

Emotional Intelligence and Burnout among Medical Students at a Public Saudi University

Khalid A. Bin Abdulrahman¹, Noura T. AlRowaitea², Lina Z. Alshalan²,
Rawan A. Bayamin², Yara A. Alfrah², May S. Alharbi²

(1) Department of Medical Education, College of Medicine, Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia; kab@imamu.edu.sa

(2) College of Medicine, Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia

Corresponding author:

Khalid A. Bin Abdulrahman, MD, ABFM, MHSc (MEd)

Professor of Family Medicine & Medical Education

College of Medicine, Imam Mohammad Ibn Saud Islamic University (IMSIU)

P.O. Box: 7544 – Othman Bin Affan Rd, Al-Nada, Riyadh 13317 – 4233, Saudi Arabia

Mobile: +966 505445384

Email: kab@imamu.edu.sa

ORCID number 0000-0003-4756-552X

Received: October 2022 Accepted: November 2022; Published: December 1, 2022.

Citation: Khalid A. Bin Abdulrahman et al. Emotional Intelligence and Burnout among Medical Students at a Public Saudi University. World Family Medicine. 2022; 20(12): 25-31. DOI: 10.5742/MEWFM.2022.95251403

Abstract

Background: Medical students' mental health is a significant problem, as research has shown that their mental health was comparable to, if not better than, the general population before attending medical school. The study aimed to examine emotional intelligence and burnout and their associated factors and identify their predictors among medical students at Imam Mohammed Ibn Saud Islamic University (IMSIU).

Methods: A cross-sectional study targeted medical students at the college of medicine of IMSIU. The invited students were requested to respond to the Maslach Burnout Inventory-Student Survey (MBI-SS) and TEI Que-SF questionnaires. Sociodemographic and personal life data were also evaluated.

Results: Out of the 350 invited medical students, 280 (80%) completed the study questionnaires. More than half (53.2 %) were females, while 66.8 % were aged between 21 and 23. Generally, the mean score of the four scales of the tool were 4.56 (Out of 6), 4.31 (Out of 6), 4.72 (Out of 8), and 4.62 (Out of 6), where higher scores mean better emotional intelligence. According to the results of the MBI-SS tool, 19.3 % of the students had a high-level burnout considering the exhaustion subscale, 76.4 % in the depersonalization subscale, and 77.5 % in the personal achievement subscale. Emotional

intelligence is negatively correlated with exhaustion and depersonalization burnout and positively related with personal achievement burnout. **Conclusion:** A significant correlation was found between medical students' emotional intelligence with burnout components, positively with academic achievement, and negatively with exhaustion and depersonalization burnout. Improving the student's ability to deal successfully with different situations (increasing emotional intelligence) is associated with a lower level of burnout and better academic achievement.

Keywords: medical students, emotional intelligence, burnout, Saudi Arabia

Introduction

The mental health of medical students has huge concerns because it has been shown that their mental health before entering medical school was the same as or even better than the general population (1–3). To be a medical student is intrinsically demanding, but no one can be denied that it can leave many students at risk for burnout (4,5). However, burnout is a psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment induced by repeated exposure to workplace stressors (6). Physician burnout is connected to increased medical errors and reduced quality of patient care (7). Suicide ideation is, however, increased by burnout (8).

Furthermore, State-anxiety and depression are strongly linked to burnout. According to a recent survey, 27.9% of medical students suffer from burnout, which is linked to poor academic performance and a lack of social support (9). Studies also found that burnout among medical students may be associated with worse mental health, such as emotional intelligence (EI) and poor sleep quality (10). If EI is linked to burnout, it should be evaluated or measured as part of medical students' overall evaluation (11,12). Furthermore, these findings suggest that EI training should be prioritized in medical education curricula, especially if burnout is detected. This study examines emotional intelligence and burnout, their associated factors, and identifies predictors among IMSIU medical students.

Materials and Methods

This cross-sectional study was conducted at the College of Medicine, Imam Mohammad Ibn Saud Islamic University (IMSIU), in November 2021.

Study subjects and size

Participants in this study were undergraduate college students from different educational levels. A minimum sample of 280 participants was intended to achieve a 95% confidence level and a 5% margin of error.

The sampling technique, data collection method, and the instrument used.

This study was conducted through an electronic self-administered questionnaire distributed randomly. The study scale was adapted from multiple previous studies. A pilot study checked the validity and reliability of the study questionnaire. The questionnaire contains four demographic sections and life factors. The TEIQue-SF inventory(13) is a 30-item questionnaire designed to measure global trait emotional intelligence (trait EI) based on the complete form of the TEIQu. Also, the Maslach Burnout Inventory (14) is a 22-item survey that covers three areas: Emotional Exhaustion (EE), Depersonalization (DP), and low sense of Personal Accomplishment (PA). Each subscale includes multiple questions with frequency rating choices of Never, A few times a year or less, Once a month or less, A few times a month, Once a week, A few

times a week, or Every day. Three hundred and fifty (350) randomly invited participants were emailed and reminded to participate.

Statistical analysis plan

The quantitative data were analyzed using the Statistical Package for Social Sciences version 21 (SPSS 21.0) (15). Frequencies and percentages were used to present qualitative data, while the mean presented continuous variables. The Pearson test was used to determine the correlation between burnout and emotional intelligence. Statistical significance was defined as being lower or equal to $p = 0.05$. The data did not need to be cleaned because all of the questions in the Google form were multiple choice and had to be answered to submit, so there was no error in the database.

Ethical consideration

The study was approved by Imam Mohammad Ibn Saud Islamic University's institutional review board (IRB) project number 155-2021, dated 3 November 2021. All writing is done in accordance with the ethical principles of the Declaration of Helsinki. The survey link included a brief description of the study and a more detailed explanation on the survey's front page. Participants were told that completion of the study constituted consent. All participant consent and data were collected in complete confidence throughout the study.

Results

Of the 350 invited medical students, 280 (80%) completed the study questionnaires. Among these students, 53.2 % were females, while 66.8 % were aged 21-23. Almost all students were single (98.9 %), and 55.7 % reported a total family monthly income of more than 20,000 SR. Moreover, 32.5 % of the students reported being in their third year at the study time, while 20 % were in the first year. Furthermore, 52.1 % had a GPA of more than 4.5, while 28.9 % were between 4 and 4.49 (Table 1).

Considering being physically active, 54.3 % of the students reported practicing no physical exercise, while 21.4 % were physically active twice weekly and 9.6 % daily. Moreover, 41.8 % of the students rank their sleep quality as relatively good, 26.4 % as very good, and 23.2 % as reasonably bad. Considering smoking, 12.5 % of students reported current smoking and 1.4 % as ex-smokers, and 16.4 % reported being diagnosed with mental health disorders (Table 2).

Table 3 shows the TEIQue-SF tool's results for analyzing the participants' emotional intelligence. Generally, the mean score of the four scales of the instrument were 4.56 (Out of 6), 4.31 (Out of 6), 4.72 (Out of 8), and 4.62 (Out of 6), where higher scores mean better emotional intelligence. Moreover, no correlation was found between gender, age, or emotional intelligence. Emotional intelligence was the only factor correlated with age; the older the students, the more emotionally stable they were. Another factor affecting emotional intelligence is sleep quality, where

sleep quality is significantly positively correlated with emotional intelligence.

According to the results of the MBI-SS tool, 19.3 % of the students had a high-level of burnout considering the exhaustion subscale, 76.4 % in the depersonalization subscale, and 77.5 % in the personal achievement subscale (Figure 1). According to the results presented

in Table 4, there was a significant relationship between burnout of medical students and their emotional intelligence. Emotional intelligence is negatively correlated with exhaustion and depersonalization burnout and positively with personal achievement burnout. More stable and good emotional intelligence is associated with low exhaustion, depersonalization burnout, and better personal achievement.

Table 1: Demographic factors of the participants (N=280)

		Count	Column N %
Gender	Male	131	46.8%
	Female	149	53.2%
Age	18	4	1.4%
	19	17	6.1%
	20	44	15.7%
	21	75	26.8%
	22	70	25.0%
	23	42	15.0%
	24	20	7.1%
	25 or more	8	2.9%
Marital status	Single	277	98.9%
	Married	3	1.1%
TOTAL family monthly income	<10,000 SR	59	21.1%
	10,000-20,000 SR	65	23.2%
	> 20,000 SR	156	55.7%
Current year of study	1st year	56	20.0%
	2nd year	44	15.7%
	3rd year	91	32.5%
	4th year	50	17.9%
	5th year	39	13.9%
GPA	=<2.99	5	1.8%
	3-3.49	10	3.6%
	3.5-3.99	38	13.6%
	4-4.49	81	28.9%
	=>4.5	146	52.1%

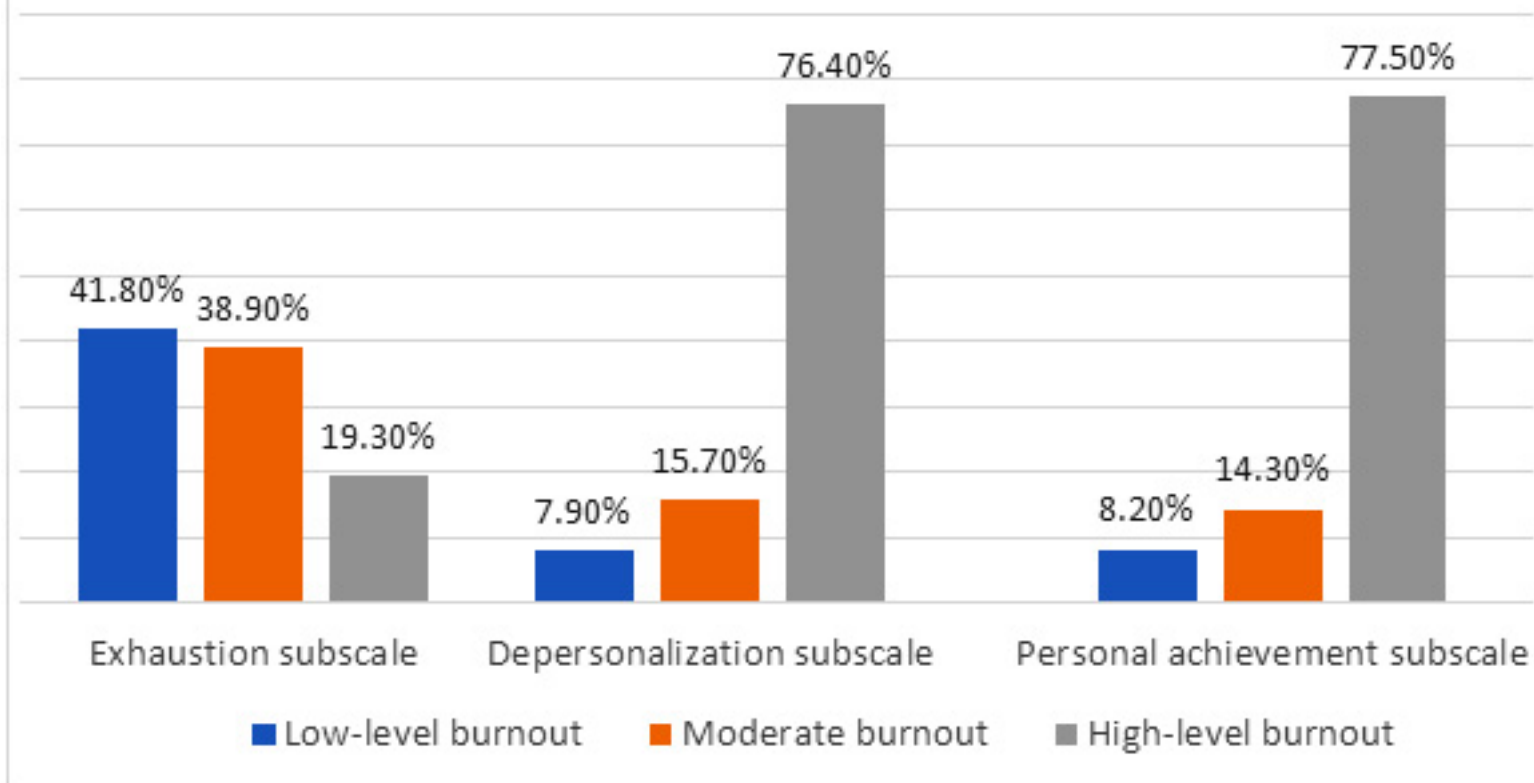
Table 2: The participants' health characteristics and habits

		Count	Column N %
Do you do physical exercise in a typical week?	Never	152	54.3%
	Twice weekly	60	21.4%
	More than twice weekly	41	14.6%
	Daily	27	9.6%
Rank your sleep quality.	Very bad	24	8.6%
	Fairly bad	65	23.2%
	Fairly good	117	41.8%
	Good	74	26.4%
Do you smoke?	Yes	35	12.5%
	No	241	86.1%
	Previous smoker	4	1.4%
Have you been diagnosed with any mental diseases?	Yes	46	16.4%
	No	208	74.3%
	I do not know	26	9.3%

Table 3: The results of Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF) in relation to demographic factors

		Well-being	Self-control	Emotionally	Sociability
Total sample (mean)		4.56	4.31	4.72	4.62
Gender	Pearson Correlation	-.016	-.076	-.106	.110
	Sig. (2-tailed)	.784	.208	.077	.065
	N	280	280	280	280
Age	Pearson Correlation	.000	.035	.140*	.087
	Sig. (2-tailed)	.999	.561	.019	.145
	N	280	280	280	280
Current year of study	Pearson Correlation	-.020	.052	.131*	.054
	Sig. (2-tailed)	.742	.384	.029	.369
	N	280	280	280	280
GPA	Pearson Correlation	.050	.014	-.005	.047
	Sig. (2-tailed)	.403	.822	.929	.433
	N	280	280	280	280
Do you do physical exercise in a typical week?	Pearson Correlation	.087	.112	.054	.078
	Sig. (2-tailed)	.149	.062	.367	.191
	N	280	280	280	280
Rank your sleep quality	Pearson Correlation	.234**	.086	.227**	.093
	Sig. (2-tailed)	.000	.149	.000	.122
	N	280	280	280	280
Do you smoke?	Pearson Correlation	.066	.005	.012	-.044
	Sig. (2-tailed)	.271	.932	.846	.468
	N	280	280	280	280

Figure 1: The distribution of students over their burnout degree



Discussion

The study aimed to determine the association between Emotional Intelligence and Burnout and their associated factors and identify their predictors among IMSIU medical students. The results of this study showed a moderate to high level of emotional intelligence among medical students; the mean scores on four scales of the tool were 4.56 (Out of 6), 4.31 (Out of 6), 4.72 (Out of 8) and 4.62 (Out of 6). Emotional intelligence consists of the different abilities of a person to identify, understand, harness, and stabilize emotions in oneself and others. Emotional intelligence is associated with being older, consistent with previous reports (1,16–20). Being older makes students more able to deal with different situations, especially with stresses provided by their colleges (20). Students with higher emotional intelligence are more likely to have better skills in managing stressful situations in college and individual life (1,2,17,21–23).

Moreover, a high level of burnout was observed among medical students especially considering personal achievement. It is well known that medical students worldwide experience stressful situations with decreased wellness throughout their medical school life (24–27). Burnout is associated with a lower level of effectiveness in students' academic life (28–30). Moreover, depersonalization, one of the burnout factors, is associated with a significant increase in physicians reporting suboptimal patient care (31). Dyrbye et al. studied the burnout level among medical students at seven medical schools in the United States, finding that 49.6 % of medical students experienced burnout and 11.2 % reported suicidal ideation. The authors found that burnout is a predictive factor for suicidal ideation (32). Another study by

Mazurkiewicz et al. among third-year medical students found that 71 % met the criteria for burnout, suggesting that medical students faced burnout before reaching their clinical clerkships (33). Moreover, the prevalence of burnout was 27.9% among medical students; as reported in another study, where only sleep quality and exercise level were significantly associated with burnout (9).

Furthermore, a significant relationship between burnout in medical students and their emotional intelligence was found in the current study. Emotional intelligence is negatively correlated with exhaustion and depersonalization burnout and positively with personal achievement burnout. More stable and good emotional intelligence is associated with low exhaustion, depersonalization burnout, and better personal achievement. These results were consistent with the results of Blanchard C. et al., who found burnout levels and emotional intelligence scores were positively correlated ($R=0.55$, $p<.001$) (34) and the study of Bin Dahmash et al. (35). They found that emotional intelligence was negatively correlated with exhaustion burnout and depersonalization burnout but positively correlated with personal achievement, strengthening the positive influence of emotional intelligence (34). Exhaustion burnout and depersonalization burnout indicate the stress aspect of burnout and involves feelings of hopelessness, isolation, depression, resentment, impatience, irritability, and decreased personal achievement (36). As medical residents have been stressed due to the intense study and workload, exhaustion burnout is likely a sign of high-pressure levels owing to performing multiple tasks of learning and practical handling of patients, resulting in higher exhaustion burnout and depersonalization burnout (37–39). By contrast, those students with higher

emotional intelligence can better handle work-related stress and, therefore, have a negative relationship between exhaustion burnout and depersonalization burnout (40–42). Those with higher emotional intelligence tend to adjust to coping mechanisms such as problem-solving and stress management, resulting in decreased stress and anxiety in everyday life situations and a positive correlation with higher personal achievement (43).

Limitations and strengths

Research has strengths, such as establishing a link between two scales, and research at IMSIU was insufficient. Furthermore, this study had some limitations, including depending on self-reported questionnaires, which may lead to personal bias. Moreover, the dependence on a small sample size is another limitation that may affect the analysis of the study. In addition, reaching the sample was one of the difficulties in collecting the data.

Conclusions

A significant correlation was found between the emotional intelligence of medical students with burnout components, positively with academic achievement, and negatively with exhaustion and depersonalization burnout. Improving students' ability to deal successfully with different situations (increasing emotional intelligence) is associated with lower burnout and better academic achievement. The student support office should actively screen for burnout and provide the necessary support for needs of medical students.

References

- Weng HC, Hung CM, Liu YT, Cheng YJ, Yen CY, Chang CC, et al. Associations between emotional intelligence and doctor burnout, job satisfaction and patient satisfaction. *Med Educ*. 2011 Aug;45(8):835–42.
- Silva JTN, Toledo Júnior A. Association between emotional intelligence and empathy among medical students: a single center cross-sectional study, Brazil, 2019. *Rev bras educ med [Internet]*. 2021 Mar 22 [cited 2022 Oct 23];45. Available from: <http://www.scielo.br/rbem/a/HbKMfNRqJDT4rVvZGdSksSc/?lang=en>
- Almeida G de C, Souza HR de, Almeida PC de, Almeida B de C, Almeida GH. The prevalence of burnout syndrome in medical students. *Arch Clin Psychiatry (São Paulo)*. 2016 Feb;43:6–10.
- Jumat MR, Chow PKH, Allen JC, Lai SH, Hwang NC, Iqbal J, et al. Grit protects medical students from burnout: a longitudinal study. *BMC Med Educ*. 2020 Aug 12;20:266.
- Abreu Alves S, Sinval J, Lucas Neto L, Marôco J, Gonçalves Ferreira A, Oliveira P. Burnout and dropout intention in medical students: the protective role of academic engagement. *BMC Medical Education*. 2022 Feb 7;22(1):83.
- Maslach C, Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatry*. 2016 Jun;15(2):103–11.
- Patel RS, Bachu R, Adikey A, Malik M, Shah M. Factors Related to Physician Burnout and Its Consequences: A Review. *Behav Sci (Basel)*. 2018 Oct 25;8(11):98.
- Menon NK, Shanafelt TD, Sinsky CA, Linzer M, Carlisare L, Brady KJS, et al. Association of Physician Burnout With Suicidal Ideation and Medical Errors. *JAMA Netw Open*. 2020 Dec 9;3(12):e2028780.
- Lee KP, Yeung N, Wong C, Yip B, Luk LHF, Wong S. Prevalence of medical students' burnout and its associated demographics and lifestyle factors in Hong Kong. *PLoS One*. 2020;15(7):e0235154.
- Boni RA dos S, 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 Mar 7;13(3):e0191746.
- Gong Z, Chen Y, Wang Y. The Influence of Emotional Intelligence on Job Burnout and Job Performance: Mediating Effect of Psychological Capital. *Front Psychol*. 2019 Dec 10;10:2707.
- Shariatpanahi G, Asadabadi M, Rahmani A, Effatpanah M, Ghazizadeh Esslami G. The Impact of Emotional Intelligence on Burnout Aspects in Medical Students: Iranian Research. *Education Research International*. 2022 Jun 29;2022:e5745124.
- Petrides KV. Trait Emotional Intelligence Questionnaire (TEIQue). :5.
- Maslach Burnout Inventory (MBI) - Assessments, Tests | Mind Garden - Mind Garden [Internet]. [cited 2022 Oct 24]. Available from: <https://www.mindgarden.com/117-maslach-burnout-inventory-mbi>
- SPSS Statistics 21.0 Available for Download [Internet]. 2020 [cited 2022 Oct 24]. Available from: <https://www.ibm.com/support/pages/spss-statistics-210-available-download>
- Chen Y, Peng Y, Fang P. Emotional Intelligence Mediates the Relationship between Age and Subjective Well-Being. *Int J Aging Hum Dev*. 2016 Jul;83(2):91–107.
- Carstensen LL, Turan B, Scheibe S, Ram N, Ersner-Hershfield H, Samanez-Larkin GR, et al. Emotional Experience Improves With Age: Evidence Based on Over 10 Years of Experience Sampling. *Psychol Aging*. 2011 Mar;26(1):21–33.
- (PDF) Does Emotional Intelligence change with age? [Internet]. [cited 2022 Oct 24]. Available from: https://www.researchgate.net/publication/234377636_Does_Emotional_Intelligence_change_with_age
- Drigas AS, Papoutsi C. A New Layered Model on Emotional Intelligence. *Behav Sci (Basel)*. 2018 May 2;8(5):45.
- Petrides KV, Furnham A. Trait emotional intelligence: psychometric investigation with reference to established trait taxonomies. *Eur J Pers*. 2001 Nov;15(6):425–48.
- Pokhrel NB, Khadayat R, Tulachan P. Depression, anxiety, and burnout among medical students and residents of a medical school in Nepal: a cross-sectional study. *BMC Psychiatry*. 2020 Jun 15;20(1):298.
- YAMANI N, SHAHABI M, HAGHANI F. The relationship between emotional intelligence and job stress in the faculty of medicine in Isfahan University of Medical Sciences. *J Adv Med Educ Prof*. 2014 Jan;2(1):20–6.

23. Fteiha M, Awwad N. Emotional intelligence and its relationship with stress coping style. *Health Psychol Open*. 2020 Nov 6;7(2):2055102920970416.
24. Ishak W, Nikraves R, Lederer S, Perry R, Ogunyemi D, Bernstein C. Burnout in medical students: a systematic review. *Clin Teach*. 2013 Aug;10(4):242–5.
25. Abdulghani HM, AlKanhhal AA, Mahmoud ES, Ponnampereuma GG, Alfaris EA. Stress and Its Effects on Medical Students: A Cross-sectional Study at a College of Medicine in Saudi Arabia. *J Health Popul Nutr*. 2011 Oct;29(5):516–22.
26. Hill MR, Goicochea S, Merlo LJ. In their own words: stressors facing medical students in the millennial generation. *Med Educ Online*. 2018 Oct 5;23(1):1530558.
27. Neufeld A, Malin G. How medical students cope with stress: a cross-sectional look at strategies and their sociodemographic antecedents. *BMC Medical Education*. 2021 May 25;21(1):299.
28. Drăghici GL, Cazan AM. Burnout and Maladjustment Among Employed Students. *Front Psychol*. 2022 Apr 22;13:825588.
29. Madigan D, Curran T. Does Burnout Affect Academic Achievement? A Meta-Analysis of Over 100,000 Students. *Educational Psychology Review*. 2021 Jun 1;33.
30. Alshobaili AM, Alruwaili SH, Alshallan HA, Alqarni AF, Alanazi MM, Alshinqeeti TA, et al. The Impact of Burnout on the Academic Achievement of Saudi Female Students Enrolled in the Colleges of Health Sciences. *International Journal of Higher Education*. 2021;10(2):229–39.
31. Panagioti M, Geraghty K, Johnson J, Zhou A, Panagopoulou E, Chew-Graham C, et al. Association Between Physician Burnout and Patient Safety, Professionalism, and Patient Satisfaction. *JAMA Intern Med*. 2018 Oct;178(10):1317–30.
32. Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, et al. Burnout and suicidal ideation among U.S. medical students. *Ann Intern Med*. 2008 Sep 2;149(5):334–41.
33. Mazurkiewicz R, Korenstein D, Fallar R, Ripp J. The prevalence and correlations of medical student burnout in the pre-clinical years: a cross-sectional study. *Psychol Health Med*. 2012;17(2):188–95.
34. Blanchard C, Kravets V, Schenker M, Moore T. Emotional intelligence, burnout, and professional fulfillment in clinical year medical students. *Med Teach*. 2021 Sep;43(9):1063–9.
35. Bin Dahmash A, Alhadlaq AS, Alhujayri AK, Alkholaiwi F, Alosaimi NA. Emotional Intelligence and Burnout in Plastic Surgery Residents: Is There a Relationship? *Plast Reconstr Surg Glob Open*. 2019 May;7(5):e2057.
36. Gouveia PA da C, Ribeiro MHC, Aschoff CA de M, Gomes DP, Silva NAF da, Cavalcanti HAF. Factors associated with burnout syndrome in medical residents of a university hospital. *Rev Assoc Med Bras (1992)*. 2017 Jun;63(6):504–11.
37. Hameed TK, Masuadi E, Al Asmary NA, Al-Anzi FG, Al Dubayee MS. A study of resident duty hours and burnout in a sample of Saudi residents. *BMC Med Educ*. 2018 Aug 2;18:180.
38. Al-Ghamdi MA, Nahar S, Siddiqui AF, Al-Saleem SA. Burnout and its correlates in Saudi family medicine residents: An observational study from Aseer, Saudi Arabia. *J Family Med Prim Care*. 2021 May;10(5):1904–11.
39. Zhang Y, Feng X. The relationship between job satisfaction, burnout, and turnover intention among physicians from urban state-owned medical institutions in Hubei, China: a cross-sectional study. *BMC Health Serv Res*. 2011 Dec;11(1):235.
40. Cao Y, Gao L, Fan L, Jiao M, Li Y, Ma Y. The Influence of Emotional Intelligence on Job Burnout of Healthcare Workers and Mediating Role of Workplace Violence: A Cross-Sectional Study. *Front Public Health*. 2022 May 11;10:892421.
41. (PDF) The Relationship between Emotional Intelligence and Burnout among EFL Teachers Teaching at Private Institutions [Internet]. [cited 2022 Oct 24]. Available from: https://www.researchgate.net/publication/328093343_The_Relationship_between_Emotional_Intelligence_and_Burnout_among_EFL_Teachers_Teaching_at_Private_Institutions
42. Canada LG. Emotional Intelligence as a Factor against Burnout in Female Students and Teachers. *Journal of Intellectual Disability - Diagnosis and Treatment* [Internet]. 2021 Jan 1 [cited 2022 Oct 24]; Available from: https://www.academia.edu/67795119/Emotional_Intelligence_as_a_Factor_against_Burnout_in_Female_Students_and_Teachers
43. Morales-Rodríguez FM, Pérez-Mármol JM. The Role of Anxiety, Coping Strategies, and Emotional Intelligence on General Perceived Self-Efficacy in University Students. *Front Psychol*. 2019 Aug 7;10:1689.