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Relationship between risk perception of COVID-19 and job withdrawal among Chinese nurses: The effect of work–family conflict and job autonomy

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Abstract

Aim: The aim of this study was to examine the mediating role of work–family conflict and the moderating role of job autonomy on the association between risk perception of COVID-19 and job withdrawal among Chinese nurses during the initial disease outbreak.

Background: Nurses' job withdrawal can not only reduce the quality and efficiency of care but also give rise to turnover during the COVID-19 pandemic. Thus, it is essential to clarify how and when the risk perception of COVID-19 influences the job withdrawal behaviours of nurses and to provide guidelines for reducing nurses' job withdrawal.

Methods: A two-wave study was conducted among 287 Chinese nurses from 11 COVID-19-designated hospitals during the initial outbreak of the disease from March through April 2020. Data on the risk perception of COVID-19, job autonomy and work–family conflict were collected at time 1, and 1 month later, job withdrawal data were collected at time 2. Model 4 and Model 14 from SPSS macro PROCESS were used to test the mediating effect of work–family conflict and the moderating effect of job autonomy, respectively.

Results: Work–family conflict mediated 60.54% of the relationship between risk perception of COVID-19 and job withdrawal. Job autonomy positively moderated the relation between work–family conflict and job withdrawal ($\beta = 0.12$, $P < 0.01$).

Conclusion: Risk perception of COVID-19 influenced nurses' job withdrawal through work–family conflict. Job autonomy exaggerated the association between work–family conflict and job withdrawal.

Implications for Nursing Management: Managers should provide more supportive resources to help nurses cope with the risk of COVID-19 to decrease work–family conflict and job withdrawal, and they should strengthen supervision over the work processes of nurses.

Xuan Liu and Shu-Jie Yuan are co-first authors and contributed equally to this work.

1 | INTRODUCTION

The COVID-19 pandemic, as a public health crisis, continues to surge around the world, seriously affecting people's work, family and health. It has been called the "worst pandemic" in the past hundred years (Banerjee & Meena, 2021), and the number of confirmed cases in the world has exceeded 494 million (WHO, 2022) to date. Public medical resources including medical staff have endured overwhelming challenges under these crisis conditions (Grothusen & Liu, 2020; Supady et al., 2021). Nurses are a central and critical group in the fight against COVID-19, providing treatment and frontline patient care (Choi, Jeffers, & Logsdon, 2020). However, due to frequent exposure to the infection, most nurses have a high-risk perception of COVID-19 (Gorini et al., 2020; Deressa, Worku, Abebe, Gizaw, & Amogne, 2021) and suffer from psychological distress (Conversano, Marchi, & Miniati, 2020). As a result, nurses are resigning from their jobs, citing inadequate protective support, heavy stress and concerns about being infected or bringing the virus home to their families (Ali, 2020; Andrew, 2021), and the loss of the nurse workforce would worsen the already tense situation of public medical resources. Turnover intention, lateness and absenteeism are important indicators of job withdrawal in organisations (Hanisch & Hulin, 1990); however, few studies focus on the relationship between risk perception of COVID-19 and job withdrawal among nurses and the mechanism underlying the relationship remains elusive. The aim of this study was to clarify how and when the risk perception of COVID-19 affected the job withdrawal of nurses and the role of work–family conflict and job autonomy. Understanding the mechanism may contribute to guidelines aimed at decreasing nurses' job withdrawal.

2 | LITERATURE AND HYPOTHESES

2.1 | The relation between risk perception of COVID-19 and job withdrawal

Risk perception is commonly described as people's beliefs about potential harm from an event or situation that may be hazardous to their health (Oltedal, Moen, Klempe, & Rundmo, 2004; Brewer, Weinstein, Cuite, & Herrington, 2004). A public health emergency generally has a ripple effect on public psychology (Wen, Ma, Ye, Qi, & Zuo, 2020), that is, when people are closer to the central area of the emergency, they experience a higher level of risk perception and negative emotions (Kasperson et al., 1988; Slovic, 1987). Due to frequent exposure to high-risk work environments and infected patients, nurses are closer to the emergency centre and have a higher risk perception of COVID-19. Withdrawal is an important concept in the

fields of clinical psychology and psychiatry, and job withdrawal is the extension and application of withdrawal in the field of work. It refers to a series of behaviours in which individuals voluntarily avoid unsatisfactory work situations (Gupta & Jenkins, 1991), including physical withdrawal behaviours (e.g., taking equipment without permission) and psychological withdrawal behaviours (e.g., daydreaming, turnover intention) (Lehman & Simpson, 1992). According to the transactional model of stress and coping (TMSC) (Lazarus & Folkman, 1984), individuals will be stressed if the situation or event is perceived to be relevant, dangerous and difficult to cope with; in response, they will adopt either problem-focused or emotion-focused coping strategies, which are interdependent and work together to deal with stressors (Lazarus, 2000). Emotion-focused coping strategies, such as distancing and escape/avoidance, are useful and realistic options when the stressor is out of an individual's control (Folkman & Lazarus, 1980). Therefore, nurses withdraw from jobs to distance and escape risky work environments if they believe that the probability of being infected at work is high (i.e., relevant); the consequences of being infected are severe (i.e., dangerous), and current preventive measures for infection are inadequate (i.e., uncontrollable). Some empirical studies have confirmed that perceived risk of COVID-19 can increase fear and consequently lead to nurses' turnover intention (Majeed, Irshad & Bartels, 2021). The stress of COVID-19 is positively related to job withdrawal among nurses (Xiong et al., 2021). Hence, we hypothesize that the risk perception of COVID-19 is positively related to nurses' job withdrawal.

2.2 | Mediating role of work–family conflict

Work–family conflict is a form of interrole conflict in which the demands of work and family roles are incompatible in some ways and difficult to balance (Greenhaus & Beutell, 1985). Nurses have an obligation not only to take care of patients but also to take care of themselves and their families (Alloubani et al., 2021). When nurses perceive a great threat from COVID-19, they must work with great care to prevent themselves from being infected at work, which will increase job demands and consume psychological resources. The perceived severity of the pandemic arouses nurses' commitment to their profession to remain at work and to fulfill the demands of the job, which further increases consumption of personal resources. A systemic review demonstrates that nurses have a strong sense of professional duty and are eager to remain engaged during the COVID-19 pandemic (Fernandez et al., 2020). However, risk perception of COVID-19 also increases nurses' concerns about their families and requires them to stay with and take good care of their family members during the pandemic to fulfill the demands of family roles. A survey

revealed that 92% of frontline nurses showed "little and very concern" for their families amid the pandemic (Nie et al., 2020). However, individual resources such as time and energy are limited, and participation in different roles will consume these resources and cause conflict (Shaffer, Harrison, Gilley, & Luk, 2001; Karatepe & Bekteshi, 2008). Therefore, the risk perception of COVID-19 can increase the demands for participation in both work roles and family roles and elicit role conflict. Conservation of resources (COR) theory posits that people strive to obtain, retain and protect their key resources (Hobfoll, 2001). Continuous competition between work and family roles for personal resources leads to exhaustion of personal resources, and individuals often adopt certain defensive strategies in response, such as job withdrawal behaviours, to prevent existing resources from further depletion (Ito & Brotheridge, 2003). Thus, we hypothesize that the risk perception of COVID-19 may aggravate the work–family conflict of nurses and in turn lead to job withdrawal.

2.3 | Moderating role of job autonomy

Job autonomy, which is generally considered an important external job resource for nurses (Li, Huang, Shen, & Gao, 2014), refers to the degree of freedom, discretion and independence an employee has when deciding working methods, time division and other aspects at work (Kulik, Oldham, & Hackman, 1987). According to the job demands-resources (JD-R) model, a lack of job resources that can alleviate job demands gives rise to withdrawal behaviours (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Bakker, Demerouti, De Boer, & Schaufeli, 2003). In contrast, high job resources, such as high supervisor support or job autonomy, can play a positive role in increasing work engagement and positive consequences such as high organisational commitment and high intention to remain (Schaufeli & Bakker, 2004; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007; Schaufeli, Bakker, & Van Rhenen, 2009). Thus, nurses with high job autonomy can decide how and when to conduct their assigned tasks, which provides them with more resources to address different demands and balance the conflict of work and family roles, consequently reducing the incidence of job withdrawal. Thus, we hypothesize that the work–family conflict of nurses with high job autonomy causes less job withdrawal than those with low job autonomy. The hypothesized model is outlined in Figure 1.

3 | METHODS

3.1 | Ethics considerations

This study was approved by the Ethics Committee of the first author's institution (Approval no. 2020004). Before the investigation, all nurses were informed of the study via a WeChat working group and then received an invitation that described the aims, risks, benefits and process of the study, emphasized confidentiality, pointed out requirements for participating and provided a link to the survey.

3.2 | Sample and data collection process

This study was a two-wave design conducted in 11 hospitals designated for the medical treatment of people infected with COVID-19 in the Jiangsu and Anhui provinces of China from March through April 2020. The hospitals were selected by convenience sampling, and 11 hospitals from all the hospitals we contacted replied in the affirmative. A total of 356 nurses consented to participate in the first survey. At time 1, the data of risk perception of COVID-19, job autonomy and work–family conflict were collected. We received 332 valid responses for a 93.26% response rate. One month later, at time 2, a job withdrawal scale was administered, and the second survey was answered by 292 out of the 332 initial respondents, for an 87.85% response rate. Since the Work to Family Conflict Scale that we used was designed for female workers, we excluded five male nurses from the overall sample, and 287 female nurses were retained. The inclusion criteria were as follows: (a) registered and full-time nurses; (b) living with family members and (c) voluntarily consenting to participate in this study. Statistical results showed no significant difference in the demographic and study variables between dropouts and those who finished both surveys.

3.3 | Variables and measurements

The measures in this study included risk perception of COVID-19, job autonomy, work–family conflict and job withdrawal. Demographic variables included gender, age, marital status and professional title.
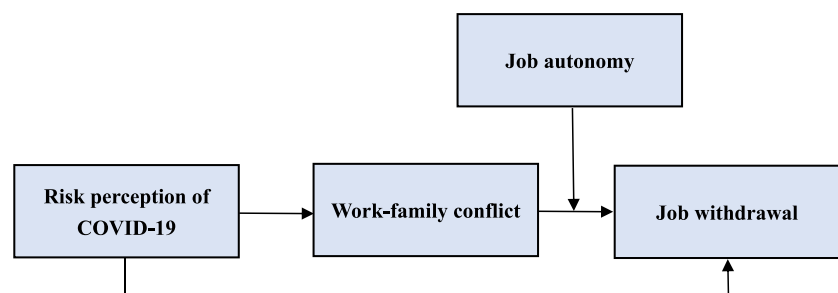

FIGURE 1 Hypothesized model of risk perception of COVID-19, work–family conflict, job autonomy and job withdrawal

3.3.1 | Risk perception of COVID-19

The Public Risk Perception Scale for Public Health Emergencies (Dai, Hao, & Wu, 2020) was adopted to measure risk perception of COVID-19 and was proven to have good reliability (the reported Cronbach's α was 0.88) and validity in China. The scale consists of four dimensions and 10 items, including epidemic severity (three items), susceptibility (two items), hazard to health (two items) and controllability (three items). We adapted the scale by replacing the word flu with COVID-19. All items were measured based on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). In this study, Cronbach's α for this scale was 0.77.

3.3.2 | Job autonomy

Job autonomy was measured with the Job Autonomy Survey (Liu, Spector, & Shi, 2007) modified from the Job Diagnostic Survey (Hackman & Oldham, 1976). The scale consists of three items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Cronbach's α has been reported to be 0.86 (Zhou, Li, & Gong, 2019), and Cronbach's α in this study was 0.80.

3.3.3 | Work–family conflict

The Work to Home Conflict Scale (Holahan & Gilbert, 1979), which was initially designed for female workers, was used to measure the work–family conflict of nurses, Cronbach's α was reported to be 0.87 in the sample of nurses (Bacharach, Bamberger, & Conley, 1991). The scale consists of four items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree); in this study, Cronbach's α for the scale was 0.86.

3.3.4 | Job withdrawal

The psychological withdrawal behaviour subscale, which has good reliability and is suitable for self-report surveys, in the Job Withdrawal Behaviours Scale (Lehman & Simpson, 1992) was adopted to measure the level of nurses' job withdrawal in the previous 2 weeks. The subscale consists of eight items rated on a 5-point Likert scale (1 = never, 5 = always). The reported Cronbach's α and composite reliability are 0.74 and 0.81, respectively (Khawaja, Sarfraz, Rashid, & Rashid, 2021), and Cronbach's α in this study was 0.80.

3.3.5 | Control variables

Independent-samples T-test and one-way Analysis of Variance were conducted to check the impact of demographic variables on the job withdrawal of nurses. The results reveal that marital status ($t = 0.21$, $P > 0.05$), age ($F = 0.54$, $P > 0.05$) and professional titles ($F = 0.33$, $P > 0.05$) showed no significant impact on job withdrawal. Referring to Xiong et al. (2021), demographic variables were not controlled for this study.

3.4 | Data analysis

SPSS 23.0 for Windows was used to perform descriptive statistics and correlations. Means and standard deviations of continuous variables as well as the frequencies and percentages of categorical variables were computed in descriptive statistics, and Pearson's correlation analysis was adopted to compute the correlation coefficient among all variables. MODEL 4 and MODEL 14 from SPSS macro PROCESS were applied to test the mediating role of work–family on the relationship between risk perception and job withdrawal and the moderating role of job autonomy on the relation of work–family conflict and job withdrawal, respectively.

4 | RESULTS

4.1 | Sample feature

Demographic variables were summarized in Table 1. The sample contained 287 nurses; all nurses were female (100%), married (89.90%), under the age of 45 (80.84%) and most had junior and intermediate professional titles (92.33%).

4.2 | Common method variance analysis

Common method variance may exist because all questionnaires were self-reported; therefore, Harman's one-factor method was used to

TABLE 1 Demographic characteristics of the participants

Variables	Category	Number	Percentage
Gender	Male	0	0%
	Female	287	100%
Marital status	Unmarried	29	10.10%
	Married	258	89.90%
Age	Below 25	14	4.88%
	25–30	28	9.76%
	31–35	66	23.00%
	36–40	77	26.83%
	41–45	47	16.38%
	46–50	29	10.10%
	51–55	14	4.88%
	Above 55	12	4.18%
Professional title	Junior	198	68.99%
	Intermediate	67	23.34%
	Senior	22	7.67%

perform common variance analysis for the four questionnaires. Eight factors with eigenvalues greater than 1 were extracted by principal component analysis. The first factor accounted for 20.97% of the total variance, less than the critical value of 40%, demonstrating that the common method bias in the present study was not a problem (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

4.3 | Descriptions and correlations of study variables

The results of descriptive statistics and Pearson's correlation analysis of study variables are shown in Table 2. The means of nurses' risk perception and job autonomy were higher than 3, while the means of work–family conflict and job withdrawal were lower than 3. Risk perception of COVID-19 was significantly and positively correlated with job withdrawal ($r = 0.19$, $P < 0.01$) and work–family conflict ($r = 0.41$, $P < 0.01$). The correlation between work–family conflict and job withdrawal was also positive and significant ($r = 0.31$, $P < 0.01$).

4.4 | Testing for mediation model

Model 4 from SPSS macro PROCESS was used to perform bootstrap examination to test the mediation model. As presented in Table 3, the direct effect of risk perception on job withdrawal was significant and positive in the absence of the mediator ($\beta = 0.19$, $P < 0.01$). When work–family conflict was included, risk perception was positively associated with work–family conflict ($\beta = 0.65$, $P < 0.001$), which in

turn was positively associated with job withdrawal ($\beta = 0.17$, $P < 0.001$), while the relation between risk perception and job withdrawal became nonsignificant ($\beta = 0.07$, $P > 0.05$). Moreover, the results of bootstrapping showed that the estimated direct effect of risk perception on job withdrawal was 0.07, the 95% CI ranged from −0.05 to 0.19 (including zero), the indirect effect of work–family conflict was 0.11, the 95% CI ranged from 0.06 to 0.17 (not including zero) and the mediation effect accounted for 60.54% of the total effects. The results indicated that job withdrawal fully mediated the relation between risk perception of COVID-19 and job withdrawal.

4.5 | Testing for moderated mediation model

Model 14 from SPSS macro PROCESS was applied to test the moderated mediation model with work–family conflict as the mediator and job autonomy as the moderator. The results of the moderation test, as presented in Table 4, showed that the interaction of work–family conflict and job autonomy was significant and positive ($\beta = 0.12$, $P < 0.01$), and the 95% CI did not cross zero. To further understand the essence of the interaction, simple slope analysis was conducted. Figure 2 illustrates the relation between work–family conflict and job withdrawal at low levels and high levels of job autonomy. Work–family conflict had a significant effect on job withdrawal (simple slope = 0.09, $P < 0.01$) for those with low job autonomy (1 SD below the mean), while the relation was still significant (simple slope = 0.22, $P < 0.001$) and was much stronger for those with a high level of job autonomy (1 SD above the mean).

TABLE 2 Descriptive statistics and correlations between study variables

Variables	M	SD	1	2	3	4
1.Risk perception (T1)	3.36	0.53	1			
2.Job autonomy (T1)	3.71	0.67	−0.16**	1		
3.Work–family conflict (T1)	2.67	0.84	0.41**	−0.23**	1	
4.Job withdrawal (T2)	1.97	0.53	0.19**	−0.13*	0.31**	1

Note: N = 287. T1 = Time 1, T2 = Time 2.
*P < 0.05. **P < 0.01.

TABLE 3 The mediation model of work–family conflict between risk perception of COVID-19 and job withdrawal

Predictors	Job withdrawal			Work–family conflict			Job withdrawal		
	β	SE	95% CI	β	SE	95% CI	β	SE	95% CI
Constant	1.35***	0.19	[0.97, 1.73]	0.49	0.29	[−0.07, 1.06]	1.27***	0.19	[0.89, 1.64]
Risk perception	0.19**	0.06	[0.07, 0.30]	0.65***	0.08	[0.48, 0.81]	0.07	0.06	[−0.05, 0.19]
Work–family conflict							0.17***	0.04	[0.10, 0.25]
R^2	0.04			0.17			0.10		
F	10.54**			58.72***			15.58***		

Note: N = 287. Bootstrap sample size = 5000. CI = confidence interval. β = standardized coefficient.
*P < 0.05. **P < 0.01. ***P < 0.001.

TABLE 4 The moderated mediation model of job autonomy between risk perception and job withdrawal through work–family conflict

	Job withdrawal		
Predictors	β	SE	95% CI
Constant	1.72***	0.21	[1.32, 2.12]
Risk perception	0.08	0.06	[−0.04, 0.20]
Work–family conflict	0.16***	0.04	[0.08, 0.24]
Job autonomy	−0.05	0.05	[−0.14, 0.04]
Work–family conflict×job autonomy	0.12**	0.04	[0.03, 0.20]
R^2	0.12		
F	10.01***		

Note: N = 287. Bootstrap sample size = 5000. CI = confidence interval. β = standardized coefficient.
*P < 0.05. **P < 0.01. ***P < 0.001.

FIGURE 2 The relationship between work–family conflict and job withdrawal

5 | DISCUSSION

As the COVID-19 pandemic spread rapidly, the psychological well-being and work behaviours of nurses received heightened attention worldwide. Risk perception is a central part of many behavioural models, such as the Health Belief Model, Theory of Reasoned Action, Theory of Planned Behaviour and Subjective Expected Utility Theory, used to explain health-related or risk-related behaviours (Savadori & Lauriola, 2021); however, the relationship between risk perception of COVID-19 and job withdrawal behaviours in the workplace has received little attention. In this study, we explored the mechanism underlying the relationship between risk perception of COVID-19 and job withdrawal behaviours among nurses in China. The results showed that risk perception was significantly associated with job withdrawal behaviours, which was similar to results from prior studies (Labrague & Los Santos, 2021; Majeed et al., 2021; Xiong et al., 2021). From the perspective of the TMSC, we regarded job withdrawal behaviours as emotion-focused coping strategies for nurses coping with the stress of COVID-19. These risk assessment results indicated that the risk perception of COVID-19 was an important determinant of nurses' job withdrawal during the pandemic.

In terms of the medication effect, previous studies mainly consider negative emotions, such as anxiety or fear, as mediators in the relationship between risk perception and behaviours (Cypryańska & Nezlek, 2020; Serpas & Ignacio, 2021). In this study, work–family conflict was introduced as a new insight into how risk perception influenced nurses' job withdrawal behaviours in the context of the COVID-19 pandemic. The results showed that work–family conflict mediated 59.74% of the relationship between risk perception of COVID-19 and job withdrawal, which indicated that risk perception could aggravate the conflict between work and family roles and in turn lead to job withdrawal. The results also confirmed the validity of COR theory. If nurses' psychological resources were exhausted due to work–family conflict, they would maintain personal resources by performing job withdrawal behaviours. This should be a reminder to managers to take necessary measures to reduce the work–family conflict of nurses.

With regard to the moderation effect, instead of weakening the positive relation between work–family conflict and job withdrawal, as we expected according to the JD-R model, job autonomy exaggerated the relation. The reasons for this result may be as follows: first, existing studies have revealed the dark side of job autonomy, which can lead to unethical behaviours under certain circumstances (Lu, Brockner, Vardi, & Weitz, 2017) and may impair the well-being of employees (Dettmers & Bredehöft, 2020). Höge and Hornung (2015) demonstrate that flexibility and the need for self-decisions about work procedures is not only a resource but can also become a demand. Thus, job autonomy may become a burden for nurses in unprecedented and uncertain conditions, such as the COVID-19 pandemic, and exacerbate resource consumption, eliciting more job withdrawal. Second, family-oriented collectivism is an important feature of Chinese social culture in which family responsibility plays a core role (Li, Lam, & Fu, 2000). Chinese employees are prone to regard work as a tool to fulfill family responsibilities rather than as the ultimate goal (Redding, Norman, & Schlander, 1994); that is, Chinese people place more value on family than work. Additionally, compared with men, women often assume the primary responsibility of taking care of family members (Shelton & John, 1996), and all participants in this study were female. Matthews, Winkel, and Wayne (2013) point out that employees tend to transfer existing resources between different roles

when they are overloaded with tasks in a certain role. Therefore, in the context of family-oriented collectivism culture, female nurses in China are more likely to transfer personal resources from work to the family by conducting job withdrawal behaviours when experiencing work–family conflict, and high job autonomy provides nurses with chances to do so.

6 | IMPLICATIONS FOR NURSING MANAGEMENT

Nurses are a key part of public medical resources and play important roles in fighting the COVID-19 pandemic. To decrease nurses' job withdrawal amid the COVID-19 pandemic, several measures can be adopted. First, in addition to job autonomy, more supportive resources should be provided to reduce the risk perception and work–family conflict of nurses, such as sufficient personal protective equipment, priority vaccinations for nurses and their family members, especially in those regions facing vaccine shortages, priority treatment for work-related infections and necessary assistance to family members when nurses are in quarantine. Second, managers should pay more attention to nurses' work stress caused by the COVID-19 pandemic, monitor the level of psychological distress regularly, invite professionals to conduct psychological counseling and teach nurses skills to deal with stress. Third, contingency leadership theory (Fiedler, 1964) suggests that task-oriented leadership is more effective if the situation is extremely unfavorable. Given the dark side of job autonomy, it is necessary for managers to think about the degree of job autonomy for nurses and strengthen supervision over their work processes during the pandemic; however, reducing or removing the nurse's existing job autonomy is not recommended, and the loss could be greater than the gain.

7 | LIMITATIONS

The limitations of this study were as follows: first, the sample size of this study was relatively small and could not fully represent all Chinese nurses. Second, although the data were collected at two stages, it would be better to measure risk perception of COVID-19 and work–family conflict at two different times rather than at the same time. Third, personality traits such as conscientiousness, which may have a moderating effect on the mediating pathway, were not included in our model and should be considered in future research. Finally, the conclusion that job autonomy positively moderated the relationship between work–family conflict and job withdrawal against the background of the COVID-19 pandemic needs to be further tested in other populations and countries.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interest concerning the research, authorship and/or publication of this article.

ETHICS STATEMENT

The study protocol was approved by the Ethics Committee of Nanjing Tech University (approval no. 2020004).

DATA AVAILABILITY STATEMENT

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

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