Original Article

Comparative Assessment of Burnout Syndrome in Medical and Dental Senior Undergraduate Students

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ABSTRACT

Background: Burnout is observed when there is chronic exposure to work-related stress. This is commonly seen in physicians and undergraduate medical students. Thus, the study assessed and compared the severity of burnout among medical and dental senior undergraduate students in Abha, Saudi Arabia.

Materials and method: 517 medical and dental senior undergraduate students were evaluated using a well-designed and formulated questionnaire. Different levels of burnout were evaluated with the related scores of burnout categories. Data collected was evaluated using SPSS version 25.0.

Results: A total of 772 medical and dental senior undergraduate students were included in the study, out of which 517 responded to the questionnaire, with a response rate of t 67%. Demographic parameters like age, gender, marital status, and the course were assessed. The mean scores of Personal Accomplishment (PA), Emotional Exhaustion (EE), and Depersonalization (DP) for all study subjects were recorded, showing an insignificant difference (p-value > 0.05) between both the groups in all the three categories. Considering Personal Accomplishment, the lowest mean values were observed with subjects aged 23 years old, female participants, and unmarried students, with insignificant correlation, observed statistically.

Conclusion: Moderate to high levels of burnout with no significant difference was observed between medical and dental students in all three burnout categories.

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Keywords: Burnout; Medical; Dental; Students; Demographic; Saudi Arabia.

Introductions

Medical and dental senior undergraduate students face many challenges that affect their psychological health as the nature of the training is lengthy and emotionally demanding. Such challenges include tremendous academic and clinical loads, decreased relaxation time, and pressure to maintain high grades. However, some stress is inherent in medical and dental education and is likely to be beneficial as a learning stimulus. High level and prolonged stress exposure may precipitate a state of mental and physical exhaustion related to work or caregiving activities, called burnout. Emotional exhaustion and reduced perception of personal accomplishment are the proposed axis of the classic definition of the burnout syndrome [1]. Various health-related issues could happen because of burnout syndrome, such as anxiety disorders, depression, substance abuse, and suicidal ideation [2-3].

Burnout is observed when there is chronic exposure to work-related stress. This is commonly seen in physicians and undergraduate medical students [1]. A varied range of burnout levels among medical or dental students has been reported worldwide in different studies, showing a prevalence range of 71 to 76.8% [4-6].

Burnout syndrome can increase the degree of failure regarding adequate patient care and give rise to unprofessional conduct [7,8]. It has been observed that when physicians and medical students suffer from burnout syndrome, they avoid seeking professional help for themselves to relieve their stress [9,10].

A systematic review and meta-analysis were conducted on studies (reporting burnout among medical students) published

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between 2000 and 2017 to observe the prevalence rates for professional burnout. It was found to range from 7.0% to 75.2%, depending on country-specific factors, applied instruments, cut off-criteria for burnout symptomatology [11].

However, few studies have explored and compared the occurrence and impact of burnout among medical and dental senior undergraduate students in Saudi Arabia [12-14]. Altannir Y et al. [15] assessed the prevalence of burnout symptoms among preclinical and clinical medical students studying in Riyadh, Saudi Arabia. They found that the total level of burnout in females was 75.7% and in males was 41.4%.

Various studies have been conducted in different regions of Saudi Arabia, comparing the degree of burnout syndrome among medical and dental students. But most of them have few shortcomings, like the semester of students was not specified, thus creating bias in the degree of stress levels. In few studies, the questionnaire used was not well framed and validated. In many studies, they used both electronic and physical means of distribution of survey forms, thus affecting the validity of results.

Thus, the present study was conducted keeping in mind the limitations of previous studies conducted in various parts of Saudi Arabia. We have chosen and compared both dental and medical students in the present study because of similarities in their curriculum and study hours. Both the study groups were aged 21 to 26years of age, with similarities in the pattern of getting selected in educational health institutes. Thus, the study assessed and compared the severity of burnout among medical and dental senior undergraduate students in Abha, Saudi Arabia.

Methods

A structured, self-administered cross-sectional survey was sent via the "WhatsApp" application to a sample of medical and dental senior undergraduate students at King Khalid University in Abha, Saudi Arabia. 772 medical and dental senior undergraduate students formed the population under study and were approached through their group leaders to participate in this research. Survey forms were randomly distributed to both medical and dental final year undergraduates three weeks before the final year examination period to minimize any associated stress symptoms.

The questionnaire is designed and formulated based on the information provided by the Maslach Burnout Inventory (MBI) [16], which calculates burnout score using 22 items for three categories of burnout symptoms: Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). Each one of these items was scored on a scale from 0 to 6; (0 = Never, 1 = Few times a year or less, 2 = Once a month or less, 3 = A Few times A month, 4 = Once a week, 5 = A few times a week, 6 = Every day). (DP) Furthermore, (EE) is inversely proportional to (PA) but directly proportional to burnout. Different cases of burnout were evaluated with the related scores of burnout categories (Table no. 1) [8,17,18].

The questionnaire was modified to include demographic data (age, gender, marital status, and course). The questionnaire was written in English and translated into Arabic by two bilingual psychiatrists who are interested in research. Then the questionnaire was attached with the study description and a consent form. The study was conducted in compliance with the protocol; ethical approval was obtained from the ethical committee at King Khalid University, College of Dentistry (Approval No. IRB/KKUCOD/ETH/2019-20/049).

Multiple reminders were given to participants to respond to the questionnaire to achieve the required response rate. After data collection was finished, the data were processed anonymously. A single operator analyzed all the returned forms and carried out the descriptive statistics. The collected data were analyzed using Statistical Package for Social Science (SPSS, version 25, SPSS Inc., Chicago, IL, USA). In quantitative data, a two-tailed t-test for an independent sample and One Way ANOVA were used for group comparisons. In categorical data, two-tailed Chi-square and Fisher's exact tests were used interchangeably, and these tests helped determine the significant association between categorical variables. The odds ratio and 95% confidence interval were calculated. $P<0.05$ was considered statistically significant.

Table 1: Burnout cases depending upon scores of three categories of MBI.

Burnout Case	Scores		
	EE	DP	PA
Severe	≥ 27	≥ 10	0-33
Moderate	19-26	6-9	34–39
Minor	0-18	0-5	≥ 40

Results

772 medical and dental senior undergraduate students at King Khalid University formed the population under study. Out of 772 undergraduate students, 517 responded to the questionnaire (Figure 1). The response rate of the survey was 67%.

Demographic parameters like gender distribution, age, marital status, and distribution according to course have been assessed. It has been observed that 55.5% were males and 44.5% were females, out of which 96.5% were married. The maximum number of subjects (30.2%) were 23yrs of age, whereas the minimum number of subjects (5.6%) were 26yrs old. 51.1% were dental, and 48.9% were medical students (Table no. 2).

The mean scores of three categories of MBI, i.e., Personal Accomplishment (PA), Emotional Exhaustion (EE), and Depersonalization (DP) for both medical and dental students, were evaluated, with no significant difference (p-value>0.05) between both the groups in all the three categories. It was observed that the participants' burnout in both groups was not significantly affected by any demographic factors (Table no. 3).

Burnout symptoms were compared with different demographic parameters. Subjects aged 23years old felt more emotionally exhausted and depersonalized than other age groups. Males were slightly more emotionally exhausted than females, but both had almost the same level of burnout in the depersonalized category. Married students were more emotionally exhausted and depersonalized. Considering Personal Accomplishment, the minor level of burnout was observed with subjects aged 23 years old, female participants, and unmarried students, with insignificant correlation, observed statistically (Table no. 4).

Discussion

Studying at colleges for health professions is associated with high demands and responsibilities. Students in such colleges are put in a highly competitive educational environment, making them more suspectable to stress and burnout. Even though some stress can motivate students for more effort, excessive and ongoing stress, on the other hand, can reduce the effectiveness of the others if no appropriate stress management is used [19].

We compared dental and medical students in the present study based on similarities in their curriculum and study hours. Both study groups were aged 21 to 26years of age. Medical and dental students are similar in the pattern of getting selected in educational

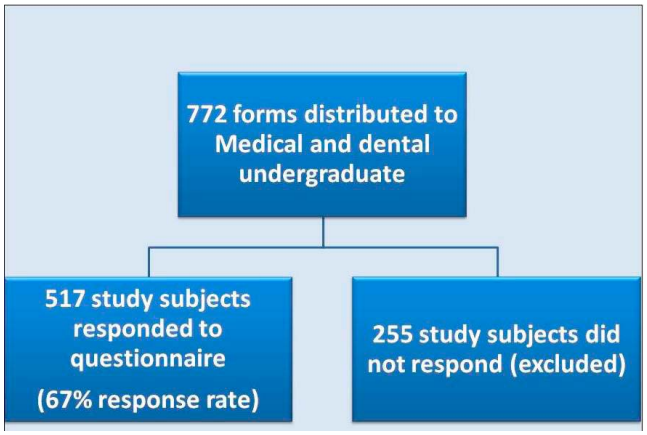

Figure 1: Included and excluded subjects.

Table 2: Demographic factors.

		Frequency	Percent
Gender n=517) *	MALE	287	55.5
	FEMALE	230	44.5
Age	22 YEARS	112	21.7
	23 YEARS	156	30.2
	24 YEARS	145	28.0
	25 YEARS	75	14.5
	26 YEARS	29	5.6
Marital Status (n=517)	SINGLE	499	96.5
	MARRIED	18	3.5
Course (n=517)	DENTISTRY	264	51.1
	MEDICINE	253	48.9
	Total	517	100.0

*n is Number of study subjects

Table 3: Comparison of mean scores of EE, DP, and PA between dentistry and medicine students.

Course	Burnout categories (Mean±SD)		
	EE	DP	PA
Dentistry (n*=264)	28.16±13.44	7.37±6.79	27.75±10.61
Medicine (n=253)	28.40±12.97	8.13±6.79	27.30±10.27
Total (n=517)	28.28±13.20	7.74±6.80	27.53±10.44
p-value*	0.836	0.200	0.628

*p-value>0.05 is insignificant

*n is Number of study subjects

Table 4: Effect of demographic factors on EE, PA, and DP.

Demographic parameters		MEAN±SD		
		EE	DP	PA
AGE (years)	22 years	28.06±13.86	7.75±7.29	27.90±10.91
	23 years	29.50±12.13	8.01±6.02	26.94±10.08
	24 years	27.86±13.44	7.46±7.12	26.97±10.46
	25 years	27.55±14.12	7.67±6.96	28.72±10.90
	26 years	26.52±12.75	7.93±7.09	29.00±9.32
	p-value*	0.383	0.832	0.499
Gender	Male	28.69±13.76	7.60±6.84	27.57±10.69
	Female	27.76±12.47	7.92±6.75	27.47±10.14
	p-value*	0.422	0.592	0.916
Marital status	Married	30.50±11.95	8.78±5.44	27.78±7.08
	Unmarried	28.20±13.24	7.71±6.84	27.52±10.54
	p-value*	0.461	0.511	0.917

*p-value>0.05 is insignificant.

health institutes. Thus, these two study groups were chosen for comparison in our study.

In this study, a validated MBI based questionnaire was used to assess and compare burnout syndrome among medical and dental senior undergraduate students at King Khalid University in Abha, Saudi Arabia. This tool depends on three scores: (EE), (DP), and (PA), where high scores of (EE) and (DP) and a lower score of (PA) result in a high level of burnout.

The overall response rate for the questionnaire distributed was 66.8%, which was a good response rate to compare the groups and draw the results of the study. Similar to our study, Aboalshamat K et al. [13] also observed a similar response rate of 64.52% in their study conducted on dental and medical students of Saudi Arabia. In contrast to our study, the response rate was 83% in a study conducted by Ahmad FA et al. [20]. The average response in the present study was achieved due to the multiple reminders distributed to participants.

The number of female participants was almost similar to male students. This might represent the accelerated growing number of female medical and dental students in Saudi Arabia universities, including King Khalid University, as per new governmental rules.

In the present study, the mean scores of (DP) and (PA) for both groups were found to be at moderate levels while scores of (EE) were at a high level, with an insignificant difference between both the groups and all three categories of burnout. Like other studies [4,5,12-14], heavy load of both dental and medical training, high family and social expectations, and absence of student wellness centers might be attributed to the level of burnout observed among medical and dental students at King Khalid University.

It wasn't easy to compare the level of burnout observed in the present study with other populations. This can be due to variations in cut-off scores of burnout severity in the literature, different measurement tools used, and differences in curricula between the investigated colleges. Nevertheless, a relative comparison can be made with another research.

In contrast to our results, a recent study found a difference between medical and dental participants in (PA), which was highly significant in dental students. However, both groups had a moderate level of burnout [21].

As observed in our study, Chilukuri H et al. [22], also found comparable burnout mean scores. Thus, the variations in burnout severity may be due to different kinds of burnout scales used, the difference in university rules and regulations, and the time of conducting the survey (either close or far away from exam time).

Our study revealed that the burnout level of both groups was not affected by demographic factors. In accordance with our study, Aboalshamat K et al. [12], observed that the level of burnout did not correlate significantly with gender, faculty, marital status, or type of college (private or governmental). Our results contradicted the study conducted by Prinz P et al. [4], which found dental students to have a higher burnout level than medical students. This may reflect the different nature of education in each country and educational institution.

Aboalshamat K et al. [13] found significant differences in psychological health among the demographic subgroups such as department, gender, year of study, and family income.

We observed that males were slightly more emotionally exhausted than females, but both had almost the same mean score of burnout categories. In contrast to our study, Adhikari B et al. [23], found a higher percentage of females under stress (75.8%) than their male counterparts (57.8%) which was quite similar to study done by Kharel S et al. [24], where the prevalence of stress was more in females than males. Results of our study were similar to a study done in the University of Ethiopia by Malaku L et al. [25],

where not much gender difference was seen among prevalence of stress (52.9% males and 50.6% females).

The results of our study indicate moderate to high levels of burnouts among senior medical and dental students that ring the bell of the possible occurrence of many significant consequences after graduation such as early retirement or drop-out of work, increased risk of medical errors, and more severe health issues such as depression, substance abuse, and suicidal ideation.

Therefore, we recommend that some essential interventions be done to reduce burnout syndrome among medical and dental students. Higher authorities in the university should revise the curriculum of medical and dental colleges to include and discuss burnout as a critical hazard. The university is also recommended to support and enhance the function of the student wellness center in a way that it can be trustworthy for students who suffer during this critical age. Cognitive-behavioral training, counseling, and adaptive and communication skills training are some services that can be offered through the student wellness center, which can help in both the prevention and treatment of burnout syndrome.

Limitations of the study

As it was based on a questionnaire that may provide inappropriate results as some students could answer the questions to make them appear more oppressed, not that they feel, or some of the burnout students may be less motivated to participate. Furthermore, the cross-sectional data provided here do not establish the etiological factors related to burnout. Also, since this survey was based on a specific university, the results cannot be generalized to all senior medical and dental students in Saudi Arabia.

Another limitation was that our formulated questionnaire cant assess depressive and anxiety symptoms of subjects. Our questionnaire also lacks the assessment of stress related to monetary issues faced by students. Thus, future studies should be conducted to assess and evaluate the subjects with depression and anxiety level scores.

Thus, future studies should be conducted with more sample size, discussing the etiological basis of burnout syndrome involving different health institutes and universities, considering medical, dental, paramedical, preclinical students, and physicians. This will bring out the differences among various students and health care workers working in different health fields.

Conclusions

In conclusion, we found moderate to high levels of burnout among senior undergraduate students of medical and dental colleges with no significant difference between both colleges in all three categories: Personal Accomplishment (PA), Emotional Exhaustion (EE), and Depersonalization (DP). Moreover, this study shows that the participants' burnout was not affected by any demographic factor, including age, gender, and marital status. Future randomized controlled trials and longitudinal studies are needed to investigate the specific causes of burnout syndrome among students and to examine the impact of proper management and interventions on the level of burnout.

Availability of data and materials:

The data sets supporting the conclusions of this article are included within the article and its additional files.

Conflicts of Interest:

The authors declare no conflict of interest.

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