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ORIGINAL RESEARCH

How COVID-19 Perceived Risk Causes Turnover Intention Among Chinese Flight Attendants: A Moderated Mediation Model

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Purpose: This study examined the influencing mechanism and boundary conditions underlying the relation between COVID-19 perceived risk and flight attendants' turnover intention by investigating the mediating role of job insecurity and the moderating effect of job crafting.

Methods: A two-wave survey was conducted with 240 Chinese flight attendants. We used structural equation modeling to test the moderated mediation model.

Results: The results indicated that perceived risk of COVID-19 positively affected flight attendants' job insecurity and turnover intention. Moreover, job insecurity plays a fully mediating role in the relationship between perceived risk and turnover intention. Furthermore, the mediating role of job insecurity was moderated by job crafting; for higher levels of job crafting (opposed to low), the effect of job insecurity on turnover intention was significantly weaker.

Conclusion: Our findings indicate that dissipating job insecurity and increasing job crafting behavior are critical to employees' work-related attitudes and behavior during the COVID-19 pandemic.

Keywords: COVID-19 perceived risk, job insecurity, job crafting, turnover intention, flight attendants

Introduction

The coronavirus disease 2019 (COVID-19) global pandemic, which began in 2019, has sparked a severe crisis that has changed people worldwide and will continue to do so. No matter where you live or what industry you work in, you will be affected by the global health crisis. The hospitality and tourism industries have been severely affected. Of these, airline industry losses have been particularly devastating and unprecedented. To reduce the spread of the virus, countries have responded with measures such as closing borders, lockdown, quarantine, and isolation, which have led to a decline in travel and the financial performance of the airline industry and to job insecurity for airline employees. As the airline industry was struck by COVID-19, many airlines (eg, Cathay Pacific, Singapore Airlines, Malaysia Airlines, and Philippine Airlines) sent their staff on paid or unpaid leave, cut salaries or laid off workers,[1] and the potential for additional layoffs has increased steeply. Meanwhile, airline workers, who are still on the front line, experience the immediate risk of viral infection and endure poor working conditions and job demands such as nucleic acid testing and personal isolation upon returning from a trip. Potential job losses and high job risks have increased job insecurity and turnover among airline workers, especially flight attendants.

The turnover of flight attendants not only causes loss of human and financial resources (eg, selection costs, recruitment costs, cultivation costs) but also has a negative impact on the airline company's image and brand value. Undoubtedly, eliminating or reducing the risk of virus exposure among flight attendants, restoring their enthusiasm, and reducing their turnover intention and turnover rate are imperative for airlines to operate appropriately and smoothly

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during the COVID-19 pandemic era. Research on the antecedent variables of the turnover intention of flight attendants is, therefore, of both theoretical and practical importance.

To date, studies on employee turnover intention in the context of the COVID-19 pandemic have focused on healthcare workers whose occupations are in public health, emergency medicine, and intensive care.[2–4] In addition, many studies focus on hotel workers with a high risk of virus exposure.[5–7] Surprisingly, research on the turnover intention of flight attendants who work on the frontlines is scarce. Recently, the impact was investigated of trust in organization, optimism and trait mindfulness on flight attendants' perceived stress during the COVID-19 pandemic.[8] Also, the lack of quality vertical communication among flight attendants under the background of the pandemic may cause high perceived job insecurity, which was mediated by perceived role ambiguity and moderated by perceived organizational support.[9] Besides, one important study[10] examined the effect of organizational factors such as airline image on airline workers' turnover intention.

To our knowledge, there are no studies that have examined the relationship between flight attendants' COVID-19 perceived risk and turnover intention. Therefore, to provide a theoretical foundation for reducing or eliminating flight attendants' turnover intention, the purpose of this study was to investigate the mechanisms of the influence of COVID-19 perceived risk on flight attendants' turnover intention to fill a gap in the literature. Specifically, we theoretically developed and empirically tested the relationship between COVID-19 perceived risk and turnover intention. Furthermore, we assessed the mediating role of job insecurity and the moderating effect of job crafting in the relationship. We integrated these psychological factors into an integrated moderated mediating model (see Figure 1), which allowed us to analyze the mechanisms and boundary conditions of the effect of COVID-19 perceived risk on turnover intention.

Longitudinal data are increasingly recommended and used by researchers for theoretical models that include both mediating and moderating variables.[11] Many studies on work attitudes and mental health in the context of the COVID-19 pandemic have used a cross-sectional design.[2,4,12,13] In contrast, to improve the study's validity and to better infer the relationship between the independent, mediator, moderator and dependent variables, this study uses a cross-lagged design to collect data in two waves for model testing.

Theoretical Background and Hypothesis Development

COVID-19 Perceived Risk and Turnover Intention

As an employee's behavioral intention, turnover intention is the conscious and deliberate willfulness to leave the organization.[14] It is the combination of an individual's dissatisfaction with is or her current job, thinking of quitting, intention to search, intention to quit or stay.[15] Turnover intention is one of the most researched topics of job withdrawal attitudes.[16] Flight attendants' turnover intention has become a critical issue for airlines.[17] The creation of high-quality cabin service requires a stable team of flight attendants. Only a consistently high-quality cabin service can help the airline gain a larger market share and establish a good brand image and reputation. When skilled and qualified flight attendants leave the airline, it results in a waste of resources in recruitment and training and affects the motivation of those who remain, resulting in a decline in service quality and performance. Therefore, the main task of airline managers today is to control the turnover rate of flight attendants.

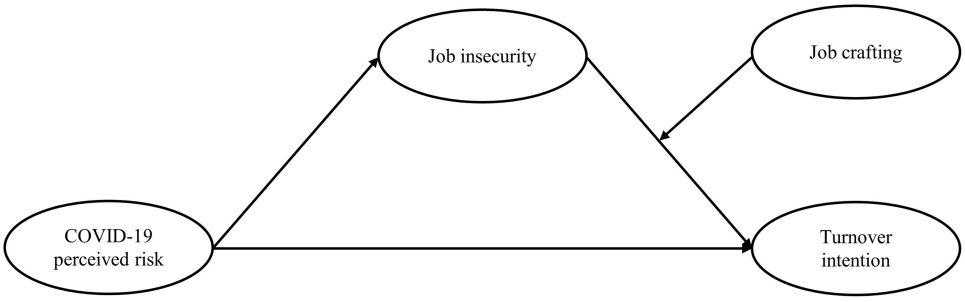

Figure 1 Moderated mediation model.

Researchers have conducted an extensive and in-depth study on the antecedent variables of flight attendants' turnover intention in general job situational states.[16–20] The results show that airline cabin service job demands and the resulting depletion of personal psychological resources are significantly associated with flight attendants' turnover intention. Flight attendants are the mainstay of the airline's service, providing safety and comfort to passengers and essential security functions. This requires a good image, a high level of quality and the ability to deal with emergencies flexibly. Consequently, flight attendants are often exposed to stressful and unfavorable job demands and stressors when providing services. Typical stressors are emotional labor, customer confrontation, and irregular work shifts.[19] These job demands are arguably less common in most other industries and have adverse consequences for flight attendants, such as burnout[21] and turnover intention.[19] The factors influencing turnover intention among flight attendants in the context of the COVID-19 pandemic need to be further investigated. We suggest that job demands and personal resource consumption in the context of the COVID-19 pandemic have not disappeared but have increased instead. In combination, the perceived risk of COVID-19 virus infection may influence the turnover intention of flight attendants.

Perceived risk refers to people's subjective judgments about risk characteristics and severity.[22] COVID-19 perceived risk refers to an individual's anxieties, concerns and fears regarding the potential threat of infection, his or her estimation of the likelihood of contracting the disease and its outcome based on the available information.[23] Risk perception is an important determinant of individuals adopting health-protective behaviors to reduce potential risks. In a pandemic, COVID-19 perceived risk encourages the public to adopt protective behaviors to reduce potential health threats, such as staying home to avoid public gatherings and using public transportation, wearing masks and frequent handwashing to maintain good personal hygiene.[24] In addition, perceived risk is associated with mental and physical health, distress and life satisfaction.[25]

There is much empirical evidence on the relationship between the perceived risk of COVID-19 and turnover intention among healthcare workers[2–4] and hospitality workers.[5–7] For example, Abd-Ellatif et al[2] found that frontline Egyptian physicians reported higher levels of fear related to the COVID-19 pandemic, and increased fear levels related to COVID-19 have had a relationship with higher levels of job turnover intention. Likewise, Labrague and de Los Santos[4] found that increased fear of COVID-19 was associated with decreased job satisfaction and increased frontline nurses' organizational and professional turnover intention in the Philippines. Similarly, Teng et al[7] found that heightened fear of COVID-19 leads to adverse mental health issues for quarantine hotel employees and confirmed that depression, anxiety, and stress significantly influence turnover intention.

However, research on the relationship between COVID-19 perceived risk and turnover intention among flight attendants is still in its infancy. To date, there is not enough empirical evidence in the literature to reveal a direct relationship between COVID-19 perceived risk and flight attendants' turnover intention. However, studies have been conducted to explore this relationship. For example, Han et al[10] found that perceived risks of virus infection and job instability significantly moderated the relationships among attitude, commitment, and turnover intention.

The job demands-resources (JD-R) model[26–28] identifies two main categories connected to working conditions: job demands (sustained physical and psychological effort or cost) and job resources (reducing job demands or stimulating personal development associated physical and psychological cost). Two distinct processes are triggered by job demands and resources: health harm and motivational processes. The risk of virus exposure due to work is one of the job demands in the airline industry and can have health-damaging effects on airline workers. Therefore, the following hypothesis is proposed in this study by combining the JD-R model and the findings of existing studies on COVID-19 risk and turnover intention in healthcare and hospitality workers.

Hypothesis 1: COVID-19 perceived risk is positively related to flight attendants' turnover intention.

Job Insecurity as a Mediator

The influence of COVID perceived risk on turnover intention may entail dynamic processes, is not always straightforward and might be mediated by other constructs. One of the present study's aims is to attempt to understand and examine the underlying mechanisms from the perspective of job insecurity.

Job insecurity is a subjective perception of an individual's concern about maintaining a job or uncertainty in the work environment. Job insecurity can be expressed either as a fear of losing one's job or as a concern about losing a valuable job characteristic, which reflects a threat to the continuity and stability of employment currently experienced.[29–32] The perceived risk of COVID-19 may be a potential antecedent variable of job insecurity.

In the context of the COVID-19 pandemic, while workers in all industries are inevitably experiencing their worst-ever risk of viral infection, the risks faced by those working in different industries are different. Workers in the healthcare, hospitality and airline industries are at more severe risk than those in other industries. Workers in other industries can avoid or insulate themselves from the risk of infection by self-isolating, social distancing, or closing up shop and leaving the workplace. However, this is not the case for flight attendants, who are required to provide services to passengers, interact with them, and ensure safety while on the job.

Flight attendants have been experiencing significant risks associated with viral infections since the COVID-19 outbreak.[33,34] Flight attendants' perceptions of this risk come from several sources. First, COVID-19 is aggressive and highly contagious. A range of sequelae remain after cure, including respiratory neurological disorders, neurocognitive disorders, mental health disorders, metabolic disorders, cardiovascular disorders, gastrointestinal disorders, and more.[35] Moreover, there are no specific drugs available to control the virus, and the vaccine's effectiveness has yet to be fully tested and observed. In the era of pandemics, this perception of the harmful effects of viral infection irrefutably poses a severe risk to the stability of employees' lives and mental health.[36] Second, the work of flight attendants is characterized by positive human interactions that are essential,[33,37] which promotes employees' perception of the risk of viral infections. Third, to ensure job safety, flight attendants go through a period of self-isolation after their flight duties. However, the virus's incubation period can sometimes be long, making it possible for infected flight attendants to spread the disease to colleagues, family, and friends.

When individuals face challenges or stressors in their lives or workplace, they may undergo cognitive processes to deal with these challenges.[38] When faced with a high risk of COVID-19, flight attendants may initiate an assessment process to evaluate the severity of the risk and determine the necessary actions. One of the serious consequences of the risk may be losing their jobs or losing important job features. Flight attendants may reappraise job insecurity under the circumstances of COVID-19 pandemic,[39] and positive influence of COVID-19 fear on job insecurity changes was found in Pakistan's hospitality sector.[40] In other words, the inevitable exposure of flight attendants to viruses directly impacts their job insecurity. The greater the risk of flight attendants being infected at work is, the less control they have, the greater the barriers they face in completing their tasks, the greater the likelihood of job change and the higher the level of job insecurity.

Therefore, we propose the following hypothesis.

Hypothesis 2a: COVID-19 perceived risk is positively related to flight attendants' job insecurity.

Job insecurity is an important occupational risk factor and a significant source of job stress, with immediate and long-term adverse effects on both organizational welfare and individual well-being.[32,41] For individuals, job insecurity can lead to job stress, which can easily lead to negative emotions such as anger, frustration and apprehension; these emotions, in turn, cause a variety of outcomes such as emotional exhaustion, mental health problems, and reduced performance and work engagement, and may trigger employees' turnover intention.[30–32,42]

According to resource conservation (COR) theory, we argue that employees with high levels of job insecurity have fewer personal resources remaining.[43,44] In such cases, employees may not be able to tolerate the threat of further resource loss or recover their resources to resolve their situation. Therefore, in the context of the COVID-19 pandemic, when flight attendants perceive higher levels of job insecurity, they experience more powerlessness in changing their job status and controlling their career development. Employees experience anxiety and powerlessness, leading to further loss of job resources, difficulty engaging in their work, and even the intention to leave the organization.

The hypothesis of this study regarding job insecurity and turnover intention among flight attendants in the context of the COVID-19 pandemic is consistent with previous studies in the general job context. Job insecurity is proposed and confirmed to have a predominantly harmful effect on turnover intention across different study populations, such as

German nonmanagerial employees,[42] employees in various firms in South Korea,[45] call-center workers in Turkey,[46] Finnish university staff,[47] restaurant employees in Turkey,[48] and Belgian employees.[49] In addition, Jung et al[5] exploring the turnover intention of deluxe hotel employees in South Korea during the COVID-19 pandemic found that job insecurity perceived by employees significantly affected their turnover intention. The same relationship between job insecurity and turnover intention during COVID-19 pandemic was found in recent studies too.[50,51] Therefore, we propose the following hypothesis.

Hypothesis 2b: Job insecurity is positively related to flight attendants' turnover intention.

Turnover intention is a process that arises from negative psychological reactions to organizational and job-specific conditions that cause employees to resign from the organization.[52] Therefore, the effect of COVID-19 perceived risk on turnover intention may entail a dynamic process. COR theory states that continuous exposure to stressors can lead to threatened and actual loss of physical, psychological and emotional resources; therefore, people seek various coping strategies to avoid threatened and actual loss of valuable resources.[43,44] The risk perception of COVID-19 is a constant source of stress that depletes the valuable resources of flight attendants, and this depletion of resources can lead to stress, anxiety and the potential loss of resources.

Job security is an essential resource for employees, and when this resource is threatened, other resource losses, such as stress, anxiety, and job insecurity, can occur. In this situation, employees will begin to focus their diminished energy resources away from their current job (which is, after all, insecure) and toward looking for a new job, as employment is a high-value resource that satisfies many basic needs. Therefore, an insecure employee will divert his or her remaining energy to consider other job options to avoid further loss of resources, ie, unemployment, which may be accompanied by an increased turnover intention to leave. More specifically, when a person's current job is threatened, the thought of finding a new job arises. Thus, in considering employment alternatives, the employee is trying to compensate for the current job insecurity.

Therefore, we propose that the relationship between COVID-19 perceived risk and flight attendants' job insecurity can be explained by perceived job insecurity. Amalgamating the arguments mentioned above and hypotheses 2a and 2b, we propose the following hypothesis:

Hypothesis 2c: The relationship between COVID-19 perceived risk and turnover intention is mediated by job insecurity.

Job Crafting as a Moderator

Wrzesniewski et al[53,54] contend that job crafting involves employees changing the formal job description by adding or subtracting tasks, changing the nature of the tasks, or changing the time and effort required for the set of responsibilities specified. Based on the JD-R model, Tims and Bakker[55] add that job crafting is a change in employees' job demands and job resources to align them with their abilities and preferences. Job crafting is a proactive, individualized work behavior that is frequently referred to as a bottom-up work strategy in which individuals make important decisions regarding their jobs. Therefore, it is a vital psychological resource. The JD-R model describes how job demands and job resources instigate two very different processes of health impairment and motivation enhancement.[26–28] Job resources can buffer the health impairment impact of job demands on employees. The perceived COVID-19 risk and job insecurity associated with the COVID-19 pandemic fall under the job demands of the airline industry and can pose hazards to flight attendants, such as increased turnover intention. Therefore, flight attendants need ways to cope with the adverse effects of job insecurity on turnover intention. According to the JD-R model, personal resources are expected to play a role similar to that of job resources.[27] Job crafting is a critical personal resource. Therefore, job crafting can be expected to be a possible buffer for the attritional impact of job insecurity on flight attendants' turnover intention.

Essentially, when job demands are consistently high and not compensated by job resources, employees' energy is continuously depleted at work, which negatively impacts the individual employee and the organization. The JD-R model suggests that when individuals are motivated by their work, they are likely to engage in job crafting, which will increase

their job and personal resources and motivation.[27] If employees can craft the demanding characteristics of their jobs to handle their work better,[56] the negative effects of job insecurity will likely be diminished.

COR theory also states that the resources people have available not only help them offset the loss of resources caused by stressors but also help them acquire more resources.[43,44] Therefore, individuals with more resources are better equipped to deal with stressful events and changes than those with fewer resources. In other words, individuals with high job crafting generally perceive stressful events and job insecurity as less threatening. In addition, they are more likely to feel that they can successfully control their work environment than individuals with low job shaping. As a result, individuals with high job crafting will have a more extraordinary ability to cope effectively with job insecurity and less turnover intention.

As a useful proactive strategy, job crafting can moderate the relationship between job characteristic factors and employees' work attitudes and behaviors, and this has been empirically validated by many studies. For example, Muningua[57] discovered that job crafting had a substantial positive moderating influence on the connection between job variables (colleague support, work autonomy, and work ambiguity) and the work engagement of special education teachers. Huang, Lin, and Lu[58] discovered that job crafting could be viewed as a strategy to gain access to job resources, hence buffering the impact of abusive supervision on employees' emotional exhaustion and psychological withdrawal behaviors. Job crafting can also mitigate the effect of overqualification on job boredom.[59] However, there is no empirical evidence about whether the relationship between job insecurity and turnover intention is buffered by job crafting. More recently, Musi[60] noted that job crafting reduced the negative impact of job insecurity on work engagement. Furthermore, job crafting has been demonstrated to mitigate the association between overqualification and turnover, as well as turnover intention.[61] The link between overqualification and turnover and turnover intention is negative at higher degrees of job crafting but positive at lower levels of job crafting. Research on job crafting during the COVID-19 pandemic has yet to be developed. In the case of this study, flight attendants were exposed to the stressors of the COVID-19 risk, and we propose that the job crafting resulting from their resource conservation motivation helped offset this loss of resources due to the perceived risk of contracting COVID-19.

Based on theoretical reasoning and empirical evidence, we propose the following hypothesis:

Hypothesis 3: Job crafting moderates the mediating effect of job insecurity. The association between job insecurity and turnover intention is stronger among flight attendants with lower job crafting but is weaker among those with higher job crafting.

Method

Sample and Procedure

The participants in this research were full-time flight attendants employed by two airlines in China who served on international flights. A web-based platform was used to distribute the online questionnaire to the closed community of both airlines to ensure that the respondents met the requirements of the study.

A cross-lagged design was used to collect data. We separated our variables by time in two waves approximately two weeks apart. At Time 1 (T1), we surveyed participants about their demographic variables, such as gender, age, working years, number of assigned flights per month, and perceived risk of COVID-19. We also asked the participants to inform us of their email addresses for the second phase of questionnaire delivery and data matching. At Time 2 (T2), we measured job insecurity, job crafting, and turnover intention.

At T1, we received 281 valid questionnaires, and at T2, we received 240 valid questionnaires, for an effective rate of 85.41%. Among the participants who finished the two surveys, 5.4% were males, and 94.6% were females. The participants' average age was 34.041 (SD = 6.260), ranging from 24 to 56. The average total working years was 9.600 (SD = 6.425). With regard to the number of assigned flights per month, 37.1% were 0 or 1, 51.3% were 2 to 3, 5.8% were 4 to 5, 2.5% were 6 to 7, and 3.1% were 6 or more.

This research has been approved by the Research Ethics Committee of the South China Normal University (SCNU-PSY-2021-142). Informed consent was obtained electronically prior to the collection of data from participants. The data were collected and analyzed anonymously.

Measures

COVID-19 Perceived Risk

We adopted the COVID-19 perceived risk scale developed by Yıldırım and Güler[23] to measure the perceived risk of COVID-19. This scale has 8 items, including two dimensions: cognitive dimension (eg, perceived likelihood of acquiring COVID-19) and emotional dimensions (eg, worry about a family member contracting COVID-19). All items were scored on a 5-point Likert scale, where "1" means "negligible" and "5" means "very large". The Cronbach's alpha coefficients of the cognitive and emotional dimensions and the whole scale in this study were 0.723, 0.892, and 0.857, respectively. Confirmatory factor analysis (CFA) showed that and the model fit indices were as follows: χ^2/df = 2.450, RMSEA = 0.078, CFI = 0.982, TLI = 0.971, SRMR = 0.024.

Job Insecurity

We adopted the job insecurity scale developed by Mauno, Leskinen and Kinnunen[62] to measure flight attendants' job insecurity. This scale has 5 items. All items were scored on a 6-point Likert scale, where "1" means "strongly disagree" and "6" means "strongly agree". The Cronbach's alpha coefficient of the scale in this study was 0.793. CFA showed that the model fit indices were as follows: χ^2/df = 2.353, RMSEA = 0.075, CFI = 0.984, TLI = 0.986, SRMR = 0.052.

Job Crafting

We adopted the job crafting scale developed by Slemp and Vella-Brodrick[63] to measure job crafting. This scale has 15 items, including three dimensions: task crafting (eg, introducing new approaches to improve your work), cognitive crafting (eg, thinking about how your job gives your life purpose), and relational crafting (eg, making an effort to get to know people well at work). All items were scored on a 6-point Likert scale, where "1" means "hardly ever" and "6" means "very often". The Cronbach's alpha coefficients of task, cognitive and relational crafting and the whole scale in this study were 0.936, 0.916, 0.910, and 0.950, respectively. The CFA showed the model fit indices were as follows: χ^2/df = 2.099, RMSEA = 0.068, CFI = 0.976, TLI = 0.969, SRMR = 0.030.

Turnover Intention

We adopted the Chinese version of the turnover intention scale developed by Camman, Fichman, Jenkins, and Klesh[64] to measure each participant's turnover intention. This scale has 4 items. All items were scored on a 7-point Likert scale, where "1" means "strongly disagree" and "7" means "strongly agree". The Cronbach's alpha coefficient of the scale in this study was 0.822. CFA showed that the model fit indices were as follows: χ^2/df = 1.137, RMSEA = 0.037, CFI = 0.999, TLI = 0.995, SRMR=0.013.

Data Analyses

We used SSPS 26.0 to conduct descriptive statistics, correlation analyses and reliability analyses. In addition, we used Mplus 8.3 to conduct confirmatory factor analysis and to test the hypotheses of the moderated mediation model.

Results

Common Method Variance Test

We adopted a bi-factor model to test the common method variance. We compared Model 1 with four latent factors (ie, COVID-19 perceived risk, job insecurity, job crafting, and turnover intention) with Model 2 with five latent factors (four latent factors of Model 1 and an unmeasured latent methods factor). A model comparison showed that the goodness-of-fit indices of Model 2 (χ^2/df = 1.488, RMSEA = 0.045, CFI = 0.989, TLI = 0.980, SRMR = 0.040) did not exceed those of Model 1 (χ^2/df = 1.417, RMSEA = 0.042, CFI = 0.990, TLI = 0.983, SRMR = 0.040). Thus, common method variance was not a threat to our data. The results suggest that the scales applied here measure different constructs, which can be applied within further analyses.

Descriptive Statistics and Correlations

The results of the descriptive statistics and correlations between the study variables are shown in Table 1. COVID-19 perceived risk and turnover intention were significantly correlated ($r = 0.131$, $p < 0.05$). Job insecurity was correlated with both COVID-19 perceived risk and turnover intention ($r = 0.349$, $p < 0.01$ and $r = 0.247$, $p < 0.01$, respectively). The correlations between job crafting and the above study variables were also significant. These were the basis of the following moderated mediation analysis. Flight attendants' age, working years and number of assigned flights per month were significantly correlated with the study variables. Thus, these demographic variables were controlled for in our subsequent data analyses.

Hypothesis Testing

We used structural equation modeling to test the moderated mediation model. The results are shown in Table 2. First, we tested the direct effect of COVID-19 perceived risk on turnover intention. After controlling for the effect of the participants' demographics (ie, age, working years and number of assigned flights per month), the model fit the data well (χ^2 /df = 1.722, TLI = 0.937, CFI = 0.979, RMSEA = 0.055, SRMR = 0.040). Table 2 shows that COVID-19 perceived risk was positively related to turnover intention (Model 1: $\beta = 0.150$, $p < 0.05$). Hypothesis 1 was thus supported.

Second, we constructed a mediation model to test whether job insecurity served as a mediator in the relationship between COVID-19 perceived risk and turnover intention. The results show (Table 2) that perceived risk of COVID-19 had a direct positive effect on job insecurity (Model 2: $\beta = 0.226$, $p < 0.01$). Hypothesis 2a was supported. Moreover, job insecurity had a positive effect on turnover intention (Model 3: $\beta = 0.384$, $p < 0.001$), and Hypothesis 2b was supported. After adding the mediator, the direct association between COVID-19 perceived risk and turnover intention became nonsignificant (Model 4: $\beta = 0.070$, $p > 0.05$). The model fit the data well (χ^2 /*df* = 2.566, TLI = 0.910, CFI = 0.927, RMSEA = 0.081, SRMR = 0.086). Based on the bootstrap method, we found support for a positive indirect effect on the

Table 1 Descriptive Statistics and Correlations Among the Study Variables (N = 240)

	M	SD	1	2	3	4	5	6	7	8
1. Gender[a]	0.054	–	1							
2. Age	34.041	6.260	−0.021	1						
3. Total working years	9.600	6.425	0.015	0.936**	1					
4. Number of flights	2.171	1.757	−0.103	0.066	0.072	1				
5.COVID-19 perceived risk	2.986	0.814	−0.061	−0.096	−0.093	0.127*	1			
6. Job insecurity	3.950	1.112	0.064	−0.169**	−0.173**	−0.050	0.349**	1		
7. Job crafting	3.861	0.766	−0.014	−0.124	−0.162*	−0.046	0.150*	0.129*	1	
8. Turnover intention	2.123	0.903	0.003	−0.174**	−0.103	−0.110	0.131*	0.247**	−0.226**	1

Notes: *$p < 0.05$, **$p < 0.01$. [a]1 = male, 0 = female.

Table 2 Mediation of Job Insecurity

	Model 1 DV= TI		Model 2 DV= JI		Model 3 DV= TI		Model 4 DV= JI		Model 4 DV= TI	
	β	t	β	t	β	t	β	t	β	t
PR	0.150	2.199*	0.226	3.114**			0.225	3.122**	0.070	1.019
JI					0.384	5.930***			0.370	5.501***
R^2	0.023		0.051		0.148		0.051		0.154	

Notes: * $p < 0.05$, ** $p < 0.01$, ***$p < 0.001$. Standardized path estimates are reported. The model includes all control variables. Effects of controls are not displayed.

Abbreviations: DV, dependent variable; PR, COVID-19 perceived risk; JI, job insecurity; JC, job crafting; TI, turnover intention; β, standardized coefficients; t, t value; R^2, coefficient of determinations.

Table 3 Moderation of Job Crafting

	DV= JI				DV= TI			
	β	SE	LLCI	ULCI	β	SE	LLCI	ULCI
PR	0.245**	0.088	0.073	0.417				
JI					0.403***	0.063	0.279	0.527
JC					−0.207**	0.072	−0.347	−0.066
JI × JC					−0.170**	0.058	−0.283	−0.057
R^2	0.060				0.229			

Notes: * $p < 0.05$, ** $p < 0.01$, ***$p < 0.001$. Standardized path estimates are reported. The model includes all control variables. Effects of controls are not displayed.

Abbreviations: DV, dependent variable; PR, COVID-19 perceived risk; JI, job insecurity; JC, job crafting; TI, turnover intention; β, standardized coefficients; SE, standard error; LLCI, lower limit confidence interval; ULCI, upper limit confidence interval; R^2, coefficient of determinations.

relationship between COVID-19 perceived risk and turnover intention through job insecurity (indirect effect = 0.103; 95% CI [0.006, 0.200]), and the proportion of the mediating effect to the total effect was 68.7%. Thus, Hypothesis 2c was supported.

Finally, we further investigated the moderation effect of job crafting on the relationship between job insecurity and turnover intention. We added job crafting to the model as a moderator and tested this moderated mediation model. The results are shown in Table 3. COVID-19 perceived risk had a positive effect on job insecurity ($\beta = 0.245$, 95% CI [0.073, 0.417]), job insecurity had a positive effect on turnover intention ($\beta = 0.403$, 95% CI [0.279, 0.527]), and the interaction effect of job insecurity and job crafting on turnover intention was significant ($\beta = -0.170$, 95% CI [−0.283, −0.057]). This means that the mediation effect of job insecurity was moderated by job crafting.

Simple slope analysis was performed to examine the moderated mediation effect at various levels of job crafting (see Figure 2). The effect of job insecurity on turnover intention was high for flight attendants with low job crafting ($\beta = 0.568$, $p < 0.001$). However, the effect was low for flight attendants with high job crafting ($\beta = 0.238$, $p < 0.001$). Therefore, it is believed that with the increase in job crafting, the relationship between job insecurity and turnover intention is gradually weakened. The results also showed that the size of the mediating effect of COVID-19 perceived

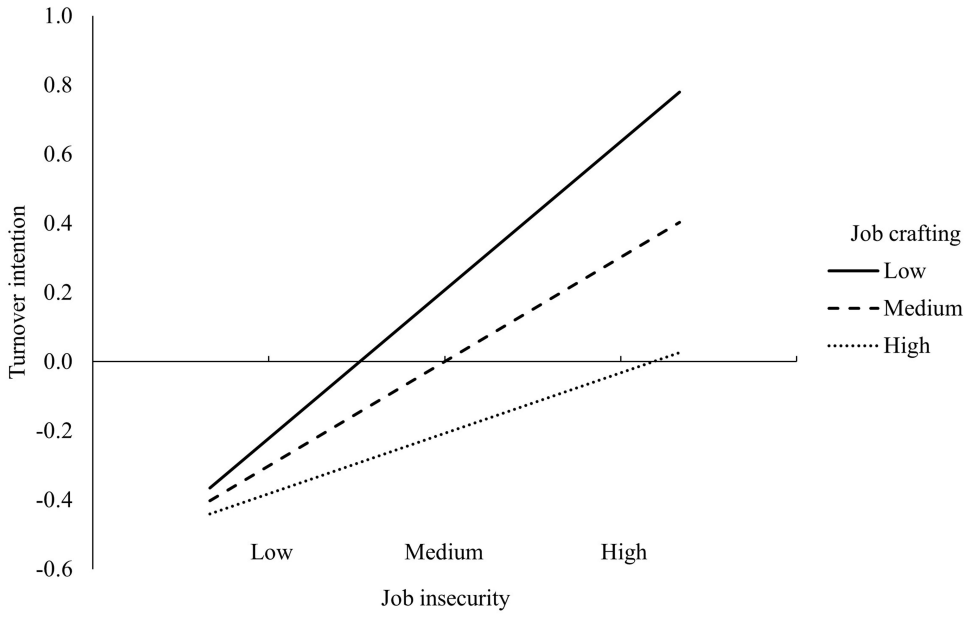

Figure 2 Interaction plot of the relationship between job insecurity and turnover intention at different levels of job crafting.

risk on turnover intention through job insecurity was not significant when the level of job crafting was at one standard deviation above the mean (β = 0.057, 95% CI [−0.011, 0.125]), and the effect size was significant when the level of job crafting was at one standard deviation below the mean (β = 0.168, 95% CI [0.020, 0.316]). These results imply that job crafting may change the mediating effect. Flight attendants with low levels of job crafting are more likely to increase turnover intention under the impact of job insecurity. Therefore, Hypothesis 3 was supported.

Discussion

Linking COVID-19 Perceived Risk to Turnover Intention

Drawing on the JD-R model and COR theory, this study explored the impact of flight attendants' perceived risk of job insecurity and their turnover intentions in the context of unexpected environmental changes caused by COVID-19. We also determined whether the impact of job insecurity differed according to employees' job crafting.

First, our findings showed a significant positive effect of COVID-19 perceived risk on turnover intention. This result is consistent with studies using healthcare workers and hotel workers as subjects.[2,4,7] Combining these findings, we can conclude that for frontline staff in the healthcare, hospitality and airline industries, the higher the perceived risk of COVID is, the more likely employees are to have turnover intention. The working environment and job demands of flight attendants are somewhat unique. They are in confined spaces at high altitudes and are often subject to bumps caused by unstable air currents. To perform their duties, they must also interact with passengers. In addition to the regular stress of emotional labor and client confrontation they may face, during the COVID-19 pandemic, they are also exposed to risks and fears of being infected or accidentally infecting others, especially family members and friends. This may be an important reason for their budding turnover intention. To facilitate the necessary interventions, it is necessary to explore the mechanisms and boundary conditions by which perceived risk influences the intention to leave. Otherwise, allowing the intention to turn into exit behavior is an adverse event for flight attendants and the airlines.

What are the processes that underlie the effect of perceived risk on flight attendants' turnover intention during the COVID-19 pandemic? According to the results of this study, it appears that when flight attendants perceive a high risk of COVID-19 infection, they have a high level of job insecurity, which in turn affects their turnover intention. Interestingly, it is significantly positive when considering only the effect of the COVID-19 perceived risk on turnover intention. However, the direct association between perceived risk and turnover intention disappears when the influential role of job insecurity is considered. Thus, job insecurity plays a fully mediating role between risk perception and turnover intention. This result is interesting because it will weaken turnover intention if airlines give flight attendants a sense of security by implementing various measures, such as better virus protection and more humane isolation policies.

It is important to understand that in addition to the impact that job insecurity from job demands may have on flight attendants' turnover intention, flight attendants' personal resources also play a critical role in how they perceive and deal with these job demands. The literature has established that individuals are not entirely passive recipients of the work process but are actively involved, generating more proactive behaviors to make a difference.[65] There are strategies, such as job crafting, which flight attendants can learn and adapt to mitigate the adverse effects of job demands and improve the work environment. This study found that the mediating role of job insecurity was moderated by job crafting. The effect of job insecurity on turnover intention was significantly weaker when job shaping was high (opposed to low). This result demonstrates that job crafting is a significant improvement for workers who might be experiencing negative job attitudes and behaviors arising from job insecurity.

Flight attendants may contact passengers with infectious agents at work and enter countries at high risk of outbreaks,[33,34] which may cause them to perceive more risks and job insecurity. However, the harmful effects of the risks and job insecurity may be buffered if they engage in cognitive, relational, and task crafting. For example, through cognitive crafting, flight attendants adjust their perceptions of work tasks and customer relationships, which will lead them to perceive more meaning and value in their work even at this precarious time, which will reduce their turnover intention. Similarly, if they change how and when they interact with passengers through relationship crafting, it is possible to reduce job insecurity and its adverse effects. More importantly, if they change the scope of their current work

or performance by actively increasing or decreasing the number of tasks at work through task crafting, this is likely to increase engagement and reduce turnover intention.

Theoretical Implications

This study provides an appropriate and timely exploration of flight attendants' perceived risk and turnover intention during the COVID-19 pandemic, confirms the rational causal relationship between perceived risk, job insecurity and turnover intention, and establishes a theoretical basis for the association between COVID-19 perceived risk and flight attendants' job attitudes. Many previous studies have focused on airline workers' turnover intention in general working situations.[16–20] However, few studies have been conducted on the effect of flight attendants' perceived risk on turnover intention during the unprecedented COVID-19 pandemic. This study focuses on the internal psychological influencing mechanisms of the relationship between perceived risk and turnover intention and their boundary conditions. The findings may contribute significantly to the literature on the hospitality and tourism industries.

The findings of this study contribute to the literature on organizational behavior and human resource management. This study develops and tests a model based on the JD-R model and COR theory that explains how COVID-19 perceived risk influences flight attendants' turnover intention via job insecurity and how job crafting moderates the effect of this influence. Perceived risk and job insecurity, which are job demands defined in the JD-R model, hurt employees' work attitudes and behaviors. Both the JD-R model and COR theory emphasize the importance of resources. Job crafting as a positive psychological resource for individuals can buffer the adverse effects of job demands on flight attendants' work attitudes. These findings contribute significantly to the literature by extending the theoretical explanations of the JD-R model and COR theory to the work of airline employees in the context of the COVID-19 pandemic. In addition, this study presents a vital proposition of perceived risk and turnover intention, namely, that job insecurity plays a fully mediating effect in their relationship. This suggests that in unpredictable and uncertain situations, such as the COVID-19 pandemic, dissipating job insecurity and/or increasing job crafting behavior is critical to employees' work-related attitudes and behavior.

Practical Implications

The findings of this study have important practical implications for flight attendants in their self-management and pursuit of career development. According to the results of this study, the more job insecurity employees with low job crafting perceive, the higher their turnover intention compared to those with high levels of job crafting. Therefore, it is necessary for flight attendants to take the initiative to adopt job crafting to change the harsh work environment and mitigate unfavorable job demands, feel more meaning in their work, demonstrate better job performance, thus reducing turnover rates. This is important because, in this era of rapid change, the threat of more uncertainty and unpredictable events in the future is likely to create more insecurity and affect job change.[66]

The findings of this study also have important practical implications for airlines seeking to retain flight attendants and reduce the turnover rate during the COVID-19 pandemic. It is costly to train a qualified flight attendant. Although airlines' human resource requirements have been reduced during the pandemic, airline managers cannot passively leave it to the wider environment to change the organization. The industry needs to be proactive in understanding the factors that affect employees' turnover intention and developing effective personnel management solutions to reduce turnover and ultimately enhance employees' well-being and airlines' welfare.

While risk perception is undoubtedly a detrimental factor, as this study shows, its relationship with turnover intention is fully mediated by job insecurity. Therefore, airline managers should identify and distinguish between risk and job insecurity and respond to them separately to better help their employees mitigate these issues. First, airlines should adopt more scientific and practical virus protection methods and strategies to reduce the risk of infection among flight attendants, such as upgrading virus protection equipment and reducing human interaction and contact with passengers without compromising service quality. More importantly, airlines also need to make more informed decisions to create a climate of job stability for their employees in the organizational work environment and reduce their job insecurity to prevent the loss of valuable flight attendants.

Research Limitations and Future Perspectives

Despite the interesting results obtained, this study has limitations that should be further explored in future research. First, the sample of this study was limited to Chinese flight attendants, so whether the relationships between the study variables can be extrapolated to other cultural samples is unknown. Future research should attempt to replicate our findings in different settings and cultures. Due to occupational characteristics, flight attendants are predominantly female. The majority of our study subjects were also female. Although we did not find gender differences in the study variables, the results of this study must be interpreted with caution, considering that a recent study found gender differences in the fears of male and female nurses.[13] Second, although this study collects data through two time points, it still does not allow for solid inferences about the causal relationships between the study variables. Future studies could apply a longitudinal design with at least three measurement time points to collect data and improve the persuasiveness of the results. Finally, regarding the influencing factors of turnover intention, this study focused on personal variables. Future research could explore the combined influence of personal and contextual factors.

Conclusion

Using a structural equation modeling approach, we found a significant positive effect of COVID-19 perceived risk on flight attendants' turnover intention, and job insecurity played a fully mediating role in the relationship between perceived risk and turnover intention. The mediating role of job insecurity was moderated by job crafting. For higher levels of job shaping (vs low), the effect of job insecurity on turnover intention was significantly weaker.

Data Sharing Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

All authors declare that they have no conflicts of interest.

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