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Prevalence of burnout among medical students at Al-Nahrain University, Iraq: a cross-sectional study

Nibras Alaa Hussain[1*], Luma Kareem Mohammed[1], Methaq Hassan Alogaili[1], Tamara Ala'a Hussein[2]

Abstract

Background: Medical students suffer from high levels of academic exhaustion, negative positions, and insufficient feelings about the academy. This study aims to estimate the rate of burnout among medical students and the related factors.

Methods: A cross-sectional study was conducted from 1st March to 30th April 2023 at the medical college, Al-Nahrain University, Baghdad, Iraq. A self-administered standard Maslach Burnout Inventory-Student Survey Questionnaire was recruited to assess the burnout level depending on emotional exhaustion, cynicism, and professional efficacy questions. Descriptive and bivariate analyses were used to find out the association between variables.

Results: Out of 515 medical students surveyed, 59.2% were females, and 31.7% lived in dormitories. Most were in their fourth year (32.6%), and 82.3% were non-smokers. About 12.6% had chronic illnesses, and 15.5% took regular medication. Stressful life events affected 65.2%, while 68.2% passed the last course. Over half (56.1%) slept less than eight hours daily, and only 21.7% exercised regularly. Among the sample involved in the study, 221 (42.9%) were suffering from a high burnout level. There was significant high burnout among females, who intake regular medication, were exposed to stress, failed in the last course, and those without regular exercise at P-values equal 0.01, 0.03, 0.002, < 0.001, and < 0.001 respectively.

Conclusion: In conclusion, female gender, exposure to stress, the use of regular medications, academic failure, and aerobic lack are more likely related to high levels of burnout.

Keywords: Burnout, Prevalence, Cynicism, Emotional exhaustion, Medical Students, Iraq

Correspondence: Nibras Alaa Hussain (nibrasfamily77@gmail.com)
[1]Department of Family and community Medicine, College of Medicine, Al-Nahrin University, Baghdad, Iraq
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Background

Most medical students are exposed to extensive academic pressures and difficult timelines, making them particularly liable to exhaustion. Burnout is defined as a psychological syndrome related to emotional exhaustion, cancellation of personality, and a decrease in personal achievement. Burnout is common among people living in high-pressure environments [1]. Within the framework of medical education, burnout is often produced from studying for long hours due to repeated exams, clinical tasks, and the emotional burden of dealing with disease and patients. There was a significant difference between the academic burnout and the typical stress. Burnout is the output of long-term pressure that leads to physical and emotional exhaustion, while stress might be responsible for motivation and productivity in some cases [2,3]. Medical students who suffer from fatigue often mention a feeling of exhaustion from the work burden, and they are struggling to keep focusing on or disengaging from their regular and daily medical tasks [4]. Consequently, emotional fatigue severely hinders academic performance and negatively affects the students' general health [5]. Literature indicates that many risk factors are related to burnout among medical students. The most common were the strict curriculum, competitive environment, and continuous pressure to achieve the highest academic standards [6]. In addition, medical students are often exposed to financial stress, reduction in time allowed for social activities, sleep disturbance, and a weak balance in work and life, all increasing the exacerbation of burnout and the related risk factors [7,8]. Mental health disease often shares a burnout burden. Depression and anxiety frequently create a periodic relationship between mental health disorders and academic fatigue [9]. Burnout is characterized by non-commendable and long-term consequences and can directly affect academic performance and directly effect on future career and job performance through the quality of health care provided to patients, which they provide as

doctors [10]. Decreased empathy, low clinical efficiency, and increased possibility of leakage from the College of Medicine potential results of burnout [11]. Considering the portable role played by medical students in enhancing the future of health care, it has become very necessary to treat burnout early and effectively. In addition, strategic planning and effective implementation to reduce the level of pressure that students face contributes to improving mental health. Moreover, the priority in determining and controlling the sources that cause burnout is a vital matter to ensure the sustainability of qualified and efficient doctors in the future. This study aims to assess the prevalence of burnout among medical students and identify the factors contributing to it.

Methods

Study design and participants

Universal sampling technique and cross-sectional design were recruited to survey medical students at the College of Medicine, Al-Nahrain University, Baghdad, Iraq. A self-administered questionnaire was employed to gather information between 1st March and 30th April 2023.

Inclusion and exclusion

At the time of study, the available medical students who were willing to participate were included. In contrast, the absent medical students, and the academic staff were excluded.

Sampling Technique and Sample Size

Based on the results of an earlier study conducted by Mohammed et al. [12] in Iraq, recruiting ±5% (margin of error), 95% (confidence level), and15% (non-response rate) the calculated sample size equal to 428 (372+56) was necessary, as per the specified formula: N= [Za^2 x P XQ/$(M.E.)^2$].

Instrument for Data Collection

The study instrument included two sections. The first section studied the socio-demographic variables. While the second section recruited the pre-validated Maslach Burnout Inventory - Student Survey (MBI-SS) [13]. The Maslach Burnout Inventory-Student Survey (MBI-SS) consists of fifteen items subdivided into three categories: Emotional Exhaustion (5 items), Cynicism (4 items), and Professional Efficacy (6 items). Responses are rated on a 7-point scale, from 0 (never) to 6 (daily). In this study, internal consistency was calculated for the overall MBI-SS (Cronbach's a = 0.73), with subscale reliabilities for Emotional Exhaustion (Cronbach's a = 0.78), for Cynicism (Cronbach's a = 0.87), and for Professional Efficacy (Cronbach's a 0.75). Burnout is diagnosed based on scores: high burnout corresponds to Emotional Exhaustion >14, Cynicism >6, and Professional Efficacy <23. Moderate and low burnout levels are defined by specific score ranges for each subscale.

Data Analysis

The Social Sciences version 21 (SPSS v. 21) software used to analyze the data. Numbers and percentages are used to present the categorical variables. Chi-square tests are used in bivariate analysis. Statistically significant was considered below 0.05.

Results

Descriptive analyses

Among the 515 medical students who completed the questionnaire successfully, there were 305 (59.2%) females, 255 (49.5%) had income ranging between one to two million IQD, and 163 (31.7%) lived in students' dormitories. The majority (168, 32.6%) were in the fourth stage, (82.3%) were non-smokers, 65 (12.6%) had chronic diseases, and 80 (15.5%) were on regular medication. Most of them (336, 65.2%) were exposed to stressful life events, and 351 (68.2%) succeeded in the last course. More than half (289, 56.1%) were sleeping less than eight hours per day, however, there were only 112 (21.7%) do regular exercise.

Table 1: the sociodemographic, economic, and clinical features of respondents (n=515)

Variables	Categories	N (%)
Gender	female	305 (59.2)
	Male	310 (40.8)
Monthly income	more than 2 million	108 (21)
	1-2 million IQD	255 (49.5)
	< 1 million IQD	152 (29.5)
Place of residency	students' dormitory	163 (31.7)
	With Family	352 (68.3)
Class	1st class	52 (10.1)
	2nd class	75 (14.6)
	3rd class	122 (23.7)
	4th class	168 (32.6)
	5th class	66 (12.8)
	6th class	32 (6.2)
Cigarette smoking	Non-smokers	424 (82.3)
	Smokers	91 (17.7)
Chronic disease	Yes	65 (12.6)
	No	450 (87.4)
On regular medication	Yes	80 (15.5)
	No	435 (84.5)
exposed to stressful life events	Yes	336 (65.2)
	No	179 (34.8)
successes in the last course	Yes	351 (68.2)
	No	164 (31.8)
Sleeping hours (hr)/day	< 8 hr	289(56.1)
	≥ 8 hr	226 (43.9)
Do regular exercise	Yes	112 (21.7)
	No	403 (78.3)

Regarding the three-dimensional burnout criteria, the diagnosis was found by a combination of the 3 sub-domains (High Exhaustion + High Cynicism + Low Professional Efficacy). The results showed that 221 (42.9%) of them had burnout compared to 294 (57.1%) who had no burnout. Findings in Table 3 show that burnout (47.5%) among females was significantly higher than among males (36.2%), with a p-value of 0.010. Medical students who were regularly using medication (53.8%, p=0.030) and those who experienced stressful life events (47.9%, p=0.002) were more likely to have burnout. Academic performance also reported a significant relationship, with students who could not pass the last course showing much higher burnout (65.3%, p<0.001). Moreover, those who did not participate in regular exercise were significantly more affected (47.6%, p<0.001). However, there was no significant association between burnout and students' living arrangements, academic stage, history of chronic diseases, BMI classification, or sleeping hours. The p-values for these variables were all above 0.05, indicating no statistically significant relationship.

Table 2: Frequency of burnout subscales in the sample (n=515)

Burnout subscales and levels with scores	Categories	N (%)
Emotional Exhaustion	Low (0 – 9)	46 (8.9)
	Moderate (10 – 14)	57(11.1)
	High (> 14)	412(80.0)
Cynicism	Low (0 – 1)	42 (8.1)
	Moderate (2 – 6)	105 (20.4)
	High (> 6)	368 (71.5)
Low Professional Efficacy	Low (> 27)	118 (22.9)
	Moderate (23 – 27)	106 (20.6)
	High (< 23)	291(56.5)

Five statements (Table 2) were employed to assess the impact of effective patient-doctor communication in improving healthcare at the University of Abuja Teaching Hospital, Gwagwalada. The majority of respondents agreed that effective doctor-patient communication empowers patients with the knowledge to maintain a healthy lifestyle, enables early detection of potential health issues, and enhances adherence to treatment plans. Participants were asked to identify approaches that healthcare practitioners can use to achieve optimal health outcomes. These approaches include explaining difficult medical jargon, developing an empathetic connection, and responding thoughtfully to patients. The findings are presented in Table 3. Table 4 shows that the absence of effective two-way communication leaves patients uncertain about their health results, with 53% of participants in agreement. Furthermore, 46% of patients felt that the hospital staff did not make them feel seen and heard. Additionally, the long wait to see a doctor and inadequate records of files also contribute to patient dissatisfaction. However, 75.0% of patients are comfortable as a result of the clean physical environment, with amenities such as private wards and spacious parking lots. Excessive workload, fear of being called names, lack of effective feedback channels, limited health information, and cultural differences hinder effective patient-doctor communication, as shown in Table 5 below.

Table 3: The significant association between the Burnout and some students' characteristics (n=515).

Variables	Categories	Yes n (%)	No N (%)	P-value
Observations		221 (42.9)	294 (57.1)	
Gender	Female	145 (47.5)	160 (52.5)	0.010
	Male	76 (36.2)	134 (63.8)	
History of Regular Medication	Yes	43 (53.8)	37 (46.2)	0.030
	No	178 (40.9)	257 (59.1)	
History of stressful life events	Yes	161 (47.9)	175 (52.1)	0.002
	No	60 (33.5)	119(66.5)	
The result of the Last Course	Fails	64 (65.3)	34 (34.7)	< 0.001
	Successes	126 (35.9)	225 (64.1)	
	Other	31 (47.0)	35 (53.0)	
History of regular exercise	Yes	29 (25.9)	83 (74.1)	< 0.001
	No	192 (47.6)	211 (52.4)	
Students residents	students' dormitory	75 (46.0)	88 (54.0)	0.300
	with family	146 (41.5)	206 (58.5)	
Students' academic stage	First Three Stages (1^{st}, 2ns & 3^{rd})	110 (44.2)	139 (55.8)	0.600
	Last Three Stages (4^{th}, 5^{th} & 6^{th})	111 (41.7)	155 (58.3)	
History of Chronic Diseases	Yes	34 (52.3)	31 (47.7)	0.100
	No	187 (41.6)	263 (58.4)	
Classification of BMI	Normal Weight	146 (44.9)	179 (55.1)	0.500
	Overweight	62 (40.0)	93 (60.0)	
	Obese	13 (37.1)	22 (62.9)	
The sleeping Hours/day	< 8 hours	121 (41.9)	168 (58.1)	0.600
	≥ 8 hours	100 (44.2)	126 (55.8)	

Discussion

In this study, the prevalence of academic burnout among medical students was 42.9%. It was slightly more than reported in a local study conducted in Kerbala (38.2%) in 2021 [14] and a global prevalence of 37.2% concluded from forty-two studies included in a systematic review by Almutairi et al. [15]. However, our results are still below that reported in Baghdad (56.4%) in 2023 [12]. About 80.0% of the sample suffer from high emotional exhaustion, 71.5% from high cynicism, and 56.5% from Low professional efficacy and this is nearly like a study in Saudi Arabia [16]. In terms of sociodemographic factors, there was a significant increase in the level of burnout among females than males, which is consistent with several studies showing that female medical students are more liable to burnout. A similar result was found by Irshad et al. in Islamabad in 2021[17]. It is documented that female medical students are more exposed to depression, stress, general anxiety, and hormonal changes which may contribute to high burnout and easily fatigue compared to men [18]. Like Yahya et al. [14], students with regular medication use are significantly associated with a high burnout rate which is most likely reflecting a link between physical health issues and burnout. Moreover, previous studies have shown that

medical students dealing with patients with chronic conditions or illnesses were more likely to be at higher risk of burnout due to accompanying stress [19,20]. There was a significant relation between exposure to stressful life events and a high burnout rate (47.9%, p=0.002). Our findings agree with the study conducted by Shadid et al. [20]. Prolonged exposure to stress increases the susceptibility of individuals to discomfort and emotional exhaustion [5], Students who failed their last course had the highest burnout rate (65.3%, p<0.001). Poor academic performance is a widely reported predictor of burnout. Since students may suffer from emotional failure and pressure to improve their grades [8,11,12]. Students who were unable to participate regularly in sports activities were exposed to a higher level of exhaustion (47.6%, p <0.001). There is research evidence that supports this association, especially since a degree of continuous physical activity contributes greatly to reducing stress or depression and preventing fatigue [21]. However, some variables such as living arrangements, academic stage, BMI, chronic disease history, and sleeping hours showed no significant association with burnout, which contrasts with some literature [22]. Furthermore, being a medical student and interacting directly with patients and their families may not always be a safe practice [23]. For instance, while other studies have found poor sleep and higher BMI linked to burnout [24], this study did not reveal a strong relationship. This discrepancy might be due to sample size, cultural factors, or differences in how burnout manifests in various populations. Collection of data from only one medical college and depending on convenient sample disable us from generalizing our results also the students' preoccupation with their lectures and commitments and the unwillingness of some of them to participate greatly reduced the sample size.

Conclusion

There were approximately half of the surveyed students with high burnout. There was a great relationship between the high level of burnout and a female gender, the history of regular intake of medications, and the exposure to the stress of life, without exercising regularly and finally failing in the last academic course. High burnout requires good interventions to diagnose and reduce students' burnout, so there were many confrontations and useful activities such as physical and mental activities, consulting programs, exercise, and job training. Overall, the findings underscore the importance of addressing stress, academic failure, and lifestyle factors to mitigate burnout among medical students.

Abbreviation

None.

Declaration

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Availability of data and materials

Data will be available by emailing nibrasfamily77@gmail.com

Authors' contributions

Nibras Alaa Hussain (NAH), Luma Kareem Mohammed (LKM), and Methaq Hassan Alogaili (MHA) participated in the design of the study, data collection, analysis, and interpretation. Tamara Ala'a Hussein (TAH) participated in article writing. The authors read and approved the final version of the manuscript.

Ethics approval and consent to participate

We conducted the research following the Declaration of Helsinki. The protocol was granted by the scientific ethical committee in the Department of Family and Community Medicine, College of Medicine, Al-Nahrin University, Baghdad, Iraq [Ref. No. 54 on 9th May 2023]. Moreover, verbal consent was taken from students and privacy was ensured to all participants.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interests.

Author Details

[1]Department of Family and Community Medicine, College of Medicine, Al-Nahrin University, Baghdad, Iraq.
[2]Basic Sciences Department, College of Dentistry, Al-Iraqia University, Baghdad, Iraq.

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