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# The impact of professional mission on turnover intention among operating room nurses: a chain mediation model analysis of professional identity and job burnout

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## Abstract

**Background and aim** To investigate the chain mediation effect of professional mission, professional identity, and job burnout on the turnover intention among operating room nurses.

**Methods** A convenience sampling method was used to conduct a questionnaire survey with 744 operating room nurses from 12 hospitals in Shandong Province, China. The study utilized a general information questionnaire, a professional mission scale, a professional identity scale, a job burnout scale, and a turnover intention scale to construct and test a chain mediation model.

**Results** Professional mission significantly influenced turnover intention through professional identity and job burnout, with a total indirect effect of -0.174. The chain mediation effect of professional identity and job burnout was -0.028, accounting for 16.90% of the total indirect effect.

**Conclusion** The multiple mediation effects of professional identity and job burnout between professional mission and turnover intention were validated. Nursing managers should focus on enhancing nurses' professional mission, improving their professional identity, and reducing job burnout to decrease turnover intention among operating room nurses.

**Keywords** Professional mission, Professional identity, Job burnout, Turnover intention, Operating room nurses

## Background

The shortage of nursing human resources has been a major global challenge for decades [1]. According to the World Health Organization's (WHO) 2020 State of

the World's Nursing Report, the global nursing shortage is projected to reach 4.6 million by 2030 [2]. A high turnover rate among nurses is considered a critical factor contributing to this shortage, with turnover intention regarded as a key predictor of actual turnover behavior [3]. A survey conducted in Belgium revealed that 44% of nurses had turnover intentions, and 27% were considering changing careers to non-nursing professions [4]. In China, a 2019 survey of healthcare workers from 144 tertiary public hospitals across 31 provinces, autonomous regions, municipalities, and Xinjiang Production and Construction Corps showed that 22.02% of nurses frequently had thoughts of changing jobs, while 70.80%

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indicated that they might leave their current positions within a year due to job dissatisfaction [5].

High turnover intention destabilizes the nursing workforce, exacerbates the shortage of nursing resources, and poses a significant barrier to improving nursing quality and maintaining the stability of the healthcare system [6]. The shortage of nursing human resources has become one of the most pressing challenges for healthcare systems worldwide [7]. This issue is particularly severe in operating rooms, which are characterized by high-intensity, high-pressure, and high-risk work environments [8, 9]. A national survey conducted in 2021 by the Operating Room Professional Committee of the Chinese Nursing Association revealed that the current ratio of operating rooms (OR) to OR nurses (median ratio: 1:2.43) is significantly below the standard ratio of 1:3 specified in the “Implementation Rules of the Tertiary General Hospital Evaluation Standard” issued by the National Health Commission [10]. This underscores the urgent need to address the turnover intention of OR nurses to maintain a stable and effective healthcare workforce.

While existing research has extensively explored external factors such as job satisfaction, work environment, and organizational support influencing turnover intention, intrinsic factors like professional mission and professional identity have received limited attention [11]. These intrinsic resources are believed to play a crucial role in mitigating the effects of high job demands [12], especially in high-pressure environments like ORs. Although some studies suggest that professional mission and professional identity are associated with lower turnover intentions [13, 14], their interactions with job burnout and their joint influence on turnover intention remain underexplored.

### Theoretical framework and key concepts

This study is guided by two key theoretical models: the Job Demands-Resources Model (JD-R) and the Mission-Oriented Career Model.

The Job Demands-Resources (JD-R) model is a heuristic model that integrates the Demand-Control Model (DCM), the Conservation of Resources (COR) model, and the Effort-Reward Imbalance (ERI) model, considering both individual resources (such as personal traits and psychological capital) and environmental resources (such as job characteristics and task factors). The model proposes that high job demands lead to stress and health problems (the health impairment process), while adequate resources can motivate employees to improve work motivation and productivity (the motivational process) [15]. Although the model is widely used to explain the impact of job demands and resources on job burnout and turnover intention [16], it has not fully explored how

intrinsic resources, such as professional mission and professional identity, can mitigate the negative effects of job demands (such as turnover intention). This study extends the JD-R model by introducing the Mission-Oriented Career Model, investigating how individual resources can reduce the negative impact of job demands and further influence job burnout and turnover intention.

The Mission-Oriented Career Model emphasizes professional mission as the core driving force in individual career development. The model includes four components: guidance, meaningful goals, effort and persistence, and happiness. Professional mission provides individuals with work meaning, enhances professional identity, helps them cope with work challenges, improves job satisfaction, and reduces job burnout and turnover intention [17].

The integration of the Mission-Oriented Career Model with the JD-R model highlights how professional mission can reduce job burnout by enhancing professional identity, promoting workforce stability. The combination of these two models provides a more comprehensive perspective, revealing how intrinsic resources (such as professional mission and professional identity) interact with job demands, thereby influencing job burnout and turnover intention.

This study aims to explore the current status and relationships between professional mission, professional identity, job burnout, and turnover intention among operating room nurses. It seeks to construct a chain mediation model with turnover intention as the dependent variable, professional mission as the independent variable, and professional identity and job burnout as mediators, to reveal the impact of professional mission on turnover intention. By analyzing the interactions among these variables, this study fills a gap in the existing literature and provides theoretical support for nursing managers to enhance workforce stability. Furthermore, the study offers new insights for nursing managers and nurses, suggesting that enhancing professional mission can improve professional identity, reduce job burnout and turnover intention, and ultimately promote long-term stability within the nursing team.

### Key concepts

#### Professional mission

Refers to the belief that the profession a nurse is engaged in gives life meaning, fills the work with passion, and fosters a strong determination to achieve personal fulfillment and contribute to society [18].

#### Professional identity

It refers to nurses' recognition of the goals, social value, and other aspects of their profession, which influences their work motivation and the quality of service provided [19].

### Job burnout

It refers to a syndrome that is conceptualised as chronic workplace stress that has not been successfully managed and has resulted in feelings of emotional exhaustion, depersonalization, and a lack of personal accomplishment [20].

### Turnover intention

Turnover intention refers to an employee's deliberate intent to leave an organization after a period of consideration, which significantly impacts actual turnover behavior [21, 22].

### Research hypotheses

Based on the literature review and theoretical models, the following research hypotheses are proposed:

H1: There are differences in nurses' professional mission, professional identity, job burnout, and turnover intention based on different demographic factors.

H2: There are significant correlations between nurses' professional mission, professional identity, job burnout, and turnover intention.

H3: Nurses' professional identity mediates the relationship between professional mission and job burnout; nurses' professional identity mediates the relationship between professional mission and turnover intention.

H4: Job burnout mediates the relationship between professional mission and turnover intention.

H5: Nurses' professional identity and job burnout jointly mediate the relationship between professional mission and turnover intention in a chain mediation model.

The hypothetical model diagram is shown in Fig. 1, outlining the pathways through which professional mission influences turnover intention via professional identity and job burnout.

### Materials and methods

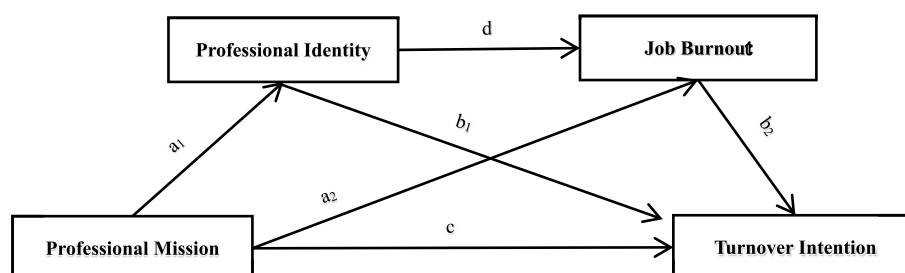
#### Samples

Sampling was carried out after obtaining approval from the Shandong Provincial Hospital Biomedical Research Ethics Committee involving humans. From April to July 2024, this study used a convenience sampling method to select operating room nurses from six tertiary hospitals and six secondary hospitals in Shandong Province, China. A combination of online and offline methods was used to conduct the survey. Inclusion Criteria: (1) Nurses who have obtained their nursing license and are currently engaged in operating room nursing. (2) At least one year of working experience in the operating room. (3) Voluntarily agreed to participate in the study after providing informed consent. Exclusion Criteria: (1) Intern or visiting nurses. (2) Nurses who were absent from their posts during the survey period due to illness, maternity leave, or other reasons. (3) Respondents who completed the electronic questionnaire in less than 100 s or had identical scores for all items. Based on Kendall's sample size estimation method [23], the minimum sample size required for linear regression analysis should be 10 to 20 times the number of observed variables. This study involved 32 variables (including 18 general demographic variables, 3 professional mission variables, 5 professional identity variables, 3 job burnout variables, and 3 turnover intention variables). Considering a 20% attrition rate, the estimated sample size should be:  $32 \times (10 - 20) \times (1 + 20\%) = 384 - 768$  participants.

#### Instruments

##### General information questionnaire

The General Information Questionnaire was self-designed by the researchers to collect demographic and basic information on the participating nurses. The questionnaire covered a range of variables including age, gender, educational background, professional title, job position, employment type, average monthly personal income, years of experience in OR, incidence of adverse



**Fig. 1** Hypothetical model diagram

events in the past six months, and frequency of night shifts. Additionally, it gathered details about the hospital characteristics, such as hospital type, level, and frequency of overtime among nurses.

#### **Professional mission scale**

The Professional Mission Scale used in this study was developed by Zhang CY [17], specifically designed for measuring employees' sense of professional mission. The scale consists of 10 items divided into three dimensions: Directive Force, Altruistic Contribution and Proactive Engagement. A 5-point Likert scale was used for scoring, ranging from "1 = Completely Disagree" to "5 = Completely Agree". Higher scores indicate a stronger sense of professional mission among OR nurses. In this study, the scale demonstrated excellent reliability, with a omega coefficient of 0.922, indicating a high level of internal consistency.

#### **Professional identity scale**

The Professional Identity Scale used in this study was developed by Li L [19]. The scale consists of 30 items divided into five dimensions: Professional Cognitive Evaluation, Professional Social Support, Professional Social Skills, Professional Frustration Coping and Professional Self-Reflection. A 5-point Likert scale was adopted, with scoring options ranging from "1 = Strongly Disagree" to "5 = Strongly Agree". Higher scores indicate a stronger sense of professional identity among OR nurses. The scale has been widely used among nursing populations in China and has demonstrated good reliability and validity. In this study, the omega coefficient was 0.966, indicating a high level of internal consistency.

#### **Job burnout scale**

The Job Burnout Scale used in this study is the Chinese version of the Maslach Burnout Inventory (MBI), which was developed by Maslach and later translated and revised by Li XM et al. [24]. This scale consists of 22 items divided into three dimensions: Emotional Exhaustion, Depersonalization and Reduced Personal Accomplishment. A 7-point Likert scale was used for scoring, ranging from "1 = Never" to "7 = Every Day". Higher scores indicate higher levels of job burnout among OR nurses. In this study, the scale demonstrated good reliability, with a omega coefficient of 0.887.

#### **Turnover intention scale**

The Turnover Intention Scale used in this study was developed by Li JY [25]. The scale consists of 6 items divided into three dimensions: Probability of Leaving the Current Position, Motivation for Seeking Another Job and Probability of Obtaining Job Opportunities in Other

Organizations. A 4-point Likert scale was used, and reverse scoring was applied, ranging from "4 = Often" to "1 = Never". Higher total scores indicate a stronger turnover intention among OR nurses. In this study, the scale demonstrated good reliability, with a omega coefficient of 0.860.

#### **Statistical methods**

Statistical analyses were performed using SPSS 25.0 and AMOS 23.0 software package. The initial theoretical model was constructed based on the Job Demands-Resources (JD-R) Model and the Mission-Oriented Career Model. Harman's single-factor test was conducted to examine common method bias. Continuous variables were expressed as mean  $\pm$  standard deviation ( $M \pm SD$ ), and comparisons between groups were conducted using the independent sample t-test or one-way analysis of variance (ANOVA), or Kruskal–Wallis H test. Categorical variables were described using frequency and percentage. The relationships between variables were analyzed using Pearson correlation analysis and regression analyses. Exploratory factor analysis (EFA) was conducted using SPSS 25.0 to explore the model structure, and confirmatory factor analysis (CFA) was conducted using AMOS 23.0 to validate the model's structure and assess model fit. The mediation effect was examined using Hayes' PROCESS v4.1 plug-in (Model 6) for SPSS, with the Bootstrap method used to test the significance of the mediation effect. A serial mediation analysis was conducted with professional mission as the independent variable, professional identity and job burnout as mediators, and turnover intention as the dependent variable. Hierarchical linear regression analyses were performed to test both direct and indirect effects. Statistical significance was determined using bootstrap confidence intervals (CIs), with significance set at  $P < 0.05$ . Specifically, an indirect effect was considered significant if its bootstrap CI did not include zero.

#### **Results**

A total of 768 questionnaires were distributed both online and offline, with 761 questionnaires returned, yielding a response rate of 99.09% and an attrition rate of 0.91%. After a thorough review by the research team, 744 valid questionnaires were obtained by excluding incomplete or invalid responses, resulting in an effective response rate of 97.77%.

#### **Test for common method bias**

The Harman's single-factor test was used to examine common method bias. The analysis extracted a total of 11 factors with eigenvalues greater than 1. The first factor accounted for 33.02% of the total variance, which is

below the critical threshold of 40%, indicating that there is no significant common method bias in the dataset used in this study.

#### Univariate analysis of general characteristics and turnover intention among operating room nurses

The mean age of the 744 operating room (OR) nurses was 34.62 years ( $SD=6.41$ ), and the mean duration of OR work experience was 11.33 years ( $SD=6.82$ ). A univariate analysis revealed significant differences in turnover intention scores across groups for professional title, equal pay for equal work, night shift frequency, years of experience, years of OR experience, hospital level, number of children, and overtime conditions (all  $p < 0.05$ ). No significant differences were found for age, gender, initial education, final education, employment type, average monthly income, hospital type, marital status, or adverse event incidence (all  $p > 0.05$ ). Detailed results are presented in Table 1.

#### Scores of professional mission, professional identity, job burnout, and turnover intention among operating room nurses

The total scores for the 744 OR nurses were as follows: Professional Mission:  $39.24 \pm 6.84$ , Professional Identity:  $120.27 \pm 15.29$ , Job Burnout:  $58.54 \pm 22.78$ , Turnover Intention:  $12.83 \pm 4.64$ . Detailed scores for each dimension and item are presented in Table 2.

#### Correlation analysis of professional mission, professional identity, job burnout, and turnover intention among operating room nurses

The results indicated that professional mission was positively correlated with professional identity ( $P < 0.05$ ), while it showed a negative correlation with both job burnout and turnover intention ( $P < 0.05$ ). Additionally, professional identity was negatively correlated with both job burnout and turnover intention ( $P < 0.05$ ), and job

**Table 1** Comparison of general characteristics and turnover intention scores among OR nurses

Variable	Group	N	Proportion (%)	t/F/H Value	P Value	Score (M $\pm$ SD)/Mdn
Professional Title	Junior	272	36.56	3.597	< 0.05	13.40 $\pm$ 4.86
	Intermediate	438	58.87			12.54 $\pm$ 4.54
	Senior	34	4.57			11.88 $\pm$ 3.76
Equal Pay for Equal Work	Yes	394	52.96	-4.407	< 0.05	12.13 $\pm$ 4.54
	No	350	47.04			13.61 $\pm$ 4.64
Years of Experience	1–5	143	19.22	2.773	< 0.05	12.95 $\pm$ 4.49
	6–10	223	29.97			13.49 $\pm$ 4.78
	11–15	216	29.03			12.45 $\pm$ 4.65
	> 15	162	21.77			12.29 $\pm$ 4.50
Operating Room Experience (years)	1–5	146	19.62	2.763	< 0.05	12.90 $\pm$ 4.48
	6–10	224	30.11			13.49 $\pm$ 4.77
	11–15	214	28.76			12.52 $\pm$ 4.67
	> 15	160	21.51			12.23 $\pm$ 4.49
Night Shift Frequency in the Last 6 Months	0	360	48.39	3.251	< 0.05	12.39 $\pm$ 4.56
	1–2/month	118	15.86			13.46 $\pm$ 4.32
	3–4/month	128	17.20			13.66 $\pm$ 5.03
	> 4/month	138	18.55			12.65 $\pm$ 4.65
Hospital Level	Tertiary	588	79.03	3.058	< 0.05	13.09 $\pm$ 4.58
	Secondary	156	20.97			11.82 $\pm$ 4.76
Number of Children	0	159	21.37	8.702	< 0.05	13
	1	292	39.25			13
	2	286	38.44			12
	3	7	0.94			9
Overtime	None	6	0.81	74.939	< 0.05	6
	Rarely	24	0.81			12
	Occasionally	110	14.78			12
	Often	372	50.00			12
	Always	232	31.18			16

**Table 2** Scores for professional mission, professional identity, job burnout, and turnover intention ( $n = 744$ ,  $M \pm SD$ )

Variable	Number of Items	Score Range	Total Score ( $M \pm SD$ )	Item Mean ( $M \pm SD$ )
Professional Mission(PM)	10	10~50	39.24 $\pm$ 6.84	3.92 $\pm$ 0.68
Directive Force(DF)	4	4~20	14.42 $\pm$ 3.405	3.60 $\pm$ 0.85
Altruistic Contribution(AC)	3	3~15	12.63 $\pm$ 2.67	4.21 $\pm$ 0.76
Proactive Engagement(PE)	3	3~15	12.19 $\pm$ 2.27	4.06 $\pm$ 0.76
Professional Identity(PI)	30	91~150	120.27 $\pm$ 15.29	4.01 $\pm$ 0.51
Professional Cognitive Evaluation(PCE)	9	24~45	36.36 $\pm$ 4.76	4.04 $\pm$ 0.53
Professional Social Support(PSS1)	6	16~30	23.55 $\pm$ 3.60	3.93 $\pm$ 0.60
Professional Social Skills(PSS2)	6	13~30	24.43 $\pm$ 3.10	4.07 $\pm$ 0.52
Professional Frustration Coping(PFC)	6	13~30	24.12 $\pm$ 3.37	4.02 $\pm$ 0.56
Professional Self-Reflection(PSR)	3	6~15	11.81 $\pm$ 1.80	3.93 $\pm$ 0.60
Job Burnout(JB)	22	22~118	58.54 $\pm$ 22.78	2.66 $\pm$ 1.03
Emotional Exhaustion(EE)	9	9~63	28.48 $\pm$ 13.12	3.16 $\pm$ 1.46
Depersonalization(D)	5	5~35	9.65 $\pm$ 6.50	1.93 $\pm$ 1.30
Reduced Personal Accomplishment(RPA)	8	8~56	20.41 $\pm$ 11.11	2.55 $\pm$ 1.39
Turnover Intention(TI)	6	6~24	12.83 $\pm$ 4.64	2.14 $\pm$ 0.77
Probability of Leaving Current Position(POLCP)	2	2~8	3.99 $\pm$ 1.88	2.00 $\pm$ 0.94
Motivation for Seeking Another Job(MFSAJ)	2	2~8	4.06 $\pm$ 1.78	2.03 $\pm$ 0.89
Probability of Obtaining Job Opportunities Elsewhere(POO)	2	2~8	4.77 $\pm$ 1.80	2.38 $\pm$ 0.90

**Table 3** Correlations between professional mission, professional identity, job burnout, and turnover intention ( $r$  values)

Variable	Professional Mission	Professional Identity	Job Burnout	Turnover Intention
Professional Mission	1	-	-	-
Professional Identity	0.668	1	-	-
Job Burnout	-0.547	-0.469	1	-
Turnover Intention	-0.476	-0.413	0.506	1

 $P < 0.01$ 

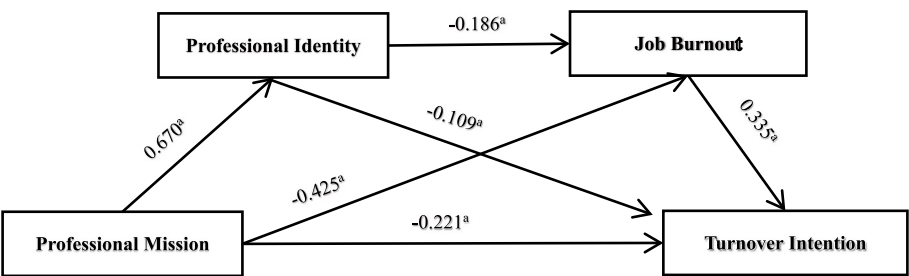
burnout was positively correlated with turnover intention ( $P < 0.05$ ). Detailed correlation coefficients are presented in Table 3.

The results of the regression analysis showed that professional mission had a direct positive predictive effect on professional identity ( $B = 1.498$ ,  $\beta = 0.670$ ,  $P < 0.001$ ). Professional mission also had a direct negative predictive effect on job burnout ( $B = -1.413$ ,  $\beta = -0.425$ ,  $P < 0.001$ ) and turnover intention ( $B = -0.150$ ,  $\beta = -0.221$ ,  $P < 0.001$ ). Furthermore, professional identity negatively predicted both job burnout ( $B = -0.277$ ,  $\beta = -0.186$ ,  $P < 0.001$ ) and turnover intention ( $B = -0.033$ ,  $\beta = -0.109$ ,  $P < 0.001$ ). In contrast, job burnout had a direct positive predictive effect on turnover intention ( $B = 0.068$ ,  $\beta = 0.335$ ,  $P < 0.05$ ). Detailed regression coefficients are presented in Table 4, Fig. 2.

**Table 4** Regression analysis of professional mission, professional identity, job burnout, and turnover intention among operating room nurses ( $n = 744$ )

Dependent Variable	B	$\beta$	SE	t Value	P Value	95%CI	Predictor Variable
Professional Identity	1.498	0.670	0.061	24.600	< 0.01	1.378, 1.617	Professional Mission
Job Burnout	-1.413	-0.425	0.136	-10.405	< 0.01	-1.680, -1.147	Professional Mission
	-0.277	-0.186	0.061	-4.556	< 0.01	-0.396, -0.158	Professional Identity
Turnover Intention	-0.150	-0.221	0.030	-5.058	< 0.01	-0.208, -0.092	Professional Mission
	-0.033	-0.109	0.013	-2.635	< 0.01	-0.058, -0.008	Professional Identity
	0.068	0.335	0.008	9.122	< 0.01	0.054, 0.083	Job Burnout





**Fig. 2** Path diagram of the mediation effect tests. <sup>a</sup> $P < 0.01$

**Construction and validation of the structural equation model**

A structural equation model was constructed with turnover intention as the dependent variable, professional mission as the independent variable, and professional identity and job burnout as mediating variables. Bartlett’s test of sphericity yielded a  $\chi^2$  value of 1887.851 ( $P < 0.01$ ), and the KMO value was 0.840, indicating that the data were suitable for exploratory factor analysis. Principal component analysis with varimax orthogonal rotation identified four common factors with eigenvalues  $\geq 1.000$ , accounting for 69.192% of the cumulative variance. Factor loadings for the items ranged from 0.476 to 0.909. While the dimension of reduced personal accomplishment from the original job burnout scale was grouped with the dimensions of the professional mission scale under the same factor, the research team decided to retain the original structure of the scale, grouping reduced personal accomplishment with the other two dimensions of job burnout under the same factor. Detailed results are presented in Table 5.

The results of the confirmatory factor analysis indicated that the revised model demonstrated good fit, with all fit indices meeting the recommended criteria ( $\chi^2/df = 2.965$ , RMSEA = 0.073, CFI = 0.962, NFI = 0.945, TLI = 0.950, IFI = 0.963, GFI = 0.923), as shown in Fig. 3.

The reliability analysis indicated that the model’s Omega coefficient was 0.848, demonstrating good model stability.

**Multiple mediation analysis of professional identity and job burnout between professional mission and turnover intention among operating room nurses**

The Bootstrap method was used to test the significance of the mediation effects. The direct effect of professional mission on turnover intention and the mediation effects of professional identity and job burnout were significant, as the 95% CI did not include zero. This indicates that professional mission has a partial mediation effect on turnover intention through these variables. The direct effect accounted for 46.30% of the total effect, while the total mediation effect contributed 53.70%. Within the

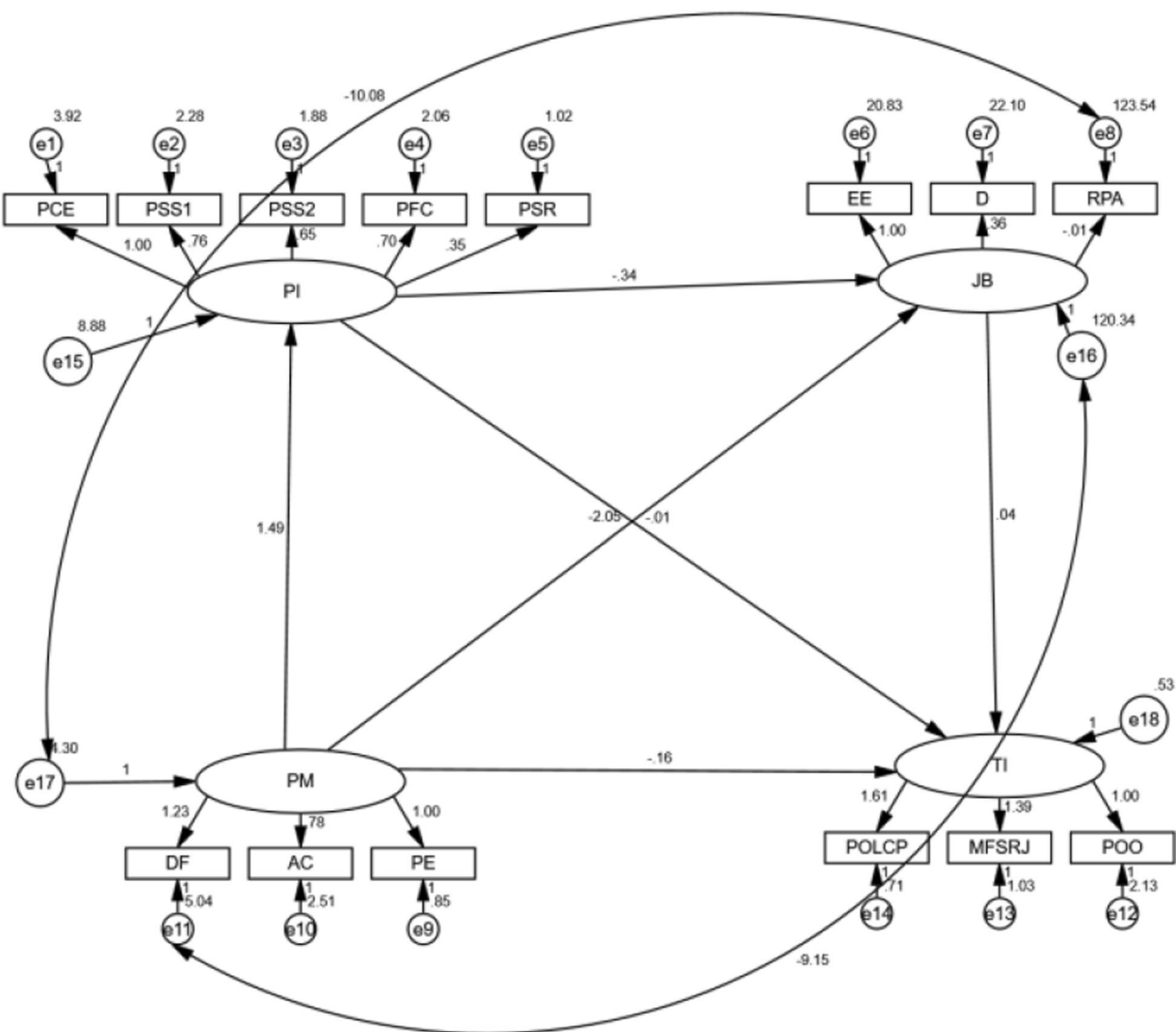
**Table 5** Exploratory factor analysis of structural equation model ( $n = 300$ )

Items	Factor1	Factor2	Factor3	Factor4
Directive Force	0.357	0.353	0.515	0.326
Altruistic Contribution	0.033	0.089	0.868	0.054
Proactive Engagement	0.212	0.206	0.822	0.154
Professional Cognitive Evaluation	0.720	0.079	0.314	0.113
Professional Social Support	0.809	0.111	0.139	0.108
Professional Social Skills	0.767	0.009	0.191	0.160
Professional Frustration Coping	0.820	0.091	0.097	0.082
Professional Self-Reflection	0.754	0.181	0.020	0.036
Emotional Exhaustion	0.221	0.284	0.078	0.823
Depersonalization	0.027	0.103	0.106	0.909
Reduced Personal Accomplishment	0.310	0.165	0.476	0.022
Probability of Leaving Current Position	0.164	0.725	0.278	0.359
Motivation for Seeking Another Job	0.103	0.814	0.148	0.259
Probability of Obtaining Job Opportunities Elsewhere	0.099	0.827	0.032	0.016
Eigenvalue	5.229	1.976	1.403	1.079
Cumulative Explained Variance (%)	37.350	51.460	61.484	69.192

total mediation effect, the independent mediation effects of professional identity and job burnout accounted for 28.74% and 55.17%, respectively, while the chain mediation effect contributed 16.09%. Detailed mediation effects are presented in Table 6.

**Discussion**  
**Analysis of occupational mission, professional identity, job burnout, and turnover intention among operating room nurses**

In this study, the turnover intention among 744 operating room nurses was found to be relatively high, in line with the classification standard defined by Li JY and Li DR [26]. The increased turnover intention may be attributed to various factors, including the high-intensity and



**Fig. 3** Mediation Model of Professional Identity and Job Burnout in the Relationship Between Professional Mission and Turnover Intention. The reliability analysis indicated that the model's Omega coefficient was 0.848, demonstrating good model stability

**Table 6** Chain mediation effects of professional identity and job burnout between professional mission and turnover intention

Pathway	Effect	SE	95%CI	Effect Proportion (%)
Total Effect	−0.324	0.022	−0.367, −0.281	100.00
Direct Effect	−0.150	0.030	−0.208, −0.092	46.30
Total Mediation Effect	−0.174	0.021	−0.217, −0.133	53.70
Professional Mission → Professional Identity → Turnover Intention	−0.050	0.018	−0.085, −0.014	28.74
Professional Mission → Job Burnout → Turnover Intention	−0.096	0.015	−0.128, −0.069	55.17
Professional Mission → Professional Identity → Job Burnout → Turnover Intention	−0.028	0.007	−0.043, −0.015	16.09



fast-paced work environment, verbal abuse from surgeons and senior nurses, and prolonged exposure to critically ill and emergency patients [27]. The demographic characteristic analysis was consistent with previous studies [28–33]. Specifically, young nurses with lower professional titles and less experience in the operating room are more likely to seek job opportunities in other institutions, particularly those with experience in tertiary hospitals [30, 31]. Contract nurses, due to limited opportunities for career advancement, lower salaries, and fewer competitive job positions, exhibit higher turnover intention [32, 33]. Additionally, nurses without children or with only one child typically face a lighter financial burden, leading to less emphasis on job stability. Frequent night shifts and overtime cause physical and mental exhaustion, disrupt sleep, and reduce overall health. These factors exacerbate work-family conflicts, especially due to the caregiving pressure caused by overtime, further increasing turnover intention [32, 33]. Therefore, healthcare institutions should adopt more flexible work schedules, enhance job stability, and provide better career development opportunities. Additionally, offering competitive salary and benefits packages can help improve work-life balance, thereby reducing turnover rates among operating room nurses. These measures are crucial for retaining valuable nursing staff and addressing the turnover issue in the healthcare industry.

According to existing research [34], the overall professional mission of OR nurses in this study was at a moderate level. The lower guiding ability score may be due to the high-intensity and high-stress nature of the OR environment, combined with rapid advancements in surgical techniques and continuous updates to medical equipment, which demand higher professional knowledge, skills, and comprehensive qualities from nurses [35]. However, insufficient training, poor incentives, and limited career growth reduce nurses' confidence. They lack motivation to optimize work processes in complex surgical situations, leading to lower scores in guiding ability. Additionally, poor internal communication and insufficient team collaboration in the OR may also negatively impact nurses' guiding ability [36]. Regularly providing professional awareness education, offering mentoring programs, and improving internal communication, plays an important role in enhancing their sense of professional mission.

In this study, the professional identity of operating room nurses is at a relatively high level, indicating that operating room nurses have a high degree of recognition and evaluation of their profession. However, their scores in the dimensions of professional social support and self-reflection are lower. The possible reasons for this are insufficient social recognition and respect for the

nursing profession, leading to inadequate social support felt by nurses [37]. Additionally, the high-intensity work pressure and potential obstacles in team collaboration further weaken this sense of support. Additionally, some nurses, due to cognitive biases about the profession, work fatigue, or the lack of effective self-reflection mechanisms, are unable to fully recognize their significance and professionalism in the surgical process and fail to develop good self-reflection and career planning habits [38, 39]. To address these gaps, nursing managers should prioritize improving social recognition, establish structured mentorship programs, and create a culture of self-reflection and career development.

According to existing studies [40], the level of professional burnout among operating room nurses in this study is relatively high, and higher than the Maslach norm [41]. This may be due to the frequent overtime, heavy workload, and prolonged mental stress experienced by OR nurses, making them more susceptible to burnout than other healthcare professionals [42]. Therefore, to reduce burnout among operating room nurses, several strategies should be implemented. These include optimizing work schedules to prevent excessive overtime, providing regular psychological support, fostering teamwork and communication, offering opportunities for professional development, and improving the work environment. Ensuring adequate rest and addressing high-pressure conditions are also essential. Finally, nursing managers should regularly monitor nurses' well-being, offer psychological support, and provide timely interventions.

#### **Correlation analysis of professional mission, professional identity, job burnout, and turnover intention among operating room nurses**

The results of this study indicate that a stronger sense of mission is linked to a higher professional identity, aligning with the research of Clark K et al., which suggests that enhancing nurses' sense of mission can strengthen their professional identity [43]. This supports hypothesis H2. Meanwhile, the increase in job burnout weakens nurses' sense of professional mission and has a negative impact on employees' psychological health and work attitudes, which is consistent with the research of Maslach et al. [44]. This finding supports hypothesis H4. Furthermore, the negative correlation between job burnout and professional identity further indicates the adverse effects of burnout on professional identity [45]. The study also found that the higher the level of job burnout, the stronger the turnover intention among nurses, making burnout an important factor contributing to employee turnover [46]. This finding supports hypothesis H4, emphasizing that job burnout mediates the relationship

between professional mission and turnover intention. Conversely, the negative correlation between professional mission and turnover intention, as well as between professional identity and turnover intention, suggests that enhancing nurses' sense of mission and professional identity can help reduce turnover risk [47, 48]. This result supports hypothesis H3, which proposes that professional identity mediates the relationship between professional mission and turnover intention.

#### **Mediating effects of professional identity and job burnout on the relationship between professional mission and turnover intention among operating room nurses**

##### ***Mediating role of professional identity in the relationship between professional mission and turnover intention***

The study revealed that professional identity has a significant mediating effect between professional mission and turnover intention. OR nurses are responsible for complex and high-intensity tasks involving patient safety, teamwork and advanced professional skills. In a high-pressure environment, a strong sense of mission helps nurses see the value of their work, which boosts their professional identity. A high level of professional identity enables nurses to demonstrate greater resilience in the face of work-related stress and fosters a sense of pride and responsibility [49], effectively reducing turnover intention. As noted in Stan R et al.'s Organizational Commitment Theory, enhanced professional identity increases employees' loyalty to the organization, making them more willing to invest effort in their work [50]. Therefore, nursing managers should focus on strengthening nurses' professional mission to enhance their professional identity, particularly in high-risk and high-intensity environments like the operating room, in order to reduce the risk of turnover.

##### ***Mediating effect of job burnout on the relationship between professional mission and turnover intention***

The results showed that job burnout significantly mediates the relationship between professional mission and turnover intention among OR nurses. OR nurses often experience burnout due to the high-intensity work, demanding environment, and substantial emotional investment required. Burnout typically manifests as emotional exhaustion, reduced work efficiency, and a sense of detachment [42]. However, nurses with a strong sense of professional mission can reinterpret stressors as meaningful challenges rather than unbearable burdens, thereby enhancing emotional resilience through cognitive reframing, boosting intrinsic motivation and emotional stability, and more effectively managing work-related stress to mitigate severe emotional exhaustion [17, 18]. According to Liu Y et al., burnout is often triggered by

excessive work pressure and inadequate emotional support [51]. Therefore a strong sense of professional mission enables nurses to perceive their work as meaningful, thereby reducing burnout and maintaining high levels of motivation. By focusing on the impact and value of their contributions to patient care, nurses with strong mission-driven attitudes can maintain psychological balance even under pressure. Consequently, nursing managers should prioritize strategies that alleviate burnout, particularly in high-pressure environments such as operating rooms. Providing emotional support and implementing effective stress management interventions are essential to mitigate burnout and lower turnover risk.

##### ***Sequential mediating effect of professional identity and job burnout on the relationship between professional mission and turnover intention***

This study also identified a significant sequential mediating effect of professional identity and job burnout on the relationship between professional mission and turnover intention. Due to the complexity of their work, OR nurses often require a high level of professional identity and stronger psychological resilience. A strong sense of professional mission can enhance professional identity, which in turn reduces burnout and subsequently lowers turnover intention. Nurses with a high level of professional identity are more capable of effectively handling workplace challenges, improving their sense of professional efficacy and reducing emotional exhaustion [52]. This finding aligns with the Job Demands-Resources (JD-R) model, which suggests that when individuals perceive adequate job resources (such as professional identity), burnout is significantly reduced, thereby increasing their work engagement [53]. Therefore, the sequential mediating effect of professional identity and job burnout among OR nurses suggests that nursing managers should implement multi-dimensional management strategies to support nurses. These strategies should range from fostering a strong sense of mission and enhancing professional identity to mitigating burnout. Such comprehensive measures can significantly improve job satisfaction and reduce turnover intention. This validates hypothesis H5, indicating that professional identity and job burnout jointly mediate the relationship between professional mission and turnover intention.

## **Conclusions**

This study explored the impact of professional mission on turnover intention among operating room nurses and analyzed the chain mediation effects of professional identity and job burnout. The findings revealed that professional mission indirectly affected turnover intention through both professional identity and job burnout, with

the sequential mediating effect of professional identity and job burnout playing a significant role in turnover intention. This suggests that in operating rooms, enhancing professional mission and professional identity while reducing job burnout could potentially help alleviate turnover intention. These insights provide nursing managers with a preliminary framework for addressing this challenge.

### Limitations and future studies

Despite the significant findings, several limitations should be noted. First, the study utilized a convenience sampling method in a single province, which may limit the generalizability of the findings to other nursing populations. Future studies should consider broader geographic and nursing contexts to enhance the applicability of the results. Second, the cross-sectional design of this study cannot establish causal relationships among the variables. Longitudinal or experimental designs would be necessary in future research to better understand the dynamic relationships between professional mission, professional identity, job burnout, and turnover intention. Finally, the reliance on self-reported data introduces the possibility of response bias. Future research could incorporate objective measures or third-party data to improve the accuracy and reliability of the results.

### Implications

This study holds several practical implications for nursing management. The results highlight the need for targeted interventions that can help reduce turnover intention among OR nurses. Specifically, healthcare institutions should prioritize strategies that enhance professional identity, strengthen the sense of professional mission, and reduce job burnout. This can be achieved by offering flexible work schedules, career development opportunities, better compensation packages, and stress management programs. Furthermore, fostering a supportive work environment through mentorship programs, improved communication, and professional development opportunities is essential to build resilience among nurses, ultimately enhancing job satisfaction and retention rates.

Additionally, interventions to reduce job burnout, such as psychological support, team-building activities, and a better work-life balance, are critical for maintaining nurse well-being and reducing turnover intention. By addressing both emotional health and work-related stress, nursing managers can create a more sustainable and committed workforce in high-pressure environments such as the operating room.

### Abbreviation

OR Operating Room

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### Authors' contributions

Conceptualization, Methodology: G.L, F.H, X.L; Investigation: G. L, H.Q, K.Q, X.L; Data analysis: G. L, H.Q; Writing—Original Draft, Review & Editing: G. L, H.Q, F.H, K.Q, X.L. All authors read and approved the final manuscript.

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### Data availability

The datasets for the current study are not publicly available due to ethical issues and confidential data protection but are available from the corresponding author upon reasonable request.

### Declarations

#### Ethics approval and consent to participate

Ethical approval was obtained by the Shandong Provincial Hospital Biomedical Research Ethics Committee involving humans. The informed consent was obtained from all participants. All methods were carried out in accordance with relevant guidelines and regulations.

#### Consent for publication

Not applicable.

#### Competing interests

The authors declare no competing interests.

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