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ORIGINAL RESEARCH

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Occupational burnout: a cross-sectional study among Jordanian pediatric dentists

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Abstract

Background: Burnout syndrome is characterized by emotional exhaustion leading to depersonalization and lessened personal accomplishment at work. It is prevalent among health care workers, including dentists. This study assessed occupational burnout among pediatric dentists and related factors. **Methods**: A cross-sectional study was conducted using the Maslach Burnout Inventory Human Services Survey. Participants were recruited using census sampling. Data were analyzed using the independent-sample *t*-test, One-Way Analysis of Variance (ANOVA), Bonferroni *post-hoc* and Pearson's correlation coefficient. **Results**: 92 pediatric dentists aged 27 to 69 were included in the study. Overall, the mean score was 61.5, indicating a moderate level of total burnout. Among participants, 40.2% and 16.3% reported high levels of emotional exhaustion (EE) and depersonalization (Dep), respectively, while 57.6% reported diminished personal accomplishment (PA). Males exhibited significantly higher Dep than females ($p = 0.005$). Practitioners in the capital reported lower EE than those practicing elsewhere ($p = 0.007$). Participants exclusively practicing pediatric dentistry demonstrated lower Dep than those with mixed practices ($p = 0.038$). Private-sector practitioners reported lower emotional exhaustion than those working in the Ministry of Health (MOH) ($p = 0.024$). EE and the number of patients treated daily were positively correlated ($p = 0.026$). Positive correlations were observed between PA and both age ($p = 0.048$) and years of experience ($p = 0.043$). **Conclusions**: This study revealed that burnout is prevalent among pediatric dentists, with a significant proportion experiencing high levels of EE and PA. Higher patient volumes were associated with increased EE, while experience and age were associated with higher PA. Workload management, support systems, stress management techniques and improvement of practice environments could mitigate burnout.

Keywords

Occupational burnout; Pediatric dentists; Stress; Dentistry

1. Introduction

Burnout has provoked increasing interest among occupational health specialists following the introduction of the concept to the scientific literature [1]. Burnout is a psychological syndrome represented by a triad-Emotional exhaustion (EE), and depersonalization (Dep) along with decreased personal accomplishment (PA) and it occurs after prolonged exposure to stressors at work [2, 3]. Emotional exhaustion (EE) refers to a lack of enthusiasm and increased tension. Depersonalization is the disengagement from work and/or patients' care. Decreased personal accomplishment (PA) is the result of a negative self-evaluation of work capability, which translates into decreased productivity [4]. Burnout was classified as an occupational phenomenon in the 11th Revision of the International Classification of Diseases (ICD-11). It is not considered as a medical illness, and is listed under factors influencing health status or contacting health services—which includes reasons why someone contacts health services without being diagnosed with illnesses or health conditions [5, 6].

Healthcare professionals work under stressful conditions which involve ongoing interaction with patients suffering from various conditions [7]. Dentists face several stressors in their professional setting, including time constraints, demanding workloads, difficult patients, staffing challenges, equipment malfunctions and the repetitive nature of their duties, all of which put them in a high risk group for burnout syndrome [8]. Dental professionals are further exposed to infectious agents and heavy metals, in addition to working conditions characterized by noise and radiation [8–10]. According to a recent systematic review and meta-analysis, dentists suffer from burnout syndrome, characterized by high levels of emotional exhaustion. Based on the subscales, 28% had high levels of EE, 18% had high levels of Dep and 10% had low levels of PA. For EE, Dep and PA, the average scores were 17.90, 6.93 and 34.69, respectively [5, 6].

Pediatric dentistry presents unique challenges that can cause significant stress and exhaustion. Managing young patients' behavior and anxiety, as well as dealing with anxious or defensive parents, can be emotionally draining [9–12]. Pediatric dentists must provide constant reassurance and maintain a high standard of care despite these challenges, which can negatively impact patients over time. Furthermore, effective behavior management requires patience, skill, and the ability to navigate the expectations and behaviors of both children and their parents, while also maintaining cost-effectiveness, adding to the daily stress [13–17]. Children's behavior management relies heavily on tolerance, and it is crucial to understand individual tolerance levels. Levels vary not only between individuals, but also within the same person over time. Recognizing factors that overburden tolerance levels is essential to preventing self-control loss. Children's high energy levels often necessitate that the dentist mirrors that energy, requiring the maintenance of a cheerful and positive attitude throughout the day, which can be physically and emotionally demanding [18]. Moreover, pediatric patients frequently present with complex dental issues, including developmental conditions, congenital disorders, or intricate medical histories, requiring specialized considerations and management. Some children with acquired orofacial conditions may exhibit oral aversion, further increasing anxiety and decreasing cooperation in the dental setting [19].

Although pediatric dentists face several challenges, they are extremely rewarding because they are able to improve a child's oral health and well-being. In this stressful and demanding profession, however, burnout can affect the pediatric dentist's performance and ability to provide adequate management, leading to unsuccessful treatment outcomes for young patients. A number of dental trainees have contemplated leaving their programs due to their poor mental health experiences during training in the US. Burnout is also a common reason for turnover [20], which is a serious concern in light of the limited number of pediatric dentists in Jordan.

Determining the factors contributing to burnout can help develop strategies to maintain high standards of patient care. The long-term effects of burnout on pediatric dentists can lead to initiatives that are aimed at improving overall well-being and reducing costs associated with burnout. In addition, investigating this issue can help develop interventions that improve job satisfaction and retention rates among pediatric dentists. We are unaware of any studies assessing occupational burnout among pediatric dentists in Jordan. This research aims to fill this gap, contributing to a better understanding of burnout in this specialty. Moreover, by investigating burnout among pediatric dentists, this study can contribute to a broader understanding of occupational burnout across diverse professional fields. This study is expected to motivate policy makers and dental associations to develop supportive policies that reduce burnout among pediatric dentists and patients.

2. Materials and methods

2.1 Study group and design

A cross-sectional study was performed among pediatric dentists in Jordan. To ensure sample representativeness, census sampling technique was used to recruit participants. The list of pediatric dentists registered with the Jordan Dental Association (JDA) and actively practicing in the country was officially provided by the JDA. A sample-size calculation was conducted using the Z equation; $N = [(Z_\alpha + Z_\beta)/C]^2 + 3$, where $\alpha = 0.05$, $\beta = 0.20$, and the expected correlation coefficient (r) was moderate at 0.30 [21]. A minimum sample size of 84 participants was determined by the equation. To account for potential missing data, non-responses or recording errors, all pediatric dentists in Jordan were surveyed. During the study, there were 140 pediatric dentists practicing in Jordan. We recruited 92 participants for the study, exceeding our target sample size. From March 2022 to September 2022, data were collected.

A structured questionnaire was designed to meet the specific objectives of the study, and participants were asked to answer the questions. The questionnaire consisted of two parts: The first part enclosed socio-demographic characteristics and the second assessed burnout syndrome using the Maslach Burnout Inventory Human Services Survey (MBI-HSS). MBI-HSS is the most extensively applied scale in the literature, especially pertaining to human services and education [22, 23]. MBI-HSS comprises 22 statements linked to each burnout domain: EE, Dep and PA. Using a seven-point Likert scale, respondents indicated how often they experience the feeling described by the statement, ranging from 0 (never) to 6 (every day). Scores are derived for each domain by summing the appropriate items [22, 23]. EE consists of nine items, Dep consists of five items and PA consists of eight items. Burnout is characterized by high scores on EE and Dep and low scores on PA. Burnout should be conceptualized as a continuous variable, ranging from low to moderate to high levels of experience. It should not be viewed as a dichotomous variable which is either present or absent. In the MBI manual, norm scores and cut-off points are provided for each burnout subscale. Normative scores are high if they are in the upper third, average if they are in the middle third, and low if they are in the lower third. MBI psychometric properties are well established [22, 23]. Burnout is conceptualized as a continuous variable in this study. Nevertheless, within each subscale, categorical classifications of low, moderate and high are employed. This approach aligns with the clinical perspective, where practitioners often prioritize identifying pediatric dentists at high risk of burnout rather than solely relying on continuous scores. Categorization facilitates the identification of clinicians who may benefit most from targeted interventions or support programs. For both researchers and practitioners, categorical data facilitates communication and interpretation of findings.

2.2 Pilot study and reliability

A pilot study was conducted on a group of six pediatric dentists who were not included in the main study to evaluate the clarity of the guidelines and the average time needed to complete the questionnaire. A reliability test was conducted by asking 10% of the participants to complete the questionnaire twice,

with approximately 2–3 weeks between each attempt. To ensure the reliability of the second part of this survey, a reliability coefficient (Cronbach's alpha) was calculated for the overall Maslach burnout inventory human services survey (MBI-HSS) which was satisfactory, equaling 0.704. Burnout syndrome reliability coefficients were calculated for each of the three domains, EE equaled 0.821, Dep equaled 0.712 and PA equaled 0.742. These values were close to those described by the inventor of the scale (the reliability coefficients for the subscales were 0.90 for EE, 0.79 for Dep and 0.71 for PA [22].

2.3 Data analysis

Data analysis was performed using IBM's SPSS version 25 (Chicago, IL, USA). MBI-HSS responses were analyzed using descriptive statistics in the form of frequencies and percentages. Using independent-sample *t*-tests, mean MBI-HSS domain scores were compared based on dichotomous independent variables (such as gender, practice city and pediatric patients exclusively). Group means of categorical independent variables with more than two levels were compared using One-Way Analysis of Variance (ANOVA), followed by Bonferroni *post-hoc* analysis when necessary. The binomial correlations between each of the MBI-HSS domain scores and continuous variables (age/year, years of experience, working hours per week and number of patients seen per day) were tested for their correlation with each of the three burnout domain scores (EE, Dep and PA), using Pearson's correlation coefficient (r). The direction (positive or negative), strength and statistical significance of each correlation were tested. In order to test research hypotheses, a statistical test was considered statistically significant if p value was $<$ than 0.05 [24].

3. Results

Table 1 shows the demographic characteristics of the study sample. All registered pediatric dentists in Jordan (N = 140) were approached, excluding 6 due to participation in the pilot study. 92 dentists out of 134 agreed to participate and were recruited to the study sample, resulting in a response rate of 68.7% (92/134). No data was collected from declined participants. Therefore, they were guaranteed voluntary participation without having need to explain their reasons for declining.

Participants' ages ranged from 27 to 69 years (Mean (M) = 40.4, Standard Deviation (SD) = 8.1), with 70% aged 40 years or younger. Their experience in pediatric dentistry varied from 1 to 33 years (M = 9.9, SD = 7), and 70% had 10 years of experience or less. Weekly working hours ranged from 4 to 56 (M = 32.6, SD = 12.5), with public sector practitioners averaging 31 hours (SD = 33.7) and private sector practitioners averaging 17 hours (SD = 18.5). The number of pediatric patients seen daily ranged from 1 to 35 (M = 9, SD = 5.5), while the number of adult patients seen daily ranged from 2 to 7 (M = 4, SD = 1.2).

Table 2 (Ref. [22, 23]) shows that the mean score of the total scale was 61.5 ranging from 34 to 94. Based on the interquartile equation, 50% (n = 46) (P_{50}) of the sample had a score of 51.3 (P_{25}) to 69.8 (P_{75}), 25.0% (n = 23) had a score of 69.8 or higher and 75.0% (n = 69) had a score less than 69.8. Considering the expected score range on the scale of 0 to 132 (midpoint = 66), the analysis indicates, in general, a moderate level of total burnout (Table 2). According to the categorization of EE, Dep and PA subscales for MBI [22, 23], moderate burnout levels were found in the EE and Dep domain scores while in the PA domain scores the level of burnout was high (Table 2). PA had the highest percentage rate of high level of burnout (57.6%), followed by EE (40.2%). EE had the highest percentage of moderate level (37%). Compared to the other domains, Dep had the greatest percentage of low level of burnout (63%) (Table 2).

Table 3 shows the association between MBI-HSS domain scores and sample characteristics. Males had significantly higher mean Dep scores than females ($p < 0.05$), whereas the difference in EE and PA scores between males and females was not statistically significant ($p > 0.05$). Homogeneity of variance and Welch's t-test were conducted to assess whether the observed difference remains valid given the unequal distribution of sample sizes between genders. Even with unequal gender sample sizes, the observed difference was statistically

TABLE 1. Demographic characteristics of the study sample.

Characteristic	N (%)
Gender	
Male	16 (17.4)
Female	76 (82.6)
Marital status	
Married	74 (80.4)
Single	14 (15.2)
Divorced	3 (3.3)
Widow	1 (1.1)
Years of experience in pediatric dentistry	
1–10	62 (67.4)
11–20	23 (25.0)
21–33	7 (7.6)
Practice sector	
MOH	31 (33.7)
Private	27 (29.3)
RMS	19 (20.7)
University	15 (16.3)
Practice city	
Amman	56 (60.9)
Other cities	36 (39.1)
Working hours/week	
<40	48 (52.2)
≥ 40	44 (47.8)
Exclusive pediatric dentistry	
Yes	85 (92.4)
No	7 (7.6)

MOH: Ministry of Health; RMS: Royal Medical Services.

TABLE 2. Means of burnout, MBI-HSS domain scores of the study sample (92) according to categorization of MBI subscales and prevalence of burnout by level and domain.

Variable Domain (possible scale)	Number of Items	M (SD)	Actual range	Percentile		
				P_{25}	P_{50}	P_{75}
Total burnout (0–132)	22	61.5 (13.3)	34–94	51.3	59.3	69.8
Emotional exhaustion (0–54)	9	25.3 (11.4)	1–53	17.0	24.0	32.0
Depersonalization (0–30)	5	7.2 (5.3)	0–21	3.0	6.0	10.0
Professional accomplishment (0–48)	8	29 (6.8)	14–42	24.0	29.0	33.7
Categorization of EE, Dep and PA subscales for MBI [22, 23]						
Burnout level	Burnout domain score					
	EE	Dep	PA			
High	27 or over	13 or over	0–31			
Moderate	17–26	7 to 12	32–38			
Low	0–16	0–6	39 or over			
Prevalence of burnout by level and domain						
Burnout level	N (%)					
	EE	Dep	PA			
High	37 (40.2)	14 (15.2)	53 (57.6)			
Moderate	34 (37.0)	20 (21.7)	26 (28.3)			
Low	21 (22.8)	58 (63.0)	13 (14.1)			

SD: Standard Deviation; EE: emotional exhaustion; PA: personal accomplishment; MBI: Maslach Burnout Inventory; Dep: depersonalization; M: Mean.

TABLE 3. Associations between EE, Dep and PA scores and gender, practice sector, city and exclusive practice of pediatric dentistry.

Characteristic	N	EE score		Dep score		PA score	
		Mean (SD)	*p*	Mean (SD)	*p*	Mean (SD)	*p*
Gender							
Male	16	28.0 (12.8)	0.261	10.5 (6.5)	0.005*	28.0 (7.8)	0.575
Female	76	24.7 (11.0)		6.5 (4.8)		29.0 (6.6)	
Practice sector							
MOH	31	28.3 (10.6)	0.024*	8.2 (5.5)	0.193	26.8 (8.3)	0.080
Private	27	20.0 (9.0)		6.0 (5.0)		30.7 (5.0)	
RMS	19	25.5 (13.0)		8.3 (5.5)		30.9 (6.7)	
University	15	28.6 (12.2)		5.7 (4.9)		28.1 (8.3)	
Practice city							
Amman	56	22.7 (10.8)	0.007*	6.7 (5.2)	0.281	29.7 (6.6)	0.251
Other	36	29.2 (11.1)		7.9 (5.4)		18.0 (7.0)	
Exclusive Pediatric dentistry							
Yes	85	25.3 (11.4)	0.982	6.8 (5.1)	0.038*	29.1 (6.7)	0.607
No	7	25.4 (11.7)		11.1 (6.3)		27.7 (8.8)	

*Statistically significant, $p < 0.05$.

Practice sector		EE	Dep	PA
University	MOH	1.000	0.746	1.000
	RMS	1.000	0.883	1.000
	Private	0.103	1.000	1.000
MOH	RMS	1.000	1.000	0.222
	Private	0.032*	0.628	0.167
RMS	Private	0.586	0.826	1.000

*Statistically significant, $p < 0.05$ (according to Bonferroni *post-hoc* test).

EE: emotional exhaustion; Dep: Depersonalization; PA: personal accomplishment; SD: Standard Deviation; MOH: Ministry of Health; RMS: Royal medical services.

significant ($p = 0.029$). Participants participating in Amman had a significantly lower mean EE score of 22.7, than those participating in other cities. Neither the Dep nor PA scores were statistically significantly associated with the city of practice ($p > 0.05$). Finally, participants who exclusively treated pediatric patients had a significantly lower mean Dep score than those who treated both pediatric and adult patients. No significant association was found between EE and PA scores and treating pediatric patients exclusively ($p > 0.05$).

Bonferroni *post-hoc* test showed that private sector practitioners had significantly lower mean EE scores than those practicing in the Ministry of health (MOH) ($p < 0.05$). Dep and PA scores showed no statistically significant association with sector ($p > 0.05$) (Table 3). None of the domain scores were significantly associated with marital status ($p > 0.05$).

Table 4 shows the correlation between EE, Dep and PA domain scores and the continuous sample characteristics. A positive, weakly significant correlation was found between EE score and the number of patients seen daily. Also, positive and moderately significant correlations were found between PA score and age, as well as the length in years of experience in pediatric dentistry. On the other hand, Dep score was not significantly correlated with continuous sample characteristics.

4. Discussion

This study explored occupational burnout among pediatric dentists. All pediatric dentists registered and practicing in Jordan were approached. Six participants were excluded due to their participation in the pilot study. A 68.7% response rate was considered acceptable for this study. Although a moderate response rate (50–70%) can still be informative, non-response bias should be acknowledged. The impact of non-response bias may be less severe if the group is very homogeneous or specific. Thus, our response rate should be considered representative of the target population, allowing generalization of the results to a larger population of pediatric dentists.

Since only a few studies examined burnout among pediatric dentists, comparisons were limited. However, a comparison was made with studies conducted on dentists in general. Studies on pediatric dentists have not reported mean scores to compare with, but a systematic review and meta-analysis of general dentists and specialists found that the EE, Dep and PA domain scores were moderate. Moderate burnout was observed in the EE and Dep domains, while high burnout was observed in the PA domain [25].

Regarding burnout prevalence in the three domains, in our study, the percentages of participants at the high level for EE, Dep and PA are higher than that reported by Chohan *et al.* [26] who conducted a study on US pediatric dentists and found 22.8%, 11.5% and 9.8% for EE, Dep and PA, respectively. Different cultures perceive achievement differently, so satisfaction with the profession varies as well. In the EE domain, the prevalence of the high level was in agreement with the findings of the study conducted by Denton *et al.* [27] where nearly 42% of the participating dentists in the UK were at the highest level of EE. Symptoms of EE guide to burnout, considered the first stage of the syndrome [28, 29]. More than half of the participants in our study had a low level of burnout in the Dep domain. This result was consistent with findings from Chohan *et al.*'s [26] study among pediatric dentists and Moro *et al.*'s [25] systematic review, where less than half of the respondent dentists presented high or moderate Dep scores. Dep may be the most critical aspect of burnout in a healthcare profession such as dentistry. As a result of symptoms of Dep, patients disengage from social and emotional relationships with others and are often uncaring of their feelings [30, 31]. Although the level of EE has increased,

TABLE 4. Correlation between EE, Dep and PA scores and age, experience, weekly hours and daily seen patients (92).

Characteristic	EE score	Dep score	PA score
Age			
Pearson's *r*	0.210	0.014	0.207
p	0.845	0.895	0.048*
Length of experience			
Pearson's *r*	−0.009	−0.009	0.213
p	0.934	0.934	0.043*
Weekly working hours			
Pearson's *r*	0.003	0.007	0.047
p	0.979	0.945	0.656
Daily seen patients			
Pearson's *r*	0.232	0.123	0.017
p	0.026*	0.244	0.873

**Statistically significant, $p < 0.05$.*
Strong correlation: coefficient value lies between ±0.70 and ±1.0.
Moderate correlation: coefficient value lies between ±0.40 and ±0.69.
Weak correlation: coefficient value lies below ±0.29 (Mukaka, 2012).
EE: emotional exhaustion; Dep: depersonalization; PA: personal accomplishment.

the relationship between the patient or colleague and the dentist seems unaffected.

4.1 Burnout domains and demographic factors

Age and either EE or Dep were not significantly correlated in this study. PA scores, however, were significantly correlated with age, indicating young dentists exhibit lower PA scores and consequently higher burnout. Although some studies [26, 32] did not find age-related differences in burnout among pediatric dentists, others [33] found increased burnout risk in younger dentists. With limited clinical experience, younger dentists may encounter greater stress and challenges in their practice. Younger clinicians may also face greater pressure to impress colleagues, staff and family members than more established senior colleagues. In Maslach's opinion, burnout and age may have a negative relationship. Those who cannot cope well with burnout are more likely to leave their jobs. Burnout is usually best resisted early in a career, probably by refining coping strategies and becoming more resilient to work-related stress [34]. Years of experience were found to have a weak but significant positive correlation with PA scores, suggesting less experienced dentists were more burnt out. Given that this study was conducted shortly after the COVID-19 pandemic, age and years of experience likely played a significant role in influencing PA accomplishment among pediatric dentists. Younger dentists may have experienced significant financial strain, while older dentists might have been subject to heightened health risks and career disruptions [35]. Infection control measures and maintaining financial stability may have been easier to adapt to for experienced dentists during a pandemic. Alternatively, younger dentists may have struggled with these adaptations and experienced greater career disruptions. Burnout and compassion fatigue are likely to have been exacerbated by the pandemic among participants. Compared to younger dentists, older dentists may have had more effective coping mechanisms. Reduced personal accomplishment has significant implications for pediatric dentists. This can result in increased burnout, decreased patient care quality, higher turnover rates, and workforce shortages. Addressing these challenges requires a multifaceted approach, including strategies to reduce stress and burnout. This involves improving workplace culture, promoting work-life balance, and implementing measures to enhance patient care quality, increase job satisfaction and retain talented dentists. These efforts are crucial for the long-term health of the pediatric dentistry profession.

EE and PA scores did not differ significantly by gender, but Dep scores were significantly higher among males. The findings are consistent with previous research [33, 36] which reported that male dentists tend to have higher Dep scores and to be more prone to burnout. However, other studies [26, 27] found no gender-related differences in burnout. Confounding variables may account for discrepancies in findings regarding gender and burnout among dentists [37]. Moreover, a male dentist may work longer hours and treat more patients, whereas a female dentist may employ more effective burnout mitigation strategies. Furthermore, different study populations and cultural contexts may also contribute to observed differences across research investigations.

Marital status was not significantly associated with any of the three burnout domains. This finding is consistent with pediatric dentists research [26]. Other studies, such as one on UK dentists, reported lower Dep scores among married individuals [26]. Married individuals may experience lower burnout due to factors such as greater psychological stability, improved interpersonal skills and enhanced problem-solving abilities fostered by family life [26].

4.2 Burnout domains and practice setting

Our findings revealed significantly lower levels of EE among pediatric dentists practicing in the private sector than those employed in MOH. Dep and PA scores did not differ statistically significantly between the two sectors. The disparity in EE may be due to the greater autonomy of private practitioners in managing their clinical settings, including patient volume, daily schedules and income. Conversely, we found that pediatric dentists working in the public sector often face higher patient volumes, limited space and constrained clinical settings, which may contribute to increased EE. This observation aligns with Ciğerim *et al*. [38], who reported higher levels of EE among dentists employed in oral and dental health centers.

The majority of participants in this study practiced in Amman, Jordan's capital city. Amman participants had significantly lower mean EE scores than those practicing in other cities, but there were no statistically significant differences in Dep or PA scores. There may be several reasons for the lower EE score among dentists in Amman. There is typically more government attention given to capital cities, which leads to improved infrastructure and resources. Cultural centers, parks, museums, recreational and sports facilities can provide opportunities for relaxation and stress relief. In addition, capital cities may have a wider range of career opportunities and year-round events. These factors contribute to a more enriched environment, potentially facilitating stress reduction and improving overall well-being.

Studies have consistently linked extended working hours to increased EE among dental professionals [27, 39]. A study found a 10.59-fold higher likelihood of high EE among pediatric dentists working 40 or more hours per week compared to those working less than 20 [26]. Additionally, a systematic review identified increased weekly work hours as a significant contributor to EE [27, 39]. These findings are supported by studies in various regions, including Yemen and other Arab countries [27, 39]. However, in the present study, no significant association was found between weekly working hours and any of the burnout domains, despite approximately half of the participants working 40 or more hours per week. Among pediatric dentists who worked 40 hours or more per week, most were employed in the public sector (MOH, universities, RMS). Therefore, they may also have administrative duties, research responsibilities and teaching responsibilities as part of their job description. Burnout can be mitigated by increasing work diversity.

A weak, positive correlation was observed between EE scores and the number of patients seen daily, but no for Dep

or PA scores. One previous study demonstrated a significant positive correlation between daily patient volume and EE levels among dentists [40]. Another previous research has shown that the number of patients treated daily significantly correlates with Dep and PA, contributing to burnout [32]. Physical and mental fatigue can result from working long hours due to an elevated patient volume. Due to the inherent pressure to expedite patient throughput, breaks and personal time may be limited, contributing to exhaustion. In high-volume settings, pediatric dentists may experience diminished control over their schedules and patient flow, potentially engendering feelings of overwhelm and loss of autonomy. The lack of control can further exacerbate emotional exhaustion. Exercise, relaxation and social interaction may be limited as a result of demanding schedules. Emotional exhaustion and burnout can be exacerbated by this lack of self-care.

4.3 Impact of pediatric dentistry practice exclusively

92.4% of participants exclusively treated pediatric patients. When treating exclusively pediatric patients, mean Dep scores were significantly lower than when treating both pediatric and adult patients. PA or EE scores, however, were not significantly associated with pediatric patient exclusivity. Depersonalization may be mitigated by the inherent nature of pediatric dentistry, which necessitates genuine care and affection for children. Dedicated pediatric dentistry research will be necessary to investigate this hypothesis further.

This study has limitations that must be acknowledged. First, as a cross-sectional design, this study captures burnout at a single point in time, which does not allow understanding burnout's dynamic and longitudinal nature. Future longitudinal studies are needed to evaluate changes over time and identify causal relationships. Second, the self-reported MBI may have introduced self-reporting bias, as participants may underreport or overstate their symptoms due to social desire or their personal perception of burnout. This bias might have led to an overrepresentation of burnout among those already experiencing stress, as individuals with higher burnout may have been more likely to participate. It will take further studies to confirm the generalizability of this study to pediatric dentists in other countries with different workloads, resources and cultural perceptions of burnout.

This study underscores the critical significance of burnout syndrome in pediatric dentists and its effects on productivity and service quality. Burnout can be effectively addressed through a multi-pronged approach: improving work-life balance, enhancing workplace culture and support, optimizing patient care and communication, and promoting self-care initiatives. Burnout must be identified early, particularly in dental students. Taking proactive measures early in a pediatric dentist's career can reduce the risk of burnout and foster long-term professional and fulfillment. Identifying and addressing burnout is essential both for their well-being and to ensure children receive optimal oral health care and a positive dental experience.

5. Conclusions

A moderate level of burnout in the EE and Dep domains was observed while in the PA domain the level of burnout was high among the participants. A significantly higher number of male participants had a Dep score than female participants, and private sector participants had a significantly lower EE score than those in MOH. EE scores for members practicing in the capital or exclusively in pediatric dentistry were significantly lower than others. Age and year of experience were significantly correlated with the PA domain. Also, the number of patients seen daily was significantly correlated with EE.

ABBREVIATIONS

MBI-HSS, Maslach Burnout Inventory Human Services Survey; EE, Emotional exhaustion; Dep, Depersonalization; PA, Personal accomplishment; MOH, Ministry of health; RMS, Royal medical services; ANOVA, Analysis of Variance; ICD, International Classification of Diseases; IRB, Institutional Review Board; M, Mean; SD, Standard Deviation; JDA, Jordan Dental Association.

AVAILABILITY OF DATA AND MATERIALS

Data included in this study is available upon reasonable request from the corresponding author.

AUTHOR CONTRIBUTIONS

LDR—conceptualization, data analysis, writing and final revision. MKA—data collection, data analysis, writing. HMA—draft preparation. SBA—manuscript revision. MA—references and revision collection.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Institutional Review Board (IRB) of the University and in full accordance with the Declaration of Helsinki (Reference Number 19/2022/170. 14 March 2022). Informed consent was obtained from all participants after they were informed of the study's aims and objectives.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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