study

Path	Direct/Indirect effect	t-value	p-value	Result
JD → JI → WE	-0.198	4.495	0.000***	Supported
JD → JI → JB	0.197	4.717	0.000***	Supported
JD*PSC → JI	-0.111	1.535	0.125	Rejected
JI*PSC → WE	-0.520	3.907	0.000***	Supported
JI*PSC → JB	0.519	3.621	0.000***	Supported

JD Job demands; JI Job insecurity, WE Work engagement, JB Job burnout; PSC Perceived susceptibility to COVID-19

“COVID-19 led to a general depression of the hotel industry in Phuket. In order to survive, the hotel had to significantly reduce employee benefits, wages, and even lay off some experienced employees.... Although I can't give you the specific number, more than 80% of employees resigned passively or voluntarily during COVID-19.” (Interviewee 1, hotel 1, Deputy managing director)

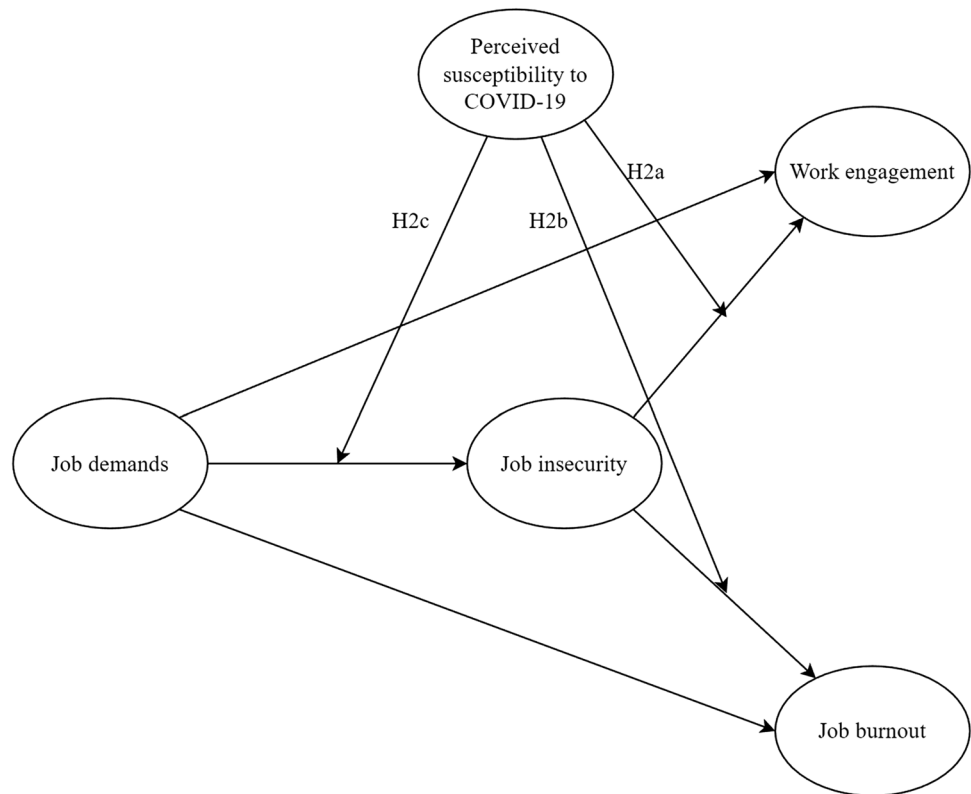
In terms of PSC, follow-up interviews revealed that the employees faced a very serious risk of infection during the pandemic. However, employees' perceptions of this risk were different. The major reason is that employees' abilities to perceive risk differ due to their different personalities, cognition, and adaptability to COVID-19. Respondents reported that although the hotel has relevant COVID-19 prevention guidelines, the hotel cannot force all employees to strictly comply with the prevention guidelines. Thus, the risk of infection faced and perceived by employees is different, which confirms the moderating roles of PSC in this study. As one front office manager said:

“In Thailand, the Sandbox Plan policy allows positive cases to stay in Phuket hotels. This policy has led to a sharp increase in the risk of infection among Phuket hotel employees, especially front-line employees.... Our hotel provides staff with pandemic prevention materials and relevant training, such as providing N95 masks, disinfection alcohol, ATK, and prevention guidelines.... However, these measures do not seem to be effective in alleviating employees' mental problems.” (Interviewee 7, hotel 4, front office manager)

Finally, we asked the interviewees whether there had been any significant changes in the hotel's operating strategy and operating environment during the pandemic. The results of the follow-up interview showed that the hotel industry still faces many pandemic-related risks. Operating conditions and strategy have not been improved yet.

“Although the current situation of the hotel has improved compared with that in the early stages, it is

Fig. 1 The research model. Alt Text: Hypotheses related to this study. Note(s): H1a: Job insecurity mediates the link between job demands and work engagement. H1b: Job insecurity mediates the link between job demands and job burnout



still in the red.... Meanwhile, 80% of the income of the Phuket hotel industry comes from international tourists, including nearly 40% of Chinese tourists. Therefore, we also worry about the recurrence of COVID-19 and remain pessimistic about the future of the Phuket hotel industry.... The hotel's operating strategy will not get back to normal in short term." (Interviewee 8, hotel 5, general manager assistant)

To conclude, the research model is supported by the results of both the qualitative interview and the quantitative survey.

Discussion and conclusions

Conclusions

Through the quantitative analysis, the results show that job insecurity fully mediates the relationship between job demands and work engagement as well as the relationship between job demands and job burnout. Additionally, PSC negatively moderates the effect of job insecurity on work engagement and positively moderates the effect of job insecurity on job burnout.

However, PSC fails to buffer the moderating effect from job demands to job insecurity. One possible explanation for

this unexpected finding is that employees' job demands are usually determined by their superiors or senior leaders, and they have no ability to change their current situations. The leadership tends to consider problems at the company level rather than the employee level. This point was also confirmed in the follow-up interview:

"As the head of the hotel, I always put the company's interests first, and it may therefore overlook some of the employees' demands" (Interviewee 4, hotel 2, general manager)

Theoretical implications

Firstly, this study discusses the necessity of checking hotel employees' job insecurity during the pandemic as postulated by several scholars (Aguiar-Quintana et al., 2021; Karatepe et al., 2022; Vo-Thanh et al., 2021). In the context of the pandemic situation, the deterioration of hotels' financial situations has seriously affected employment and job security. Hotels have forced employees to accept early retirement, layoffs, unpaid leave, reduced benefits and changes to their work shifts or positions without authorization (Wong et al., 2021). However, evidence about the relationship between employees' job insecurity and work attitude during the pandemic is scarce (Bajrami et al., 2021). Therefore, the quantitative results in this study confirm the relationship between

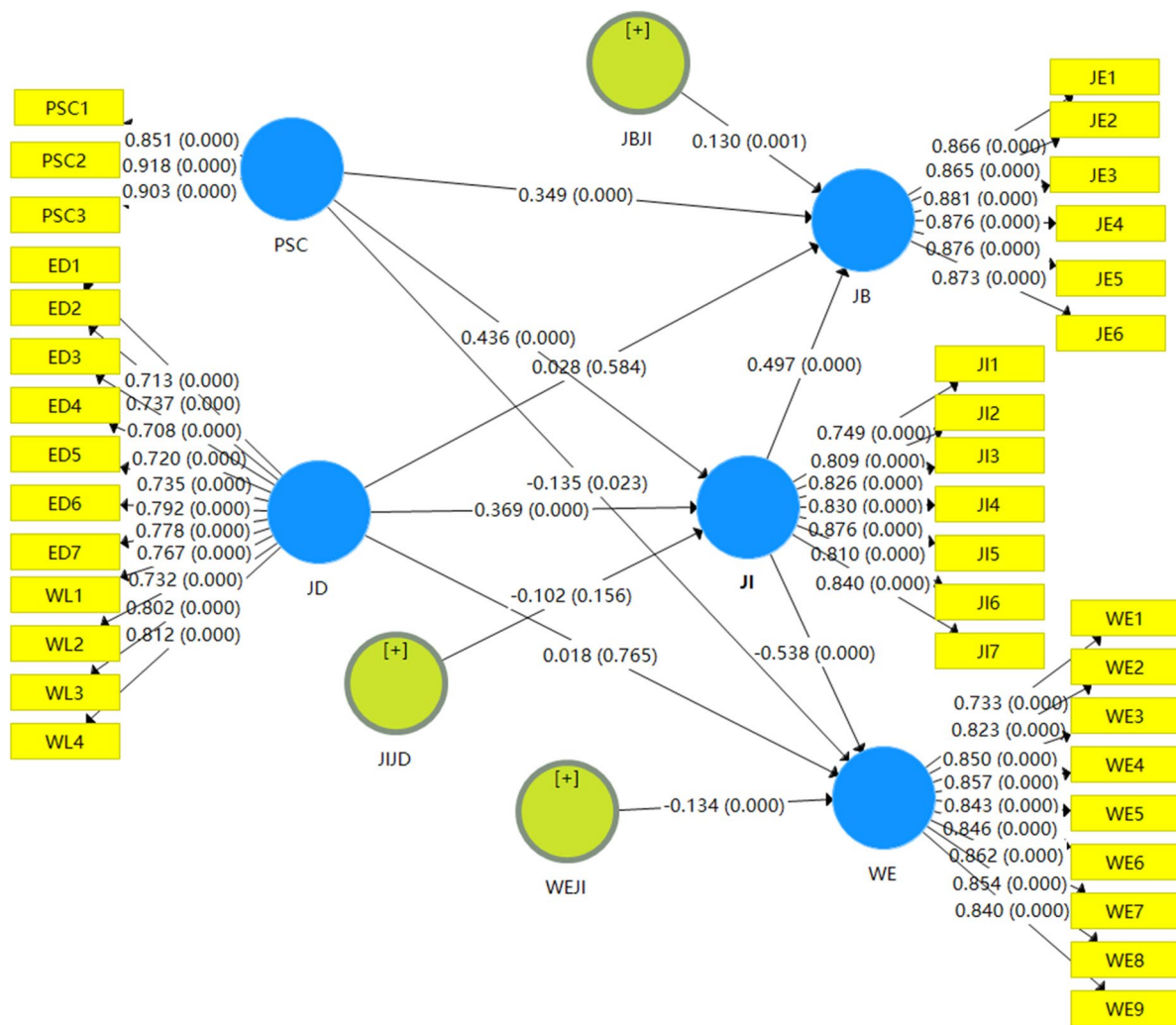


Fig. 2 Results of the PLS-SEM analysis. Alt Text: Partial least squares structural equation modeling, showing the relationship between different variables

employees' sense of job loss and their work attitude during the pandemic.

Secondly, this study reveals the mechanism in the JD-R model of job demand for job insecurity and explains why work engagement and job burnout are the lagging indicators of job demands (Yaris et al., 2020). Specifically, work behavior is a lagging indicator of job demands and personal resources; in this context, lagging indicators may indicate lack of work attitude but do not reflect the presence of work attitude (Beus et al., 2016). Therefore, this paper introduces job insecurity as the mediating variable in the JD-R model, and the research results show that job insecurity fully mediated the relationship between job demands and job burnout, job demands and work engagement. This finding explains why work engagement and job burnout are lagging indicators of job demands to some extent and provides a basis for researchers to further investigate the reasons for lagging

indicators. Specifically, changes in the external work environment led to negative psychological emotions among employees and ultimately affect their work behavior (Khudaykulov et al., 2022).

Thirdly, the present study suggests that PSC can be a personal resource for hotel employees in the context of the pandemic. This study also tests how the PSC moderates the effect of job insecurity on work engagement and job insecurity towards job burnout. According to the results of simple slope analysis (as shown in Fig. 3), job insecurity employees (on the left-hand side of the graphs) have low work engagement and high job burnout, whatever their PSC. However, if the PSC is high, job security employees (on the right-hand side of the graphs) will lack work engagement and feel burnout during work. This supplements the view of Hobfoll et al. (2003) that person-environment actions or personal resources have been shown to help employees deal

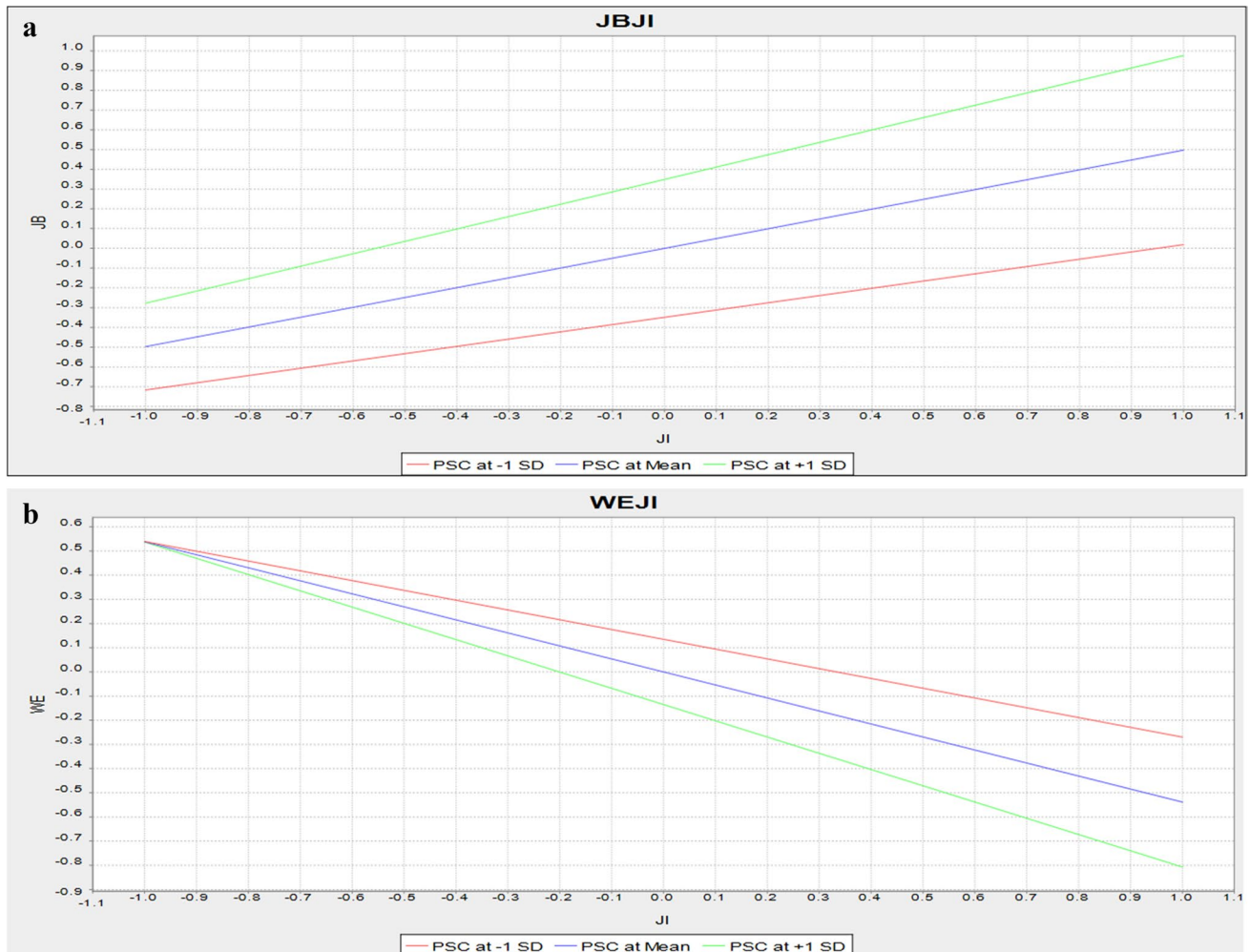


Fig. 3 (a) simple slope analysis. (a) Alt Text: A line graph plotting the moderating effect of PSC in the relationship between job insecurity and job burnout. (b) Alt Text: A line graph plotting the moderating effect of PSC in the relationship between job insecurity and work engagement

with job demands in an active and efficient manner. Therefore, this study contributes to JD-R research by providing insights for researchers to consider the moderating effect of personal resources. This study indicates that procedural PSC can be regarded as a useful tool in employee-organization relationships for job insecurity employees in the context of COVID-19. It provides researchers with a new perspective to examine personal resources when conducting JD-R research.

Practical implications

According to the quantitative findings of our paper, job insecurity fully mediates the effect of job demands on work engagement and job burnout, while the qualitative results reveal that during the pandemic period, the reduction of wages and benefits, the cumbersome work tasks, and the chaotic work environment were the main reasons for the employees' sense of work insecurity. The qualitative phase verified the quantitative

results and further indicated underlying reasons for employees' job insecurity. However, these problems seem unsolvable during the pandemic. As the qualitative results show, the decision makers will not change the hotel's operating strategy in the short term before hotel performance is significantly improved. In other word, front-line employees and senior employees have completely different perspectives on this issue. More specifically, senior employees usually have the right to make decisions that will have a significant impact on the working environment of their subordinate employees, however, they are removed from these changes. This paradox will complicate simple problems. Considering this, we suggest that the senior employees of the hotel should maintain a good communication channel with the front-line employees and keep abreast of the problems encountered in work by the front-line employees. Also, senior management should provide frontline employees with hope by promising that they would get the total reward when business improves. Additionally, the hospitality industry

has become unstable due to the pandemic. Many hotels have reduced operating costs by reducing employee working hours, employee salaries, or benefits (Jung et al., 2021). However, this series of operations may increase the psychological and physiological pressure on employees, leading job insecurity to aggravate their negative work attitude (Aguiar-Quintana et al., 2021; Khudaykulov et al., 2022; Nemteanu et al., 2021).

Therefore, the hotel leadership needs to develop flexible personnel scheduling plans based on different employees' abilities and expertise to cope with business changes during and after the pandemic, introduce a reasonable vacation system, and give employees a certain degree of humanistic care to reduce their working pressure and job insecurity. Lastly, our findings also reflect that employees' PSC can also help reduce the negative impact of job insecurity on employees. Considering this, the hotel should actively carry out pandemic-related training to improve the staff's recognition of and adaptability to COVID-19.

Limitations and future studies

First, the sample of this study was drawn from hotel employees in Phuket, and further studies are recommended for other tourism destinations. Second, this study only focused on PSC as a moderating variable. Researchers may consider other moderating roles in health belief models such as perceived severity of COVID-19, i.e., perceived benefits to the vaccinated and perceived barriers to vaccination (Jose et al., 2021; Karami & Ahmadi, 2022). Additionally, this study did not consider the inner construct of job insecurity. Further research may need to separately explore the two aspects of job insecurity in the JD-R model, namely, cognitive job insecurity and emotional job insecurity. Finally, based on research results, an effective communication channels between employees/leaders might reduce employees' job insecurity. Thus, we suggest combining the concepts of feedback seeking and employee voice (Li et al., 2018; Wilkinson & Fay, 2011) with the JD-R model to further discuss job insecurity in future research (Adekiya, 2023).

Author contributions Jose Weng Chou Wong contributed in conceptualization, editing, data curation, and supervision of the paper. Jie Cao contributed in writing original draft, formal analysis, resources and data collection of the paper. Jing Liu contributed in conceptualization, supervision of the paper.

Data availability The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent All participants voluntarily participated in the study and gave written informed consent.

Competing interests The authors declare they have no financial or non-financial interests.

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