

Original Research Article

Prevalence of burnout among medical students in Saudi Arabia universities

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ABSTRACT

Background: Burnout is a psychological condition that results from an excessive workload and a perfectionism-driven obsession. Prolonged exposure to these conditions can create physical symptoms, resulting in various diseases. Due to their demands and obligations, medical students and healthcare professionals are particularly at risk of burning out. The study aimed to calculate the prevalence of burnout among Saudi medical students.

Methods: A total sample of 278 participants was taken. MBI was adapted and translated into Arabic in this study to find the prevalence of burnout. Data was analyzed on IBM statistical package for the social sciences (SPSS), and descriptive and chi-square tests were applied.

Results: 33.4% of participants were males and 66.6% were females. Only 12.35 students were recorded to be smokers. The overall prevalence of burnout among students was 215, while 80.2% of students had low PA; in the case of emotional exhaustion, 21.2% fell to a high degree, and 28% had high degree depersonalization.

Conclusions: The most common type of burnout among Saudi medical students is because of low personal accomplishment. Further studies should be conducted to understand better the problem prevailing in medical students so policies can be formed accordingly.

Keywords: Burnout, Depression, Medical students, Saudi Arabia, Obsession

INTRODUCTION

The medical profession is well-known for being tough and challenging, with students required to put in extensive hours of study, clinical rotations, and severe academic pressure. As a result, medical students are at risk for burnout, persistent physical and emotional tiredness frequently accompanied by feelings of hopelessness and exclusion from their work. Burnout among medical students is drawing widespread attention due to the potential influence on their well-being and future careers. Burnout is an increasing concern among medical students, and multiple studies have looked into its prevalence in

several countries, including Saudi Arabia. While particular numbers vary between studies, research consistently shows a significant frequency of burnout among Saudi medical students.¹

A variety of circumstances cause burnout among medical students. These factors are classified as individual, academic, and institutional. Unique features, coping strategies, and prior experiences are separate factors. Theoretical considerations include academic workload, examination pressure, and peer competition. The learning environment, support systems, and faculty-student connections are all examples of institutional elements.

Burnout among medical students has been linked to various causes and pressures. Frajerman et al discovered in a recent meta-analysis that the estimated burnout rate among medical students worldwide is around 44%, with the highest frequency in the Middle East and Oceania. Burnout is defined by three dimensions: tiredness, cynicism, and inefficacy.² It is a lengthy response to chronic emotional and interpersonal pressures. Burnout can cause not just poor performance, mistakes in practice, and dropout from medical school, but it can also lead to psychological problems such as depression and anxiety, leading to suicidal ideation.³

Burnout is classified as an occupational phenomenon in the 11th revision of the International Classification of Diseases (ICD-11). It is not considered a medical condition. It is discussed under the chapter 'factors influencing health status or contact with health services,' which explains why people seek health care but are not classified as illnesses or health conditions. ICD-11 defines burnout as follows: Burnout is a syndrome characterized by chronic workplace stress that has not been successfully managed." It is distinguished by three dimensions: sensations of energy depletion or exhaustion, increased mental detachment from one's employment, thoughts of dissatisfaction or negativity relating to one's job, and reduced professional efficacy.⁴ Stimulant abuse is widespread among medical students. This has a significant impact on their clinical practice and training. Furthermore, substance misuse can result in cognitive and functional impairments, psychiatric morbidity, and behavioural changes that might impact students' health and education.⁵ Research on stimulant misuse and its association with burnout and stress among Saudi healthcare students is scarce. As a result, this study aimed to assess the prevalence, correlation, and predictors of burnout, anxiety, and stimulant misuse among medical and dental students in Saudi Arabia's Western region.

Problem-based learning (PBL) is a teaching method in medical schools that uses real-world clinical problems to stimulate students' learning of concepts and principles, as opposed to the direct presentation of facts and ideas in traditional teaching and is being adopted as the primary teaching method in several medical schools. Problem-based learning (PBL) has also been demonstrated to improve student's critical thinking, problem-solving abilities, and communication skills. It allows them to collaborate in groups, identify and assess research content, and learn to be lifelong learners.⁶ Several studies have been undertaken to determine whether changes in medical curricula minimize students' psychological suffering and increase their motivation, but the results have been unequivocal.

Burnout can be measured using a variety of assessment techniques. However, the Maslach Burnout Inventory (MBI), developed by Maslach and Jackson in 1981, remains the most widely used standardised tool for assessing burnout.⁷ The 22-item MBI human services

survey (HSS) scale has been verified and translated into numerous languages.⁸

The MBI-student survey (MBI-SS) is a version of the original MBI scale tailored to students. The student's scale's psychometric domains correspond to feeling weary due to academic stress, cynicism about one's studies, and feeling professionally inadequate. To the authors' knowledge, an Arabic version of the MBI-SS questionnaire has yet to be validated for use among Saudi students. This is significant because diversity in interpretation can result in lower-quality data gathering. To fill a vacuum in the literature, this study aimed to translate and validate an Arabic version of the MBI-SS questionnaire and investigate the psychometric features of burnout among dental college students at a Saudi Arabian university.⁹ The literature on the influence of curriculum reform on burnout and other possible stressors medical students face is inconclusive. As a result, this study aimed to examine and compare the prevalence of burnout and its associated stresses among medical students studying in Alrayan medical colleges and other institutes.

A study has yet to be conducted in Alrayan Medical College or any medical university in Madinah, so this research-based study will help to fill the gap.

Objectives

Objectives of the study were to find the prevalence of burnout among medical students, to find the association between burnout and the academic year of medical student, and to find the association between burnout and gender of medical students.

METHODS

Study type

This cross-sectional study was conducted on medical students enrolled in Saudi Arabian universities.

Study place

Data was collected through convenient sampling by an online survey of medical students from different medical colleges at Saudi Arabia Universities.

Study period

Data was studied and analyzed for the present study from September 2022 till December 2023.

Study population and selection criteria

Both male and female medical students who have completed the 1st year of medical school and are studying at Saudi Arabian universities from the 2nd to the 6th year were taken as the study population. Students who are completing their internships are also indicated. The sample

size was determined using a sample size calculator (Raosoft) with a confidence level of 95% and a 5% margin of error. The required sample size is estimated to be 243. Samples were chosen as per inclusion and exclusion criteria.

Inclusion criteria

Males and Female medical students who have finished 1st year of medical college and are studying at 2nd to 6th years in Saudi Arabia universities. Also, students in their internship time are included.

Exclusion criteria

All those medical students who did not study at Saudi Arabian universities. Students are diagnosed with depression and stress before starting their medical college.

Data was collected by random online surveys sent to different medical students in Saudi Arabian universities. Students were asked to complete the study according to their habits, emotional state, social interaction, mental exhaustion and study atmosphere.

Ethical considerations

Questions were asked, and approval was taken in Arabic and English. They were independent in deciding if they wanted to fill out the form. The personal data of participants was kept confidential.

Ethical approval

The official permission was approved by the Al-Rayan Research Ethics Committee (HA-03-M-122-063). Participation was voluntary and online written informed consent from all the participants after describing the aim of the study. Privacy and confidentiality were assured.

Data management and statistical analysis

The data was collected using a previously designed online-based questionnaire after obtaining consent from the original authors of the validated questionnaire. The MBI questionnaire was adapted and translated into Arabic in this study to find the prevalence of burnout. Data was analyzed on IBM SPSS, and descriptive and Chi-square tests were applied.

RESULTS

Descriptive analysis

Age and gender distribution of samples

In the current cross-sectional study, data was collected through an online survey in which a sample of 278 individuals was taken. The average age of the participants

was 22.7 years, with a standard deviation of 2.6 years. As per the gender distribution, there were 33.4% males and 66.6% females in the current study. Data is summarized in Table 1.

Table 1: Age and gender distribution of study participants.

Gender	Frequency	Percentage
Male	93	33.4
Female	185	66.6
Total	278	100
Age (mean±SD)	22.7±2.6	

Distribution of samples as per their academic year

Further, students were asked about the year of medical degree they were enrolled in. Students from year one were excluded from the current study. According to the collected data, there were 13.7% of participants from the second year, 23.1% from the third year, 12.6% from the fourth year, 15.9% from the fifth year, 26% from the sixth year, and only 8.7% were in the internship level. Data is summarized in Table 2.

Table 2: Distribution of samples as per academic year.

Academic year	Frequency	Percentage
The second year of medical	38	13.7
The third year of medical	64	23.1
The fourth year of medical	35	12.6
The fifth year of medical	44	15.9
The sixth year of medical	72	26.0
Internship	25	8.7
Total	278	100

Habit of smoking

Students were asked if they had a smoking habit, and only 12.3% responded yes to the question. Data is illustrated in Figure 1.

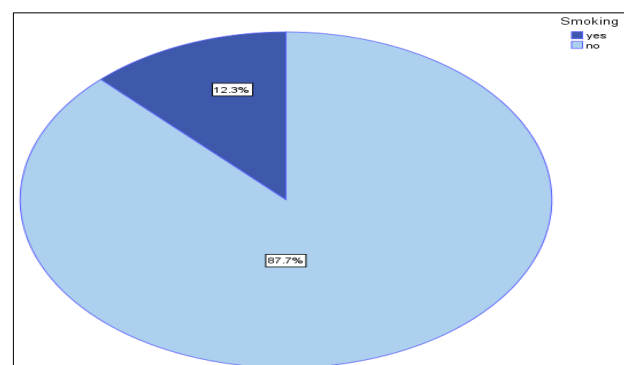


Figure 1: Prevalence of smoking among medical students.

Prevalence of chronic diseases

Thirdly, students were asked if they were suffering from any chronic disease, and only 34 responded positively to the question. Those 34 students were further asked about which chronic disease they suffer from. The data is summarized and elaborated in Figure 2.

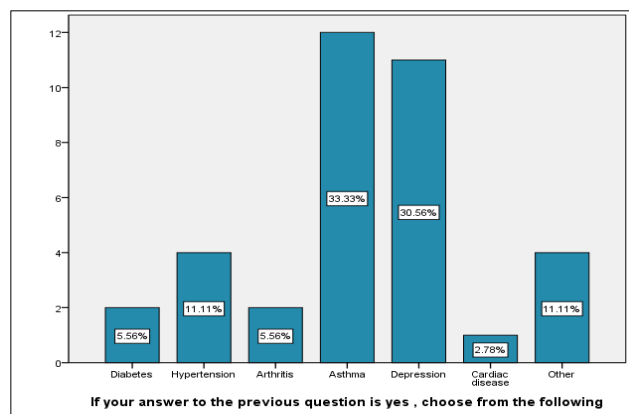


Figure 2: Type of chronic diseases prevalent in medical students.

Prevalence of burnout among medical students

Emotional exhaustion

As per the MBI questionnaire, nine questions were relevant to emotional exhaustion, so the score of nine questions was summed up, and the frequency of low, moderate and high fatigue was studied. According to the criteria, students scoring less than 17 are on low degree; from 18-29, it is moderate and more than 30 are categorized as high degree exhaustion. Data is summarized in Table 3.

Table 3: Prevalence of emotional exhaustion among medical students.

Emotional exhaustion	Frequency	Percentage
Low degree	150	54.0
Moderate degree	69	24.8
High degree	59	21.2
Total	278	100.0

Depersonalization

The second part of MBI consists of five questions, which help to calculate the level of depersonalization. As per the scale score, less than 5 is a low degree; from 6-11, it is moderate and more than 12 is categorized as high degree depersonalization. Out of 278 participants, 28.1% had a high degree. Data is summarized in Table 4.

Accomplishment

Lastly, eight questions are scored as the level of accomplishment in students. According to the current

study, 223 individuals were ranked low degree (score less than 33), 31 were moderate degree (score 34-39), and lastly, 24 were high degree accomplished (score more than 40). Data is summarized in Table 5.

Table 4: Prevalence of depersonalization among medical students.

Depersonalization	Frequency	Percentage
Low degree	117	42.1
Moderate degree	83	29.9
High degree	78	28.1
Total	278	100.0

Table 5: Prevalence of accomplishment among medical students.

Accomplishment	Frequency	Percentage
Low degree	223	80.2
Moderate degree	31	11.2
High degree	24	8.6
Total	278	100.0

Total burnout in medical students

As per the collected data, are 59 students in the red zone of emotional exhaustion, 78 in depersonalization, and 223 in personal accomplishment. So, based on the criteria, 59 students, making up 21.1% of students, are in a complete burnout situation.

Association among gender, academic year, smoking, chronic diseases and emotional exhaustion

As per the Chi-square, there had been a significant association between gender, academic year and emotional exhaustion, whereas there was no association among smoking, chronic diseases and emotional exhaustion. Data is summarized in Table 6.

Table 6: Association of emotional exhaustion with other factors.

Emotion exhaustion	Chi-square value	P value
Gender	10.3	0.006
Academic year	20.8	0.02
Smoking	0.5	0.9
Chronic diseases	4.7	0.95

Association among gender, academic year, smoking, chronic diseases and depersonalization

According to Chi-square, there is no significant association among gender, academic year, smoking and chronic diseases with depersonalization.

As well as in the case of personal accomplishment, no association was found. Data is summarized in Tables 7 and 8.

Table 7: Association of depersonalisation with other factors.

Depersonalisation	Chi-square value	P value
Gender	8.2	0.16
Academic year	17.9	0.57
Smoking	0.77	0.699
Chronic diseases	4.06	0.09

Table 8: Association of personal accomplishment with other factors.

Personal accomplishment	Chi-square value	P value
Gender	0.27	0.87
Academic year	8.4	0.5
Smoking	2.6	0.27
Chronic diseases	1.4	0.49

DISCUSSION

Depression and anxiety are widely used terms to define stress, but Maslach brings up the concept of burnout. Burnout can be implemented in many sectors. Still, the current study focuses on medical students. Burnout among medical students is a widespread and concerning issue worldwide, including in Saudi Arabia. Medical students are at risk of burnout due to the challenging nature of medical education, high academic expectations, and clinical responsibilities. Individual, educational, and institutional factors such as personal characteristics, workload, assessment pressure, and the learning environment contribute to burnout. Burnout can hurt medical students' mental health, academic performance, and professional development. It has been associated with a higher incidence of depression, anxiety, and substance misuse. It can lead to decreased empathy regarding patients, reduced job satisfaction, and an increased likelihood of medical errors, compromising patient care quality.¹⁰

The current cross-sectional study was planned to study the prevalence of burnout and its association with demographic factors in Saudi Medical Students. Data was collected using an online survey. Multiple studies have previously been conducted worldwide and in Saudia, especially targeting medical professionals and students. According to one of the studies, Medical school may be the starting point for burnout, defined as emotional exhaustion, depersonalization, and diminished personal accomplishment.¹¹ Many tools are designed to calculate the level and prevalence of burnout, such as Burnout measures, but the most widely used tool is MBI. Many studies have used the same tool to find the degree of burnout in students. A survey conducted in Prata also used the MBI short version to evaluate burnout in medical students. It concluded that emotional exhaustion, depersonalization and lack of personal accomplishment are prevalent in medical students.¹²

According to a study conducted in Riyadh, the personal accomplishment type of burnout was highest in medical students, resulting in a lack of accomplishment, and the current research also concluded such results as 80.2% of participants had a low degree of PA.¹³ As per another study conducted in Saudi Arabia, using the MBI tool, the burnout prevalence was recorded to be 5.6%, whereas in the current study, it is recorded as 21%. The varying levels could be because of different regions and university environments.¹⁴

Saudi Arabia is implementing interventions and preventive measures in response to the need to handle burnout among medical students. Examples are stress management initiatives, mentorship initiatives, curriculum modifications concentrating on self-care and well-being, and promoting a friendly learning environment. It is possible to minimize burnout among medical students and encourage their well-being and success by identifying the underlying causes and providing the appropriate assistance. Burnout is an ongoing issue among Saudi medical students, with severe consequences for their mental health, academic performance, and professional advancement.

This study was conducted online, so there are chances that students do not fully understand the meaning of a question and there are chances of personal bias, so further face-to-face surveys should be conducted. The sample size in this study is too small to generalize the result nationwide. This study should be conducted on a more significant scale. Longitudinal study design should be used to remove the chances of personal bias of students. Studies should be planned to find the primary factors affecting the prevalence of burnout.

CONCLUSION

As per the study results, 21% of students had all three measures in the red zone, leading to complete burnout, whereas the most common type of burnout among medical students was PA. Further understanding the factors contributing to burnout and implementing effective interventions might assist Saudi healthcare institutions in addressing this critical issue while promoting the well-being of medical students, ensuring that the next generation of healthcare professionals can provide high-quality patient care.

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REFERENCES

1. Almutairi H, Alsubaiei A, Abduljawad S, Alshatti A, Fekih-Romdhane F, Husni M, et al. Prevalence of burnout in medical students: A systematic review and meta-analysis. *Int J Soc Psychiatry*. 2022;68:1157-70.

2. Frajerman A, Morvan Y, Krebs MO, Gorwood P, Chaumette B. Burnout in medical students before residency: A systematic review and meta-analysis. *Eur Psychiatry*. 2019;55:36-42.
3. Jafari N, Loghmani A, Montazeri A. P-1011-Mental health of medical students in different levels of training. *Eur Psychiatry*. 2012;27:1.
4. Bahlaq MA, Ramadan IK, Abalkhail B, Mirza AA, Ahmed MK, Alraddadi KS, et al. Burnout, stress, and stimulant abuse among medical and dental students in the Western Region of Saudi Arabia: An analytical study. *Saudi J Med Medical Sci*. 2023;11(1):44.
5. Kushwaha R, Rauniar GP, Koirala B, Mandal NK. Prevalence of substance use among undergraduate students in a medical college of Nepal. *JNMA J Nepal Med Assoc*. 2019;57:315-9.
6. Aljehani J, Althwanay A, Buainain HA, Abuhaimed AK, Almulhim AS, Abusrir FA, et al. Burnout prevalence and associated stressors in medical students of traditional and problem-based learning curricula in a Saudi University. *Saudi J Med Medical Sci*. 2020;8(2):125.
7. Amri A, Abidli Z, Bouzaaboul M, Rabea Z, Ahami AO, Soulaymani A. Psychometric validation of the Maslach Burnout Inventory (MBI) adapted to Moroccan teachers. *Medico Legal Update*. 2021;21:1-6.
8. Maslach C, Jackson SE, Leiter MP. Maslach Burnout Inventory. Palo Alto, CA Consulting Psychologist Press. 1996.
9. Portoghese I, Leiter MP, Maslach C, Galletta M, Porru F, D'Aloja E, et al. Measuring burnout among university students: Factorial validity, invariance, and latent profiles of the Italian version of the Maslach Burnout Inventory Student Survey (MBI-SS). *Front Psychol*. 2018;9:2105.
10. Cecil JE, McHale CT, Hart J, Laidlaw A. Behaviour and burnout in medical students. *Med Educ Online*. 2014;19(1):25209.
11. Santen SA, Holt D, Kemp JD, Hemphill RR. Burnout in Medical Students: Examining the Prevalence and Associated Factors. *Southern Med J*. 2010;103(8):758-63.
12. Boni RADS, Paiva CE, de Oliveira MA, Lucchetti G, Fregnani JHTG, Paiva BSR. Burnout among medical students during the first years of undergraduate school: Prevalence and associated factors. *PLoS One*. 2018;13(3):e0191746.
13. Altannir Y, Alnajjar W, Ahmad SO, Altannir M, Yousuf F, Obeidat A, et al. Assessment of burnout in medical undergraduate students in Riyadh, Saudi Arabia. *BMC Med Educ*. 2019;19(1):34.
14. Alkhamees AA, Alaql NS, Alsoghayer AS, Alharbi BA. Prevalence and determinants of burnout syndrome and depression among medical students at Qassim University, Saudi Arabia. *Saudi Med J*. 2020;41(12):1375-80.

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