

# BMJ Open Effects of organisational and patient factors on doctors' burnout: a national survey in China

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## ABSTRACT

**Objectives** To measure the burnout of doctors affiliated with western medicine (WM) and traditional Chinese medicine (TCM) hospitals and to evaluate its relationships with organisational and patient factors.

**Design** A national cross-sectional study in China.

**Setting** By convenience sampling, this study was conducted in 64 general hospitals from six provinces and Beijing between July 2014 and April 2015. There were a total of 2576 eligible participants, including 1766 WM doctors and 810 TCM doctors in this study.

**Primary outcome measures** Burnout symptoms of emotional exhaustion, job involvement and personal accomplishment were measured.

**Results** In total, 73.6% of doctors reported emotional exhaustion, the core component of burnout. In multivariable models, emotional exhaustion was significantly associated with organisational factors, including salary fairness [WM: odds ratio (OR)=2.36, 95% confidence interval (CI): 1.80 to 3.09; TCM: OR=1.59, 95% CI: 1.08 to 2.33], participation in organisational decision-making (WM: OR=1.58, 95% CI: 1.21 to 2.08; TCM: OR=1.84, 95% CI: 1.23 to 2.74), professional value (WM: OR=1.74, 95% CI: 1.35 to 2.25), frequency of participation in full-time training (TCM: OR=1.48, 95% CI: 1.01 to 2.16) and frequency of participation in clinical meetings (WM: OR=1.53, 95% CI: 1.11 to 2.10; TCM: OR=2.48, 95% CI: 1.57 to 3.92). Patient factors are also associated with burnout among both WM and TCM doctors, including respect (WM: OR=1.73, 95% CI: 1.31 to 2.28; TCM: OR=1.65, 95% CI: 1.10 to 2.45) and unreasonable demands (WM: OR=2.31, 95% CI: 1.68 to 3.20; TCM: OR=3.44, 95% CI: 2.15 to 5.49). Moreover, job involvement and personal accomplishment among both WM and TCM doctors were significantly associated with organisational and patient factors.

**Conclusions** Our results suggest that improving organisational management and patient behaviours may be beneficial to reduce doctors' burnout. Our findings require further validation in different organisational settings.

## INTRODUCTION

Burnout among health professionals affects their own health and also the quality of care and patient safety throughout the health-care system.<sup>1–3</sup> Over the last few decades,

## Strengths and limitations of this study

- The study provides the first national evidence of burnout among both western medicine and traditional Chinese medicine doctors in China.
- The study demonstrates the associations between doctors' burnout and organisational and patient factors in China.
- The response rate was 52.0%, which could result in potential biases.
- The accuracy of the three single-item measures of job burnout might be undermined compared with the full Maslach Burnout Inventory scale.
- The cross-sectional survey could not establish causal relationships between doctors' burnout and organisational and patient factors.

doctors' job burnout has become an international issue, affecting both developed and developing countries.<sup>4–6</sup> Because of the high levels of burnout among health professionals, researchers have suggested that the problem lies more with the healthcare system and the environment in which healthcare staff work.<sup>7,8</sup>

Lo *et al* conducted a systematic review of doctors' job burnout in China and indicated that burnout among doctors of tertiary hospitals in China ranged from 66.5% to 87.8%.<sup>9</sup> These studies included in this review were conducted based on the different versions of burnout measures with limited sample sizes. Thus, a national survey on doctors' job burnout based on a uniformed instrument is necessary in China. Previous studies have identified some work-related factors associated with burnout among doctors, such as salary, workload, the doctor–patient relationship, work-group cohesion and organisational fairness.<sup>7–13</sup> In this study, we combine main dimensions of organisational and patient factors to examine their associations with job burnout among doctors. The effects of these two dimensions on burnout may be fundamentally different, and they may call for different interventions. Further, prior

studies on doctor burnout in China have mainly focused on doctors in western medicine (WM) hospitals; and there was limited evidence on burnout among health professionals practicing traditional Chinese medicine (TCM).<sup>5 14 15</sup>

To advance the understanding of doctors' burnout in China as well as its associations with organisational and patient factors, we conducted a national survey of the tertiary hospitals providing WM and TCM. The aim of the study is to provide new evidence on the impact of organisational and patient factors on doctors' job burnout. Our main hypothesis is that job burnout would be associated with organisational and patient factors. Our secondary hypothesis is that factors associated with burnout among doctors of WM and TCM are different in China.

## METHODS

### Patient and public involvement

We obtained the informed consent of every doctor to voluntarily participate in this study.

### Sample and procedure

This study is a nationwide survey of doctors in general hospitals, using stratified cluster sampling. Six provinces (Gansu, Yunnan, Jiangsu, Shandong, Hubei and Guangdong) and Beijing, the capital city, were selected, which have a total population of 427.2 million, accounted for 31.9% of the total population of China.<sup>16</sup> Referenced to the 2013 and 2014 provincial gross domestic product ranking, Gansu and Yunnan provinces were areas with low economic activity; Jiangsu, Shandong and Hubei provinces were areas with median levels of economic activity; Guangdong province and Beijing city are areas with a high level of economic activity.<sup>17</sup> The distribution of medical resources is uneven in different economic development areas in China. In economically developed areas, the number of doctors per capita is higher, and access to higher quality healthcare is also better.

Random sampling at the hospital level was difficult to pursue in this study because most hospitals were not willing to participate in research studies. Therefore, we selected a convenience sample of hospitals from regions where we had stronger professional networks or university–community partnerships to increase participation in our survey. In each region (a major metropolitan area or equivalent), we selected two WM hospitals out of two or three such hospitals in the region and one TCM hospital that usually was the only one. The total number of eligible tertiary general hospitals was 72 of which eight refused to participate, leaving a total of 64 hospitals (88.9%) in our sample. In each hospital, convenience sampling was also used to select three to four surgical departments and three to four internal medicine departments (excluding obstetrics and paediatrics departments because doctor–patient interactions in paediatric and obstetric units are different than those in other units, which may skew our

results), and all full-time doctors in these departments were surveyed.

Data were collected from July 2014 to April 2015. The survey was self-administered. Trained survey assistants sent the copy of the questionnaire to each department, with an explanation of the purpose of the survey, including the voluntary and anonymous nature of participation. After 3–5 days, the survey assistants returned to the department to collect the completed questionnaires. After the questionnaires were retrieved, we performed quality control check. There were three steps to clean up the returned questionnaires in this study. First, we removed the questionnaires with the same handwriting in the same department. Second, two or more questionnaires with exactly the same response were excluded. Third, logic error checking was performed to exclude inconsistent questionnaires as reported in prior studies.<sup>18–20</sup>

### Survey instrument

The Maslach Burnout Inventory (MBI) is considered the reference standard for the assessment of burnout.<sup>21</sup> Its length (22 items), however, limits the feasibility in the nationwide study.<sup>6 22</sup> Referred to prior studies, in the current study, symptoms of burnout were assessed using three single-item measures adapted from the full MBI.<sup>6 22 23</sup> Especially, emotional exhaustion, the core component of burnout, was measured by the question: do you feel burned out from your work? This item was reported to provide reliable correlations with the full scale of MBI, which suggested that this single-item measure could be used as an alternative.<sup>23</sup> Notably, due to the sensitive doctor–patient relationship in China, health professionals prone to avoid expressing depersonalisation. These sensitive items about depersonalisation were revised from the Chinese version of MBI, and job involvement was used instead of the positive side of depersonalisation by asking: do you get pleasure from being a doctor? Chiu and Tsai *et al* had affirmed the mediating effect of job involvement in relationships among three dimensions of burnout.<sup>24</sup> In addition, the personal accomplishment was measured by asking: do you feel proud of your work? These two dimensions were used as a complementary to the emotional exhaustion scale. Each question was answered on a 5-point Likert scale with response options ranging from 'not at all' to 'extremely'.<sup>25–27</sup> These single items correlated strongly with the three core dimensions as measured by the full MBI in prior studies and had relatively good internal consistency ( $\alpha=0.7$ ) in the current study.<sup>6 22 26 28</sup>

Independent variables included organisational factors and those relating to patient behaviour. Organisational factors were measured by five questions:

1. How fair do you think your salary is? (salary fairness).
2. How often do you participate in organisational decision-making? (participation in organisational decision-making).
3. How valued is your professional status? (professional value).

4. How many times have you been participated in full-time training courses (3 months or more) in the last 5 years? (frequency of participation in full-time training which classified into five levels: never, once, twice, three times and four times).
  5. How many times do you take part in clinical meetings within the department per month? (frequency of participation in clinical meetings which classified into five levels: never, once, twice, three times and four times).
- The patient factor was measured by four questions:
1. In your experience, do you feel respect from patients? (patients' respect).
  2. In your experience, how often do patient make unreasonable demands towards doctors? (patients' unreasonable demands).
  3. In your experience, do patients comply with hospital instructions? (patients' compliance with hospital instructions).
  4. In your experience, do patients adhere to medical treatment? (patients' adherence to treatment).

Additionally, we collected doctors' demographic information, including gender (male and female), age ( $\leq 24$ , 25–34, 35–44 and  $\geq 45$  years old), marital status (married and single), education (PhD, Master, Bachelor and Junior college), specialisation (internal medicine and surgery) and self-reported economic status (good, fair and bad).

### Statistical analysis

The  $\chi^2$  test was used to assess the difference in the categorical primary variables, including demographic variables (gender, age, marital status, education, specialisation and economic status), organisational factors (salary fairness, participation in organisational decision-making,

professional value, frequency of participation in full-time training and frequency of participation in clinical meetings), patients' behaviour (respect, unreasonable demands, compliance with hospital instructions and adherence to treatment) and outcome variables (emotional exhaustion, job involvement and personal accomplishment) between WM and TCM doctors. Multiple logistic regression analyses were used to evaluate the effects of organisational factors and patients' behaviour on doctors' job burnout. Potential confounding variables including gender, age, marital status, education, specialisation and economic status were adjusted in all six models. Results of multiple logistic regression analyses are reported as adjusted odds ratio (OR) and 95% confidence interval (CI). Excluding variables of the frequency of participation in full-time training and clinical meetings, extremely low and low levels of variables were combined; medium, high and extremely high levels of variables were combined to form dichotomous variables from the 5-point Likert scale. All tests were two-sided and p values less than 0.05 were considered statistically significant. Statistical analyses were performed using Statistical Package for Social Sciences V.12.0 for Windows.

### RESULTS

Figure 1 shows the flowchart for the recruitment of eligible participants. In total, there were 4955 sampling doctors, of whom 1263 did not submit a response. In addition, 569 questionnaires were excluded during the quality control process. We also excluded 547 participants with missing information. This left a total of 2576 participants,

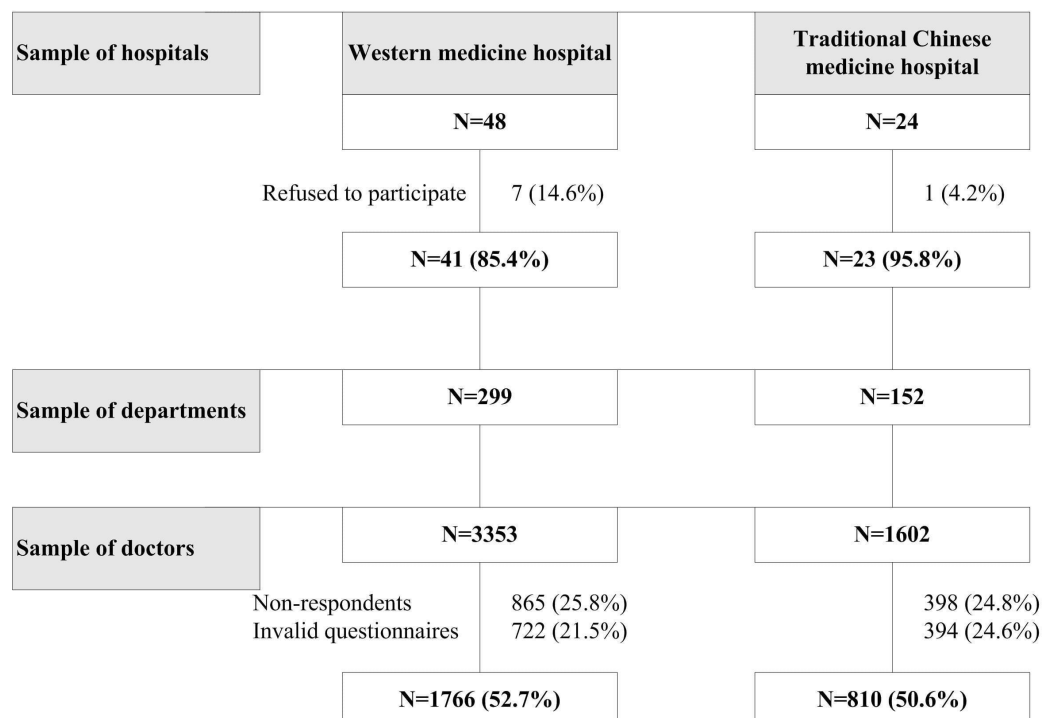


Figure 1 Flowchart for recruitment and response rates to the survey.

**Table 1** Demographic characteristics of doctors compared between western medicine and traditional Chinese medicine

Demographic variables	Western medicine	Traditional Chinese medicine	P value
	N (%)	N (%)	
<b>Gender</b>			
Male	1113 (63.0)	446 (55.1)	<0.001
Female	653 (37.0)	364 (44.9)	
<b>Age (years old)</b>			
≤24	80 (4.5)	50 (6.2)	0.007
25–34	888 (50.3)	438 (54.1)	
35–44	535 (30.3)	218 (26.9)	
≥45	263 (14.9)	104 (12.8)	
<b>Marital status</b>			
Single	460 (26.1)	254 (31.4)	0.005
Married	1306 (74.0)	556 (68.6)	
<b>Education</b>			
PhD	232 (13.1)	65 (8.0)	0.04
Master	846 (47.9)	431 (53.2)	
Bachelor	654 (37.0)	289 (35.7)	
Junior college	34 (1.9)	25 (3.1)	
<b>Specialisation</b>			
Internal medicine	880 (49.8)	445 (54.9)	0.02
Surgery	886 (50.2)	365 (45.1)	
<b>Economic status</b>			
Good	121 (6.9)	43 (5.3)	<0.001
Fair	1004 (56.9)	417 (51.5)	
Bad	641 (36.3)	350 (43.2)	

including 1766 doctors providing WM and 810 providing TCM.

Participants' demographic characteristics are shown in table 1. There were significant differences in demographic characteristics between WM and TCM doctors. There were less female WM doctors than TCM doctors (37.0% vs 44.9%;  $p<0.001$ ); the proportion of WM doctors with a PhD was higher than TCM doctors (13.1% vs 8.0%;  $p=0.005$ ) and WM doctors were less likely to report bad economic status than TCM doctors (36.3% vs 43.2%;  $p<0.001$ ).

Table 2 shows organisational and patient factors between WM and TCM doctors. Both WM and TCM doctors had low senses of salary fairness and less opportunity to participate in organisational decision-making. Both of them reported low professional value. The proportion of doctors reporting four or higher times of participation in full-time learning was higher for WM than TCM (39.3% vs 29.7%,  $p<0.001$ ), which was also higher for WM doctors in the frequency of participation in clinical meetings (46.6% vs 35.4%,  $p<0.001$ ). WM doctors reported lower levels of patients' respect than TCM doctors (45.6%

**Table 2** Organisation and patients' behaviour compared between western medicine and traditional Chinese medicine

Independent variables	Western medicine	Traditional Chinese medicine	P value
	N (%)	N (%)	
<b>Organisation factors</b>			
<b>Salary fairness</b>			
Good	143 (8.1)	54 (6.7)	0.7
Fair	667 (37.8)	322 (39.8)	
Bad	956 (54.2)	434 (53.6)	
<b>Participation in organisational decision-making</b>			
High	85 (4.8)	54 (6.7)	0.1
Medium	314 (17.8)	145 (17.9)	
Low	1367 (77.4)	611 (75.4)	
<b>Professional value</b>			
Good	110 (6.2)	65 (8.0)	0.5
Fair	356 (20.2)	149 (18.4)	
Bad	1300 (73.6)	596 (73.6)	
<b>Frequency of participation in full-time training</b>			
0	1242 (70.3)	492 (60.7)	<0.001
≥1	524 (29.7)	318 (39.3)	
<b>Frequency of participation in clinical meetings</b>			
≤1	356 (20.2)	206 (25.4)	<0.001
2–3	587 (33.2)	317 (39.1)	
≥4	823 (46.6)	287 (35.4)	
<b>Patients' behaviour</b>			
<b>Respect</b>			
High	174 (9.9)	88 (10.9)	0.03
Medium	787 (44.6)	393 (48.5)	
Low	805 (45.6)	329 (40.6)	
<b>Unreasonable demands</b>			
Low	567 (32.1)	253 (31.2)	0.5
Medium	619 (35.1)	278 (34.3)	
High	580 (32.9)	279 (34.4)	
<b>Compliance with hospital instructions</b>			
High	449 (25.4)	208 (25.7)	0.5
Medium	722 (40.9)	347 (42.8)	
Low	595 (33.7)	255 (31.5)	
<b>Adherence to treatments</b>			
High	548 (31.0)	245 (30.3)	0.4
Medium	954 (54.0)	431 (53.2)	
Low	264 (15.0)	134 (16.5)	

vs 40.6%,  $p=0.03$ ). The differences in levels of patients' unreasonable demands, compliance with hospital instructions and adherence to treatment between the two groups showed no statistical significance.

**Table 3** Job burnout of doctors compared between western medicine and traditional Chinese medicine

Dependent variables	Western medicine	Traditional Chinese medicine	P value
	N (%)	N (%)	
<b>Emotional exhaustion</b>			
Extremely low	14 (0.8)	7 (0.9)	0.2
Low	72 (4.1)	31 (3.8)	
Medium	361 (20.4)	195 (24.1)	
High	677 (38.3)	295 (36.4)	
Extremely high	642 (36.4)	282 (34.8)	
<b>Job involvement</b>			
Extremely high	23 (1.3)	22 (2.7)	<0.001
High	221 (12.5)	109 (13.5)	
Medium	613 (34.7)	306 (37.8)	
Low	512 (29.0)	237 (29.3)	
Extremely low	397 (22.5)	136 (16.8)	
<b>Personal accomplishment</b>			
Extremely high	39 (2.2)	17 (2.1)	0.05
High	246 (13.9)	113 (14.0)	
Medium	734 (41.6)	379 (46.8)	
Low	424 (24.0)	180 (22.2)	
Extremely low	323 (18.3)	121 (14.9)	

Burnout levels among doctors are shown in [table 3](#). In total, 73.6% of doctors reported a high or extremely high emotional exhaustion, and the difference between WM and TCM doctors was not statistically significant. However, WM doctors reported a higher percentage of extremely low of job involvement than that of TCM doctors (22.5% vs 16.8%,  $p < 0.001$ ). The difference of emotional exhaustion among male and female WM doctors showed no statistical significance (online supplementary appendices 1 and 2). Emotional exhaustion among male TCM doctors was significantly higher than female doctors (37.7% vs 31.3%,  $p = 0.04$ ). Emotional exhaustion was most prevalent among doctors aged 35–44 years old in both groups (80.9% and 79.8%, respectively). Furthermore, there is no statistical significance between male and female doctors in job involvement and personal accomplishment among either WM or TCM. Job involvement (0.7% vs 1.9%,  $p = 0.02$ ) and personal accomplishment (1.7% vs 2.7%,  $p < 0.001$ ) in WM surgeons were significantly higher than physicians.

The multiple logistic regression analyses are shown in [table 4](#). Salary fairness and participation in organisational decision-making were significantly associated with burnout among both WM and TCM doctors. Especially, high emotional exhaustion was significantly associated with bad salary fairness (WM: OR=2.36, 95% CI: 1.80 to 3.09; TCM: OR=1.59, 95% CI: 1.08 to 2.33) and low opportunity of participation in organisational decision-making (WM: OR=1.58, 95% CI: 1.21 to 2.08; TCM:

OR=1.84, 95% CI: 1.23 to 2.74). The effect of low professional value on emotional exhaustion was significant only for WM doctors (OR=1.74, 95% CI: 1.35 to 2.25). Less full-time training had a negative influence on emotional exhaustion of TCM doctors (OR=1.48, 95% CI: 1.01 to 2.16). More clinical meetings ( $\geq 4$  times per week) had a negative influence on emotional exhaustion among both groups (WM: OR=1.53, 95% CI: 1.11 to 2.10; TCM: OR, 2.48, 95% CI: 1.57 to 3.92). For patient factors, low level of patients' respect (WM: OR=1.73, 95% CI: 1.31 to 2.28; TCM: OR=1.65, 95% CI: 1.10 to 2.45) and high level of patients' unreasonable demands (WM: OR=2.31, 95% CI: 1.68 to 3.20; TCM: OR=3.44, 95% CI: 2.15 to 5.49) were both associated with emotional exhaustion among both WM and TCM doctors.

Moreover, low job involvement was significantly associated with bad salary fairness, low participation in organisational decision-making, low patients' respect and low adherence to treatments in both WM and TCM doctors. Especially, professional value, frequency of participation in full-time training, frequency of participation in clinical meetings, patients' unreasonable demands and compliance with hospital instructions were significantly associated with job involvement among WM doctors. Low personal accomplishment among both WM and TCM doctors were associated with low participation in organisational decision-making, low patients' respect and low compliance with hospital instructions. Especially, salary fairness, full-time training and patients' unreasonable demands were associated with personal accomplishment among WM doctors. Furthermore, low adherence to treatment guidance had a negative impact on personal accomplishment among TCM doctors.

## DISCUSSION

Although the prevalence of job burnout among doctors was already reported previously,<sup>9 29</sup> this study provides the first national evidence of burnout among doctors based on an established instrument and stratified by WM and TCM in China. Overall, our findings suggest that doctors in China are suffering from high levels of burnout, in line with other studies. Organisational and patient factors were associated with three dimensions of burnout, supporting our main hypothesis.<sup>11 30</sup> Additionally, the difference of job burnout between WM and TCM doctors was not statistically significant. However, factors associated with doctors' burnout between the two groups were found to be different.

Emotional exhaustion, the core component of burnout, was reported by 73.6% of our respondents. This is close to the 76% burnout rate reported in one previous study and higher than the 45.8% burnout rate reported in another study on internal medicine residents in the USA using the same single indicator measures.<sup>28 31</sup> The levels of emotional exhaustion were not significantly different between WM and TCM doctors. This could suggest that burnout among doctors in China is both related to

**Table 4** Factors independently associated with job burnout of doctors on multivariable logistic regression analysis

Independent variables	Western medicine				Traditional Chinese medicine				
	High emotional exhaustion	Low job involvement	Low personal accomplishment	High emotional exhaustion	Low job involvement	Low personal accomplishment	High emotional exhaustion	Low job involvement	Low personal accomplishment
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
<b>Organisational factors</b>									
Bad salary fairness	2.36 (1.80 to 3.09)	1.69 (1.34 to 2.14)	1.57 (1.23 to 2.01)	1.59 (1.08 to 2.33)	1.51 (1.07 to 2.12)	1.08 (0.74 to 1.56)	1.84 (1.23 to 2.74)	1.73 (1.17 to 2.57)	2.25 (1.44 to 3.53)
Low participation in organisational decision-making	1.58 (1.21 to 2.08)	1.67 (1.27 to 2.20)	1.85 (1.37 to 2.50)	1.42 (0.97 to 2.08)	0.92 (0.65 to 1.31)	0.79 (0.55 to 1.15)	1.48 (1.01 to 2.16)	0.88 (0.63 to 1.22)	0.90 (0.63 to 1.28)
Low professional value	1.74 (1.35 to 2.25)	1.35 (1.06 to 1.72)	1.24 (0.96 to 1.60)	1.42 (0.97 to 2.08)	0.92 (0.65 to 1.31)	0.79 (0.55 to 1.15)	1.48 (1.01 to 2.16)	0.88 (0.63 to 1.22)	0.90 (0.63 to 1.28)
Less full-time training	1.00 (0.76 to 1.30)	0.65 (0.50 to 0.83)	0.65 (0.50 to 0.84)	1.48 (1.01 to 2.16)	0.88 (0.63 to 1.22)	0.90 (0.63 to 1.28)	1.48 (1.01 to 2.16)	0.88 (0.63 to 1.22)	0.90 (0.63 to 1.28)
<b>Participation in clinical meetings (ref=<math>\leq 1</math>)</b>									
2-3	1.24 (0.90 to 1.72)	0.89 (0.66 to 1.20)	0.89 (0.66 to 1.22)	1.37 (0.90 to 2.07)	0.79 (0.53 to 1.16)	0.86 (0.57 to 1.30)	1.37 (0.90 to 2.07)	0.79 (0.53 to 1.16)	0.86 (0.57 to 1.30)
$\geq 4$	1.53 (1.11 to 2.10)	0.60 (0.45 to 0.80)	0.75 (0.55 to 1.01)	2.48 (1.57 to 3.92)	0.96 (0.64 to 1.43)	0.67 (0.44 to 1.03)	2.48 (1.57 to 3.92)	0.96 (0.64 to 1.43)	0.67 (0.44 to 1.03)
<b>Patients' behaviour</b>									
Low respect	1.73 (1.31 to 2.28)	2.12 (1.68 to 2.67)	2.99 (2.36 to 3.78)	1.65 (1.10 to 2.45)	1.94 (1.39 to 2.71)	3.12 (2.21 to 4.41)	1.65 (1.10 to 2.45)	1.94 (1.39 to 2.71)	3.12 (2.21 to 4.41)
Unreasonable demands	2.31 (1.68 to 3.20)	1.63 (1.26 to 2.10)	1.51 (1.17 to 1.95)	3.44 (2.15 to 5.49)	1.35 (0.94 to 1.94)	1.27 (0.87 to 1.84)	3.44 (2.15 to 5.49)	1.35 (0.94 to 1.94)	1.27 (0.87 to 1.84)
Low compliance with hospital instructions	1.30 (0.95 to 1.76)	1.57 (1.22 to 2.01)	1.59 (1.23 to 2.05)	1.48 (0.94 to 2.33)	1.32 (0.92 to 1.91)	1.66 (1.14 to 2.42)	1.48 (0.94 to 2.33)	1.32 (0.92 to 1.91)	1.66 (1.14 to 2.42)
Low adherence to treatments	0.90 (0.60 to 1.35)	1.62 (1.16 to 2.28)	1.35 (0.97 to 1.87)	1.38 (0.78 to 2.44)	2.04 (1.31 to 3.18)	2.08 (1.33 to 3.23)	1.38 (0.78 to 2.44)	2.04 (1.31 to 3.18)	2.08 (1.33 to 3.23)

Gender, age, marital status, education, specialisation and economic status were adjusted in all models.

individual doctors and to their working environment. Burnout was most prevalent among people aged 35–44 which is considered the ‘golden period’ for individual professional development.<sup>32</sup> These results suggested that burnout among Chinese doctors may both affect the individuals concerned and the sustainable development of the healthcare system. Healthcare organisations and the society should address the problem of doctors’ burnout to maintain the healthcare system.

Of the five organisational factors, salary fairness and participation in organisational decision-making were associated with burnout of both WM and TCM doctors, which are consistent with previous studies.<sup>11 12 33</sup> Their significant impact may reveal that improving organisational management measures would help reduce doctors’ burnout.

Although low professional value was negatively associated with burnout for WM doctors, for the association was not significant for TCM doctors, which is consistent with previous studies.<sup>11</sup> One possible explanation is related to the culture of TCM, which emphasises the coordination and harmony between Yin and Yang (the basic theory of TCM) with the modest way and slow rhythm, like playing Tai Chi boxing.<sup>34–36</sup> Correspondingly, the knowledge and ability of doctors of TCM require long-term accumulation with practice calmly and insightfully. This might result in the insignificant link between professional value and burnout for TCM doctors. Unfortunately, there is little evidence on job burnout among doctors serving traditional medicine, and a cross-cultural comparative study is needed in the future.

This study showed that frequent participation in clinical case meetings was associated with worse burnout among WM doctors. Frequent participation in clinical meetings might increase the doctors’ workload, which was suggested to be an important risk factor to doctors’ burnout.<sup>37</sup> Besides, frequent participation in clinical case meetings may give rise to work conflict in WM doctors, which also might aggregate job burnout.

As reported previously, patient factors were significantly associated with burnout, which included patients’ support, patient–provider relationship and communication.<sup>5 38</sup> Although specific findings varied across these studies, their conclusions generally reveal the important role of patient factors in affecting doctors’ burnout. The tense doctor–patient relationship in China resulted in low patients’ respect for the doctor.<sup>28</sup> Low patients’ respect might result in doctors’ burnout, which in turn might reduce the quality of patient care.

Technology development gives patients wide-range access to sources of medical information; however, the knowledge acquired by the patient, in general, may be limited, and their capacity to use this knowledge would be very poor. Combined with stress caused by their illness, patients’ demands on their treatment expectations might be unreasonable. The prior studies have shown that increased patient satisfaction was associated with lower mortality and higher quality of healthcare.<sup>39–41</sup> However,

doctors frequently deal with patients’ unreasonable demands might result in worse job burnout. Thus, the healthcare providing process should be based on mutual respect, which might be helpful for both job burnout of doctors and the quality of service.

Patients’ compliance with hospital instructions and adherence to treatments had no significant associations with emotional exhaustion, but were positively associated with doctors’ job involvement and personal accomplishment. This result indicated that improve patients’ compliance with healthcare might improve doctors’ job involvement and personal accomplishment.

Our study has several strengths. First, the study provides the first national evidence of burnout among both WM and TCM doctors in China. Second, we showed the associations between doctors’ burnout and organisational and patient factors in China. Limitations of this study include the following. First, the response rate was 52.0%. We did not use any incentives to further improve participation, as this would have increased potential biases. Second, the different types of patients, including their socioeconomic status, treatment preference and the severity of their illness, might confound the results. Third, we used only three single items to measure job burnout, the accuracy of the questionnaire might be slightly undermined compared with the full MBI score. Fourth, the cross-sectional survey could not establish causal relationships between organisational and patient factors and burnout among doctors. At last, doctors in some departments might be more active to participate in the survey than those in other departments. This clustering effect might undermine the result interpretations.

## CONCLUSION

In this study based on a national sample, burnout among both WM and TCM doctors was common in China, which called for effective interventions to address this problem. We found that higher burnout was significantly associated with organisational factors, including poor salary fairness, low participation in organisational decision-making, low professional value and frequent participation in clinical meetings; and patient factors including low patients’ respect, patients’ unreasonable demands, low compliance with hospital instructions and low adherence to treatments. These results suggested that improving organisational management and patient behaviours may be beneficial to reduce doctors’ burnout. Additionally, our findings require further validation in different organisational settings given the variability across health systems.

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