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Compassion fatigue among medical students and its relationship to medical career choice: a cross-sectional survey

Xuemin Zhong[1†], Junming Chen[2†], Bin Yang[1] and Gongbo Li[3*]

Abstract

Background Compassion fatigue can lead to various physical and mental health issues and reduce the work efficiency and motivation of medical professionals. This study explored the prevalence of compassion fatigue among medical students and its relationship to their decision to continue working in clinical medicine after graduation from medical school.

Methods A cross-sectional survey was conducted with clinical medicine students in several hospitals in Southwest China using convenience methods. The Chinese version of the Compassion Fatigue Scale was used to measure compassion fatigue. Additionally, the desire to have a career in clinical medicine after graduation was investigated to determine its relationship to compassion fatigue.

Results A total of 473 medical students participated in the survey. Among the participants, 46 experienced mild compassion fatigue, 205 experienced moderate compassion fatigue, and 210 experienced severe compassion fatigue. The regression analysis showed that a night shift frequency of 2–3 times/week (odds ratio (OR) = 5.33, 95% confidence interval (CI) [1.35, 21.0]), working 8–10 h per day (OR = 2.30, 95% CI [1.01, 5.22]), or working 10 h per day or more (OR = 8.64, 95% CI [1.99, 37.6]) were factors of severe compassion fatigue. Furthermore, 158 participants reported that they did not often or always want to pursue a career in clinical work after graduation. Regression analysis revealed that low empathy satisfaction was an independent risk factor for students not wanting to continue in clinical practice post-graduation (odds ratio = 2.30, 95% CI [1.00, 5.31]).

Conclusion Compassion fatigue is common among medical students and may significantly influence their intention to pursue a medical career after graduation. Educational institutions, medical facilities, and relevant departments should prioritize addressing compassion fatigue in medical students and implementing effective preventive and interventional strategies.

Keywords Compassion fatigue, Medical student, Medical career choice, Empathy satisfaction, Job burnout, Traumatic stress

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Background

Compassion fatigue is an occupational hazard of helpers working with injured people [1]. It is the price that is paid for caring and having empathy for others, resulting in psychological problems due to indirect exposure to traumatic events [1–2]. Over time, compassion fatigue not only causes abnormal emotional, cognitive, and behavioral symptoms, but also causes the helper to lose the ability to communicate and maintain a good relationship with patients, resulting in misdiagnosis, poor rescue planning, and other serious consequences [3–6].

Currently, studies on compassion fatigue focus on specific groups, such as nurses, emergency department physicians, and oncologists [7–9]. Our study found that the majority of hospital physicians experience empathy fatigue and have accordingly considered resigning [10]. Previous studies have shown positive associations between longer lengths of employment and weekly working hours and increased levels compassion fatigue and thoughts of resigning [11–14]. The empathic ability of medical students is an important skill for them to have because it contributes to establishing good relationships with patients and providing high-quality medical services [15–16]. The trust and understanding between doctors and patients are the foundation for establishing a good doctor-patient relationship, and it is also important to pay attention to the compassion fatigue of medical students as a barrier to building a harmonious doctor-patient relationship [17–18]. Therefore, It is important to focus on whether medical students experience compassion fatigue. However, there is a lack of research on empathy fatigue among medical students.

Although medical environments vary across regions even with globalization, compassion fatigue is a common occupational phenomenon in the medical industry across countries [1–8]. Studies have found that stress is very common among medical students and trainees [19–20]. As the backbone of the future medical industry, medical graduate students in all countries may face a risk of developing compassion fatigue during their training and work [21–22]. This study aimed to identify the prevalence of compassion fatigue among medical students in southwest China, investigate the relationship between compassion fatigue and medical students' decisions to continue working in clinical medicine after graduation, and provide empirical evidence for the prevention and treatment of compassion fatigue.

Method

Participants

A cross-sectional questionnaire survey was conducted with clinical medicine students in hospitals in southwest China. Participants were recruited using convenience sampling. Inclusion criteria were a clinical medicine specialty and more than one year of clinical internship experience. Informed consent was obtained before participating in the study. A total of 473 medical students participated in the survey.

Measures

The Chinese version of the Compassion Fatigue Scale, developed by Huaying [23] and based on the Professional Quality of Life scale [24], was used to assess three dimensions of compassion fatigue: empathy satisfaction, job burnout, and secondary traumatic stress. There are 10 items assessing each dimension, and each item is responded to using a 5-point scale. The total possible score for each dimensions is 50. The cutoff scores for each dimension were as follows: 37 for empathy satisfaction, 27 for job burnout, and 17 for secondary traumatic stress. One dimension above the cutoff score indicated mild symptoms, two dimensions indicated moderate symptoms, and all three dimensions above their cutoff scores indicated severe symptoms of compassion fatigue. Cronbach's α coefficients in this study were between 0.836 and 0.931 for the subscales. Reliability was evaluated with a reliability coefficient of 0.923 and validity of 0.939.

We used Likert scales [25] to assess medical students' willingness to continue working in clinical practice after graduation. The Likert scale is the most commonly used type of scale; notably, it allows respondents to express their attitudes or feelings about an issue within a predetermined response range. Typically, the Likert scale consists of five or seven points attributed to a range of responses, such as those extending from "strongly disagree" to "strongly agree" or from "never" to "always." In this study, we used a 5-point Likert scale (reverse rating) extending across "never," "rarely," "sometimes," "often," and "always."

A questionnaire was used to collect information on the characteristics of the participants, including gender, age, marital status, hospital type, clinical rotation years, weekly rest time, working hours per day, night shift frequency, and whether they want to continue to be engaged in clinical work after graduation.

Procedures

A questionnaire was sent to the student administrators of the hospitals through WeChat Wenjuanxing (2012 edition; Changsha Ranxing Technology Information Co., Ltd.). The person responsible sent it to the WeChat group of students and invited them to complete the questionnaire. The survey was conducted from February 18–March 31, 2024. Ethical approval for the study was obtained from the Second People's Hospital of Chengdu, China.

Statistical analysis

R 4.1.1 software was used for data processing and statistical analysis. The counting data is expressed in frequencies and composition ratios. The chi-square test or Fisher's exact probability method was used to compare differences in empathy satisfaction (< 37 and ≥ 37 points), job burnout (< 27 and ≥ 27 points), secondary traumatic stress (< 17 and ≥ 17 points), and wanting to continue in clinical practice post-graduation (never, rarely, sometimes, often, or always) according to participants' characteristics (i.e., gender, age, marital status, clinical rotation years, hospital type, weekly rest time, night shift frequency, and working hours per day). The chi-square test was used to compare the participants on compassion fatigue (none, mild, moderate, and severe). Participants' characteristics were the independent variables, and the dependent variables were empathy satisfaction (coded < 37 = 0, ≥ 37 = 1), job burnout (coded < 27 = 0, ≥ 27 = 1), and secondary traumatic stress (coded < 17 = 0, ≥ 17 points = 1). Multivariate analysis was performed using binary Logistic regression of the dichotomized variables was used for multivariate analysis and the odds ratio (OR) with a 95% confidence interval (CI) was calculated. Taking participants' characteristics as the independent variables and compassion fatigue as the dependent variable (assigned: mild = 1, moderate = 2, and severe = 3), the independent variables were screened by whole-variable regression. The level of significance was $\alpha = 0.05$.

Table 1 Participants' characteristics

Variable		Mean ± SD or *n* (%)
Age		25.1 ± 3.80
Gender	Female	289 (61.1)
	Male	184 (38.9)
Marital status	Single	414 (87.5)
	Married	59 (12.5)
Hospital	Non-teaching hospital	27 (5.7)
	Not directly affiliated with a teaching hospital	131 (27.7)
	Direct teaching hospital	315 (66.6)
Duration of clinical rotation (years)	1	261 (55.2)
	2	108 (22.8)
	3	104 (22.0)
Rest time per week (days)	0	71 (15.0)
	1	132 (27.9)
	2	270 (57.1)
Working hours per day	< 8	133 (28.1)
	8–10	243 (51.4)
	>10	97 (20.5)
Night shift frequency	No	136 (28.8)
	Once a month	14 (3.0)
	2–3 times a month	49 (10.4)
	Once a week	175 (37.0)
	2–3 times a week	99 (20.9)
Want to continue to be a clinician	Never/rarely	41 (8.7)
	Sometimes	117 (24.7)
	Often/always	315 (66.6)

N = 473

Results

Participants' characteristics

Table 1 presents the characteristics of the participants. A total of 473 medical students participated in the survey, of which 289 (61.1%) were female. The average age of the participants was 25.1 ± 3.8 years and most (87.5%) of the participants were single. A total of 446 (94.3%) participants were working and studying in teaching hospitals (Table 1).

Empathy satisfaction

The average score for empathy satisfaction was 32.5 ± 7.60. Weekly working hours and clinical rotation for three years or more were factors influencing compassion fatigue (Table 2). Regression analysis showed that clinical rotation for three years or more (OR = 3.38, 95% CI [1.79, 6.69]) was positively correlated with empathy satisfaction, whereas being single (OR = 0.41, 95% CI [0.18, -0.91]) or married (OR = 0.28, 95% CI [0.14, 0.55]), and less rest time per week (OR = 0.26, 95% CI [0.11, -0.53]) were negatively correlated with empathy satisfaction.

Job burnout

The average score for job burnout was 29.6 ± 5.27. Duration of clinical rotation and daily working time were factors influencing job burnout (Table 3). Regression analysis indicated that working more than seven hours per week (8–10 h: OR = 2.43, 95% CI [1.51, 3.92]; 10–12 h: OR = 3.1, 95% CI [1.54, 6.51]; >12 h: OR = 2.3, 95% CI [1.03, 5.49]) was a risk factor for job burnout.

Traumatic stress

The average score for traumatic stress was 25.9 ± 6.89. Daily working hours and night shift frequency were factors influencing traumatic stress (Table 4). Regression analysis showed that a night shift frequency of 2–3 times/week (OR = 9.11, 95% CI [2.26, 63.7]) was a factor influencing traumatic stress.

Factors influencing different degrees of compassion fatigue

Among the 473 participants, 46, 205, and 210 had mild, moderate, and severe compassion fatigue, respectively. Univariate analysis showed that daily working time and night shift frequency were factors influencing different

Table 2 Univariate analysis of factors influencing empathy satisfaction

Variable		Not always *n* (%)	Always *n* (%)	*p*-value
Gender	Female	207 (61.8)	82 (59.4)	0.706
	Male	128 (38.2)	56 (40.6)	
Age	22	102 (30.4)	56 (40.6)	0.141
	23–24	61 (18.2)	19 (13.8)	
	25–26	98 (29.3)	32 (23.2)	
	> 26	74 (22.1)	31 (22.5)	
Marital status	Single	300 (89.6)	114 (82.6)	0.054
	Married	35 (10.4)	24 (17.4)	
Hospital	Non-teaching hospital	20 (6.0)	7 (5.1)	0.923
	Not directly affiliated with a teaching hospital	92 (27.5)	39 (28.3)	
	Direct teaching hospital	223 (66.6)	92 (66.7)	
Duration of clinical rotation (years)	1	170 (50.7)	91 (65.9)	0.010
	2	83 (24.8)	25 (18.1)	
	≥ 3	82 (24.5)	22 (15.9)	
Rest time per week (days)	0	60 (17.9)	11 (8.0)	0.005
	1	98 (29.3)	34 (24.6)	
	2	177 (52.8)	93 (67.4)	
Working hours per day	< 8	87 (26.0)	46 (33.3)	0.192
	8–10	174 (51.9)	69 (50.0)	
	>10–12	74 (22.1)	23 (16.7)	
Night shift frequency	No	95 (28.4)	41 (29.7)	0.715
	Once a month	9 (2.7)	5 (3.6)	
	2–3 times a month	36 (10.7)	13 (9.4)	
	Once a week	120 (35.8)	55 (39.9)	
	2–3 times a week	75 (22.4)	24 (17.4)	

Table 3 Univariate analysis of factors influencing job burnout

Variable		Not always *n* (%)	Always *n* (%)	*p*-value
Gender	Female	200 (61.5)	89 (60.1)	0.850
	Male	125 (38.5)	59 (39.9)	
Age	≤ 22	110 (33.8)	48 (32.4)	0.989
	23–24	55 (16.9)	25 (16.9)	
	25–26	88 (27.1)	42 (28.4)	
	> 26	72 (22.2)	33 (22.3)	
Marital status	Single	281 (86.5)	133 (89.9)	0.374
	Married	44 (13.5)	15 (10.1)	
Hospital	Non-teaching hospital	18 (5.5)	9 (6.1)	0.181
	Not directly affiliated with a teaching hospital	82 (25.2)	49 (33.1)	
	Direct teaching hospital	225 (69.2)	90 (60.8)	
Duration of clinical rotation (years)	1	192 (59.1)	69 (46.6)	0.022
	2	64 (19.7)	44 (29.7)	
	≥ 3	69 (21.2)	35 (23.6)	
Rest time per week (days)	0	47 (14.5)	24 (16.2)	0.616
	1	95 (29.2)	37 (25.0)	
	2	183 (56.3)	87 (58.8)	
Working hours per day	< 8	77 (23.7)	56 (37.8)	0.016
	8–10	176 (54.2)	67 (45.3)	
	>10	72 (22.2)	25 (16.9)	
Night shift frequency	No	85 (26.2)	51 (34.5)	0.425
	Once a month	10 (3.1)	4 (2.7)	
	2–3 times a month	34 (10.5)	15 (10.1)	
	Once a week	123 (37.8)	52 (35.1)	
	2–3 times a week	73 (22.5)	26 (17.6)	

degrees of compassion fatigue(Table 5). Regression analysis showed that a night shift frequency of 2–3 times/week (OR = 5.33, 95% CI [1.35, 21.0]), working 8–10 h per day (OR = 2.30, 95% CI [1.01, 5.22]), or working 10 h per day or more (OR = 8.64, 95% CI [1.99, 37.6]) were the factors influencing severe compassion fatigue .

Factors influencing wanting to be a doctor after graduation

Among the 473 participants, 158 (33.4%) did not often or always want to continue clinical work after graduation. Univariate analysis showed that the type of hospital, duration of clinical rotation, and empathy satisfaction were factors influencing whether participants wanted to continue to engage in clinical work (Table 6). Regression analysis showed that low empathy satisfaction (OR = 2.30, 95% CI [1.00, -5.31]) was an independent risk factor for not wanting to continue to engage in clinical work after graduation. Studying at a non-affiliated teaching hospital (OR = 3.65, 95% CI [1.14, 11.7]) or direct-affiliated teaching hospital (OR = 12.6, 95% CI [3.79, 41.7]) was positively correlated with students' desire to become clinicians after graduation.

Discussion

The results indicated that, on average, the medical students in our study were "sometimes" experiencing decreased empathy satisfaction, job burnout, and secondary traumatic stress. Among the 473 participants, 46, 205, and 210 medical students were experiencing mild, moderate, and severe compassion fatigue, respectively. With regard to a clinical medical career post-graduation,

Table 4 Univariate analysis of factors influencing traumatic stress

Variable		Not always *n* (%)	Always *n* (%)	*p*-value
Gender	Female	261 (61.3)	28 (59.6)	0.946
	Male	165 (38.7)	19 (40.4)	
Age	≤ 22	136 (31.9)	22 (46.8)	0.124
	23–24	76 (17.8)	4 (8.5)	
	25–26	120 (28.2)	10 (21.3)	
	> 26	94 (22.1)	11 (23.4)	
Marital status	Single	373 (87.6)	41 (87.2)	1
	Married	53 (12.4)	6 (12.8)	
Hospital	Non-teaching hospital	24 (5.6)	3 (6.4)	0.912
	Not directly affiliated with a teaching hospital	117 (27.5)	14 (29.8)	
	Direct teaching hospital	285 (66.9)	30 (63.8)	
Duration of clinical rotation (years)	1	238 (55.9)	23 (48.9)	0.622
	2	95 (22.3)	13 (27.7)	
	≥ 3	93 (21.8)	11 (23.4)	
Rest time per week (days)	0	65 (15.3)	6 (12.8)	0.616
	1	121 (28.4)	11 (23.4)	
	2	240 (56.3)	30 (63.8)	
Working hours per day	< 8	108 (25.4)	25 (53.2)	0.001
	8–10	226 (53.1)	17 (36.2)	
	>10–12	92 (21.5)	5 (10.7)	
Night shift frequency	No	113 (26.5)	23 (48.9)	0.004
	Once a month	13 (3.1)	1 (2.1)	
	2–3 times a month	46 (10.8)	3 (6.4)	
	Once a week	157 (36.9)	18 (38.3)	
	2–3 times a week	97 (22.8)	2 (4.3)	

Table 5 Univariate analysis of factors influencing of different degrees of compassion fatigue

Variable		Mild *n* = 46 *n* (%)	Moderate *n* = 205 *n* (%)	Severe *n* = 210 *n* (%)	*p*-value
Gender	Female	27 (58.7)	124 (60.5)	131 (62.4)	0.866
	Male	19 (41.3)	81 (39.5)	79 (37.6)	
Age	≤ 22	18 (39.1)	74 (36.1)	63 (30.0)	0.378
	23–24	5 (10.9)	38 (18.5)	37 (17.6)	
	25–26	9 (19.6)	52 (25.4)	62 (29.5)	
	> 26	14 (30.4)	41 (20.0)	48 (22.9)	
Marital status	Single	40 (87.0)	178 (86.8)	186 (88.6)	0.855
	Married	6 (13.0)	27 (13.2)	24 (11.4)	
Hospital	Non-teaching hospital	3 (6.5)	13 (6.3)	11 (5.2)	0.588
	Not directly affiliated with a teaching hospital	17 (37.0)	53 (25.9)	56 (26.7)	
	Direct teaching hospital	26 (56.5)	139 (67.8)	143 (68.1)	
Duration of clinical rotation (years)	1	23 (50.0)	119 (58.0)	113 (53.8)	0.729
	2	12 (26.1)	46 (22.4)	46 (21.9)	
	≥ 3	11 (23.9)	40 (19.5)	51 (24.3)	
Rest time per week (days)	0	8 (17.4)	25 (12.2)	38 (18.1)	0.249
	1	9 (19.6)	58 (28.3)	63 (30.0)	
	2	29 (63.0)	122 (59.5)	109 (51.9)	
Working hours per day	< 8	21 (45.7)	58 (28.3)	45 (21.4)	0.005
	8–10	22 (47.8)	106 (51.7)	114 (54.3)	
	> 10	3 (6.5)	41 (20.0)	51 (24.3)	
Night shift frequency	No	20 (43.5)	63 (30.7)	49 (23.3)	0.007
	Once a month	1 (2.2)	8 (3.9)	5 (2.4)	
	2–3 times a month	3 (6.5)	22 (10.7)	23 (11.0)	
	Once a week	19 (41.3)	69 (33.7)	81 (38.6)	
	2–3 times a week	3 (6.5)	43 (21.0)	52 (24.8)	

33.4% of the students indicated they did not often or always want to continue doing clinical work.

Previous studies have suggested that senior nurses, emergency nurses, oncologists, and staff nurses all have varying degrees of compassion fatigue [26–29]. Similarly, our research found that compassion fatigue exists among medical students. However, compared with senior nurses and doctors with more clinical experience, the scores of medical students are slightly lower [28–29]. Therefore, it is important to identify and intervene in empathy fatigue among medical students early on to prevent the development of compassion fatigue.

In previous studies of doctors and nurses, long working hours, heavy work intensity, night shifts, and low income were the causes of compassion fatigue [30–32]. Similarly, we found that clinical rotation years, daily working hours, weekly rest time, and night shift frequency influenced compassion fatigue in medical students. In their review of the factors influencing compassion fatigue, Hooper et al. [33] noted long-term exposure to patients' traumatic situations is a necessary condition for the generation of compassion fatigue, whereas overwork and compressing doctors' psychological recovery time will reduce doctors' ability to resist compassion fatigue and induce compassion fatigue. Compassion fatigue is caused by continuous close contact with patients and long-term exposure to stressful situations, which gradually accumulates and

Table 6 Univariate analysis of factors influencing wanting to be a Doctor after graduation

Variable		Never/ rarely *n* = 41 *n* (%)	Sometimes *n* = 117 *n* (%)	Often/ always *n* = 315 *n* (%)	*p*-value
Gender	Female	28 (68.3)	78 (66.7)	183 (58.1)	0.164
	Male	13 (31.7)	39 (33.3)	132 (41.9)	
Age	≤ 22	11 (26.8)	38 (32.5)	112 (35.6)	0.905
	23–24	7 (17.1)	19 (16.2)	54 (17.1)	
	25–26	14 (34.1)	32 (27.4)	81 (25.7)	
	> 26	9 (22.0)	28 (23.9)	68 (21.6)	
Marital status	Single	32 (78.0)	105 (89.7)	277 (87.9)	0.139
	Married	9 (22.0)	12 (10.3)	38 (12.1)	
Hospital	Non-teaching hospital	8 (19.5)	9 (7.7)	10 (3.2)	< 0.001
	Not directly affiliated with a teaching hospital	18 (43.9)	30 (25.6)	83 (26.3)	
	Direct teaching hospital	15 (36.6)	78 (66.7)	222 (70.5)	
Duration of clinical rotation (years)	1	18 (43.9)	56 (47.9)	187 (59.4)	0.004
	2	9 (22.0)	40 (34.2)	59 (18.7)	
	≥ 3	14 (34.1)	21 (17.9)	69 (21.9)	
Rest time per week (days)	0	11 (26.8)	18 (15.4)	42 (13.3)	0.182
	1	8 (19.5)	36 (30.8)	88 (27.9)	
	2	22 (53.7)	63 (53.8)	185 (58.7)	
Working hours per day	< 8	10 (24.4)	24 (20.5)	99 (31.4)	0.036
	8–10	20 (48.8)	70 (59.8)	153 (48.6)	
	>10	11 (26.9)	23 (19.7)	63 (20)	
Night shift frequency	No	15 (36.6)	31 (26.5)	90 (28.6)	0.237
	Once a month	0 (0.0)	5 (4.3)	9 (2.9)	
	2–3 times a month	1 (2.4)	8 (6.8)	40 (12.7)	
	Once a week	14 (34.1)	45 (38.5)	116 (36.8)	
	2–3 times a week	11 (26.8)	28 (23.9)	60 (19.0)	
Empathy satisfaction	≥ 37	114 (36.2)	16 (13.7)	8 (19.5)	< 0.001
	< 37	201 (63.8)	101 (86.3)	33 (80.5)	
Job burnout	≤ 27	97 (30.8)	40 (34.2)	11 (26.8)	0.646
	> 27	218 (69.2)	77 (65.8)	30 (73.2)	
Traumatic stress	≤ 17	34 (10.8)	10 (8.5)	3 (7.3)	0.662
	> 17	281 (89.2)	107 (91.5)	38 (92.7)	

develops slowly [33]. Although often ignored, early compassion fatigue continues to affect doctors if it is not recognized and addressed. Studies have found that guiding medical students to actively confront the problems they encounter at work can have positive effects [19, 34]. The medical school urgently needs to provide guidance and support to students to mitigate the negative impacts brought about by compassion fatigue. Based on previous studies, we can attempt to optimize the work schedule, enhance psychological support and intervention measures, improve communication skills and empathy abilities, enhance the working environment and atmosphere, and pay attention to the personal life conditions of medical students to avoid or reduce their empathetic fatigue [35–39].

According to a Lancet study on the reform of China's higher medical education, there were 144,000 medical graduates in China in 2012, far more than in any other country worldwide. However, many medical graduates did not choose to work in a medical and health institution [40]. Using data from the National College Graduates Employment Survey from 2007 to 2017, Chinese scholars found that only about two-thirds (68.6%) of medical students entered medical and health institutions after graduation and continued to be engaged in medical and health work [41]. A previous survey showed that medical students think that the health industry has strong professionalism, high educational requirements, a long training cycle, and low income after graduation, which makes medical graduates confused about employment choices and the potential for employment satisfaction [42]. Similarly, our study found that approximately one-third of medical students did not have a firm choice to continue in clinical practice. Our study was the first to identify low empathy satisfaction as an independent risk factor for not wanting to do clinical work as a career choice after graduation. Compassion fatigue manifests as decreased empathy satisfaction, job burnout (e.g., emotional exhaustion, depersonalization, and reduced personal accomplishment), and traumatic stress. These symptoms may lead to negative views of about clinical work, which then affects their career choice [43–45]. The absence of empirical research on compassion fatigue interventions for medical students reveals a critical gap in medical education literature. Drawing from Bandura's social cognitive theory, we posit that targeted interventions during formative

training years could potentially disrupt the negative reinforcement cycle of emotional exhaustion- diminished empathy - professional dissatisfaction [46–48]. Therefore, we suggest adopting effective educational strategies and practical intervention measures at the academic and clinical training levels to reduce the negative impact of compassion fatigue and help medical students make career choices that are more in line with their own development and the needs of the medical industry.

This study had some limitations. As this research is conducted on medical students, whose academic and work schedules are quite busy, the sample size of this study is relatively small. Moreover, the scope of this research is limited to a preliminary investigation in the southwestern region of China, which restricts the general applicability of our research results. Third, as the survey was an electronic questionnaire, we do not know the response rate. Fourth, the questionnaire survey was not as in-depth as an interview. Fifth, the study was cross-sectional. As such, causal relationships between the variables or how the relationships change over time cannot be determined. Future research should consider using longitudinal methods to determine these relationships.

Conclusion

This study identified factors that influence compassion fatigue in medical students and found that low empathy satisfaction may contribute to medical students' decision to not pursue clinical work upon graduation. Medical institutions and relevant departments should attach great importance to the problem of compassion fatigue among medical students and take effective measures to prevent compassion fatigue and implement interventions to alleviate it. Such efforts would help medical students establish professional values and a mentality that allows them to better cope with the challenges of clinical medical work.

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Author contributions
X Z and G L were responsible for the study conception and design. X Z, J C and B Y were responsible for the data collection and the first draft of the paper. XZ and GL were responsible for the final manuscript and data analysis. All authors have read and approved the final manuscript for publication.

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Data availability
The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
Ethical approval for the study was obtained from the Second People's Hospital of Chengdu, China (Ethics approval no. 2024114). Informed consent was obtained from all participants before participating in the study.

Consent for publication
Not applicable.

Competing interests
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