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Burnout assessment among academic dental staff during COVID-19: Data from Arab countries

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Abstract

Purpose/objective: This study aimed to identify factors that were associated with high burnout and investigate the prevalence of burnout among academic dental staff during the COVID-19 pandemic.

Method: A cross-sectional online survey was carried out among academic dentists who are working in multiple dental schools in Arab countries. The Copenhagen Burnout Inventory was used to assess participants' work-related burnout. Logistic regression was used to assess the factors that increase the risk of burnout among academic dentists.

Results: Of the 254 participants who took part in the study, 141 were males (55.5%). The average age of the participants in the study was 42.1 years (standard deviation = 10.0). The prevalence of burnout among participants was 44.9% ($n = 114$). Using a fully adjusted logistic regression model, age (odds ratio [OR] = 1.05, 95% confidence interval [CI]: 1.01–1.09, $p = 0.008$) and gender (OR = 0.54, 95% CI: 0.31–0.94, $p = 0.03$) were significant variables associated with high overall burnout. Female individuals had a substantially reduced risk of experiencing high personal burnout than male participants (OR = 0.56, 95% CI: 0.32–0.98, $p = 0.043$) in the personal burnout subdomain. While in the patient's burnout subdomain, age (OR = 1.04, 95% CI: 1.00–1.08, $p = 0.048$), type of specialty (OR = 2.44, 95% CI: 1.02–5.83, $p = 0.044$), and teaching place (OR = 2.49, 95% CI: 1.21–5.11, $p = 0.013$) were associated with higher burnout.

Conclusion: This study concluded that gender and age are characteristics that increase the risk of higher burnout among academic dentists during the COVID-19 pandemic.

KEYWORDS
academia, burnout, COVID-19, dentists

1 | INTRODUCTION

Health care providers are in a high-demand profession that is subjected to massive stress.[1,2] Regarding dentistry, in particular, there are some proven add-on stresses and challenges, such as dealing with anxious patients, performing technique-sensitive procedures promptly, working alone, and the physical implication of the working positions.[3–5] Prolonged exposure to many of these chronic stressors in the work environment increases the risk of developing burnout.[5,6] Additionally, dentists working in academia have more challenges that increase the risk of burnout.

For example, training and supervising dental students in clinical situations and maintaining high standards of care can cause high levels of stress, rising from the heavy workload in a limited time.[7–9] Furthermore, in a systematic review, numerous factors have been identified to be associated with an increased prevalence of burnout among dental professionals, such as younger age, male gender, personality type, students in clinical degree programs, high job-strain/working hours, and qualification level.[10–12]

The Maslach Burnout Inventory, which was established in 1981,[13,14] was considered the gold standard to measure burnout, and they defined burnout as "… *the development of a depersonalised attitude towards service recipients and consequent loss of feeling of personal accomplishment, which develops in chronically emotionally exhausted workers who do people work*."[14,15] Different subdomains of burnout have been proposed: personal, work, patient/client burnouts.[13,15] These subdomains were included in the Copenhagen Burnout Inventory (CBI), which possesses excellent psychometric properties and is an appropriate measure of burnout in populations of health professionals.[13]

In addition to the anxiety and risk of cross-infection throughout treatment procedures and emergency treatment, the COVID-19 pandemic adds a new pressure that increases the risk of burnout.[7,16] It has been found that burnout can lead to indifference to treatment outcomes and patient conditions or needs.[17] The affected dentist tends to avoid human interaction, which might lead to depression and suicide.[20]

Since COVID-19 impacts educational outcomes, this research aimed to (1) identify factors that were associated with high burnout and (2) investigate the prevalence of burnout among academic dental staff during the current COVID-19 pandemic.

2 | METHODS

2.1 | Ethical approval

On 24 March 2021, the Research Ethics Committee of the College of Dentistry at the University of Baghdad (Baghdad, Iraq) granted full ethical approval (Project No. 327421).

2.2 | Study design

This was a cross-sectional study of an online survey distributed in multiple dental schools in Arab countries. Academic dentists were invited to voluntarily participate between 1 February 2021 and 30 April 2021.

2.3 | Eligible criteria

Academic dentists (regardless of gender, age, and dental speciality) working in dental schools, treating patients, and teaching either undergraduate or postgraduate dental students were invited to participate. Dentists who worked in hospital settings without involvement in the teaching program were excluded from this study. Eligible participants received participants' information sheets (PIS) alongside the online survey.

2.4 | Procedures and measures

From a list provided by the dentistry faculty vice-dean office, eligible individuals were emailed to complete an online survey using SurveyMonkey (San Mateo, CA, USA). The online survey started with the PIS, which was followed by the consenting stage, and finally, participants completed the online survey.

The online survey started with questions about demographic variables (i.e., age, gender, marital status, and childcare) and work-related factors (i.e., type of dental speciality, years of experience, and country of teaching/working). Subsequently, participants' burnout was assessed using the CBI tool, a validated and reliable tool that has been used previously and proved to be effective.[13] The CBI tool includes burnout questions related to three subdomains, including personal, work, and patient. The options range in the tool included: (1) always or to a very high degree, (2) often or to a high degree, (3) sometimes or somewhat, (4) seldom or to a low degree, or (5) never or to a very low degree. The score for each subscale is the average of item scores within the subscale and ranges from 0 to 100. Scores ≥50% in each of the three subdomains were considered high-level burnout. All participants were anonymized; hence, the participants could not be identified. Therefore, there were no personal details that showed the participants identities. The online survey also included two questions to determine how the participants perceived the impact of COVID-19 on the work environment in terms of being more challenging or favorable. The options range included: (1) strongly agree, (2) agree, (3) neither agree nor disagree, (4) disagree, or (5) strongly disagree. The responses to the two questions were categorized into three groups: (1) agree, (2) neither agree nor disagree, and (3) disagree.

2.5 | Statistical analysis

Frequency and percentage were used to report categorical variables, while mean and standard deviation (SD) were

TABLE 1 Demographic and general characteristics of study participants stratified by gender ($N = 254$)

Variable	Males 141 (55.5)	Females 113 (44.5)	Total sample	p-Value[a]
Mean age	43.5 (10.4)	40.4 (9.0)	42.1 (10.0)	0.01[a]
Marital status				0.001[a]
Single	18 (12.8)	26 (23)	44 (17.3)	
Married	121 (85.8)	76 (67.3)	197 (77.6)	
Other	2 (1.4)	11 (9.7)	13 (5.1)	
Childcare				0.02[a]
Yes	115 (81.6)	78 (69)	193 (76)	
No	26 (18.4)	35 (31)	61 (24)	
Speciality				0.557
Nonclinical	17 (12.1)	11 (9.7)	28 (11)	
Clinical	124 (87.9)	102 (90.3)	226 (89)	
Teaching duration				0.559
1 year or less	14 (9.9)	17 (15)	31 (12.2)	
2–5 years	30 (21.3)	21 (18.6)	51 (20.1)	
5–10 years	18 (12.8)	17 (15)	35 (13.8)	
More than 10 years	79 (56)	58 (51.3)	137 (53.9)	
Teaching place				0.022[a]
Iraq	29 (20.6)	28 (24.8)	57 (22.4)	
Saudi Arabia	90 (63.8)	58 (51.3)	148 (58.3)	
Jordan	13 (9.2)	16 (14.2)	29 (11.4)	
Other	9 (6.4)	11 (9.7)	11 (9.7)	
University type				0.198
Private	17 (12.1)	12 (10.6)	29 (11.4)	
Governmental	*103 (73)*	*92 (81.4)*	*195 (76.8)*	
Both	*21 (14.9)*	*9 (8)*	*30 (11.8)*	

[a]p-Value for chi-square and t-test.
Bold value signifies $P < 0.05$.

used to report continuous variables. To assess the bivariate association between study variables and gender, the chi-squared test was used for categorical variables, and the t-test was used for continuous variables. A logistic regression model was conducted to assess the factors associated with the high overall burden. The logistic regression model was adjusted for all the study variables, including age, gender, marital status, parenthood, speciality, teaching experience, country, and university type. Three separate logistic regression models were performed for each subdomain. These three models were fully adjusted, similar to the high overall burnout model. Alpha (α) <0.05 was used as the level of significance, in which any p-value <0.05 was considered significant. Software for Statistics and Data Science (Version 16, StataCorp, College Station, TX, USA) was used to perform statistical analyses.

3 | RESULTS

3.1 | Demographic characteristics

Table 1 shows the demographic and general characteristics of the study participants. Among the 254 participants included in the study, 141 were males (55.5%) and 113 were females (44.5%). The mean age of the study participants was 42.1 years (SD = 10.0). The majority of the study sample were married ($n = 197$, 77.6%) and childcare givers ($n = 193$, 76%). Saudi Arabia has the highest number of participants ($n = 148$, 58.3%), followed by Iraq ($n = 57$, 22.4%) and Jordan ($n = 29$, 11.4%). The majority of the study sample was specialized in clinical specialities ($n = 226$, 89%), had been teaching for more than 10 years (53.9%), and had worked in governmental universities ($n = 195$, 76.8%). Significant differences between males and females

TABLE 2 Demographic and general characteristics of study participants stratified by overall burnout status (N = 254)

Variable	Normal 140 (55.1)	High burnout 114 (44.9)	Total sample	p-Value[a]
Mean age	40.6 (8.9)	44.1 (10.8)	42.1 (10.0)	**0.006**[a]
Gender				**0.007**[a]
Male	76 (47.9)	74 (46.9)	141 (55.5)	
Female	73 (52.1)	40 (35.1)	113 (44.5)	
Marital status				0.341
Single	28 (20)	16 (14)	44 (17.3)	
Married	104 (74.3)	93 (81.6)	197 (77.6)	
Other	8 (5.7)	5 (4.4)	13 (5.1)	
Childcare				0.318
Yes	103 (73.6)	90 (78.9)	193 (76)	
No	37 (24.6)	24 (21.1)	61 (24)	
Speciality				0.327
Nonclinical	13 (9.3)	15 (13.2)	28 (11)	
Clinical	127 (90.7)	99 (86.8)	226 (89)	
Teaching duration				0.972
1 year or less	18 (12.9)	13 (11.4)	31 (12.2)	
2–5 years	28 (20)	23 (20.2)	51 (20.1)	
5–10 years	20 (14.3)	15 (13.2)	35 (13.8)	
More than 10 years	74 (52.9)	63 (55.3)	137 (53.9)	
Teaching place				0.310
Iraq	34 (24.3)	23 (20.2)	57 (22.4)	
Saudi Arabia	75 (53.6)	73 (64)	148 (58.3)	
Jordan	17 (12.1)	12 (10.5)	29 (11.4)	
Other	14 (10)	6 (5.3)	11 (7.9)	
University type				0.391
Private	15 (10.7)	14 (12.3)	29 (11.4)	
Governmental	*105 (75)*	*90 (78.9)*	*195 (76.8)*	
Both	*20 (14.3)*	*10 (8.8)*	*30 (11.8)*	

[a]p-Value for chi-square and t-test.
Bold value signifies P < 0.05.

were observed for age, marital status (p = 0.001), childcare (p = 0.02), and teaching place (p = 0.01).

The prevalence of burnout among participants was 44.9% (n = 114). The majority of the participants (n = 221, 87%) agreed that the impact of COVID-19 made the work environment more challenging. At the same time, 114 participants (45%) agreed that the impact of COVID-19 on the work environment was favorable, whereas 88 (34.7%) disagreed and 50 (19.9%) neither agreed nor disagreed. Table 2 shows the demographic and general characteristics of the study participants stratified by overall burnout status.

3.2 | Overall high burnout risk factors

Table 3 shows the logistic regression models that demonstrate the risk factors for high overall burnout among the study participants. For the overall high burnout risk factors, age was a significant variable associated with high overall burnout in the fully adjusted logistic regression model. For example, the odds ratio (OR) for having high overall burnout for each additional year was 1.05 (95% confidence interval [CI]: 1.01–1.09, p = 0.008). Additionally, gender was a significant variable associated with high overall burnout. For example, females had lower odds of having high overall burnout than males (OR = 0.54, 95% CI: 0.31–0.94, p = 0.03).

3.3 | Subcategories' high burnout risk factors

Table 4 shows the risk factors for high burnout subdomains among the study participants. For the personal

TABLE 3 Logistic regression models showing the risk factors for high overall burnout among the study participants ($N = 254$)

	OR (95% CI)	p-Value	95% CI	
Age	**1.05**	0.008*	**1.01**	**1.09**
Gender				
Male	(Reference)			
Female	**0.54**	0.03*	**0.31**	**0.94**
Marital status				
Single	(Reference)			
Married	1.10	0.87	0.32	3.80
Other	0.93	0.93	0.19	4.59
Childcare				
Yes	(Reference)			
No	1.161	0.78	0.39	3.44
Speciality				
Nonclinical	(Reference)			
Clinical	0.64	0.31	0.27	1.50
Teaching duration				
1 year or less	(Reference)			
2–5 years	0.97	0.96	0.36	2.64
5–10 years	1.03	0.94	0.35	3.05
More than 10 years	0.57	0.28	0.21	1.57
Teaching place				
Iraq	(Reference)			
Saudi Arabia	1.10	0.78	0.54	2.22
Jordan	0.91	0.86	0.34	2.44
Other	0.43	0.17	0.13	1.43
University type				
Private	(Reference)			
Governmental	1.18	0.695	0.50	2.76
Both	0.59	0.362	0.19	1.82

Abbreviations: CI, confidence interval; OR, odds ratio.

*$P \leq 0.05$.

burnout subdomain, female participants had significantly lower odds of having high personal burnout than males (OR = 0.56, 95% CI: 0.32–0.98, p = 0.043). In regard to the patient-related burnout subdomain, several variables showed a significant association. For example, each additional year was associated with a higher odds of patient-related burnout (OR = 1.04, 95% CI: 1.00–1.08, p = 0.048). Furthermore, the participants who specialized in clinical specialities had higher odds of having high patient-related burnout than participants who specialized in nonclinical specialities (OR = 2.44, 95% CI: 1.02–5.83, p = 0.044). Lastly, participants who worked in Saudi Arabian universities had significantly higher odds of high patient-related burnout than those who worked in Iraqi universities (OR = 2.49, 95% CI: 1.21–5.11, p = 0.013). None of the variables was significantly associated with high work-related burnout.

4 | DISCUSSION

The findings of this study add a novel feature to the corpus of research addressing burnout and stress among academic dental staff during the current COVID-19 pandemic.[6,18–21] In Arab countries, most studies have focused on physiological stress and burnout, but among dental students.[22–26] However, this study assessed burnout among academic dentists, where only a few data were published. In this study, the prevalence of burnout among participants was 44.9%, which is within the range of dentists' burnout in Europe. For example, in Europe, burnout levels vary between 3.8% and 87.7%.[6,18,20,27,28] Many factors have been reported to increase the risk of overall burnout, such as the trends of dental demands in each country, the number of patients seen, working in multiple places, teaching dental students, economy of

TABLE 4 Logistic regression models showing the risk factors for high burnout subcategories among the study participants (N = 254)

	Personal burnout		Work-related burnout		Patients-related burnout	
	OR (95% CI)	p-Value	OR (95% CI)	p-Value	OR (95% CI)	p-Value
Age	1.02 (0.98–1.06)	0.16	1.01 (0.97–1.05)	0.425	**1.04 (1.00–1.08)**	0.048*
Gender						
Male	(Reference)					
Female	**0.56 (0.32–0.98)**	0.043*	0.66 (0.39–1.14)	0.142	0.59 (0.33–1.06)	0.079
Marital status						
Single	(Reference)					
Married	0.56 (0.15–2.10)	0.39	0.75 (0.22–2.54)	0.653	0.70 (0.19–2.51)	0.588
Other	0.17 (0.02–1.18)	0.074	0.80 (0.17–3.69)	0.783	0.57 (0.11–2.84)	0.498
Childcare						
Yes	(Reference)					
No	0.73 (0.22–2.41)	0.615	0.84 (0.29–2.45)	0.756	1.05 (0.34–3.25)	0.925
Speciality						
Nonclinical	(Reference)					
Clinical	0.61 (0.26–1.42)	0.256	0.80 (0.34–1.84)	0.604	**2.44 (1.02–5.83)**	0.044*
Teaching duration						
1 year or less	(Reference)					
2–5 years	0.84 (0.59–2.25)	0.734	0.49 (0.18–1.31)	0.160	0.83 (0.28–2.41)	0.736
5–10 years	0.77 (0.26–2.26)	0.647	0.42 (0.14–1.23)	0.116	0.69 (0.22–2.15)	0.533
More than 10 years	0.95 (0.36–2.50)	0.919	0.46 (0.17–1.26)	0.134	0.43 (0.14–2.63)	0.140
Teaching place						
Iraq	(Reference)					
Saudi Arabia	1.20 (0.59–2.42)	0.601	1.55 (0.70–3.09)	0.21	**2.49 (1.21–5.11)**	0.013*
Jordan	1.57 (0.60–4.11)	0.355	1.33 (0.51–3.43)	0.55	0.72 (0.27–1.88)	0.506
Other	1.27 (0.41–3.86)	0.672	0.60 (0.22–2.06)	0.50	0.87 (0.29–2.63)	0.815
University type						
Private	(Reference)					
Governmental	1.19 (0.51–2.80)	0.679	0.81 (0.35–1.07)	0.626	1.40 (0.56–3.48)	0.467
Both	0.49 (0.30–2.88)	0.917	0.53 (0.18–1.60)	0.268	0.61 (0.19–1.94)	0.406

Note: All models were fully adjusted.

Abbreviations: CI, confidence interval; OR, odds ratio.

*P ≤ 0.05.

the country, socioeconomic status of patients, or dental education.[12,25,29,30]

Factors affecting the risk of high burnout in this study were analyzed for three subdomains and overall burnout. For example, less burnout was found in females at the overall burnout level and in the personal-related burnout subdomain. These results are similar to what was found in a systematic review that assessed the factors contributing to burnout among dental professionals.[11] The systematic review showed that there is an association between an increased prevalence of burnout and male gender.[11] Nonetheless, other studies showed higher burnout in females in the dental field.[22,26] In a Japanese study, the authors analyzed the work status of a different gender in an early dental career.[31] They have reported that the working hours of female dentists in dental practice are shorter

than those of male dentists, and the suggested main reason is childcare.[31–35] However, in our study, childcare was not a significant predictor of overall burnout or burnout subdomains. This finding can be explained by the nature of home work during the pandemic period. In addition, working in academia involves more working at home with the children (i.e., home schooling) around as well.

Similarly, there was a higher burnout with older age at the overall burnout level and in the patient-related subdomain. These findings contradict those of other systematic reviews and research on burnout in dentistry, which indicated that as people become older, burnout decreases and mental health improves.[11,12,29,36] This could be explained by the negative impact of the national lockdown and working from home, where senior academic dental staff only treat patients who need urgent dental care at university

dental hospitals. Furthermore, the fact that all universities had started using new methods in teaching (i.e., virtual teaching) might be another factor.

Moreover, in the patient-related subdomain, participants who had clinical specialties had higher odds of burnout than participants with nonclinical specialties. This can be attributed to the fact that the latter group usually has fewer clinical duties. Moreover, participants from Saudi Arabia showed higher odds of burnout, which might be related to differences between countries in terms of dental practice during the COVID-19 pandemic. Although the regulations during the pandemic were supposed to be similar, there might be some more restrictions in one compared with the other, especially in relation to lockdown and curfew. However, this was not within the variables that this study looked into, and it would be a valuable variable in future studies. Previous studies that looked into burnout levels using CBI did not investigate the differences between clinical and nonclinical specialities.[29,30] However, it should be highlighted that the distribution of participants in this study was insufficient to draw a judgment about higher burnout in relation to differences between countries; hence, further studies are needed to assess the impact of both variables on the risk of burnout among dentists in academia.

The work-related subdomain in this study showed no differences in all variables. This might be related to the shift to remote working and online teaching during the pandemic, especially with dentists in the academic sector. Future studies in the post-COVID-19 era should investigate factors contributing to work-related burnout to confirm these findings.

Several global studies were published during the COVID-19 era focusing on its psychological effect on health workers,[1,37,38] but only a few measured burnout levels.[1,38–41] One study focusing on psychological distress and burnout during this COVID-19 pandemic shows that dentists who were working during the pandemic showed higher stress levels than those who did not work.[42] In this study, we used a validated and reliable tool to measure burnout level (i.e., CBI). However, it is important to acknowledge the limitations of the study. First, the study is based on cross-sectional data during the COVID-19 pandemic, and therefore definitive conclusions about the impact of COVID-19 on burnout among dental academics are not possible. Second, the data are derived from an online survey; therefore, the data are subject to information bias and selection bias. Third, the uneven number of responses from different countries and the equivalent responses in some variables would be a limitation to this study.

5 | CONCLUSION AND FUTURE RESEARCH

This study concluded that burnout is higher among males and older academic dentists during the COVID-19 pandemic. Additionally, it seems that both clinical specialities are associated with higher patient-related burnout among academic dentists. Given the limitations of the study, a powered study that includes other Arab countries and additional crucial covariates (i.e., socioeconomic level, educational background, part time versus full time, and war versus no war situation) with a larger sample size is granted and will help to build a definitive conclusion and assess which other factors might increase the risk of burnout among academic dentists in Arab countries. This is indeed crucial to develop preventive and interventional programs, which may improve an individual's quality of life and, hence, the quality of the educational outcome as well as the clinical outcome.

CONFLICT OF INTEREST
The authors declare that they have no conflicts of interest.

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