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ORIGINAL RESEARCH

Factors Associated with Turnover Intention Among Healthcare Workers During the Coronavirus Disease 2019 (COVID-19) Pandemic in China

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Purpose: This study assessed the prevalence of turnover intention and explored associated factors on turnover intention among healthcare workers during the COVID-19 pandemic in China.

Methods: An institutional-based cross-sectional study was conducted from July to February 13th to 20th, 2020, in 31 provinces of mainland China. A total of 1403 healthcare workers were recruited. Hierarchical logistic regressions were used to identify potential factors associated with turnover intention among Chinese health care workers.

Results: The prevalence of turnover intention among healthcare workers was 10.1% during the COVID-19 pandemic in China. Results of hierarchical regression revealed that working in Grade II hospital (OR = 1.78), technician (OR = 0.30), daily working hours over 12 h (OR = 2.92), frequency of mask replacement between 4 and 8 h (OR = 3.51), refuse volunteer to frontline (OR = 1.68), patient–physician relation unchanged (OR = 1.73), depression (OR = 2.21) and lower social support (OR = 1.75) were significantly associated with the risk of turnover intention. Additionally, healthcare worker's psychosocial syndemic (OR = 6.13) was positively associated with turnover intention.

Conclusion: Turnover intention is relatively prevalent among healthcare workers during the COVID-19 pandemic in China, and the factors contributing to turnover intention were complex and varied. Early screening of high-risk groups for turnover intention among healthcare workers and more psychosocial health care and physical protection are needed during the COVID-19 pandemic in China.

Keywords: COVID-19, healthcare workers, turnover intention, China

Introduction

In December 2019, a novel coronavirus, named Coronavirus disease 2019 (COVID-19) with unknown origin broke out in Wuhan, the capital city of Hubei province in China.[1] Due to its widespread infectiousness and high rate of infection, it has posed a major threat to national public health. According to Nature, COVID-19 has met the necessary epidemiological criteria 2 for declaring a pandemic.[2] Globally, as of July 2021, there have been more than 180 million people confirmed cases of COVID-19, including more than 4 million deaths.[3] Besides, the disease can cause blood-stream, urinary infections and other secondary infections, which makes the prevention and treatment of various regions are facing a huge burden.[4]

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COVID-19 pandemic is an unprecedented challenge for the world. Healthcare workers, the main force in the fight against the pandemic, are at greater risk than others.[5] A recent systematic review indicated the Infection rates among healthcare workers were 10.1%,[6] while Spain reported 20.4%[7] of confirmed COVID-19 cases were HCW, which suggested that healthcare workers are more likely to be infected with COVID-19 than non-healthcare workers.[6,8] A sense of frustration and helplessness occurred in healthcare professionals due to the sudden role reversal from a healthcare provider to the COVID-19 confirmed or suspected patient potentially.[9] Studies have found that during the COVID-19 pandemic, healthcare workers are under both physical and mental stress,[10–12] from 2.2% to 14.5% of health care workers suffered from severe stress, anxiety and depression.[13] Similarly, during the SARS period, the incidence of mental problems among healthcare workers increased significantly.[14] The negative data reported by social media may erode public trust and aggravate healthcare worker's psychological pressure.[15,16] Healthcare workers work in an environment of high intensity, high pressure and full of stress, which makes them more prone to fatigue and produces psychological disorders than the general population, and even serious turnover intention.[11,15]

Turnover intention refers to the probability that an employee voluntarily leaves his or her job in the period ahead[17] and was considered to be the strongest predictor of actual leaving or actual turnover among healthcare personnel.[18] The high rate of turnover intention in healthcare workers has become an obstacle in the development of the healthcare system, especially during COVID-19 period.[19] In normal times, 55.2% of Iraqi doctors,[20] 35.5% nurses in Italy[21] and 30.5% doctors in South Korea[22] reported intend to leave their jobs due to working and security conditions,[20] poor work environment[21] and perceived threats.[22] During the pandemic, multiple studies showed that 76.9%[23] and 52%[24] of healthcare workers had low willingness to work due to psychosocial pressure,[23] confidence in workplace safety.[24] This is consistent with previous findings that turnover intentions of healthcare workers during COVID-19 were higher than turnover before COVID-19.[25] Moreover, long working hours,[26] nurses,[27] income change,[28] and lack of proper protective equipment[29] can also lead to healthcare worker's turnover intention during COVID-19 period. Physician turnover can lead to unsatisfactory patient expectations and lower patient satisfaction, thus significantly affecting the quality of medical care and facility management.[30] To ensure the stability of the physician team during COVID-19 period,[19] measures to prevent turnover are necessary.[31]

COVID-19 and the turnover intention of healthcare workers have become major challenges, placing a heavy burden on society.[32] It is of great significance to understand the relation between COVID-19 and turnover intention. Therefore, the purpose of this study is to analyze the current situation and influencing factors of healthcare worker's turnover intention during COVID-19 pandemic in China, to provide an objective basis for preventing the turnover phenomenon in the context of COVID-19 and protecting the mental health of healthcare workers.

Methods

Procedure and Participants

This cross-sectional study was conducted among Chinese healthcare workers in 31 provinces, China, from February 13th to 20th, 2020. Face-to-face investigation during this emergency period is extremely challenging so that we carry out an anonymous online survey among Chinese healthcare workers. We used respondent-driven sampling to recruit samples. Three healthcare workers (also known as seeds) were selected from major tertiary healthcare institutions in Hubei, Jiangsu, and Shanxi provinces. The anonymous questionnaire was conducted by WeChat, one of the largest social applications in China. We excluded the incomplete or nonconforming questionnaires (answer time less than 100 seconds, the same IP address) for quality control. A total of 1435 healthcare workers were interviewed, while 2% of people declined to complete the questionnaire. Finally, 1403 participants completed the questionnaire. Eligible participants included doctors, nurses, CDC, pharmacists, technicians, etc.

This study received ethical approval from the Medical Ethics Committee of Xuzhou Medical University and it was conducted in accordance with the Declaration of Helsinki.

Measures

Turnover Intention

A single item (yes or no) was being used to measure turnover intention: "Have you considered leaving your current job within a month?"

Mental Health Problems

Mental health problems were assessed by using Chinese-language validated Depression Anxiety Stress Scale −21 (DASS-21).[33] The scale consists of three subscales, depression (eg, "I couldn't seem to experience any positive feeling

at all"), anxiety (eg, "I was aware of dryness of my mouth") and stress (eg, "I find it hard to wind down"). Each subscale was measured by seven items and rated on a 4-point Likert scale (0 = did not apply to me at all, 3 = applied to me very much or most of the time). The higher the score, the more negative the emotional states in the past week. The following cut-off scores are used for each subscale: depression (DASS-depression >9), anxiety (DASS-anxiety >7), and stress (DASS-stress >14).[34] In this study, Cronbach's α values of depression (0.861), anxiety (0.918) and stress subscales (0.912) were all acceptable.

Perceived Social Support

A 12-item perceived Social Support (PSS)[35] Scale was used to assess social support. The scale consists of three subscales, which Including support from families (eg, "My family really tries to help me"), friends (eg, "My friends really try to help me"), and significant others (eg, "There is a person who is around when I am in need") (four items per subscale). Each item was evaluated by a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). The total score of social support is the cumulative score of all subscales, with higher score indicating greater social support.

Covariates

Sociodemographic characteristics (age, gender, risk zone, education, organization, marital status, working at a designated hospital for COVID-19, job type, technical title, working time, and self-rated health), COVID-19 pandemic related factors (frequency of mask replacement, trained for COVID-19, time spent on COVID-19 news each day, volunteer to the frontline, concerned about income being affected by COVID-19, household transmission-related fears), Patient-physician related factors (discriminated against for nature of their job, medical workplace violence and patient–physician relations) and Psychosocial factors (depression, anxiety, pressure and social support) were considered in our study.

Statistical Analysis

All variables were treated as categorical variables which expressed as percentages. Bivariate logistic regression was performed to detect the potential risk factors associated with turnover intention. We also create a syndemic count variable by counting the number of psychosocial problems of each participant and allocating participants into different groups based on the number of their syndemic variables.

Hierarchical regression models were used for robustness checks by using the variables that were at least marginally significant ($p<0.05$) in the bivariate analysis. Model (1) consisted of only sociodemographic characteristics. Model (2) also included COVID-19 pandemic related factors. We combined patient-physician related factors in Model (3). Finally, we added psychosocial factors in Model (4). We documented the Nagelkerke's R^2 for each model to evaluate goodness of fit. All statistical tests 2 sides, evaluated as significant at the $p<0.05$ level. All statistical analysis were performed by using SPSS (version 23.0 for Windows; IBM SPSS Statistics, Armonk, NY, USA) software.

Results

Participant Sociodemographic Characteristics

The sociodemographic characteristics of the healthcare workers are summarized in Table 1. Of all the participants, the ages ranged from 20 to 60 years, with 82.1% of the participants being younger than 40 years old. The majority of respondents were females (68.4%), married (69.9%), doctor (60.2%), and worked in Grade III hospitals (72.7%). In addition, 58.4% of participants working in a designated hospital for COVID-19 and the majority (76.4%) of participants lived in middle-risk areas. Furthermore, half of participants were employed with a bachelor's degree or higher level of education (54.3%) and with an elementary professional title (43.3%).

Potential Factors Associated with Turnover Intention

In the bivariate analysis, five sociodemographic characteristics (age, organization, job type, daily working hours, self-rated health) were significant with turnover intention among healthcare workers ($p < 0.05$). The older-aged group (30–39 years of age) were 1.82 times more likely (OR = 1.82, 95% CI = 1.20–2.74) to have turnover intention compared with the younger aged group (20–29 years of age). Healthcare workers who worked in a Grade II hospital (OR = 2.13, 95% CI = 1.38–3.30) were predictive of greater vulnerability to turnover intention compared with those who worked in Grade III hospitals. Nurses (OR = 0.57, 95% CI = 0.36–0.91) and technicians (OR = 0.35, 95% CI = 0.12–0.96) demonstrated a substantial

Table 1 Sociodemographic Characteristics (n = 1403)

Characteristics	Frequency	Row %
Gender		
Male	444	31.6
Female	959	68.4
Age (years)		
20–29	446	31.8
30–39	706	50.3
40–49	182	13.0
50–59	69	4.9
Risk zone		
Low-risk area	192	13.7
Medium risk area	1072	76.4
High-risk area	139	9.9
Work at a designated hospital for COVID-19		
Yes	819	58.4
No	584	41.6
Organization		
Grade III hospital	1020	72.7
Grade II hospital	180	12.8
Basic medical institution	95	6.8
Infectious hospital	8	0.6
Others	100	7.1
Marital status		
Never married	403	28.7
Married	981	69.9
Divorced	17	1.2
Widowed	2	0.1
Education		
Junior college	98	7.0
Bachelor	762	54.3
Master	471	33.6
Doctor	72	5.1
Job type		
Doctor	845	60.2
Nurse	344	24.5
Technician	92	6.6
Pharmacist	18	1.3
CDC	13	0.9
Others	91	6.5
Technical title		
None	123	8.8
Elementary	608	43.3
Intermediate	459	32.7
Senior	213	15.2

decrease in turnover intention compared with doctors. In addition, participants with longer work hours (ORs = 2.10 and 6.65, respectively) or worse self-rated health (ORs = 1.78, 5.94 and 17.28, respectively) also at higher risk of turnover intention (Figure 1).

Replacing masks over 4 h (ORs = 5.31, 4.58, 6.67 and 7.32, respectively) and healthcare workers who refused volunteer to frontline (OR = 1.84, 95% CI = 1.29–2.62) were more likely to have turnover intention. Healthcare workers who were not trained for COVID-19 (OR = 2.61, 95% CI = 1.34–5.08), worried about household transmission (OR = 1.83, 95% CI = 0.99–3.37) and income change (OR = 1.49, 95% CI = 1.04–2.13) were also significantly associated with severe turnover intention (Figure 2).

Figure 3 shows that all patient-physician related factors were found to have a significant association with turnover intention. The patient–physician relation unchanged (OR = 1.78, 95% CI = 1.21–2.62) and worse group (OR = 3.53, 95% CI = 1.87–6.65) were more likely to have turnover intention compared with the better patient–physician relation group. Healthcare workers discriminated against for nature of their job (OR = 1.87, 95% CI = 1.25–2.79) and experienced medical workplace violence during the pandemic (OR = 3.14, 95% CI = 2.16–4.57) demonstrated a substantial increase in turnover intention.

The results from the bivariate analysis among psychosocial factors indicated that healthcare workers who perceived lower level of social support (ORs = 3.06 and 8.88, respectively). Healthcare workers with depressive symptoms (OR = 4.86, 95% CI = 3.30–7.18), anxiety (OR = 5.66, 95% CI =3.64–8.78) and stress (OR = 4.99, 95% CI = 3.31–7.53) were at higher risk of turnover intention (Figure 4).

Factors Associated with Turnover Intention in Hierarchical Regression

Table 2 presents the results from the hierarchical regression models. Model (1) showed that among healthcare workers, worked in a Grade II hospital (OR = 1.77, 95% CI = 1.10–2.86), working hours between 12 and 24 h (OR = 3.42, 95% CI = 1.80–6.51), and worse self-rated health (ORs = 1.66, 4.17, and 13.06, respectively) demonstrated a substantial increase in turnover intention. Additionally, technicians were less likely (OR = 0.34, 95% CI = 0.11–0.99) to have turnover intention compared with the doctor. Model (2) demonstrated that the frequency of each mask change is between 4 and 8 h (OR = 3.82, 95% CI = 1.15–12.71) or more than 24 h (OR = 4.03, 95% CI = 1.17–13.85), not trained for COVID-19 (OR = 2.44, 95% CI = 1.12–5.36) and not volunteered to a frontline job (OR = 1.89, 95% CI = 1.26–2.81) were significantly associated with increased odds of having a turnover

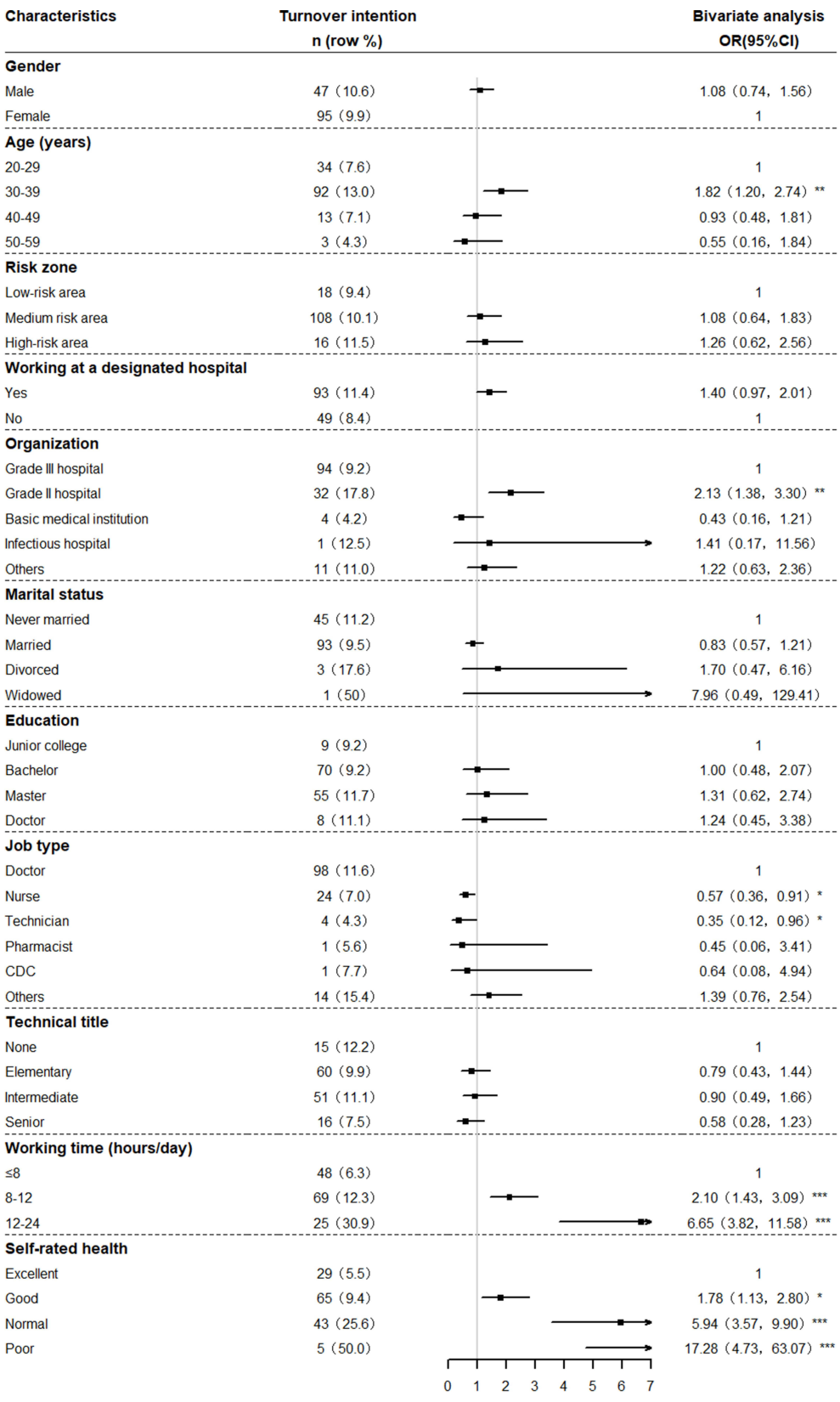

Figure 1 Sociodemographic characteristics by turnover intention (n = 1403).

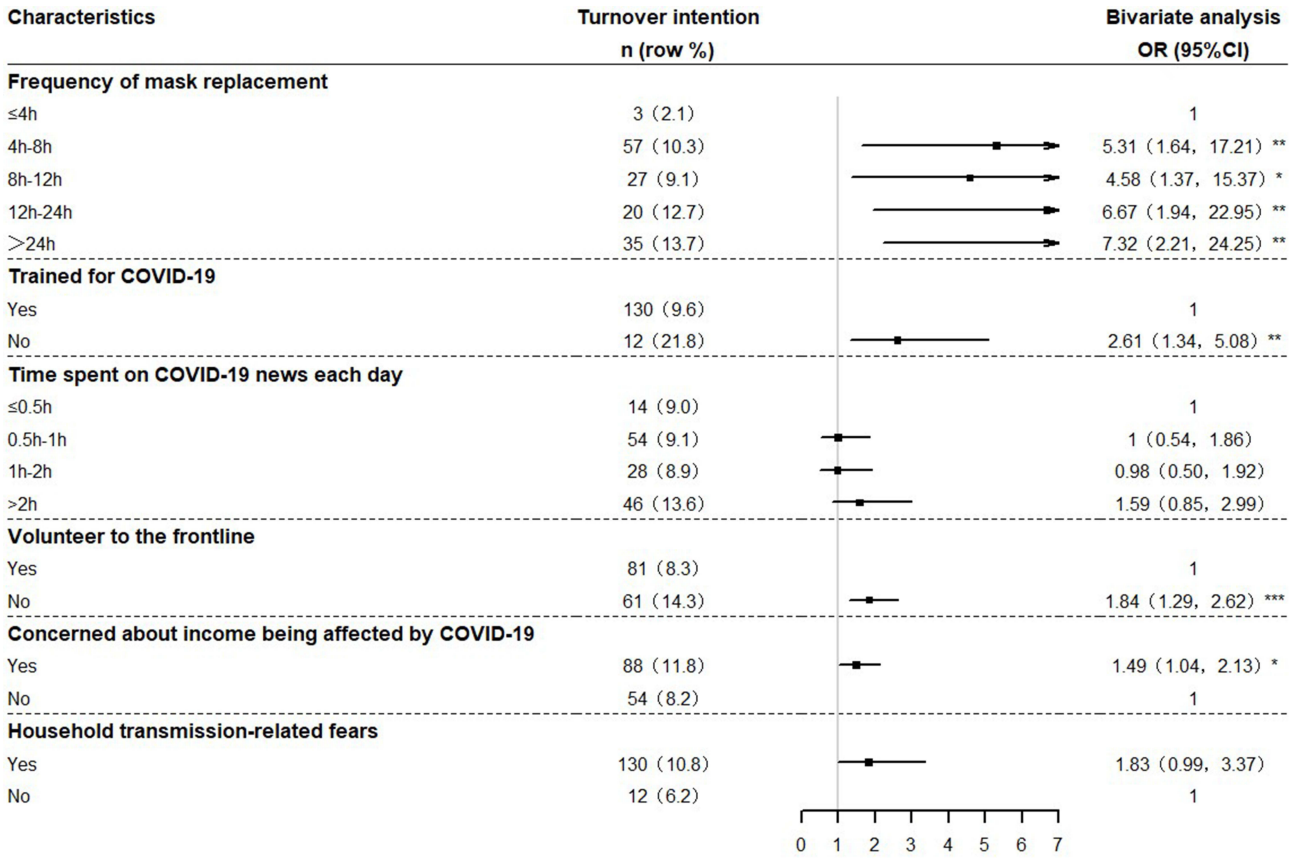

Figure 2 COVID-19 pandemic related factors by turnover intention (n = 1403).

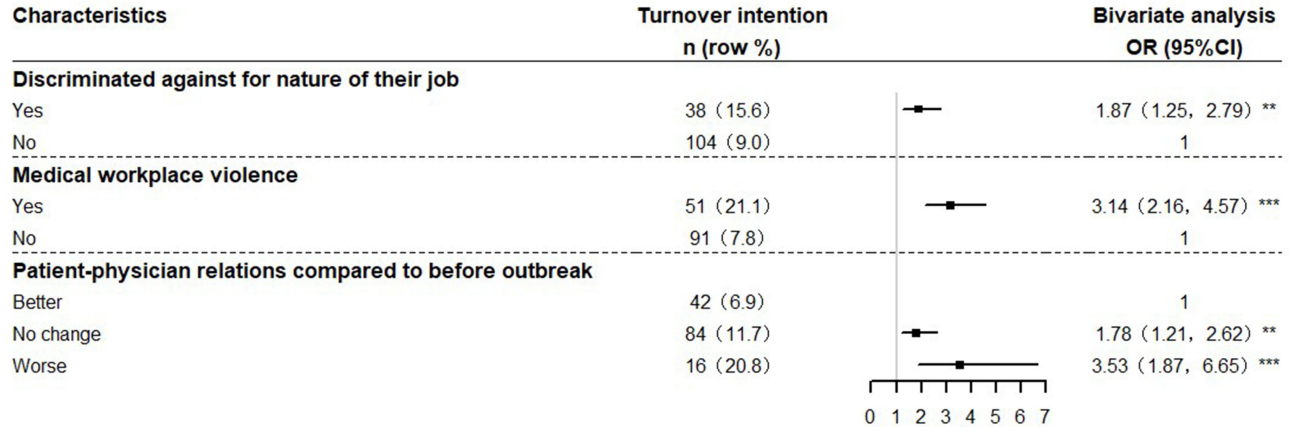

Figure 3 Patient-physician related factors by turnover intention (n = 1403).

intention. Model (3) showed that healthcare workers who experienced medical workplace violence during the pandemic (OR = 1.99, 95% CI = 1.27–3.09) and patient–physician relation unchanged (OR = 1.78, 95% CI = 1.15–2.68) demonstrated a substantial increase in turnover intention. In this model, technician and aaily working hours between 8 and 12 h were no longer significant. When Psychosocial factors were combined in Model (4), the effects of self-rated health, frequency of mask replacement over 24 h, trained for COVID-19 and medical workplace violence were no longer significant, and the medical technician (OR = 0.30, 95% CI = 0.09–0.93), high-level of depression (OR = 2.21, 95% CI =1.31–3.71) and mid-level of social support (OR = 1.75, 95%

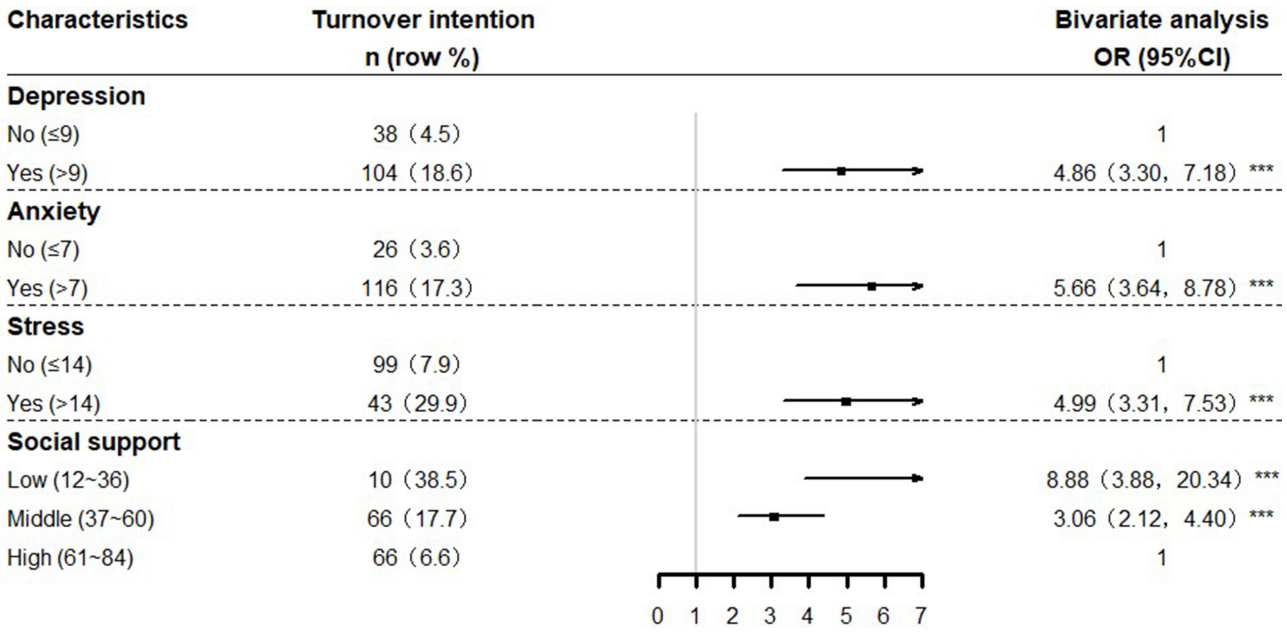

Figure 4 Psychosocial factors by turnover intention (n = 1403).

CI = 1.14–2.67) were significantly associated with lower or higher odds of having a turnover intention. However, the effects of several factors in the previous model (self-rated health, frequency of mask replacement over 24 h, trained for COVID-19 and medical workplace violence) were no longer significant, Model (4) including all candidate variables, and the rose of Nagelkerke's R^2 from 0.156 to 0.288, indicating a relatively good fit for the model.

Syndemic Effect of Psychosocial Variables

Final syndemic analysis results are presented in Figure 5. 77.5% of participants suffered from a psychosocial syndemic (having two or more psychosocial problems). It was found that a psychosocial syndemic had a magnifying effect on turnover intention (OR = 6.13, 95% CI 4.07–9.24). When the number of syndemic factors was divided into the non-syndemic (having no more than one psychosocial health problems), low-level syndemic (having two or three psychosocial health problems) and high-level syndemic (having four or five psychosocial health problems). We found that low-level syndemic group and high-level syndemic group were more likely to have turnover intention than the non-syndemic group (OR = 5.11, 95% CI 3.34–7.83; OR = 13.82, 95% CI 7.78–24.53, respectively).

Discussion

Deadly pandemics and large-scale pandemics have challenged human existence throughout history.[36] Healthcare workers plays a central role in confronting with a COVID-19 pandemic. Human resources are the most important asset in the health system and are essential to improve the quality of health care services.[37] In this survey, we found that 10.1% of the healthcare workers have turnover intention. The turnover intention of healthcare workers in the context of COVID-19 is consistent with the research results of South Korea (8%),[22] but significantly lower than that of healthcare workers in the ordinary period.[38,39] This is because our survey was conducted at the beginning of the pandemic, so the turnover intention of healthcare workers in this period was lower than a long-term turnover intention in normal period. Our findings are helpful to better understand the factors associated with healthcare worker's turnover intention during COVID-19 period thus contributing to the protection of the loss of medical human resources, which is the main force against COVID-19.

Sociodemographic Characteristics on Turnover Intention

Our results revealed that Grade II hospitals are 1.78 times more likely to have turnover intention than Grade III hospital. Recent studies have shown that the medical

Table 2 Association Between Sociodemographic Characteristics and COVID-19 Pandemic-Related Factors, Patient-Physician Related Factors, and Psychosocial Factors (Presented as Odds Ratios (OR)) (n = 1403)

Characteristics	Model (1)	Model (2)	Model (3)	Model (4)
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Sociodemographic				
Age (years)				
20–29	**Reference**			
30–39	1.38 (0.88,2.16)	1.41 (0.89,2.23)	1.48 (0.93,2.37)	1.46 (0.90,2.37)
40–49	0.72 (0.36,1.47)	0.76 (0.37,1.57)	0.84 (0.40,1.75)	0.79 (0.37,1.70)
50–59	0.39 (0.11,1.37)	0.50 (0.14,1.76)	0.63 (0.18,2.23)	0.62 (0.17,2.25)
Organization				
Grade III hospital	**Reference**			
Grade II hospital	1.77 (1.10,2.86) *	1.93 (1.19,3.15) **	1.87 (1.14,3.08) *	1.78 (1.06,2.97) *
Basic medical institution	0.36 (0.12,1.06)	0.42 (0.14,1.24)	0.36 (0.12,1.08)	0.35 (0.11,1.06)
Infectious hospital	1.64 (0.18,15.07)	1.48 (0.14,16.2)	2.03 (0.18,22.9)	1.69 (0.13,21.27)
Others	1.00 (0.46,2.15)	0.97 (0.44,2.16)	0.85 (0.38,1.90)	0.89 (0.39,2.05)
Job type				
Doctor	**Reference**			
Nurse	0.67 (0.41,1.11)	0.75 (0.45,1.27)	0.83 (0.49,1.40)	0.81 (0.47,1.39)
Technician	0.34 (0.11,0.99) *	0.32 (0.11,0.97) *	0.34 (0.11,1.03)	0.30 (0.09,0.93) *
Pharmacist	0.44 (0.05,3.58)	0.37 (0.04,3.03)	0.33 (0.04,2.83)	0.36 (0.04,3.07)
CDC	0.66 (0.07,5.94)	0.55 (0.06,5.37)	0.73 (0.07,7.54)	0.49 (0.04,5.63)
Others	1.47 (0.71,3.03)	1.14 (0.53,2.45)	1.4 (0.64,3.05)	1.24 (0.55,2.80)
Working time (hours/day)				
≤8	**Reference**			
8–12	1.50 (0.99,2.27)	1.57 (1.02,2.40) *	1.53 (0.99,2.37)	1.38 (0.88,2.15)
12–24	3.42 (1.80,6.51) ***	4.32 (2.21,8.45) ***	3.71 (1.85,7.43) ***	2.92 (1.41,6.04) **
Self-rated health				
Excellent	**Reference**			
Good	1.66 (1.04,2.65) *	1.61 (1.00,2.60) *	1.53 (0.95,2.48)	1.22 (0.73,2.02)
General	4.17 (2.41,7.24) ***	3.70 (2.10,6.51) ***	2.93 (1.63,5.24) ***	1.75 (0.95,3.25)
Poor	13.06 (3.09,55.12) ***	10.97 (2.61,46) **	7.40 (1.59,34.50) *	4.86 (0.95,24.84)
Pandemic related factors				
Frequency of mask replacement				
≤4h		**Reference**		
4–8h		3.82 (1.15,12.71) *	3.99 (1.18,13.47) *	3.51 (1.03,12.03) *
8–12h		2.41 (0.69,8.42)	2.59 (0.73,9.19)	2.27 (0.63,8.10)
12–24h		3.34 (0.92,12.15)	3.52 (0.95,13.01)	2.80 (0.75,10.52)
>24h		4.03 (1.17,13.85) *	4.40 (1.26,15.33) *	3.35 (0.95,11.82)
Trained for COVID-19				
Yes		**Reference**		
No		2.44 (1.12,5.36) *	2.43 (1.09,5.41) *	2.25 (0.96,5.25)
Volunteer to the frontline				
Yes		**Reference**		
No		1.89 (1.26,2.81) **	1.84 (1.23,2.76) **	1.68 (1.10,2.56) *
Concerned about income being affected by COVID-19				
Yes		1.46 (0.99,2.17)	1.36 (0.91,2.03)	1.23 (0.81,1.86)
No		**Reference**		
Patient-physician related factors				
Discriminated against for nature of their job				
Yes			1.21 (0.76,1.94)	0.93 (0.57,1.52)
No			**Reference**	

(*Continued*)

Table 2 (Continued).

Characteristics	Model (1)	Model (2)	Model (3)	Model (4)
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Medical workplace violence				
Yes			1.99 (1.27,3.09) **	1.51 (0.95,2.39)
No			**Reference**	
Patient-physician relations compared to before				
Better			**Reference**	
No change			1.76 (1.15,2.68) **	1.73 (1.12,2.67) *
Worse			1.80 (0.85,3.83)	1.59 (0.73,3.48)
Social psychological factors				
Depression				
No				**Reference**
Yes				2.21 (1.31,3.73) **
Anxiety				
No				**Reference**
Yes				1.73 (0.97,3.08)
Stress				
No				**Reference**
Yes				1.39 (0.82,2.33)
Social support				
Low				3.45 (1.24,9.62) **
Middle				1.75 (1.14,2.67) **
High				**Reference**
Nagelkerke's R2	0.156	0.197	0.223	0.288

Notes: Model (1): Sociodemographic. Model (2): Sociodemographic + COVID-19 Pandemic related factors. Model (3): Sociodemographic + COVID-19 Pandemic related factors + Patient-physician related factors. Model (4): Sociodemographic + COVID-19 Pandemic related factors + Patient-physician related factors + Psychosocial factors. *P<0.05. **P<0.01. ***P<0.001.

resources of Grade III hospitals are more abundant, and human resources and equipment in Grade II hospitals are more urgent than those in Grade III hospitals.[40] We speculate that during the COVID-19 pandemic, with a large number of patients, the healthcare workers in Grade II hospitals are under great pressure due to the shortage of staff or medical resources, which leads to the willingness to leave. Similarly, the lack of human resources will also lead to longer working hours. Netherlands, Germany, and Belgium studies have shown that working-time-related factors significantly affect intention to stay.[41] During the pandemic, the workload of healthcare workers working overtime can not only increase the willingness of doctors to leave their existing professions but also cause the increase in unnecessary management costs, endanger the continuity of patient care, and even threaten the function of the healthcare system.

Besides, different job types can also account for the difference in turnover intention. Among participants, doctors are more likely to have turnover intention than technicians. Healthcare workers are front-line soldiers in the fight against the pandemic. They are faced with isolation, high transmission risk and long duty,[42,43] which also makes the higher incidence of mental illness and job burnout for clinicians.[44] Most technicians work in the second line, which reduces the chance of having direct contact with patients and is less likely to be infected. Their mental health problems are much lower than that of clinicians, and the turnover intention is relatively less.[45,46]

COVID-19 Pandemic Related Factors on Turnover Intention

Participants who change their masks for longer periods of time are more likely to have turnover intention. We assumed that a shortage of personal protective equipment (PPE) may explain the increased turnover intention. Severe shortage of PPE is mainly due to high demand and abuse of PEE, causing a threat to the healthcare workers lives.[47] A large number of healthcare workers have died of COVID-19 due to lack of PPE,[48–50] while others

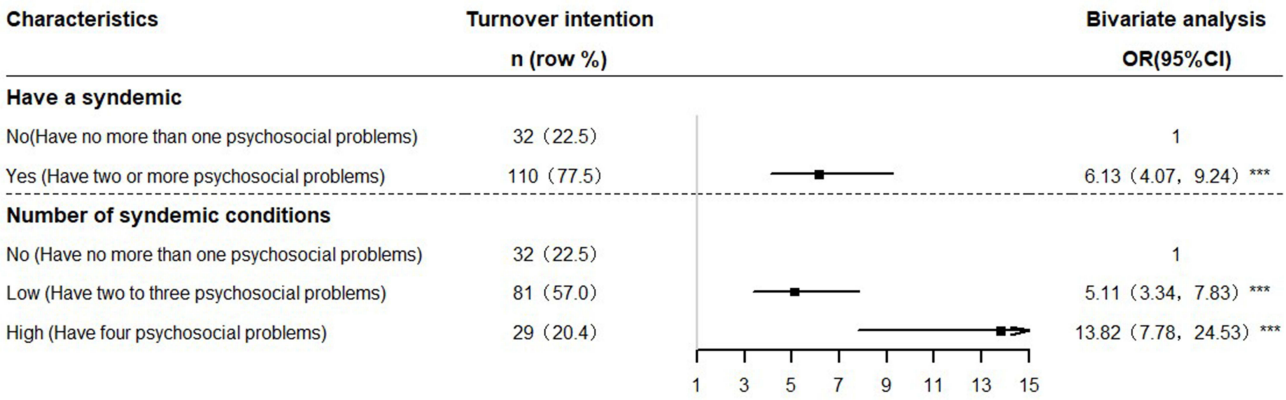

Figure 5 Associations between the number of syndemic conditions and turnover intention among healthcare workers.

continue to struggle with the pandemic.[51] Many doctors are performing their duty without any PPE and are at high risk of becoming infected,[52] leading to increased willingness to leave their jobs.[53] Our study found that people who did not volunteer to front-line were more likely to have a willingness to have turnover intention. Volunteer service can enable participants to enrich their social life, gain a sense of mental health, and benefit others.[54] Those people who did not volunteer to front-line work have a strong sense of self-protection and lack a certain dedication spirit. It is necessary to strengthen professional responsibility education.

Patient-Physician Related Factors on Turnover Intention

Patient–physician relation is a complex psychosocial interplay of vulnerability, trust, and authority in a professional setting.[55] Psychologically, people feel unsafe, uneasy, and anxious when the living environment changes[56]. Close-minded attitudes and rumors can also flourish when the cause of a pandemic is not clear.[57] Anxiety, nervousness, fear and other psychological states will lead to a decrease in patients' trust in healthcare workers, leading to workplace violence against doctors in the workplace.[58] There is an urgent need to improve the patient–physician relations to reduce the occurrence of workplace violence and thus reduce the turnover intention of healthcare workers.[59]

Psychosocial Factors on Turnover Intention

In addition, we found that among the psychosocial factors, depression, and a low level of social support were associated with an increased incidence of turnover intention. Healthcare workers with turnover intention were frequently reported with significant depressive symptoms.[60,61] Previous studies have established the relations between psychological status and turnover intention, including depression, fear, anxiety, and perceived threat.[62–64] The reasons for the psychological problems of healthcare workers during COVID-19 are complex: high risk of infection, high intensity of work, isolation from family members, and lack of protective equipment may all lead to depression of healthcare workers.[65] However, the effects of anxiety and stress were insignificant in the multivariate analysis, and we speculated that this was because anxiety and stress acted through depression, and the effects of anxiety and stress were offset by depression. Therefore, it is necessary to take measures to prevent the depression,[66] thus reducing turnover intention. Unfortunately, the rapid human-to-human transmission of COVID-19 prevents traditional face-to-face psychological interventions.[67] Increased and more widely available services, such as telephone hotlines, online counseling, and regular psychological counseling for psychosocial problems among healthcare workers, are desperately needed. Accordingly, lack of adequate social support is also identified as a hazard factor for turnover intention. A high level of social support can effectively reduce anxiety and stress.[68–70] 29–35% of hospital staff suffered from high emotional disturbance during the SARS pandemic.[71] Furthermore, some studies show that social support also plays a critical role in the psychological regulation of depression patients, and there is a strong negative correlation between the high level of social support and depressive disorder.[72,73] Thus, social support may have an

indirect and significant correlations with turnover intention through mental health status.[74] A high level of social support can reduce health care workers' turnover intention by alleviate psychological problems.

Limitations

Several limitations should be noted in our study. First, our study data may be biased due to the entire self-report data. Secondly, it is difficult to explain the causal relationship between risk factors and turnover intention because of the cross-sectional study design. Third, compared with the large number of healthcare workers at the frontlines fighting COVID-19, this online survey might not be representative of Chinese medical personnel as some healthcare workers affected most by the outbreak were missed by the study.

Conclusions

In conclusion, turnover intention is relatively prevalent among healthcare workers during the COVID-19 pandemic period in China, but is lower than usual. Findings indicated that the factors contributing to turnover intention including worked in a Grade II hospital, doctor, working time over 12 h, frequency of mask replacement less than 4 h a time, patient–physician relations unchanged and mid-level social support. Therefore, comprehensive intervention is needed from psychological, behavioral and social aspects, such as relieving work stress, providing psychological counseling, providing adequate social support and protective equipment.

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Disclosure

The authors declare no conflicts of interest.

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