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Research Article

Burnout among First-Year Students in the Health Colleges at Umm Al-Qura University

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ABSTRACT

BACKGROUND: According to studies in different countries, burnout is one of the mental health issues afflicting students in high school and college. While burnout is prevalent among all students, however, medical students are more prone due to the higher stressors compared to other university departments. This study was conducted to investigate the burnout prevalence and their associated factors using the Maslach Burnout Inventory – General Survey (MBI-GS) among students pursuing first year (preparatory year) programs across various health colleges at Umm al Qura University in Makkah. In the study, we attempted to correlate health habits such as smoking, consumption of energy drinks, and obesity with burnout prevalence among students in health colleges.

METHODS: A cross-sectional survey was used to assess the prevalence of burnout in this student population to assess the three subscales of (MBI-GS): emotional exhaustion, cynicism, and professional efficacy.

RESULTS: From the 895 students participated in the study, 39% were male and 61% were females. We found a significant difference ($P<0.05$) between male and female groups in the exhaustion and cynicism subscales, whereas the professional efficacy sub-scale did not show any significant difference. Concerning the exhaustion subscale, female students displayed higher high burnout level than male students (38.1% vs 20.4%) while males showed higher moderate and low percentages than females. The cynicism subscale showed higher high and moderate burnout levels in females than males, while low burnout level was higher in males than females. Exhaustion subscale showed significant negative correlations with nationality (male: $r = -0.126$, $P = 0.019$), supplementation usage (female: $r = -0.102$, $P = 0.017$), and energy drinks intake (female: $r = -0.086$, $P = 0.045$), while positive correlations with BMI (female: $r = 0.087$, $P = 0.042$), and marital status (male: $r = 0.126$, $P = 0.018$).

CONCLUSION: We can conclude that burnout is indeed prevalent among medical university students. Among female student, we found out that the higher the body mass, the greater the burnout rate. Furthermore, a positive correlation between, lower income higher apathy and the loss of personality, among students. Despite the proven harm from the increased consumption of energy drinks, the increased consumption of stimulants and energy drinks reduced burnout and raised attention.

1. INTRODUCTION

Based on previous studies, burnout is one of different mental health issues afflicting students in high school and college,(Hernesniemi et al., 2017; Zarobkiewicz et al., 2018; Kajjimu et al, 2021; Wickramasinghe et al., 2021). Burnout is a syndrome that is defined as the result of chronic workplace stress that has not been effectively managed and is classified in different levels according to International classification of diseases 11(ICD-11),: 1) feelings of energy depletion or exhaustion; 2) increased mental distance from one's job, or feelings of negativism or cynicism about one's job; and 3) decreased professional efficacy (Reardon et al, 2020; Alqahtani et al., 2020).

Burnout is characterized by emotional tiredness, depersonalization, and diminished personal accomplishment,

with emotional exhaustion being the most prominent element. Emotional tiredness refers to fatigue and a lack of emotional vitality at work (Allen et al 2020; Lindqvist et al., 2021). It is also characterized as physical, emotional, and cerebral weariness resulting from chronically emotionally demanding employment. Person with burnout have also emotional weariness and cynicism feelings that result in sentiments of ineffectiveness and lack of accomplishment (Alanazi et al., 2021). Emotional weariness is a predictor of depersonalization and diminished personal success, according to research, and burnout is thus a gradual process (Lindqvist et al., 2021).

Recognizing burnout among university students is critical because burnout has been linked to other serious issues such as insomnia, absenteeism, alcohol and drug abuse, depression, thoughts of dropping out, and even suicidal ideas (Allen et al., 2020; Hernesniemi et al., 2017; Yadlovska et al., 2022; Popa-Velea et al., 2018). In previous study, Allen et al. have proven the high-stress character of graduate study, where stress is typically described as the perception that life is unpredictable, out of control, and overwhelming (Allen et al., 2020). When student burnout occurs, a state of diminished personal efficacy, weariness, and detachment from academic studies is encountered (Roberts et al., 2020; Schaufeli et al., 2002). In addition, burnout affect students' engagement which is a positive state of mind in terms of studying in which the student is more determined. Students who are engaged are more resilient to academic stress, have a sense of well-being, and are less likely to burn out in the future (Alqahtani et al., 2020). Furthermore, Schaufeli et al. (2002) investigated 1661 undergraduate students in Spain, Portugal, and the Netherlands and found that burnout is inversely related to university engagement and performance, regardless of country of origin.

While burnout is prevalent among all students, medical students are more prone to burnout due to the higher stressors they face than other university departments. Indeed, recent research revealed a significant rate of burnout among medical students, ranging from 71% to 76.8% (El-Masry et al., 2013). Moreover, Alqahtani et al. found that 48.7% of health care college students had burnout and 64.8% of them had musculoskeletal disorders (MSDs) (Alqahtani et al., 2020). Also in Saudi-Arabia, a previous study from Aljadani et al. conducted in Hail region reported high levels of overall burnout university medical students (Aljadani et al., 2021). However, it was discovered that students with higher GPAs were less prone to burnout.

Burnout affect not only university student, but is also prevalent among secondary school students according to Walburg (Walburg et al., 2014) and it continues as they enter the first year of their undergraduate studies. In another study of Roberts et al. , the author examined the prevalence of burnout among first-year students in three different health programs, and found it was higher than predicted (Robert et al.,2020). The author found association between burnout and programs that are more competitive, use multi-tiered grading systems and introduce clinical expectations earlier in training. Additionally, a Saudi study found that emotional weariness and high levels of perceived stress were common among medical students, with prevalence rates of 76.8% and 71.7%, respectively. The only other independent risk factor for burnout and high levels of stress among students in clinical years was the academic year. However, first-year students reported concerns including transportation issues to the hospital, a fear of infection, and training time constraints in the same study (Alqahtani et al., 2020). Interestingly, Backović1 et al. (2012) found a gender difference when it comes to academic burnout. Female residents and students experienced greater levels of anxiety and despair than their male counterparts. Further research is necessary since certain psychosocial profiles may help to explain why female students experience higher levels of anxiety. The aim of this study was the evaluation of burnout prevalence and their associated factors using the Maslach Burnout Inventory – General Survey (MBI-GS) among students pursuing first year (preparatory year) programs across various health colleges at Umm al Qura university in Makkah.

2. MATERIALS AND METHODS

895 first year (preparatory year) students at various health related courses admitted in Umm al Qura university participated in the study. Inclusion criteria: a. first common year student in medical pathway at UQU; b. be aware of and participate in this experiment voluntarily. Exclusion criteria: a. first common year student in engineering or administration pathways at UQU; b. unwilling to cooperate with this experiment. They completed the questionnaire after agreeing the written informed consent form. A cross-sectional survey was used to assess the prevalence of burnout in this student population. To assess stress and burnout, a directly administered questionnaire based on the Maslach Burnout Inventory-General Survey (MBI-GS) was utilized. The MBI-GS had 16 items with frequency response scale (0 = never, 1 = a 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) (Alshamrani et al., 2022). The questionnaire assessed three subscales: emotional exhaustion (5 items), cynicism (5 items), and professional efficacy (6 items). Scales are scored such that higher scores indicate more of each construct. Higher scores on the emotional exhaustion and cynicism subscales indicate a higher burnout symptom burden; lower scores on the professional efficacy subscale indicate a higher burnout symptom burden. According to the 25th percentile or lower, between 25th and 75th percentile, scoring in 75th percentile or higher, the score for each burnout subscale is categorized into low, moderate, and high correspondingly. In addition, gender, nationality, native language, age, academic achievement, and living situation data were gathered in a socio-demographic form. Burnout predictors were identified using linear regression models.

2.1 Statistical analyses

All the statistical tests were completed using IBM SPSS Statistics for Windows version 20.0 (IBM Corp.,

Armonk, NY, USA), and a P-value < 0.05 and P-value < 0.01 was set for the significant and high significant respectively. The P-value for each parameter was determined using a suitable test, which is mentioned as a footnote in each Table.

3. RESULTS

3.1 Socioeconomic characteristics of the participants

As the socioeconomic characteristics of the participants shown (Table 1); From the overall participants, , 39% were male and 61% were females and about 98.4% of the whole sample were Saudis. The average age, BMI, and family members of the participants were 18.9 ± 1 year, 23.1 ± 8.7 kg/m2, and 7 ± 2.1, respectively. Regarding BMI categories, most of the sample was normal weight (49.7%), while only 15.9% and 11.3% were overweight and obese, respectively and most of the students were single (98.8%). Concerning the economic status, around two-thirds of the participants' family income was within the medium income with a monthly salary of 5001-10000 SAR (27.8%) and 10001-20000 SAR (37.2%) and about half of parents' education levels for the participants were university degrees.,. Only 7% of the students were smokers, and 1.9% were previously smokers. Interestingly, 34.7% of the students' family members smoking were smokers. The regular supplementation and energy drink intake were observed at 29.3% and 23%, respectively. The average GPA of the students was 3.3 ± 0.7 out of 4, and the average high school percentage was 90.8% ± 8.8. Regarding MBI-GS sub-scales, the summation and average exhaustion sub-scale were 20.9 ± 5.9 and 4.1 ± 1.2, respectively. The corresponding values for the cynicism sub-scale were 14.5 ± 5.3 and 2.9 ± 1.1, as well as for the professional efficacy sub-scale were 22 ± 5.9 and 3.7 ± 1.

Table 1: Sample socioeconomic characteristics (n= 895)

Characteristics	n (%) or mean ± SD
Gender	
Male	349 (39%)
Female	546 (61%)
Nationality	
Saudi	881 (98.4%)
Non-Saudi	14 (1.6%)
Age (year)	18.9 ± 1
Height (cm)	163.7 ± 10.4
Weight (kg)	62.1 ± 20.4
BMI (kg/m^2)	23.1 ± 8.7
Underweight	205 (22.9%)
Normal weight	445 (49.7%)
Overweight	142 (15.9%)
Obese	101 (11.3%)
Family member	7 ± 2.1
Marital status	
Single	884 (98.8%)
Married	11 (1.2%)
Family income (SAR)	
≤ 5000	127 (14.2%)
5001-10000	249 (27.8%)
10001-20000	333 (37.2%)
>20000	186 (20.8%)
Father's education level	
Illiterate	75 (8.4%)
School degree	296 (33.1%)
University degree	524 (58.5%)
Mother's education level	
Illiterate	111 (12.4%)
School degree	270 (30.2%)
University degree	514 (57.4%)
Smoking	
Yes	63 (7%)
No	815 (91.1%)
Ex-smoker	17 (1.9%)
Family member smoking	
Yes	311 (34.7%)
No	584 (65.3%)
Supplementation usage	
Yes	262 (29.3%)
No	633 (70.7%)
Energy drinks intake	
Yes	206 (23%)
No	689 (77%)
GPA score (from 4)	3.3 ± 0.7
High school percentage	90.8 ± 8.8
MBI-GS Sub-scales (Summation)	
Exhaustion	20.9 ± 5.9
Cynicism	14.5 ± 5.3
Professional Efficacy	22 ± 5.9
MBI-GS Sub-scales (Average)	
Exhaustion	4.1 ± 1.2
Cynicism	2.9 ± 1.1
Professional Efficacy	3.7 ± 1

3.2 Burnout levels and subscale scores

Table 2 demonstrates the burnout levels (high, moderate, and low) score for each subscale and for all students, females, and males. Furthermore, the interpretation of MBI-GS subscale scores for preparatory year students by gender is presented in Table 3. Between male and female groups, we found a difference with significant (P<0.014) and high significant (P<0.001) in the cynicism and exhaustion subscales respectively., whereas the professional efficacy sub-scale did not show any significant difference between both groups. Concerning in the exhaustion subscale, the value reached 38.1% for the female versus 20.4% for male in the high burnout levels,, while males showed higher percentages than females in moderate (50.7% versus 45.4%) and low (28.9% versus

16.5%) burnout levels. For the cynicism subscale we found 32.2% for the female versus 25.8% for male in the high burnout levels, for in moderate burnout levels approximately equal in females and males, while low burnout level was higher in males than females (27.2% versus 19.6%).

Table 2: Categorization of MBI-GS scores for total preparatory year students (n=895)

Sub-scale	Students	Number of items	Calculation methods	Max. Score	Burnout level		
					High	Moderate	Low
Exhaustion	All Students	5	Summation	30	≥ 25	16.9-24.9	≤17
			Average	6	≥ 5	3.3-4.9	≤ 3.4
Cynicism		5	Summation	30	≥ 18	10.9-17.9	≤ 11
			Average	6	≥ 3.6	2.1-3.5	≤ 2.2
Professional Efficacy		6	Summation	36	≤ 18	17.9-25.9	≥ 26
			Average	6	≤ 3	2.9-4.2	≥ 4.3
Exhaustion	Female students	5	Summation	30	≥ 26	18.9-25.9	≤19
			Average	6	≥ 5.2	3.7-5.1	≤ 3.8
Cynicism		5	Summation	30	≥ 18	10.9-17.9	≤ 11
			Average	6	≥ 3.6	2.1-3.5	≤ 2.2
Professional Efficacy		6	Summation	36	≤ 19	18.9-25.9	≥ 26
			Average	6	≤ 3.2	3.1-4.2	≥ 4.3
Exhaustion	Male students	5	Summation	30	≥ 24	14.9-23.9	≤15
			Average	6	≥ 4.8	3.3-4.7	≤ 3
Cynicism		5	Summation	30	≥ 18	9.9-17.9	≤ 10
			Average	6	≥ 3.6	1.9-3.5	≤ 2
Professional Efficacy		6	Summation	36	≤ 18	17.9-24.9	≥ 25
			Average	6	≤ 3	2.9-4	≥ 4.1

Table 3: Interpretation of MBI-GS subscale scores for preparatory year students by gender

Sub-scale		Burnout level n (%)			P-value
		High	Moderate	Low	
Exhaustion	Total (N=895)	279 (31.2%)	425 (47.5%)	191 (21.3%)	<0.001
	Male (N=349)	71 (20.4%)	177 (50.7%)	101 (28.9%)	
	Female (N=546)	208 (38.1%)	248 (45.4%)	90 (16.5%)	
Cynicism	Total (N=895)	266 (29.7%)	427 (47.7%)	202 (22.6%)	0.014
	Male (N=349)	90 (25.8%)	164 (47%)	95 (27.2%)	
	Female (N=546)	176 (32.2%)	263 (48.2%)	107 (19.6%)	
Profes-sional Efficacy	Total (N=895)	227 (25.4%)	443 (49.5%)	225 (25.1%)	0.245
	Male (N=349)	99 (28.4%)	164 (47%)	86 (24.6%)	
	Female (N=546)	128 (23.4%)	279 (51.1%)	139 (25.5%)	

P-values between male and female groups were determined by Chi-square test

3.3 Burnout levels and subscale scores

The correlations between socioeconomic characteristics and MBI-GS subscales by gender are listed in Table 4. Exhaustion subscale showed significant negative correlations with nationality (male: r = -0.126, P = 0.019), supplementation usage (female: r = -0.102, P = 0.017), and energy drinks intake (female: r = -0.086, P = 0.045). While positive correlations with BMI (female: r = 0.087, P = 0.042), and marital status (male: r = 0.126, P = 0.018) have been seen. For cynicism, subscale showed significant negative correlations with family income (female: r = -0.088, P = 0.039), energy drinks intake (female: r = -0.094, P = 0.029), and GPA score (female: r = -0.099, P = 0.021), while a positive correlation with marital status (male: r = 0.149, P = 0.005) have been seen. The only significant correlation for professional efficacy sub-scale was observed with father's education level (female: r = -0.091, P = 0.033).

Table 4: Correlations between socioeconomic characteristics and MBI-GS subscales by gender

Characteristics	Gender	MBI-GS subscales r (p-value)		
		Exhaustion	Cynicism	Professional Efficacy
Nationality†	Female	0.27 (0.531)	-0.027 (0.523)	0.045 (0.294)
	Male	**-0.126 (0.019)***	-0.064 (0.236)	0.061 (0.254)
Age (year) ‡	Female	0.01 (0.809)	-0.045 (0.291)	0.03 (0.482)
	Male	0.004 (0.944)	-0.013 (0.803)	0.046 (0.393)
BMI (kg/m^2) ‡	Female	**0.087 (0.042)***	0.038 (0.375)	0.024 (0.575)
	Male	0.059 (0.269)	-0.043 (0.422)	-0.019 (0.719)
Family member‡	Female	0.015 (0.726)	-0.011 (0.795)	-0.019 (0.663)
	Male	-0.077 (0.149)	0.046 (0.393)	0.01 (0.85)
Marital status†	Female	-0.33 (0.44)	-0.019 (0.652)	-0.02 (0.643)
	Male	**0.126 (0.018)***	**0.149 (0.005)****	-0.042 (0.438)
Family income (SAR) †	Female	-0.026 (0.542)	**-0.088 (0.039)***	-0.029 (0.492)
	Male	-0.045 (0.404)	-0.041 (0.446)	0.045 (0.403)
Father's education level†	Female	0.078 (0.067)	-0.023 (0.592)	**-0.091 (0.033)***
	Male	-0.047 (0.378)	-0.048 (0.374)	0.019 (0.727)
Mother's education level†	Female	0.057 (0.183)	-0.05 (0.244)	0.003 (0.947)
	Male	0.007 (0.89)	-0.055 (0.305)	0.102 (0.058)
Smoking†	Female	0.018 (0.678)	0.016 (0.714)	0.018 (0.669)
	Male	-0.015 (0.783)	-0.044 (0.415)	-0.016 (0.763)
Family member smoking†	Female	0.028 (0.515)	-0.057 (0.184)	0.03 (0.488)
	Male	0.024 (0.654)	0.002 (0.968)	0.055 (0.308)
Supplementation usage†	Female	**-0.102 (0.017)***	-0.03 (0.484)	0.068 (0.112)
	Male	-0.009 (0.862)	-0.057 (0.287)	-0.028 (0.606)
Energy drinks intake†	Female	**-0.086 (0.045)***	**-0.094 (0.029)***	0.072 (0.092)
	Male	-0.092 (0.085)	-0.08 (0.134)	0.007 (0.9)
Living status†	Female	-0.055 (0.198)	0.004 (0.934)	-0.009 (0.837)
	Male	-0.012 (0.83)	-0.005 (0.927)	-0.006 (0.908)
GPA score (from 4) ‡	Female	0.055 (0.2)	**-0.099 (0.021)***	0.07 (0.104)
	Male	-0.009 (0.871)	-0.09 (0.093)	-0.026 (0.63)
High school percentage‡	Female	0.014 (0.741)	0.033 (0.44)	-0.019 (0.66)
	Male	-0.087 (0.104)	-0.039 (0.465)	-0.043 (0.418)

‡ Correlations for continuous variables were performed by Pearson correlation test
† Correlations for non-continuous variables were performed by Spearman correlation test
* Significant result at P<0.05
** Significant result at P<0.01

4. DISCUSSION

4.1 Higher burnout among non-Saudis compared to Saudis and among non-Saudi males compared to non-Saudi females

Our results indicated the prevalence of psychological burnout in its three dimensions among first-year students in health colleges. Non-Saudi male and female students presnted higher rate compared to Saudi male and female students. This might be because the non-Saudi students left their country or their usual places of residence, and they suffer from economic pressures more than the Saudis. Such pressure is due to the size of the academic requirements, the unfavorable social and economic situation, and their weak ability to overcome these obstacles. These hardships increase the possibility of some negative effects appearing in their lack of ability to academic performance and a feeling of exhaustion, fatigue and psychological and physical stress. This leads them to fall into a conflict between two options, either to become exhausted or to neglect everything and show signs of neglect, indifference, and a desire to switch from the academic field. Furthermore, the results indicated that non-Saudi male students feel more burn-out than non-Saudi female students because of the increasing pressures on them related to the difficulty of obtaining a job after graduation. This leads to their skepticism about the feasibility of university studies as their chances of getting a job in the labor market in the future are not easy. Perhaps all this confirms the findings of the study that Saudi students are less exposed to the risks of psychological burnout than non-Saudis.

4.2 The higher the body mass, the greater the burnout rate among female students

Male and female students have three similar burnout components: 1) a physiological component including ill health, 2) a psychological component related to negative feelings, sadness, depression and frustration, and 3) a behavioral component that appears in weak activity and unwillingness to work. In our results we found that the increase in body mass has increased the burnout rate of female students compared to male students. This might be due to the tendency of females being more stressful and anxious than males. In addition, the medical field requires a double effort whether in attending lectures, conducting scientific or laboratory experiments, studying and other additional burdens and requirements, causing them to feel pressure and physical and emotional exhaustion to a degree that exceeds what male students are exposed to.

4.3 Marriage leads to a rise in burnout among male students

Our study indicated that the marital status (married - unmarried) affected psychological burnout; married male students have a higher psychological burnout compared to female. This may be due to the social norms of the Saudi society in which the man bears all the expenses related to the home and family after marriage, which exert more pressure on male student. It increases the academic burden, additional family and social pressures, and other roles within the family, which may increase the severity of anxiety and tension, and sometimes lead him to psychological and physical collapse, and consequently increased psychological burnout.

4.4 The lower the family income, the higher the apathy and the loss of personality among students

Concerning the influence of the family income, our results indicated that the low level of family income led to higer burnout and indifference among female students compared to male. This confirms previous studies indicating that those with a low socio-economic level show a high level of psychological burnout and that female students are more affected by the low level of income than males. Female might be more susceptible to be affected by their social conditions and fall into burnout due to the societal show-off phenomenon of bragging about material staff which is more prevalent among female than male communities. The researcher also noted from his teaching experience that female students are more eager to achieve high scores and are more competitive than male students, which makes them vulnerable to exhaustion and stress . This highly competitive nature among female students along with the burdens and pressures of studying in medical specialties doubles the psychological burnout rate among female students especially those who have a greater average body mass.

4.5 Energy drinks and nutritional supplements

Despite the proven harm of increased consumption of energy drinks, we found that the increased consumption of stimulants and energy drinks reduced burnout and raised attention. The positive effects of energy drinks and nutritional supplements represented in decreasing burnout and raising mindfulness and attention. This positive effect might be caused by stimulation of the nervous system, increase the feeling of vitality, activity and happiness, and withdraw feelings of depression and sadness. Higher scores reduce burnout, meaning that a high score is a motive for more interest and dedication to study. The results showed that male and female students with high averages feel less burnout than students with low rates. This is because the academic expectations of students with high averages match their academic efforts, which makes their feelings of frustration, emotional stress, dulled feelings, and indifference in their academic and personal lives less compared to their colleagues with low averages.

4.6 Limitations

The researchers must believe that the students' responses were reliable because this study examined the levels of involvement and burnout among students from their perspective. The potential causes (study load, stresses, a demanding curriculum, peer support, or instructor preparation) and effects (better performance, failure, dropout, or addiction) of engagement and burnout in undergraduate medical students were not examined in this study.

5. CONCLUSION AND RECOMMENDATIONS

It is concluded that burnout is indeed prevalent among

medical university students. While there is a dearth of studies examining burnout among first-year university students in health programs, this study brings a distinctive lens on students' burnout through gender comparison. This study contributes to future research in Saudi universities specifically as it sheds the light on the special characteristics of the Saudi university of gender-segregated campuses and showed the different influencing factors contributing to burnout according to the gender. In addition, this study attempted to corelating health habits of smoking, consumption of energy drinks, and obesity with burnout prevalence among students in health collages. It is recommended that future researchers look deeper into health habits that can influence burnout.

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