

Prevalence of Burnout Syndrome Among Students of Health Care Colleges and its Correlation to Musculoskeletal Disorders in Saudi Arabia

Abstract

Background: Burnout is a chronic stress-related syndrome with the three dimensions of exhaustion, cynicism, and inefficacy. Musculoskeletal disorders (MSDs) are defined as a musculoskeletal strain reported by an individual. Burnout is prevalent among Saudi medical students. Many studies have found that burnout is associated with a higher prevalence of MSDs. To the best of our knowledge, there is no study that has assessed the prevalence of burnout among students of health care colleges in Saudi Arabia and its correlation to MSDs and compared the results of each health care college to the other. Hence, this is the aim of this study. **Methods:** A cross-sectional study of 392 students of health care colleges in Taif University was carried out from April 2019 to May 2019, using a predesigned questionnaire, including sociodemographic characteristics, the Copenhagen Burnout Inventory (CBI) Questionnaire to assess the degree of burnout, and Standardized Nordic Questionnaires for the analysis of musculoskeletal symptoms. **Results:** 48.7% of the students of health care colleges had burnout and 64.8% of them had MSDs. We did not detect a statistically significant association between burnout prevalence and sociodemographic characteristics. There was a significant association between burnout and the MSDs, as 34.2% of the students with a high degree of burnout had MSDs. **Conclusions:** Burnout, as well as MSDs, are prevalent among students of health care colleges. Burnout seems to be a risk factor for MSDs. Social media campaigns and awareness campaigns about burnout should be promoted.

Keywords: Burnout, musculoskeletal pain, prevalence, psychological, students

Introduction

Burnout is now recognized to be a chronic stress-related syndrome with three dimensions, including exhaustion, cynicism, and inefficacy.^[1] It can also be defined as physical, emotional, and mental exhaustion because of chronic emotionally demanding work.^[2] Musculoskeletal disorders (MSDs) are defined as musculoskeletal strains expressed by an individual as a neck, shoulder, lower back, and/or other skeletal pain or strain.^[3] According to the Copenhagen Burnout Inventory (CBI), burnout is not only fatigue or exhaustion, this fatigue and exhaustion can be attributed to specific domains in a person's life.^[4] Recently, burnout syndrome has been given more attention as burnout was identified as a factor that influences health status based on the 10th edition of the International Classification of Diseases (ICD-10).^[5] Burnout is now included in the same category in ICD-11, but

the definition is more detailed. ICD-11 defined burnout as follows, "Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: 1) feelings of energy depletion or exhaustion; 2) increased the mental distance from one's job, or feelings of negativism or cynicism related to one's job; and 3) reduced professional efficacy."^[6] Variable ranges of burnout levels among medical students have been reported worldwide as recent studies showed a high prevalence of burnout, reaching 71 to 76.8%,^[7-9] whereas other studies showed lesser levels of burnout, which ranged from 10 to 55%.^[10-15] Several studies have found a high prevalence of burnout among medical and dentistry students.^[11,16-18] The prevalence of musculoskeletal conditions vary by age and diagnosis, and between 20 and 33% of the people worldwide have painful musculoskeletal conditions.^[19] MSDs affect many people from different countries and belonging to all age ranges, occupations,

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and different fields. Furthermore, MSDs affect people's quality of life (QOL) and lead to poor health-related outcomes.^[20] Studies have also demonstrated that burnout is associated with a higher prevalence of MSDs.^[21-23]

This study assessed the prevalence of burnout among students of health care colleges (medicine, pharmacy, and health sciences). We also assessed the correlation between burnout and MSDs and the importance of burnout as a risk factor for MSDs. Moreover, we assessed the correlation between burnout and sociodemographic characteristics and the significance of these characteristics as risk factors for burnout.

Methods

Study design

A cross-sectional study that involved 392 students of health care colleges from a total population of 3,163 students was done in the Taif University, during the period from April 3, 2019 to May 24, 2019. The Taif University is a large-sized public university, which consists of 13 colleges of different specialties. Four out of these thirteen colleges are health care colleges, with 1,116 medical; 695 pharmaceutical; 1,243 health sciences; and 112 dentistry registered students. The overall population of Taif City, Makkah Region in Saudi Arabia, is 987,914 (2010 Census).

Inclusion criteria

Males and females students of health care colleges at the Taif University were included in the study.

Exclusion criteria

The exclusion criteria was:

1. Colleges outside Taif University
2. Nonhealth care colleges
3. Students who did not complete their questionnaire.

Methods and procedures

There are 13 colleges at the Taif University. We aimed to study the four health care colleges (medicine, pharmacy, health science, and dentistry) at the university. A multistage cluster sampling technique was used to recruit the participated students of this study.

First stage: We randomly selected three out of the four colleges: medicine, pharmacy, and health science.

Second stage: Each college was divided according to years of study (medicine: 1–6 years, pharmacy: 1–5 years, and health science: 1–4 years), and each year (group) contained two subgroups (A and B). We randomly selected subgroup A from all years of all three colleges.

Third stage: We selected each fifth student on the list from Subgroup A from all years of three colleges (5, 10, 15, 20, etc.).

Data collection

A predesigned questionnaire was used to collect the data. The questionnaire included:

1. Sociodemographic characteristics (gender, marital status, age, college, year of study, height, weight, smoking habits, and chronic diseases)
2. The CBI questionnaire to assess the degree of burnout which is a valid and reliable tool used worldwide^[24]
3. Standardized Nordic Questionnaires (NMQ) for the analysis of musculoskeletal symptoms, which is a reliable and valid screening tool with sensitivity ranging from 66 to 92%.^[25]

A pilot study was conducted prior to data collection to test the questionnaire and predict any difficulties.

Ethical considerations

The Research Ethics Committee of the Taif University (40360158) approved our study. Verbal consents of participating students were obtained from them to be involved in this study. This study was conducted in compliance with the Declaration of Helsinki.

Statistical analysis

The data were entered in Microsoft Excel 2016 and analyzed using the Statistical Package for the Social Sciences (SPSS) program, version 22. Frequency and percentage express the prevalence and categorical variables; mean \pm standard deviation (SD) expresses continuous variables; and body mass index (BMI) was calculated and categorized. We used Chi-square and t-tests to assess the association between burnout and MSDs, as well as the correlation between burnout and sociodemographic characteristics of the sample. The level of statistical significance for all statistical tests was set at $P < 0.05$.

Results

This study included a sample of 392 students, mainly females (53.3%). The mean age of the participants was 21.83 ± 2.9 years. Most of the participants were medical students (42.1%) and their BMI was normal. The prevalence of burnout among the students was 48.7%. The mean burnout score was 47.75 ± 18.26 [Table 1].

Most (64.8%) of the participating students had pain during the last 12 months. Of these students, 35.4% had pain that interfered with work and 33.2% had pain during the last 7 days. The body region with the most frequently reported pain during the last 12 months was the lower back (33.4%), followed by the neck (29.3%) and upper back (23.7%). These subtypes of MSDs interfered with work and were most frequent during the last 7 days [Table 2].

There was no statistically significant association between burnout level and gender, year of study, BMI, smoking, marital status, chronic diseases, or which health care college the student attended ($P > 0.05$) [Table 3].

Table 1: Sociodemographic characteristics

Variable	Number (%)
Gender	
Male	183 (46.7%)
Female	209 (53.3%)
College	
Medicine	165 (42.1%)
Pharmacy	134 (34.1%)
Health science	93 (23.7%)
Year of Study	
First	34 (8.6%)
Second	99 (25.3%)
Third	79 (20.2%)
Fourth	54 (13.8%)
Fifth	62 (15.8%)
Sixth	64 (16.3%)
BMI	
Underweight	69 (17.6%)
Normal	194 (49.5%)
Overweight	85 (21.7%)
Obesity	44 (11.2%)
Marital Status	
Single	375 (95.7%)
Married	15 (3.8%)
Divorced	2 (0.5%)
Smoking	
Yes	54 (13.8%)
No	338 (86.2%)
Chronic Diseases	
Yes	23 (5.9%)
No	369 (94.1%)
Burnout Level	
Low	201 (51.3%)
High	191 (48.7%)

BMI=Body mass index

A significant association was found between the degree of burnout in the students and MSDs ($P < 0.05^*$)—34.2% of the students with high burnout had MSDs during the last 12 months. In contrast, we did not find a significant association between the degree of burnout and MSDs that interfered with their work or normal daily activity ($P = 0.95$) nor did we detect a significant association with MSDs during the last 7 days ($P = 0.15$) [Table 4].

None of the most common subtypes of MSDs during the last 12 months (namely, lower back pain, neck pain, and upper back pain) was found to be more significantly associated with burnout ($P > 0.05$) [Table 5].

Discussion

As shown in Table 1, 48.7% of students had a high degree of burnout and 51.3% had a low degree of burnout. This finding is consistent with previous studies from Saudi Arabia, which have reported that burnout is prevalent among medical^[18,19] and dentistry students.^[20] However,

Table 2: Prevalence of MSDs

Variable	Number (%)
Pain During the Last 12 Months	
Neck	115 (29.3%)
Shoulder	78 (19.9%)
Elbows	27 (6.9%)
Wrists/Hands	46 (11.7%)
Upper Back	93 (23.7%)
Lower Back	131 (33.4%)
Hips/Thighs	37 (9.4%)
Knees	82 (20.9%)
Ankles/Feet	41 (10.5%)
Pain Interferes with Work	
Neck	51 (36.7%)
Shoulder	42 (30.2%)
Elbows	12 (8.6%)
Wrists/Hands	22 (15.8%)
Upper Back	50 (36%)
Lower Back	66 (47.5%)
Hips/tThighs	20 (14.4%)
Knees	40 (28.8%)
Ankles/Feet	22 (15.8%)
Pain During the Last 7 Days	
Neck	42 (32.2%)
Shoulder	37 (28.5%)
Elbows	10 (7.7%)
Wrists/Hands	18 (13.8%)
Upper Back	44 (33.8%)
Lower Back	60 (46.15%)
Hips/Thighs	19 (14.6%)
Knees	35 (26.9%)
Ankles/Feet	25 (19.2%)

MSDs=Musculoskeletal disorders

this study found that burnout is prevalent among students of three health care colleges (medicine, pharmacy, and health science) and did not find burnout prevalence to be significantly associated with which health care college the students attended ($P = 0.52$) [Table 3]. The prevalence of MSDs was also high, with 64.8% of the students having musculoskeletal pain or discomfort in at least one body region. There was no statistically significant association between burnout prevalence and gender ($P = 0.66$), which is consistent with some studies^[10,19] and contrary to others.^[9,14,16,18] Contrary to other studies,^[9,11,17] we did not identify a significant association between burnout prevalence and year of study ($P = 0.21$). However, previous studies are conflicting on which medical year is associated with burnout. Consistent with previous studies,^[10,19] we also found that burnout is not significantly associated with marital status ($P = 0.3$). No statistically significant association was found between burnout prevalence and BMI, smoking, chronic disease, or which health care college the student attended ($P > 0.05$) [Table 3]. Researchers have found that burnout is significantly associated with a higher

Table 3: Associations between burnout and sociodemographic characteristics

Variables	Burnout Score		Chi-Square	P-value
	Low	High		
Gender				
Male	96 (52.5%)	87 (47.5%)	0.19	0.66
Female	105 (50.2%)	104 (49.8%)		
College				
Medicine	82 (49.7%)	83 (50.3%)	1.31	0.52
Pharmacy	74 (55.2%)	60 (44.8%)		
Medical Science	45 (48.4%)	48 (51.6%)		
Year of Study				
First	16 (47.1%)	18 (52.9%)	7.21	0.21
Second	46 (46.5%)	53 (53.5%)		
Third	43 (54.4%)	36 (45.6%)		
Fourth	34 (63.0%)	20 (37.0%)		
Fifth	35 (56.5%)	27 (43.5%)		
Sixth	27 (42.2%)	37 (57.8%)		
BMI				
Underweight	42 (60.9%)	27 (39.1%)	5.23	0.16
Normal	94 (48.5%)	100 (51.5%)		
Overweight	39 (45.9%)	46 (54.1%)		
Obese	26 (59.1%)	18 (40.9%)		
Smoking				
Yes	25 (46.3%)	29 (53.7%)	0.62	0.43
No	176 (52.1%)	162 (47.9%)		
Marital Status				
Single	190 (50.7%)	185 (49.3%)	2.41	0.30
Married	9 (60.0%)	6 (40.0%)		
Divorced	2 (100.0%)	0 (0%)		
Chronic Diseases				
Yes	8 (34.8%)	15 (65.2%)	2.66	0.10
No	193 (52.3%)	176 (47.7%)		

BMI=Body mass index

prevalence of MSDs.^[21-23] Consistently, we found that the prevalence of MSDs was higher among students with a high degree of burnout (34.2%) and less with a low degree (30.6%) ($P = 0.03^*$). This might indicate that burnout degree is a risk factor for MSDs.

Limitation

Although this study has achieved its purpose, there were some limitations. Future studies need to have a larger sample size for greater accuracy.

Conclusions

About half of the students of health care colleges had burnout, with no significant difference between students of different health care colleges. The prevalence of MSDs was high among the students. Most affected students were having a high degree of burnout ($P < 0.05^*$). Burnout seems to be a risk factor for MSDs among students of health care colleges. We must contribute to social media campaigns to spread awareness about burnout, how to deal

Table 4: Associations between burnout and MSDs

Burnout	Intensity/Duration of Pain		Chi-Square	P-Value	OR
	Yes	No			
	Pain During the Last 12 Months				
Low	120 (30.6%)	81 (20.7%)	4.694	0.03*	1.587
High	134 (34.2%)	57 (14.5%)			
	Pain Interferes with Work				
Low	71 (18.1%)	130 (33.2%)	0.003	0.95	1.012
High	68 (17.3%)	123 (31.4%)			
	Pain During the Last 7 days				
Low	60 (15.3%)	141 (35.9%)	2.042	0.15	1.360
High	70 (17.9%)	121 (30.9%)			

*P-value is significant (<0.05), MSDs=Musculoskeletal disorders, OR=Odds ratio

Table 5: Associations between burnout and the three most common subtypes of MSDs during the last 12 months

Variables	Burnout Score		Chi-Square	P-value
	Low	High		
Neck				
Yes	55 (47.8%)	60 (52.2%)	0.77	0.38
No	146 (52.7%)	131 (47.3%)		
Upper Back				
Yes	41 (44.1%)	52 (55.9%)	2.52	0.11
No	160 (53.5%)	139 (46.5%)		
Lower Back				
Yes	63 (48.1%)	68 (51.9%)	0.80	0.37
No	138 (52.9%)	123 (47.1%)		

MSDs=Musculoskeletal disorders, OR=Odds ratio

with it, and how to prevent it or lessen its effect among students of health care colleges.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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