

Occupational Burnout and Associated Factors among Public Hospital Staff across Four Regions of China: A Cross-Sectional Study

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Abstract: Occupational burnout is a major workforce concern in healthcare, yet multi-city evidence spanning clinical and non-clinical hospital staff in China remains limited. This cross-sectional online survey was conducted from May to June 2025 among staff from selected public hospitals in 11 cities assigned to four study-defined regions of China. Participants included clinical medical, nursing, allied health/medical technology, and functional/administrative staff. Burnout was assessed with a 15-item Chinese occupational burnout scale covering emotional exhaustion, depersonalization, and reduced personal accomplishment. Among 592 returned questionnaires, 578 met the validity criteria. Overall, 392 participants (67.9%) met the study-defined criterion for burnout, including 268 (46.4%) with one positive dimension, 97 (16.8%) with two positive dimensions, and 27 (4.7%) with all three positive dimensions. In multivariable logistic regression, fair sleep quality (OR=2.400, 95% CI 1.205-4.783) and poor sleep quality (OR=3.126, 95% CI 1.163-8.402) were associated with higher odds of burnout compared with very good sleep quality. Poor/very poor self-reported health status was also associated with burnout (OR=10.410, 95% CI 2.516-43.074). Working 51-60 hours per week (OR=2.547, 95% CI 1.276-5.085) or at least 61 hours per week (OR=2.721, 95% CI 1.187-6.237) was associated with higher odds of burnout compared with working 40 hours or less. These findings highlight workload, sleep, and perceived health as important correlates of burnout.

1. Introduction

Occupational burnout is a work-related syndrome that has been conceptualized in terms of emotional exhaustion, depersonalization or cynicism, and reduced professional efficacy or personal accomplishment [1,2]. In healthcare settings, burnout is particularly important because sustained emotional demands, time pressure, workload, and responsibility for patient safety may place substantial strain on the workforce.

Burnout estimates vary widely across studies because of differences in populations, instruments,

and scoring thresholds [3]. Chinese studies have likewise documented substantial burnout among nurses and physicians [4,5]. Evidence from large samples of healthcare workers also suggests that burnout differs across occupational positions and work characteristics, including workload and working hours [6].

Despite the growing literature, many Chinese studies have focused on a single occupational group, institution, or locality. Comparisons across clinical, nursing, allied health, and administrative roles and across broad geographic areas therefore remain relatively limited. Organizational and personal correlates of burnout may also differ across public hospitals because of variation in staffing, workload, employment arrangements, and local health resources.

This study examined occupational burnout among staff from selected public hospitals in 11 major cities assigned to Northeast, East, Central, and West regional groups for the purposes of this analysis. The objectives were to describe the proportion of participants meeting the study-defined burnout criteria, compare burnout-dimension scores across participant characteristics, and identify factors independently associated with burnout. The study was intended to provide exploratory evidence relevant to workforce management and occupational health.

2. Methods

2.1. Study design and participants

A cross-sectional online survey was conducted from May to June 2025. Participants were recruited from selected public hospitals in 11 major cities: Harbin and Shenyang in the Northeast group; Beijing, Nanjing, and Shenzhen in the East group; Zhengzhou, Hefei, and Changsha in the Central group; and Chengdu, Chongqing, and Guiyang in the West group. Eligible participants were actively employed hospital staff working in clinical medicine, nursing, allied health or medical technology, or functional or administrative departments.

Participants were eligible if they were actively working during the study period and provided informed consent. Rehired retired staff, third-party outsourced workers, and employees not actively working because of maternity leave, sick leave, or occupational injury leave were excluded. Questionnaires that did not meet the prespecified completeness and quality criteria were excluded from analysis.

2.2. Data collection and study variables

The questionnaire was developed by the research team after review of relevant literature and expert consultation. The first section collected sociodemographic and health-related information, including sex, age, marital status, educational attainment, exercise frequency, sleep quality, self-reported health status based on the most recent physical examination, and self-described personality orientation. The second section collected work-related information, including professional title, years of service, public-sector establishment status, weekly working hours, annual pre-tax income, study region, and occupational category.

The third section assessed occupational burnout using a 15-item Chinese measure based on the three-dimensional Maslach Burnout Inventory framework [7]. The measure included emotional exhaustion (5 items), depersonalization/cynicism (4 items), and reduced personal accomplishment (6 items). In the questionnaire used in this study, each item was rated on a 5-point Likert scale from 1 (strongly inconsistent) to 5 (strongly consistent). Items measuring personal accomplishment were reverse-scored so that higher scores consistently represented more severe burnout-related symptoms. Because the response format used in this study differs from the original MBI-GS frequency scale, the findings should be interpreted according to the study-specific scoring procedure rather than as

directly interchangeable with standard MBI-GS scores.

A mean score was calculated for each dimension. For the present analysis, a dimension was classified as positive when its mean score exceeded 3; this operational rule was informed by prior Chinese work on burnout classification [8]. Participants with no positive dimension were classified as having no burnout, whereas those with one, two, or three positive dimensions were described as having mild, moderate, or severe burnout, respectively. These labels were used for descriptive classification and do not constitute clinical diagnoses. For logistic regression, burnout was dichotomized as no burnout versus at least one positive dimension. In the present sample, Cronbach alpha coefficients were 0.884 for emotional exhaustion, 0.815 for depersonalization/cynicism, 0.825 for reduced personal accomplishment, and 0.879 for the total scale.

2.3. Statistical analysis

Data were analyzed using IBM SPSS Statistics version 26.0. Categorical variables are presented as frequencies and percentages, and continuous variables as means and standard deviations. Differences in burnout-dimension scores across participant groups were evaluated using one-way analysis of variance. For binary grouping variables, this approach yields the same inferential conclusion as the corresponding independent-samples t test. Binary logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for factors associated with burnout. Variables with $P < 0.05$ in univariable analyses were entered into the multivariable model. All tests were two-sided, and $P < 0.05$ was considered statistically significant.

2.4. Ethics

This study was approved by the Ethics Committee of the Affiliated Yongchuan Hospital of Chongqing Medical University (approval no. 20250303001) and was conducted in accordance with the Declaration of Helsinki. A standardized introductory statement on the first page of the questionnaire explained the study purpose, completion requirements, voluntary participation, and confidentiality. Participants could proceed only after reading the information and indicating consent. Data were collected anonymously and treated as confidential.

3. Results

3.1. Participant characteristics

A total of 592 questionnaires were returned, of which 578 met the validity criteria, yielding an effective response proportion of 97.6%. Women accounted for 74.2% of participants, and the largest age group was 31-40 years (34.9%). Functional or administrative staff represented 41.2% of the sample, followed by clinical medical staff (24.2%), nursing staff (18.0%), and allied health or medical technology staff (16.6%). Regional representation was 27.5% from the Northeast group, 27.0% from the East group, 19.6% from the Central group, and 26.0% from the West group (Table 1).

Table 1: Participant characteristics (N=578)

Characteristic	Category	n	%
Sex	Male	149	25.8
	Female	429	74.2
Age (years)	<=30	90	15.6
	31-40	202	34.9
	41-50	188	32.5

	51-60	98	17.0
Occupational category	Clinical medicine	140	24.2
	Nursing	104	18.0
	Allied health/medical technology	96	16.6
	Functional/administrative	238	41.2
Years of service	<=10	180	31.1
	11-20	209	36.2
	21-30	117	20.2
	31-40	72	12.5
Professional title	Senior	83	14.4
	Associate senior	156	27.0
	Intermediate	173	29.9
	Junior	166	28.7
Education	Bachelor degree or lower	331	57.3
	Master degree	178	30.8
	Doctoral degree	69	11.9
Marital status	Unmarried	115	19.9
	Married	463	80.1
Region	Northeast	159	27.5
	East	156	27.0
	Central	113	19.6
	West	150	26.0
Establishment status	Established public-sector position	396	68.5
	Non-established position	182	31.5
Weekly working hours	<=40	122	21.1
	41-50	285	49.3
	51-60	108	18.7
	>=61	63	10.9
Annual pre-tax income (10,000 CNY)	<=15	330	57.1
	16-30	187	32.4
	31-60	54	9.3
	>=61	7	1.2
Personality orientation	Introverted	362	62.6
	Extroverted	216	37.4
Weekly exercise	0 times	141	24.4
	1-2 times	142	24.6
	3-4 times	71	12.3
	>=5 times	31	5.4
	Irregular/as circumstances permit	193	33.4
Sleep quality	Very poor	23	4.0
	Poor	67	11.6
	Fair	295	51.0
	Good	138	23.9
	51-60	108	18.7
	>=61	63	10.9
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	>=5 times	31	5.4
	Irregular/as circumstances permit	193	33.4
Sleep quality	Very poor	23	4.0
	Poor	67	11.6
	Fair	295	51.0
	Good	138	23.9
	Very good	55	9.5
Health status based on latest examination	Very healthy	27	4.7
	Healthy	267	46.2
	Fair	219	37.9
	Poor	62	10.7
	Very poor	3	0.5
	>=61	63	10.9
Annual pre-tax income (10,000 CNY)	<=15	330	57.1
	16-30	187	32.4
	31-60	54	9.3

3.2. Burnout classification and dimension scores

Among the 578 participants, 392 (67.9%) met the study-defined criterion for burnout. Specifically, 268 participants (46.4%) had one positive dimension, 97 (16.8%) had two positive dimensions, and 27 (4.7%) had all three positive dimensions. These categories reflect the scoring procedure used in this study and should not be interpreted as clinical diagnoses.

Emotional exhaustion scores differed across age, occupational category, years of service, professional title, educational attainment, region, weekly working hours, personality orientation, exercise frequency, sleep quality, and health status. Depersonalization/cynicism scores differed across personality orientation, sleep quality, and health status. Reduced personal accomplishment scores differed across age, occupational category, years of service, professional title, marital status, establishment status, personality orientation, exercise frequency, sleep quality, and health status.

3.3. Univariable logistic regression

In univariable analyses, age, region, exercise frequency, sleep quality, health status, annual pre-tax income, personality orientation, establishment status, years of service, professional title, and weekly working hours were associated with burnout at $P < 0.05$. Compared with the Northeast group, the West group had higher unadjusted odds of burnout (OR=2.013, 95% CI 1.221-3.318, $P = 0.006$). Region, however, was not retained as an independently associated factor in the reported multivariable results.

3.4. Multivariable logistic regression

In the multivariable model, sleep quality, self-reported health status, and weekly working hours remained independently associated with burnout. Compared with participants reporting very good sleep quality, those reporting fair sleep quality had higher odds of burnout (OR=2.400, 95% CI 1.205-4.783, $P = 0.013$), as did those reporting poor sleep quality (OR=3.126, 95% CI 1.163-8.402, $P = 0.024$). The estimate for very poor sleep quality was elevated but imprecise and was not statistically significant (OR=6.012, 95% CI 0.667-54.199, $P = 0.110$).

Compared with participants reporting very good health based on their most recent physical examination, those reporting poor or very poor health had higher odds of burnout (OR=10.410, 95%

CI 2.516-43.074, $P=0.001$). Compared with working 40 hours or less per week, working 51-60 hours (OR=2.547, 95% CI 1.276-5.085, $P=0.008$) and working at least 61 hours (OR=2.721, 95% CI 1.187-6.237, $P=0.018$) were associated with higher odds of burnout (Table 2).

Table 2: Multivariable logistic regression of factors associated with burnout

Variable	Category	Wald chi-square	OR (95% CI)	P
Sleep quality	Overall	13.439	-	0.009
	Very good	-	Reference	-
	Good	0.319	1.229 (0.601-2.509)	0.572
	Fair	6.197	2.400 (1.205-4.783)	0.013
	Poor	5.103	3.126 (1.163-8.402)	0.024
	Very poor	2.556	6.012 (0.667-54.199)	0.110
Health status	Overall	15.924	-	0.001
	Very healthy	-	Reference	-
	Healthy	0.696	1.483 (0.588-3.741)	0.404
	Fair	3.509	2.521 (0.958-6.633)	0.061
	Poor/very poor	10.454	10.410 (2.516-43.074)	0.001
Weekly working hours	Overall	9.666	-	0.022
	≤ 40	-	Reference	-
	41-50	1.723	1.417 (0.842-2.384)	0.189
	51-60	7.021	2.547 (1.276-5.085)	0.008
	≥ 61	5.593	2.721 (1.187-6.237)	0.018

Note: OR, odds ratio; CI, confidence interval. The multivariable model included the factors shown in the table.

4. Discussion

4.1. Principal findings

In this multicity sample of public hospital staff, approximately two-thirds of participants met the study-defined criterion for occupational burnout. Longer weekly working hours, poorer sleep quality, and poorer self-reported health status were independently associated with burnout. Several demographic, occupational, and regional characteristics were associated with burnout in univariable analyses, but the multivariable results did not support interpreting these characteristics as independent determinants.

The observed proportion is broadly consistent with evidence that burnout is common among healthcare workers in China [4-6]. Direct comparison across studies nevertheless requires caution because prevalence estimates depend strongly on the population, measurement instrument, response scale, and burnout threshold [3]. In the present study, burnout was defined operationally as at least one dimension with a mean score greater than 3; therefore, the 67.9% figure should be interpreted as the proportion meeting this study-defined criterion rather than as a clinical prevalence estimate or a directly comparable MBI-GS prevalence.

4.2. Weekly working hours and burnout

Working 51 hours or more per week was independently associated with higher odds of burnout.

Conservation of resources theory proposes that sustained job demands may deplete valued resources such as time, energy, and emotional capacity when opportunities for recovery are inadequate [9]. Studies of Chinese healthcare workers have also linked longer working hours and demanding job characteristics with higher burnout [6,10]. In public hospitals, extended hours may coexist with high patient volumes, documentation requirements, night or emergency duties, and expectations related to research and professional advancement.

4.3. Sleep quality and burnout

Poorer sleep quality was associated with higher odds of burnout, although the estimate for the very poor sleep group was imprecise because that subgroup was small. Sleep and circadian disruption can interfere with recovery, attention, and emotional regulation and have been linked to physician burnout [11]. Among Chinese nurses, poor sleep quality has also shown a strong positive association with job burnout and may interact with perceived stress [12]. The relationship is likely bidirectional: occupational strain may impair sleep, while inadequate sleep may reduce resilience to job demands.

4.4. Self-reported health status and burnout

Participants who rated their health as poor or very poor had markedly higher odds of burnout. This association is plausible because burnout has been linked prospectively with a range of adverse physical, psychological, and occupational outcomes [13]. At the same time, the health measure in this study was self-reported and may have been influenced by participants' current psychological state. Reverse causation and common-method bias therefore cannot be excluded, and the large OR should be interpreted alongside its wide confidence interval.

4.5. Regional and occupational differences

The West group had higher unadjusted odds of burnout than the Northeast group, but region was not retained as an independent factor in the multivariable results. Geographic variation in burnout may reflect differences in staffing, workload, remuneration, hospital organization, and the broader distribution of health human resources. Chinese studies have documented both regional variation in burnout and persistent geographic inequalities in health workforce allocation [5,6,10,14,15]. Because the present sample was drawn from selected hospitals and cities rather than through probability sampling, regional comparisons should be regarded as exploratory.

Younger staff, employees with shorter service, junior or intermediate professional titles, lower income, and non-established positions showed higher burnout proportions in univariable analyses. These characteristics may cluster with workload, career-development pressure, job insecurity, and fewer organizational resources.

4.6. Strengths and limitations

This study included multiple occupational groups from selected cities across four broad regional groups, providing a wider perspective than a single-hospital survey. It also considered demographic, occupational, sleep-related, and health-related factors within a common analytic framework.

Several limitations should be considered. First, the cross-sectional design prevents determination of temporal sequence or causality. Second, participants were recruited from selected hospitals through a non-probability online survey; therefore, the sample is not nationally representative. Functional or administrative staff were overrepresented, which may have influenced comparisons

with clinical groups. Third, all measures were self-reported and may be affected by recall, response, and common-method bias. Fourth, the burnout classification used a study-specific cutoff and a modified response format, limiting direct comparability with studies using standard MBI scoring.

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