

Emotional Exhaustion and Emotional Contagion: Navigating Turnover Intention of Healthcare Personnel

Yisong Feng¹, Jing Cui²

¹College of Public Health, Chongqing Medical University, Chongqing, People's Republic of China; ²Human Resources Office, Chongqing Medical University, Chongqing, People's Republic of China

Correspondence: Jing Cui, Human Resources Office, Chongqing Medical University, 1 Yixueyuan Road, Yuzhong District, Chongqing, 400016, People's Republic of China, Tel +86-13708360542, Fax +862368480072, Email cuijing@cqmu.edu.cn

Purpose: This study aimed to examine the role of personal emotions and emotional contagion within organizations on the behavior and attitudes of healthcare personnel. This study is expected to provide a theoretical foundation for reducing resignation behaviors and improving healthcare quality.

Materials and Methods: This study adopted a quantitative research method with a cross-sectional survey through an online questionnaire. The bootstrap method with 5000 iterations was used to validate the role of variables within a 95% confidence interval. SPSS 26.0 and Model 5 in Process 3.4 for SPSS were used for the data analysis.

Results: This research involved 459 healthcare personnel, whose levels of role overload (3.821 ± 0.925), emotional exhaustion (3.436 ± 1.189), and turnover emotional contagion (3.110 ± 1.099) were notably high. Role overload was positively related to turnover intention, with emotional exhaustion as a mediator. Notably, turnover emotional contagion exerted a positive moderating effect.

Conclusion: This study emphasizes the adverse effects of emotional exhaustion and turnover emotional contagion in the Chinese context, offering practical recommendations for medical organizational managers to navigate turnover intention among healthcare personnel. This study suggests paying attention to the emotional state of healthcare personnel and providing adequate support resources. Managers should routinely assess and track turnover emotional contagion within the organization, fostering a positive emotional atmosphere.

Keywords: emotional contagion, emotional exhaustion, role overload, turnover intention, job demands-resources model

Introduction

The global shortage of healthcare workers is approximately 7.2 million, a shortfall that may continue to escalate in the forthcoming decades.¹ High employee turnover is a primary factor contributing to this scarcity of healthcare workforce.² There is a prevalent trend of substantial attrition among healthcare labor in China.^{3,4} However, when the intention to leave accumulates to a certain degree, it translates into practical resignation.⁵ Recent studies have indicated that approximately 28% to 49% of Chinese healthcare personnel exhibit varying degrees of turnover intention (TI).^{6,7} It is noteworthy that employee departures not only amplify the costs incurred in re-recruitment and nurturing talent within an organization—for instance, the annual departure costs for a medical institution amount to approximately \$17-29 million⁸—but also result in a deterioration of healthcare service quality.⁹ Above all, a better understanding of the factors influencing healthcare personnel's turnover intention holds practical significance in reducing resignation behaviors and improving healthcare quality.

High turnover intention represents only a fraction of healthcare personnel's characteristics. Role overload also poses a significant challenge within this population.¹⁰ Role overload refers to the sense employees experience when they perceive workload and expectations exceeding their available time and capacity, resulting in a conflict of roles.¹¹ The extensive workload imposed on healthcare personnel frequently exceeds what they can reasonably accomplish

within their personal time constraints and capabilities. Although previous research has explored the relationship between role overload and turnover intention, the conclusions vary. Recent studies have found a positive correlation between employees' role overload and turnover intention.¹² However, some studies have shown no significant positive correlation between the two,^{13,14} and that job stress and satisfaction are not mediators.¹⁵ In contrast, a complete mediation effect was observed when variables such as job satisfaction¹⁶ and burnout¹⁷ were introduced as mediators. However, organizational studies have focused more on these attitudes, behaviors, and cognition, often overlooking the role of emotions.¹⁸

Role overload is also recognized as a stressor that depletes personal resources.^{15,19} In studies on work-related stress, the role of negative emotions should not be disregarded.²⁰ Emotional exhaustion (EE) is a form of negative emotion.²¹ Similarly, turnover intention is a negative attitude,²² and turnover emotional contagion (TEC) is also a form of spreading negative emotions.²³ Understanding the impact of independent variables on dependent variables might only be achievable by considering mediating factors in certain circumstances.²⁴ Furthermore, mechanisms and boundary conditions, such as moderating variables, are crucial for comprehensively understanding a potential outcome variable.¹⁹ Therefore, we considered the mediating and moderating role of emotions, which has been neglected in organizational behavior and which the human resource management literature needs to explore in work life.²⁵

Based on the research gap mentioned above, there are contradictory conclusions regarding the mediating effect of emotional exhaustion and uncertainty regarding the moderating role of collective emotional contagion. Therefore, this study aimed to investigate the relationship between role overload and turnover intention among healthcare personnel in China and to examine the role of emotional exhaustion and contagion. This study also seeks to provide new insights into the inconsistency in existing research conclusions. We seek to address the following three research questions: (1) Is role overload among healthcare personnel directly related to individual turnover intention? (2) Does emotional exhaustion mediate the relationship between role overload and turnover intention? (3) Does turnover emotional contagion moderate the relationship between role overload and turnover intention?

Theoretical Background and Research Hypotheses

Role Overload, Emotional Exhaustion, and Turnover Intention

Emotional exhaustion refers to the complete depletion of one's emotional resources,²⁶ manifesting as a psychological response to enduring stress.²⁷ Essentially, it signifies an emotional experience lacking the internal resources to cope with work demands.²⁸ Overloading nurses with tasks triggers emotional exhaustion and job dissatisfaction.^{29,30} Moreover, emotional exhaustion intensifies when nurses lack the necessary job resources.³¹ According to job demands-resources (JD-R) model, job demands are associated with burnout,³² and role overload is considered a job demand.³³ Therefore, emotional exhaustion arises when individuals perceive their workload and responsibilities exceed their capacity. Coping with role overload necessitates high energy resources.³³ According to the conservation of resources (COR) theory, emotional exhaustion is more likely to occur when job demands surpass an employee's abilities and resources.³⁴ For instance, work and interpersonal demands were positively related to physicians' emotional exhaustion.³⁵ Specifically, employees must invest more resources (time and energy) to meet job demands while protecting personal resources from exhaustion, which further exacerbates emotional exhaustion. Consequently, we formulate research hypothesis 1: Role overload is positively related to emotional exhaustion.

In addition to negative emotions, role overload as a job demand is associated with other adverse labor market outcomes. Employees dealing with high job demands, such as excessive workload, often experience burnout, making them more likely to leave the company.³⁶ The JD-R model suggests that lacking adequate work resources to meet job demands leads to a desire to detach from work.³² Namely, employees might contemplate leaving or seeking a change in their positions when confronted with a significant workload. Besides, role overload generates stress and a sense of detachment.¹⁵ When dealing with stress, coping mechanisms can be problem-focused (taking proactive actions to address the source of stress) or emotion-focused (seeking to improve the emotional impact of stress).³⁷ In most cases, individuals initially resort to behavioral methods to cope with the emotions they experience,³⁸ meaning escaping reality or withdrawing from stressful situations. Hence, we formulate research hypothesis 2: Role overload is positively related to turnover intention.

Mediating Role of Emotional Exhaustion

Emotional exhaustion reduces quality of working life,³⁹ work engagement, and organizational commitment.^{40,41} The low levels of these factors correlate with heightened turnover intention. Notably, emotional exhaustion itself stems from energy and emotional resource depletion due to excessive demands,⁴² resulting in additional resource loss. Due to this resource depletion and emotional exhaustion, employees cannot perform effectively in the workplace and exhibit intentions to leave.⁴³ Individuals experiencing emotional exhaustion lack sufficient energy to perform tasks correctly, reducing intrinsic job satisfaction.⁴⁴ Consequently, they might seek to leave the organization to cope with this energy loss.⁴⁵ Therefore, we formulate research hypothesis 3: Emotional exhaustion is positively related to turnover intention.

Emotional exhaustion is a central mediator in the relationship between role stress factors and work outcome, including intention to leave.⁴⁶ Job demands exacerbate emotional exhaustion, leading to adverse employee outcomes.⁴⁷ Additionally, according to affective events theory (AET) employees react to discrete “affective events” in the work environment, which trigger emotional responses (or feelings), subsequently influencing attitudes and behavioral outcomes.²⁵ We believe that role overload contributes to increased emotional exhaustion responses, culminating in adverse outcomes associated with intention to leave. Therefore, we formulate research hypothesis 4: Emotional exhaustion mediates the relationship between role overload and turnover intention.

Moderating Role of Turnover Emotional Contagion

Turnover contagion refers to the spread of behaviors related to resignation among employees, encompassing thoughts and feelings associated with leaving.⁴⁸ Regarding profession, doctors are more susceptible to the influence of negative emotional contagion than seafarers.⁴⁹ Culturally, negative emotional contagion spreads faster in collectivist cultures and has a more significant impact.²³ The spread of negative emotions among employees can create unfavorable evaluations and attitudes toward the current organization. Specifically, when employees who have already resigned or are considering leave actively express or have their reasons for leaving understood by colleagues, this can contagiously impact coworkers, resulting in adverse effects.⁵⁰ Besides, actual departure actions by colleagues increase the probability of other employees leaving.⁵¹ Pre-quitting behaviors, thoughts and feelings about leaving have comparable roles.^{48,52} Additionally, due to empathy and a sense of belonging, individuals unconsciously tend to align with perceived emotions.⁵³

Contagion of negative emotions is considered a work requirement and can adversely affect burnout and exhaustion.⁵⁴ According to the JD-R model, work requirements may interact and accumulate effects on employee well-being.⁵⁵ For instance, role overload can exacerbate the impact of other job demands on turnover intention.⁵⁶ Role overload can create negative emotions.⁵⁷ Therefore, the interaction between role overload and turnover emotional contagion (both job demands) may be associated with increased turnover intention. Job resources such as organizational support and supervisor autonomy support can buffer the adverse effects of role overload on employees.^{58,59} Conversely, job demands (such as turnover emotional contagion) may intensify the adverse effects of role overload on employees. Hence, we formulate research hypothesis 5: Turnover emotional contagion moderates the relationship between role overload and turnover intention.

Based on the above literature discussion, we present a conceptual model of path relationships, see Figure 1.

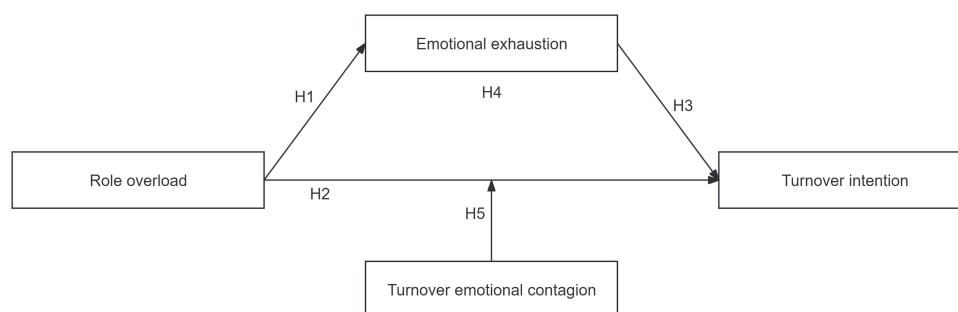


Figure 1 Conceptual model.

Abbreviations: H1, hypothesis 1; H2, hypothesis 2; H3, hypothesis 3; H4, hypothesis 4; H5, hypothesis 5.

Materials and Methods

Participants and Procedure

This study employed a snowball sampling method and conducted surveys through online questionnaires. We distributed the questionnaire through Email and WeChat, providing a Quick Response Code or link for access. Respondents provided informed consent by selecting “Voluntarily participation in this survey” online. We explicitly stated that all provided information would be used solely for scientific research, and any identifiers would be removed. The study was approved by the Ethics Committee of Chongqing Medical University (record number: 2020019).

This study included healthcare personnel employed at their current workplace for at least one month. According to the indicators provided by the National Bureau of Statistics of China, healthcare personnel include all employees engaged in healthcare institutions, such as hospitals, healthcare institutions at the grass-root level, specialized public health institutions, and other healthcare institutions. This personnel includes health technicians, village doctors and assistants, other technicians, administrators, and logistics technicians.⁶⁰

The survey was conducted from November 1, 2022, to September 30, 2023. Respondents were asked about their gender (male/female) in the survey. Given the predominant recognition of binary gender in the Chinese cultural context, other gender identities were not taken into account. Four hundred sixty-nine questionnaires meeting the inclusion criteria were collected. Ten invalid questionnaires were excluded due to homogeneous responses and other issues. Ultimately, 459 valid questionnaires were used for analysis.

Measures

Turnover Intention

The four-item turnover intention scale was employed to measure respondents' intention to leave (such as “I would prefer another more ideal job than the one I now work in”).⁶¹ This scale is unidimensional, with higher scores indicating a greater intention to leave among respondents. In this study, the Cronbach's alpha value for the scale was calculated as 0.845.

Role Overload

The Chinese version of the role overload scale was utilized.⁶² The scale comprises three measurement items: “There are too many things I need to do at work”, “My superiors expect too much from me to accomplish”, and “My workload is too much for me to handle alone”. In this survey, the Cronbach's alpha value for the scale was calculated as 0.866, indicating good internal consistency.

Emotional Exhaustion

A three-item scale was utilized to measure respondents' emotional exhaustion (such as “I feel emotionally drained from my work”).⁶³ This scale is unidimensional, and in this study, the Cronbach's alpha value for the scale was calculated as 0.917.

Turnover Emotional Contagion

The Chinese version of the turnover emotional contagion scale was employed, and the original scale's Cronbach's alpha value was greater than 0.7.⁵⁰ The scale comprises three measurement items: “If I resign, I will share my thoughts with my former colleagues”, “If my current colleagues resign, I would actively seek to understand their thoughts about resigning”, and “If my current colleagues resign, I would be influenced by their resignation”. In this study, the Cronbach's alpha value for the scale was calculated as 0.775, indicating satisfactory internal consistency.

All scales in this survey utilized a 5-point Likert scale (1=completely disagree, 5=completely agree). Furthermore, all scales used in this research were validated Chinese versions of Chinese literature.

Control Variables

Demographic factors influence the variables considered in this study. Male and female managers experience varying degrees of emotional exhaustion, potentially requiring different strategies to cope with work pressure.⁶⁴ Gender shows significant correlations with specific dimensions of emotional contagion.⁵⁴ Age and years in the healthcare industry

exhibit significant statistical differences in turnover intention.⁶⁵ Similarly, physicians' education, income levels, and tenure differ in turnover intention.⁶ Consequently, gender, age, education, income, and tenure were treated as control variables in the analysis to bolster the internal validity of this study.

Statistical Analysis

SPSS 26.0 and Model 5 in Process 3.4 for SPSS were used for data analysis. Mean and standard deviation (SD) were used to describe continuous variables. Pearson correlation analysis was used to assess the direct correlation between variables. Skewness and kurtosis coefficients were employed to assess the normality of the variables. The bootstrap method with 5000 iterations was employed to validate the mediating effect of emotional exhaustion and the moderating effect of turnover emotional contagion within a 95% confidence interval. Furthermore, Harman's single-factor test was utilized to examine common method bias in the survey data. The significance level was set at $\alpha=0.05$ for all tests and analyses.

Results

Descriptive Statistical Analysis

The study included 459 participants, comprising 243 males and 216 females. The average age was approximately 35 years old ($SD=7.656$). Regarding educational attainment, 12.42% had education up to or below the associate degree level, 42.70% possessed a bachelor's degree, 18.74% held a master's degree, and 26.14% had a doctoral degree. In this survey, most individuals reported income levels between 6000–9999 yuan (29.85%) and 10,000–14,999 yuan (28.32%). Only a tiny fraction (2.18%) reported an income exceeding 15,000 yuan. Employees with less than five years of tenure constituted 37.04%, while those with 5 to 9 years of tenure accounted for 26.80%, 10 to 14 years of tenure constituted 16.99%, and those over 15 years of tenure comprised 19.17% of the sample. Moreover, 34.64% of the participants were doctors, 25.71% were nurses, 23.31% were medical technicians, and 16.34% were others.

Correlation Analysis

The absolute values of skewness coefficients were within 2, and the absolute values of the kurtosis coefficients were within 7, indicating that the data approximated a normal distribution.⁶⁶ Therefore, based on the results in Table 1, it could be inferred that all variables follow an approximately normal distribution.

Table 1 Mean, Standard Deviations, Skewness, and Kurtosis of Variables

Variables	Mean	SD	Skewness	Kurtosis
TI	2.418	1.009	0.585	−0.198
RO	3.821	0.925	−0.820	0.110
EE	3.436	1.189	−0.481	−0.865
TEC	3.110	1.099	−0.267	−0.912
Gender	—	—	—	—
Age	35.130	7.656	—	—
Education	—	—	—	—
Tenure	—	—	—	—
Income	—	—	—	—

Abbreviations: TI, turnover intention; RO, role overload; EE, emotional exhaustion; TEC, turnover emotional contagion; SD, standard deviation.

The Pearson correlation coefficient method was used to conduct an exploratory analysis of the relationships between variables, as shown in Table 2. Role overload was positively correlated with turnover intention ($r=0.258$, $p<0.01$) and emotional exhaustion ($r=0.326$, $p<0.01$). Emotional exhaustion was positively correlated with turnover intention ($r=0.229$, $p<0.01$). These results indicate a linear relationship between the independent and dependent variables, providing preliminary support for further hypothesis testing.

Table 2 Correlation of Variables

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.
1.TI	1								
2.RO	0.258**	1							
3.EE	0.229**	0.326**	1						
4.TEC	0.225**	0.141**	0.274**	1					
5.Gender	0.040	0.063	0.003	-0.101*	1				
6.Age	-0.201**	-0.036	-0.072	-0.135**	0.245**	1			
7.Education	-0.134**	-0.112*	-0.072	-0.161**	0.276**	0.405**	1		
8.Tenure	-0.118*	-0.045	0.040	-0.025	0.076	0.653**	0.021	1	
9.Income	-0.241**	-0.112*	-0.138**	-0.174**	0.260**	0.611**	0.639**	0.325**	1

Notes: * $p<0.05$. ** $p<0.01$.

Abbreviations: TI, turnover intention; RO, role overload; EE, emotional exhaustion; TEC, turnover emotional contagion.

Hypothesis Testing

Common Method Bias Test

A Harman single-factor test was conducted on the survey data for this study. The test results revealed four factors with eigenvalues greater than 1. The initial eigenvalue variance percentage for the first factor was 33.254%. The cumulative percentage of variance of the rotated loading squared was 76.126%. Hence, it could be concluded that there was no significant presence of common method bias in the survey data for this study.

Moderated Mediation Model

We used Model 5 in Process 3.4 to analyze the mediating and moderating effects while centralizing continuous variables. According to the results in Table 3, role overload was positively related to emotional exhaustion ($B=0.417$, $p<0.001$),

Table 3 Model Testing Results

Variables	EE		TI	
	B	SE	B	SE
Gender	0.027	0.110	0.216*	0.092
Age	-0.022*	0.011	-0.014	0.009
Education	0.1332	0.072	0.050	0.060
Tenure	0.204**	0.065	0.016	0.055
Income	-0.146*	0.064	-0.148**	0.053
RO	0.417***	0.057	0.228***	0.052
EE	—	—	0.083*	0.040
TEC	—	—	0.119**	0.042
RO*TEC	—	—	0.098*	0.042
R-square	0.137		0.173	

Notes: * $p<0.05$. ** $p<0.01$. *** $p<0.001$. The "B" represents the coefficient estimate for the independent variable.

Abbreviations: TI, turnover intention; RO, role overload; EE, emotional exhaustion; TEC, turnover emotional contagion; SE, standard error.

validating hypothesis 1. Role overload was also positively related to turnover intention ($B=0.228$, $p<0.001$), confirming hypothesis 2. Additionally, emotional exhaustion was positively related to turnover intention ($B=0.083$, $p<0.05$), supporting hypothesis 3. Furthermore, a significant positive relationship was found between turnover emotional contagion and turnover intention ($B=0.119$, $p<0.01$).

The bootstrap method was performed with 5000 random resampling on the original sample data. We tested the role of emotional exhaustion and turnover emotional contagion in the relationship between role overload and turnover intention. 95% confidence interval excluding 0 indicates a significant mediating effect.⁶⁷ According to the results in Table 4, emotional exhaustion mediated the positive relationship between role overload and turnover intention. The indirect effect was 0.035 (95% CI: 0.004, 0.066), signifying the presence of mediation, thus validating hypothesis 4. Moreover, the regression coefficient of the interaction term (role overload * turnover emotional contagion) with turnover intention was significant ($B=0.098$, $p<0.05$), indicating a moderating effect.

Table 4 The Mediating Role of Emotional Exhaustion

Path	Effect	SE	LLUI	ULCI
RO→EE→TI	0.035	0.016	0.004	0.066

Abbreviations: TI, turnover intention; RO, role overload; EE, emotional exhaustion; LLCI, low limit confidence interval; ULCI, up limit confidence interval. SE, standard error.

The results of the simple slope analysis illustrated the impact of role overload on turnover intention at different levels of turnover emotional contagion, as presented in Table 5. When the moderating variable's mean was less than one standard deviation, the conditional indirect effect was 0.121 (95% CI: 0.004, 0.238). When the moderating variable's mean exceeded one standard deviation, the conditional indirect effect increased to 0.336 (95% CI: 0.183, 0.489). These outcomes suggested that the relationship between role overload and turnover intention was moderated by turnover emotional contagion, confirming research hypothesis 5. Specifically, as turnover emotional contagion strengthened, the positive effect of role overload on turnover intention intensified. This interaction is illustrated in Figure 2.

Table 5 Moderating Effects of Turnover Emotional Contagion

Moderator Variable	Effect	SE	t	p	LLCI	ULCI
W mean – 1 SD	0.121	0.060	2.030	0.043	0.004	0.238
W mean value	0.228	0.052	4.382	<0.001	0.126	0.331
W mean + 1 SD	0.336	0.078	4.311	<0.001	0.183	0.489

Notes: W: Moderator variable (Turnover emotional contagion).

Abbreviations: LLCI, low limit confidence interval; ULCI, up limit confidence interval; SE, standard error; SD, standard deviation.

Discussion

To explore the role of emotional exhaustion and organizational turnover emotional contagion in professional behavior among healthcare personnel, we focused on healthcare personnel and gathered their demographic information, attitudes, and professional behaviors through an online survey. This study formulated hypotheses and conducted empirical analyses based on prior research and theoretical frameworks. All hypotheses were validated. Primarily, there was a positive relationship between role overload and healthcare personnel's intention to leave. Secondly, emotional exhaustion partially mediated the relationship between role overload and turnover intention. Notably, in environments with high levels of turnover-related emotional contagion, the positive relationship between perceived role overload and turnover intention among employees strengthens. These findings have significant implications for managing healthcare personnel and improving healthcare quality.

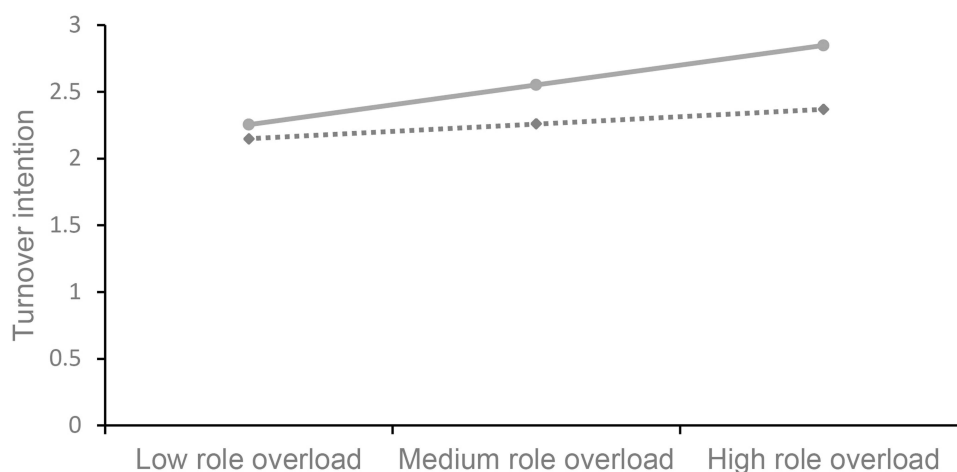


Figure 2 Moderating effects.

Notes: The dotted line represents low turnover emotional contagion. The solid line represents high turnover emotional contagion.

Theoretical Implications

Although previous studies have analyzed the relationship between role overload and turnover intention without showing consistent effects,⁶⁸ this inconsistency may stem from occupational specificity. Thus, we focus specifically on healthcare personnel to contribute new insights to existing research. Our conclusions align with findings regarding government employees,¹² indicating that role overload was positively related to turnover intention. Institutions such as hospitals and government entities possess public service attributes, where employees sometimes undertake additional responsibilities that lack corresponding material rewards. Doctors and nurses, in particular, often face high expectations from both patients and society. Therefore, they seek positions or roles that offer higher psychological and material rewards as reasonable compensation for their efforts. Moreover, excessive job demands compel individuals to allocate non-work resources to their jobs, leading to conflicts between work and personal life.⁶⁹ Faced with this phenomenon, medical professionals seek lower-stress job opportunities to improve their work-life balance.

Emotional exhaustion partially mediated the relationship between role overload and turnover intention. This result aligns with findings concerning clergy members and airline employees.^{16,33} By taking on excessive work and responsibilities within organizations, healthcare personnel experience extreme fatigue, depleting their emotional resources. This depletion of resources gradually reinforces the rationale for healthcare personnel to seek alternative employment. This discovery further validated the AET. Additionally, research has suggested the necessity of replicating the relationships among job demands, emotional exhaustion, and turnover intention across diverse cultural backgrounds and occupational groups.¹⁷ Our study echoed this and enhanced the generalizability of the findings. This study enriched the theoretical framework concerning emotional health in healthcare work environments by revealing the mediating role of emotional exhaustion among healthcare personnel.

More knowledge is required regarding how the contagion of collective negative emotions impacts individuals. Although some studies have indicated that experiencing actual collective turnover behavior alters resignation decisions,⁵¹ pre-quitting behaviors, including associated emotions and attitudes, have not been considered. Previous research has demonstrated that role overload directly influences employees' turnover intention,⁶⁸ but the role of turnover-related emotional contagion in this relationship remains unclear. Consequently, overlooking the role of collective emotions in research makes it challenging to comprehensively explain the formation pathway of turnover intention and provide effective interventions. Our study revealed that turnover emotional contagion positively moderated the positive relationship between role overload and turnover intention. This result resembled studies on job satisfaction, where department-level happiness moderates the relationship between job insecurity and individual happiness.²² When turnover intention spreads extensively within an organization, healthcare personnel strongly desire to leave due to role overload. The interplay of these two job demands prompts healthcare personnel to disengage from the organization.

Considering the impact of turnover emotional contagion, this study offered new insights into the specific mechanisms of emotional transmission within healthcare teams. The impact of role overload on turnover intention might be obscured without consideration of this variable. Lastly, through moderation analysis validating the JD-R model, our findings indicated that the JD-R model is a relevant theoretical framework for explaining the effects of turnover emotional contagion among healthcare personnel.

Practical Implications

The current research underscores the negative impacts of emotional exhaustion and turnover emotional contagion. This study recommends focusing on the individual and collective emotional state of healthcare workers to enhance the career stability of existing employees and reduce turnover. First, timely assessment and understanding of organizational members' emotional states can help identify signs of emotional exhaustion. Second, when assigning tasks and projects, a fair distribution of workload among healthcare team members should be ensured to avoid overwork situations and prevent emotional exhaustion. Ensure teams have sufficient resources and support to accomplish tasks, including training, tools, and technical support, as organizational support can enhance employees' resources for coping with stressful events.⁷⁰

Understanding the positive moderate role of turnover emotional contagion can assist managers in implementing targeted preventive measures for medical staff. Initially, managers should routinely assess and track the prevalence of turnover emotional contagion. By pinpointing the origins of emotional transmission, actively guiding employees' attitudes considering resignation is imperative. Establishing an environment for sharing joyful experiences can mitigate the adverse effects of emotional contagion.⁵⁴ Managers should proactively identify and address adverse events, fostering a healthy emotional atmosphere. Preventing the emergence and further diffusion of collective emotional contagion is crucial.

Limitations and Future Research

Although this study validated the proposed research hypotheses, some shortcomings still require refinement. This paper primarily focuses on healthcare personnel, including doctors, nurses, and similar professionals. However, the sources and impacts of negative emotional contagion differ somewhat between doctors and nurses.⁵⁴ Subsequent research should distinctly analyze and discuss medical practitioners separately to unveil specific issues and implement more targeted measures accordingly.

This study's sampling method and data type did not allow for causal inference. Future research could employ panel data design. Moreover, the measurement of emotional attitudes in this study relied on self-assessment, potentially introducing issues of single-method bias. Although statistical analyses suggest the absence of significant common method bias, integrating neurological methods could be a prospective avenue for future research. Techniques such as electroencephalography (EEG) and functional magnetic resonance imaging (fMRI), among others, measure emotional experiences through non-self-reported means.²⁵ Collecting objective physiological data to capture more authentic emotional responses can significantly contribute to a deeper understanding of emotions in the workplace.

Conclusion

Role overload is positively related to emotional exhaustion and intention to leave among healthcare personnel, with emotional exhaustion mediating this relationship. Turnover emotional contagion positively moderates the relationship between role overload and turnover intention. The role of emotional states cannot be overlooked to avoid actual resignations resulting from a high intention to leave and the subsequent burden on the organization. Managers should provide ample resource support, foster a positive emotional atmosphere, and control the spread of negative emotions.

Data Sharing Statement

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

Ethics Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/ or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study was approved by the Ethics Committee of Chongqing Medical University (record number: 2020019).

Consent to Participate

Informed consent was obtained from all individual participants included in the study.

Acknowledgments

The authors thank all respondents for their participation.

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.

Funding

Authors received support from the Program for Youth Innovation in Future Medicine, Chongqing Medical University (Grant No. W0079).

Disclosure

The authors declare that they have no conflicts of interest in this work.

References

1. Marć M, Bartosiewicz A, Burzyńska J, Chmiel Z, Januszewicz P. A nursing shortage – a prospect of global and local policies. *Internat Nurs Rev*. 2019;66(1):9–16. doi:10.1111/inr.12473
2. Dawson AJ, Stasa H, Roche MA, Homer CSE, Duffield C. Nursing churn and turnover in Australian hospitals: nurses perceptions and suggestions for supportive strategies. *BMC Nurs*. 2014;13(1):11. doi:10.1186/1472-6955-13-11
3. Lien SS, Kosik RO, Fan AP, et al. 10-year trends in the production and attrition of Chinese medical graduates: an analysis of nationwide data. *Lancet*. 2016;388:S11. doi:10.1016/S0140-6736(16)31938-9
4. Mao Y, He R, Liu J, Zhang N, Zhu B. Turnover intention of primary health workers in China: a systematic review. *Lancet*. 2018;392:S17. doi:10.1016/S0140-6736(18)32646-1
5. Namin BH, Øgaard T, Røislien J. Workplace incivility and turnover intention in organizations: a meta-analytic review. *Int J Environ Res Public Health*. 2021;19(1):25. doi:10.3390/ijerph19010025
6. Yan S, Shen X, Wang R, et al. The prevalence of turnover intention and influencing factors among emergency physicians: a national observation. *Human Res Health*. 2021;19(1):149. doi:10.1186/s12960-021-00688-8
7. Zhang F, Luo Z, Chen T, Min R, Fang P. Factors affecting turnover intentions among public hospital doctors in a middle-level city in central China. *Aust Health Rev*. 2016;41(2):214–221. doi:10.1071/AH15238
8. Waldman JD, Kelly F, Arora S, Smith HL. The shocking cost of turnover in health care. *Health Care Manag Rev*. 2010;35(3):206. doi:10.1097/HMR.0b013e3181e3940e
9. Kalifa T, Ololo S, Tafese F. Intention to leave and associated factors among health professionals in Jimma zone public health centers, southwest Ethiopia. *OJPM*. 2016;06(01):31–41. doi:10.4236/ojpm.2016.61003
10. Hu Y, Zhang Z. Skilled doctors in tertiary hospitals are already overworked in China. *Lancet Glob Health*. 2015;3(12):e737. doi:10.1016/S2214-109X(15)00192-8
11. Rizzo JR, House RJ, Lirtzman SI. Role conflict and ambiguity in complex organizations. *Adm Sci Q*. 1970;15(2):150–163. doi:10.2307/2391486
12. Mahlasela S, Chinyamurindi WT. Technology-related factors and their influence on turnover intentions: a case of government employees in South Africa. *Electron J Inf Syst Dev Ctries*. 2020;86(3):e12126. doi:10.1002/isd2.12126
13. Fitri R. Pengaruh work overload, komunikasi interpersonal dan komitmen organisasi terhadap turnover intention dalam perspektif manajemen bisnis Islam (Studi Pada Karyawan pt. Perkebunan nusantara VII Unit Kedaton). diploma. UIN Raden Intan Lampung; 2023. Available from: <http://repository.radenintan.ac.id/30226/>. Accessed October 11, 2023.
14. Hazeen Fathima M, Umarani C. A study on the impact of role stress on engineer intention to leave in Indian construction firms. *Sci Rep*. 2022;12(1):17576. doi:10.1038/s41598-022-21730-2

15. Dodanwala TC, Santoso DS, Yukongdi V. Examining work role stressors, job satisfaction, job stress, and turnover intention of Sri Lanka's construction industry. *Int J Constr Manage*. 2022;1(1):1–10. doi:10.1080/15623599.2022.2080931
16. Hang-yue N, Foley S, Loi R. Work role stressors and turnover intentions: a study of professional clergy in Hong Kong. *Int J Human Resour Manage*. 2005;16(11):2133–2146. doi:10.1080/09585190500315141
17. Jung HS, Yoon HH, Kim YJ. Effects of culinary employees' role stress on burnout and turnover intention in hotel industry: moderating effects on employees' tenure. *Serv Indust J*. 2012;32(13):2145–2165. doi:10.1080/02642069.2011.574277
18. Fox S, Spector PE. Emotions in the workplace: the neglected side of organizational life introduction. *Human Res Manag Rev*. 2002;12(2):167–171. doi:10.1016/S1053-4822(02)00044-X
19. Huo ML, Jiang Z. Work-role overload, work-life conflict, and perceived career plateau: the moderating role of emotional stability. *Human Resour Manage*. 2023;62(6):867–882. doi:10.1002/hrm.22167
20. Spector PE, Zapf D, Chen PY, Frese M. Why negative affectivity should not be controlled in job stress research: don't throw out the baby with the bath water. *J Organizational Behav*. 2000;21(1):79–95. doi:10.1002/(SICI)1099-1379(200002)21:1<79::AID-JOB964>3.0.CO;2-G
21. Golparvar M, Kamkar M, Javadian Z. Moderating effects of job stress in emotional exhaustion and feeling of energy relationships with positive and negative behaviors: job stress multiple functions approach. *Internat J Psychol Stud*. 2012;4(4):p99. doi:10.5539/ijps.v4n4p99
22. Mauno S, De Cuyper N, Tolvanen A, Kinnunen U, Mäkilangas A. Occupational well-being as a mediator between job insecurity and turnover intention: findings at the individual and work department levels. *Europ J Work Organizat Psychol*. 2014;23(3):381–393. doi:10.1080/1359432X.2012.752896
23. Ni C, Wu Y, Ye R, Ke M. The characteristics, motivations and organizational outcomes of collective turnover in China: an analysis of 65 collective turnover events. *Front Bus Res China*. 2015;9(1):1–29. doi:10.3868/s070-004-015-0001-8
24. Hayes AF. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. Vol. xvii. Guilford Press; 2013:507.
25. Ashkanasy NM, Troth AC, Lawrence SA, Jordan PJ. Emotions and Emotional Regulation in HRM: a Multi-Level Perspective. In: *Research in Personnel and Human Resources Management*. Vol. 35. Emerald Publishing Limited; 2017:1–52. doi:10.1108/S0742-730120170000035002
26. Knudsen HK, Ducharme LJ, Roman PM. Counselor emotional exhaustion and turnover intention in therapeutic communities. *J Subst Abuse Treat*. 2006;31(2):173–180. doi:10.1016/j.jsat.2006.04.003
27. Verhoeven C, Maes S, Kraaij V, Joeke K. The job demand-control-social support model and wellness/health outcomes: a European study. *Psychol Health*. 2003;18(4):421–440. doi:10.1080/0887044031000147175
28. Hoare C, Vandenberghe C. Are they created equal? A relative weights analysis of the contributions of job demands and resources to well-being and turnover intention. *Psychol Rep*. 2022;332941221103536. doi:10.1177/00332941221103536
29. Kowalski C, Ommen O, Driller E, et al. Burnout in nurses – the relationship between social capital in hospitals and emotional exhaustion. *J Clin Nurs*. 2010;19(11–12):1654–1663. doi:10.1111/j.1365-2702.2009.02989.x
30. Sheward L, Hunt J, Hagen S, Macleod M, Ball J. The relationship between UK hospital nurse staffing and emotional exhaustion and job dissatisfaction. *J Nurs Manag*. 2005;13(1):51–60. doi:10.1111/j.1365-2834.2004.00460.x
31. Janssen PP, Jonge JD, Bakker AB. Specific determinants of intrinsic work motivation, burnout and turnover intentions: a study among nurses. *J Adv Nurs*. 1999;29(6):1360–1369. doi:10.1046/j.1365-2648.1999.01022.x
32. Chênevert D, Kilroy S, Johnson K, Fournier PL. The determinants of burnout and professional turnover intentions among Canadian physicians: application of the job demands-resources model. *BMC Health Serv Res*. 2021;21(1):993. doi:10.1186/s12913-021-06981-5
33. Cho JE, Choi HC, Lee WJ. An empirical investigation of the relationship between role stressors, emotional exhaustion and turnover intention in the airline industry. *Asia Pacific J Tour Res*. 2014;19(9):1023–1043. doi:10.1080/10941665.2013.837398
34. Shantz A, Arevshatyan L, Alfes K, Bailey C. The effect of HRM attributions on emotional exhaustion and the mediating roles of job involvement and work overload. *Human Res Manag J*. 2016;26(2):172–191. doi:10.1111/1748-8583.12096
35. Lee RT, Lovell BL, Brotheridge CM. Tenderness and steadiness: relating job and interpersonal demands and resources with burnout and physical symptoms of stress in Canadian physicians. *J Appl Social Psychol*. 2010;40(9):2319–2342. doi:10.1111/j.1559-1816.2010.00658.x
36. Hu Q, Schaufeli WB, Taris TW. The Job Demands-Resources model: an analysis of additive and joint effects of demands and resources. *J Vocational Behav*. 2011;79(1):181–190. doi:10.1016/j.jvb.2010.12.009
37. Folkman S. Stress: Appraisal and Coping. In: Gellman MD, Turner JR, editors. *Encyclopedia of Behavioral Medicine*. New York: Springer; 2013:1913–1915. doi:10.1007/978-1-4419-1005-9_215
38. Gooty J, Gavin MB, Ashkanasy NM, Thomas JS. The wisdom of letting go and performance: the moderating role of emotional intelligence and discrete emotions. *J Occupat Organ Psychol*. 2014;87(2):392–413. doi:10.1111/joop.12053
39. Korunka C, Hoonakker P, Carayon P. Quality of working life and turnover intention in information technology work. *Hum Factor Ergon Manufactur Serv Ind*. 2008;18(4):409–423. doi:10.1002/hfm.20099
40. Cole MS, Bernerth JB, Walter F, Holt DT. Organizational justice and individuals' withdrawal: unlocking the influence of emotional exhaustion. *J Manage Studies*. 2010;47(3):367–390. doi:10.1111/j.1467-6486.2009.00864.x
41. Cropanzano R, Rupp DE, Byrne ZS. The relationship of emotional exhaustion to work attitudes, job performance, and organizational citizenship behaviors. *J Appl Psychol*. 2003;88(1):160–169. doi:10.1037/0021-9010.88.1.160
42. Boles JS, Dean DH, Ricks JM, Short JC, Wang G. The dimensionality of the maslach burnout inventory across small business owners and educators. *J Vocational Behav*. 2000;56(1):12–34. doi:10.1006/jvbe.1999.1689
43. Karatepe OM, Aleshinloye KD. Emotional dissonance and emotional exhaustion among hotel employees in Nigeria. *Int J Hospitality Manage*. 2009;28(3):349–358. doi:10.1016/j.ijhm.2008.12.002
44. Spence Laschinger HK, Wong CA, Grau AL. The influence of authentic leadership on newly graduated nurses' experiences of workplace bullying, burnout and retention outcomes: a cross-sectional study. *Internat J Nurs Stud*. 2012;49(10):1266–1276. doi:10.1016/j.ijnurstu.2012.05.012
45. Ángeles López-Cabarcos M, López-Carballeira A, Ferro-Soto C. How to moderate emotional exhaustion among public healthcare professionals? *Eur Res Manage Business Econ*. 2021;27(2):100140. doi:10.1016/j.iedeen.2020.100140
46. Fogarty TJ, Singh J, Rhoads GK, Moore RK. Antecedents and consequences of burnout in accounting: beyond the role stress model. *Behav Res Accoun*. 2000;12:31–68.

47. Karatepe OM. The effects of work overload and work-family conflict on job embeddedness and job performance: the mediation of emotional exhaustion. *International Journal of Contemporary Hospitality Management*. 2013;25(4):614–634. doi:10.1108/09596111311322952
48. Porter CM, Rigby JR. The turnover contagion process: an integrative review of theoretical and empirical research. *J Organizational Behav*. 2021;42(2):212–228. doi:10.1002/job.2483
49. Doherty RW, Orimoto L, Singelis TM, Hatfield E, Hebb J. Emotional contagion: gender and occupational differences. *Psychol Women Quart*. 1995;19(3):355–371. doi:10.1111/j.1471-6402.1995.tb00080.x
50. Ye RS, Ni CH, Liao LF. Trust in leadership, psychological safety and turnover intention in context of work groups: a view from group interaction. *Busin Manag J*. 2016;38(5):87–97. doi:10.19616/j.cnki.bmj.2016.05.009
51. Sunder S, Kumar V, Goreczny A, Maurer T. Why do salespeople quit? An empirical examination of own and peer effects on salesperson turnover behavior. *Journal of Marketing Research*. 2017;54(3):381–397. doi:10.1509/jmr.15.0485
52. Felps W, Mitchell TR, Hekman DR, Lee TW, Holtom BC, Harman WS. Turnover contagion: how coworkers' job embeddedness and job search behaviors influence quitting. *AMJ*. 2009;52(3):545–561. doi:10.5465/amj.2009.41331075
53. Prochazkova E, Kret ME. Connecting minds and sharing emotions through mimicry: a neurocognitive model of emotional contagion. *Neurosci Biobehav Rev*. 2017;80:99–114. doi:10.1016/j.neubiorev.2017.05.013
54. Petitta L, Jiang L, Härtel CEJ. Emotional contagion and burnout among nurses and doctors: do joy and anger from different sources of stakeholders matter? *Stress Health*. 2017;33(4):358–369. doi:10.1002/smi.2724
55. Bakker AB, Demerouti E. Job demands–resources theory: taking stock and looking forward. *J Occupat Health Psychol*. 2017;22(3):273–285. doi:10.1037/ocp0000056
56. Bakker AB, Demerouti E. The job demands-resources model: state of the art. *J Manage Psychol*. 2007;22(3):309–328. doi:10.1108/02683940710733115
57. Barling J, Frone MR. If only my leader would just do something! Passive leadership undermines employee well-being through role stressors and psychological resource depletion. *Stress Health*. 2017;33(3):211–222. doi:10.1002/smi.2697
58. Kim CY, Lee JH, Shin SY. Why are your employees leaving the organization? The interaction effect of role overload, perceived organizational support, and equity sensitivity. *Sustainability*. 2019;11(3):657. doi:10.3390/su11030657
59. Montani F, Dagenais-Desmarais V. Unravelling the relationship between role overload and organizational citizenship behaviour: a test of mediating and moderating effects. *Eur Manage J*. 2018;36(6):757–768. doi:10.1016/j.emj.2018.03.001
60. National Bureau of Statistics of China. China Statistical Yearbook 2022. Available from: <https://www.stats.gov.cn/sj/ndsj/2022/indexeh.htm>. Accessed December 4, 2023.
61. Mobley WH, Griffeth RW, Hand HH, Meglino BM. Review and conceptual analysis of the employee turnover process. *Psychol Bull*. 1979;86(3):493–522. doi:10.1037/0033-2909.86.3.493
62. Wang HL, Zhang QJ. The cost of feeling trusted: the study on the effects of feeling trusted from supervisor, role overload, job stress and emotional exhaustion. *Manag World*. 2016;8:110–125. doi:10.19744/j.cnki.11-1235/f.2016.08.010
63. Boswell WR, Olson-Buchanan JB, LePine MA. Relations between stress and work outcomes: the role of felt challenge, job control, and psychological strain. *J Vocational Behav*. 2004;64(1):165–181. doi:10.1016/S0001-8791(03)00049-6
64. Shin Y, Hur WM, Park K, Hwang H. How managers' job crafting reduces turnover intention: the mediating roles of role ambiguity and emotional exhaustion. *Int J Environ Res Public Health*. 2020;17(11):3972. doi:10.3390/ijerph17113972
65. Slater P, Roos M, Eskola S, et al. Challenging and redesigning a new model to explain intention to leave nursing. *Scand J Caring Sci*. 2021;35(2):626–635. doi:10.1111/scs.12884
66. Curran PJ, West SG, Finch JF. The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods*. 1996;1(1):16–29. doi:10.1037/1082-989X.1.1.16
67. Henseler J, Ringle CM, Sarstedt M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J of the Acad Mark Sci*. 2015;43(1):115–135. doi:10.1007/s11747-014-0403-8
68. Jones E, Chonko L, Rangarajan D, Roberts J. The role of overload on job attitudes, turnover intentions, and salesperson performance. *Journal of Business Research*. 2007;60(7):663–671. doi:10.1016/j.jbusres.2007.02.014
69. Grawitch MJ, Barber LK, Justice L. Rethinking the work–life interface: it's not about balance, it's about resource allocation. *Applied Psychology Health and Well-Being*. 2010;2(2):127–159. doi:10.1111/j.1758-0854.2009.01023.x
70. Han Z, Wang D, Jiang C, Zhang Y. Enhancing employee job satisfaction responding to COVID-19: the role of organizational adaptive practices and psychological resilience. *Psychol Res Behav Manag*. 2023;16:4555–4567. doi:10.2147/PRBM.S432982