

Assessment of pediatric residents burnout in a tertiary academic centre

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ABSTRACT

الأهداف: لدراسة الاحتراق الوظيفي بين الأطباء المقيمين بطب الأطفال في مستشفى جامعة الملك عبد العزيز في جدة، المملكة العربية السعودية .

الطريقة: أرسلت الدراسة الإحصائية الاستعراضية عبر البريد الإلكتروني إلى 50 من الأطباء المقيمين بطب الأطفال في برنامج البورد السعودي لأطباء الأطفال في مستشفى تعليمي بالمنطقة الغربية (مستشفى جامعة الملك عبد العزيز) .

النتائج: أجاب 70% من الأطباء المقيمين. وأكثر من 70% من الأطباء عانوا من احتراق وظيفي شديد وبنسبة 34% يعانون من ارهاق عاطفي و 71.8% يعانون من تبدد الشخصية و 40.6% يعانون من انخفاض الإنجاز .

الخلاصة: تظهر متلازمة الاحتراق لتشكيل تهديداً خطيراً لصحة الأطباء المقيمين في برنامجنا. وعلاوة على ذلك، عانى الأطباء المقيمين في مؤسستنا من مستويات عالية من تبدد الشخصية من أقرانهم على الصعيد الوطني والدولي .

Objectives: To study burnout among pediatric residents at King Abdulaziz University Hospital in Jeddah, Saudi Arabia.

Methods: This is a cross-sectional survey that was administered to all pediatric residents enrolled in the Saudi Paediatric Board program (PGY1-PGY4) in a large tertiary academic hospital in the Western region of Saudi Arabia (King Abdulaziz University Hospital). The survey were sent via E-mail to 50 registered general pediatric residents.

Results: Seventy percent of the pediatric residents completed the survey. More than 70% of residents experiencing severe burnout. Forty-three percent suffering emotional exhaustion, 71.8% experiencing depersonalization and 40.6% suffering from low accomplishment.

Conclusion: Burnout syndrome appear to be a serious threat to resident well-being in our program. Moreover, pediatric residents in our institute experienced higher levels of depersonalization than their peers nationally and internationally.

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Burnout is an emotional depletion and poor adaptation causing detachment that develop in response to stress at work.¹ The term burnout was introduced by Freudenberg in 1975.² It was emphasized that police, and army personnel were most commonly affected. In the later part of the last century, it was recognized that healthcare providers, including physicians, nurses, technicians, are as vulnerable to burnout as any other workers. The reported incidence among physicians was in the range of 50% to 76%.^{3,4} Burnout is defined as an emotional exhaustion, depersonalization, and a decreased sense of personal accomplishment due to work-related stress.⁵ The most common approach to quantify this phenomenon is the Maslach Burnout Inventory (MBI). It was developed by Maslach in 1976, which comprises of 22 items measuring 3 domains of burnout: 1) emotional exhaustion: the depletion of emotional energy by continued work-related demands, 2) depersonalization: a sense of emotional distance from one's patients or job, and 3) low personal accomplishment, which is

a decreased sense of self worth or efficacy related to work.⁶⁻⁸ Prior studies have found that burnout can affect all physicians in all specialties throughout their career as early as medical students to senior consultants and not limited to junior physicians.^{9,10} The incidence was substantial (76%) among physicians in residency training.¹¹ This study focuses on burnout among residents in postgraduate training, which can be stressful both physically and psychologically. Stressors for residents can be categorized into 3 main themes: 1) situational (workload, sleep deprivation, poor learning environment, and lack of support); 2) personal (family, social isolation, and financial burden); and 3) professional (overwhelming work responsibility, and information).^{12,13} Prevalence estimates for burnout range between 40% to 76% among internal medicine and pediatric residents,^{11,14,15} 47% to 70% among surgery residents,¹⁶ and 56% to 80% of burnout among family physicians.¹⁷ While there are negative consequences due to burnout, it originates from diligence and good intentions of physicians and trainees, particularly when the work environment does not provide the necessary support and resources.¹⁸ As such, the purpose of this study is to measure the prevalence of burnout among pediatrics residents in Saudi Arabia and to further the understanding of burnout and its associated factors. Results from this study could be used to target better understanding of burnout characteristics and to develop preventive tools for burnout as well as plans to promote physician wellness.

Methods. To identify respondent characteristics for the survey, we searched the literature using MEDLINE and PubMed databases, as well as articles identified from the references of reviewed articles. We included only English language articles and excluded articles in other languages. We used keywords (MeSH) terms in our search: burnout, resident, pediatrics, residency, physician, residents working hours, Saudi residency program. We conducted a cross-sectional survey, that was administered to all pediatric residents enrolled in the Saudi Paediatric Board program (PGY1-PGY4) in a large tertiary academic hospital in the Western region of Saudi Arabia (King Abdulaziz University Hospital). E-mail was sent to trainees with a link to the survey. Survey was constructed using an online survey website

(Survey Monkey™). The survey included a cover letter explaining the aim of the study and ensuring confidentiality.

The survey took place over one week in May 2016 after obtaining the research committee approval at King Abdulaziz University. Two reminders were sent through e-mail 2 and 5 days from the initial e-mail to increase responses. With the last reminder, we mentioned that this was the last chance to participate and that the survey will be closed in 24 hours.

We measured burnout using the Maslach Burnout Inventory Human Services Survey, a 22-item scale developed to assess burnout among professionals that work in emotionally stressful environments. This scale has been used extensively to measure burnout in medical team members and is regarded as the standard tool for assessing the construct. The scale included 3 domains: 1) emotional exhaustion, 2) depersonalization, and 3) personal accomplishment. Each item measured a specific domain, based on a 7-point Likert-type scale, ranging from “never” to “every day”. The total score for each domain was calculated by summing across domain-specific items. The standard scoring criteria for medical professionals are as follows: for emotional exhaustion 18 and below is low, 19 to 26 is average, and 27 and above is high; for depersonalization 5 and below is low, 6 to 9 is average, and 10 and above is high; and for personal accomplishment, 33 and below is low, 34 to 39 is average, and 40 and above is high. “High” scores on emotional exhaustion and depersonalization and “low” scores in personal accomplishment are considered indicators of burnout.^{5,19-21}

Demographic characteristics were collected, including gender, marital status, and year of training, to evaluate if there were associations between these factors and the severity of burnout. All pediatric residents registered in the residency training program from PGY1-PGY4 were included. We excluded any incomplete surveys. The study was conducted in full accordance with the Declaration of Helsinki.

Descriptive statistics were calculated to examine trends in survey responses and total scores within and across domains. T-tests were used to examine differences in mean domain scores across demographic characteristics, to investigate factors associated with burnout. Data compilation and analyses were conducted using Stata 14 (College Station, TX, Texas).

Results. There were 50 enrolled resident in the pediatric residency program during the 2015-2016 academic year. A total of 35 (70%) residents responded, with 32 (91.4%) residents who completed the survey.

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Incomplete surveys were discarded and results were not used in the analysis.

Table 1 summarizes the demographic criteria of participants. More than 70% of residents were classified to be experiencing severe burnout. Forty-three percent of our residents are suffering from severe emotional exhaustion compared to 71.8% experiencing depersonalization and low accomplishment in 40.6%.

Data were further analyzed to see if there were any associations of burnout with gender, relationship status and/or year of training findings in greater detail.

Discussion. There have been a number of studies examining into burnout among residents of different specialties but non was pediatric specific. Our findings underscore the prevalence of burnout among pediatric

residents, who were not protected from burnout and were suffering the consequences of this syndrome on both personal and career levels. More than 70% of our residents reported experiencing one type or more of burnout, which is comparable with national and international literature.²³⁻²⁶ There are several key findings in this study. First, our pediatric residents suffered from high levels of depersonalization when compared with similar studies in Saudi Arabia and around the world. Depersonalization in our cohort group reached 71.8%. Several prior studies provide benchmark prevalence estimates. For example, the study by Baharoon et al, reported depersonalization of 23% among all specialty residents in a tertiary hospital in Riyadh, Saudi.²⁴ Aldrees et al²⁵ who studied burnout among ENT residents in the Saudi program across the Kingdom reported a depersonalization rate of 55%. Dyrbye et al²⁶ described a 35.7% depersonalization among US residents and fellows of different specialties. The second notable observation is that we found statistically significant relationships between burnout and relationship status, where partner residents (engaged or married) suffered from higher emotional exhaustion and depersonalization. The relationship factor did not make any difference on the personal accomplishment scores. Table 2 and Figures 1-2 illustrate these difference, which has not been described in prior Saudi or international studies. This finding is of particular importance as it is opposite to what other studies found. For example, Baharoon et al²⁴ and Dyrbye et al²⁶ found that there was no relation of relationship status and burnout; on the other hand, Aldrees²³ found that being a single female is associated with higher burnout scores. However, it is

Table 1 - Demographic criteria of 32 resident in the pediatric residency program during the 2015-2016 academic year.

| Characteristics | n (%) |
|----------------------------|-----------|
| <i>Gender</i> | |
| Female | 30 (93.8) |
| Male | 2 (6.3) |
| <i>Relationship status</i> | |
| Single | 17 (54.8) |
| Engaged | 6 (19.4) |
| Married | 7 (22.6) |
| Divorced | 1 (3.3) |
| Missing data | 1 (3.3) |
| <i>Year in training</i> | |
| R1 | 8 (25.0) |
| R2 | 10 (31.7) |
| R3 | 4 (12.5) |
| R4 | 10 (31.3) |

Table 2 - Relationship of residents' demographic and every category of burnout score.

| Factor | n | Emotional exhaustion | | | Desperation | | | Personal accomplishments | | |
|-----------------------|-----------|----------------------|-------------|---------|--------------|-------------|---------|--------------------------|-------------|---------|
| | | Mean | SD | P-value | Mean | SD | P-value | Mean | SD | P-value |
| <i>Gender</i> | | | | 0.62 | | | 0.53 | | | 0.87 |
| Female | 30 | 24.5 | 8.22 | | 16 | 8.44 | | 32.53 | 8.41 | |
| Male | 2 | 27.5 | 6.36 | | 20 | 14.14 | | 33.5 | 2.12 | |
| <i>Partner status</i> | | | | 0.011 | | | 0.017 | | | 0.922 |
| Partnered | 19 | 21.79 | 7.79 | | 13.32 | 7.72 | | 32.47 | 7.55 | |
| Single | 13 | 28.92 | 6.65 | | 20.54 | 8.26 | | 32.77 | 9.27 | |
| <i>Residency year</i> | | | | 0.195 | | | 0.091 | | | 0.602 |
| 1 | 8 | 22.88 | 8.11 | | 12.38 | 11.01 | | 30.5 | 8.45 | |
| 2 | 10 | 25.3 | 5.27 | | 19.3 | 8.29 | | 31.2 | 8.42 | |
| 3 | 4 | 32.25 | 8.34 | | 23 | 2.94 | | 36 | 11.75 | |
| 4 | 10 | 22.5 | 9.36 | | 13.6 | 6.13 | | 34.3 | 6.45 | |
| Total | 32 | 24.69 | 8.06 | | 16.25 | 8.61 | | 32.59 | 8.14 | |

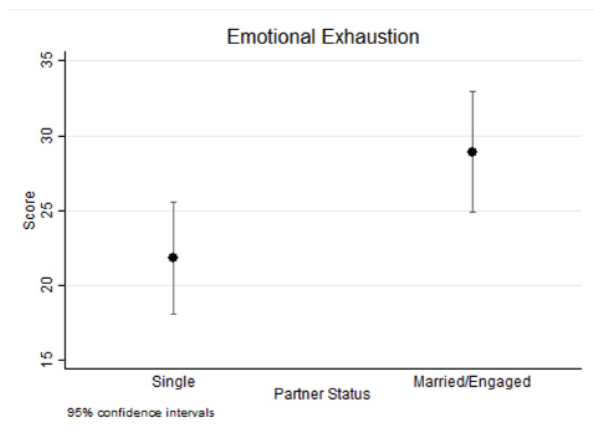


Figure 1 - Difference between emotional exhaustion scores between single and partnered residents.

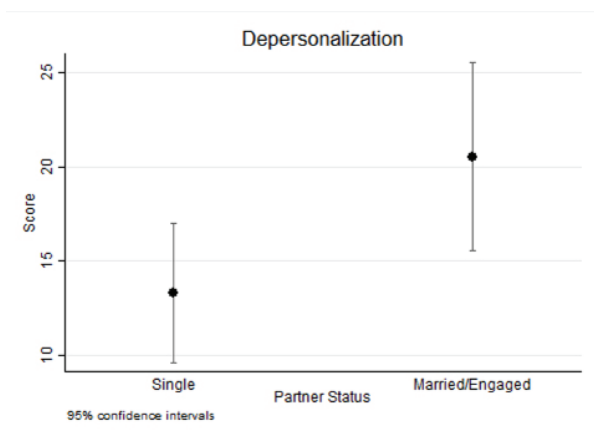


Figure 2 - Difference between depersonalization scores between single and partnered residents.



Figure 3 - Difference between accomplishment scores between single and partnered residents.

also reasonable to infer that married residents will be more burned out trying to find a balance between work and home/family responsibilities.

In this survey, there were no significant relationships between burnout and gender and no statistically significant difference of burnout score in different years of training which is comparable with other literature. There has been a similar study carried out by Alyoubi et al²⁷ where they looked at burnout among pediatrician (residents, specialists, consultants) practicing in Jeddah, Saudi Arabia. Unfortunately, they used a different scoring system which made it impossible to compare our data to theirs. Burnout is a serious phenomenon that affect not only physician on multiple levels (health, mental and social aspects), but can also affect the quality of patient's care directly.^{9,28,29} In order to understand this phenomenon further, a comprehensive study is needed, and we believe that this study provides such initial investigations. Health systems and different medical specialties vary significantly in their practice patterns. Therefore, we need to further study the impact of cultural and institutional factors that may have contributed to the discrepancy between our results and previous reports.

Study limitation. The study cohort is relatively small compared to other published literature. Efforts are underway to conduct a second version for all pediatric residents across the Kingdom to be able to say with confidence if it is program, personal or institute related.

In conclusion, 70% of pediatric residents at King Abdulaziz University Hospital are suffering from burnout. There was a significant relationship between being engaged/married and worse burnout score (emotional exhaustion and depersonalization). Moreover, our residents experienced much higher levels of depersonalization than their peers, nationally and internationally.

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