

## Burnout, psychological disorders and perceived quality of care among pediatricians in the western region of Saudi Arabia

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**A** – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

**Summary Background.** Psychological burden is well documented among medical physicians worldwide.

**Objectives.** This study aims to assess the prevalence of psychological distress and perceived quality of care among pediatricians in the western region of Saudi Arabia.

**Material and methods.** A descriptive cross-sectional study design was used to collect data from 251 pediatricians in the western region of Saudi Arabia. The data was collected using a self-reported questionnaire using the Copenhagen Burnout Inventory to measure burnout and DASS-21 to measure depression, anxiety and stress. In addition, self-perceived care was measured using two validated questions.

**Results.** Pediatricians had high levels of psychological distress, including burnout (80.5%), depression (66.5%), anxiety (71.3%) and stress (55%). 21.6%, 41.1%, and 16.7% of pediatricians were classified with severe or extremely severe depression, anxiety or stress, respectively. Female, junior and younger pediatricians had higher levels of burnout, depression, anxiety and stress. A total of 45.8% to 48.6% of pediatricians believed that adverse work conditions and workloads always or often lead to lost days of work and reduced work quality.

**Conclusions.** Pediatricians in Saudi Arabia have high levels of psychological distress, with the most affected subgroups being female, junior and young pediatricians. Hospitals should provide psychological support to improve the psychological well-being of pediatricians.

**Key words:** psychological burnout, depression, anxiety, psychological distress, Saudi Arabia.

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## Background

Psychological distress is well documented among medical physicians worldwide, as reported in many systematic reviews [1–4]. Literature highlights the impact of poor psychological health on healthcare delivery and physicians' outcomes, which include increased medical errors, decreased professionalism, quality of care and care safety, as well as decrease patient outcomes and satisfaction [5–12]. An estimate of the cost of burnout-related cutbacks and early retirement with physicians indicates total losses of at least C\$213 million in patient services in Canada [13].

This psychological distress is also well known among pediatricians, manifesting as burnout, depression, stress, anxiety [9, 12, 14] and other types of psychological burden. This poor psychological health was attributed to the high levels of responsibilities, extra working hours, life–work balance, excessive

workloads and worsened effort–reward imbalances [12, 14]. In fact, around 41% of pediatricians have seriously considered quitting their careers due to such psychological burdens [14]. Studies in literature are contradictory with regard to the levels of psychological distress among pediatricians as compared to other medical specialties. A study in Pakistan indicated that pediatricians have more psychological problems than other medical specialties [15], while other studies in the United States and Egypt found the opposite [16, 17]. This can be due to differences in culture and healthcare systems between countries.

The most commonly investigated psychological construct in literature studying pediatricians was burnout [12, 16, 18–24]. Burnout is a psychological syndrome characterized by a psychosomatic lack of energy, diminishing professional performance and skepticism [25]. The prevalence of burnout among pediatricians varies from country to country. For example, there is a 29% to 71% prevalence rate in Brazil [19], 26.7% to 74% in the



United States [18, 20–24], 18.75% in Egypt [16] and 10.2% in Germany [12]. A study showed that the most common cause of burnout among physicians was administrative work, paperwork while conducting regular clinical visits and consultations with parents about their child's development [8].

Many factors influence the prevalence of burnout. Time is one important factor, with studies showing that the prevalence of burnout among pediatricians had fluctuated over time; it was 45.5% in 2011, went up to 54.4% in 2014, then lowered to 43.9% in 2017. Another longitudinal study showed that the prevalence of burnout increased in the pediatric residency program from one year to the next [20]. Furthermore, studies have emphasized that pediatricians in intensive care units (ICUs) have higher burnout rates than other pediatricians [12, 19, 24, 26]. Resident pediatricians also have higher rates of burnout than senior pediatricians [12, 18]. According to one study, the variables of gender, having children and race had no relationship to burnout prevalence in the United States [23].

A few studies have investigated other psychological problems among pediatricians, including depression, anxiety and stress. Studies have indicated that the prevalence of depression among pediatricians was 20% in the United States [18] and 29% in the Netherlands [14]. Anxiety was found to have a 24% rate of prevalence among pediatricians in the Netherlands [14], and the same study found that around 80% of pediatricians have experienced some adverse events that caused them extreme levels of stress, including an incorrect diagnosis, a child's death, a seriously ill child, decision-making difficulties and suspicion of child abuse with an aggressive response from the parents [14].

However, while researchers have investigated these psychological distresses among medical students in Saudi Arabia [27–30], similar research investigating pediatricians is lacking.

## Objectives

The objective of this study was to assess the prevalence of burnout, psychological disorders and perceived lowered quality of care among pediatricians in the western region of Saudi Arabia.

## Material and methods

### Study design

The study design is a descriptive cross-sectional study aimed at assessing the prevalence of burnout, psychological disorders and perceived lowered quality of care among pediatricians in the western region of Saudi Arabia.

### Setting

Data was collected from March to April 2020 from pediatricians who worked in government and private hospitals in the western region of Saudi Arabia. The study used an English language self-administered questionnaire that was distributed face to face as paper copies. A convenience sample was used. Written signed consent was obtained from each participant before having them answer the questionnaire. Any information that would reveal the identity of the participant was destroyed, and all data was collected without revealing any personal information.

### Participants

The participants were pediatric consultants, specialists, residents and general practitioners working in pediatric departments. Retired pediatricians and interns in the pediatric rotation were excluded. Participants were identified with their hospital badge.

### Study size

We used the following sample size calculation  $n = z^2 * p(1 - p) / e^2$ , and we used the following measures: a precision level of 5%, confidence level of 90% and estimated prevalence of 71% (as the highest prevalence in previous literature among pediatricians [19]). Accordingly, 225 participants were required as the minimum number in this study.

### Variables and measures

The questionnaire was composed of 40 questions divided into four sections: demographics, burnout, psychological distress (depression, anxiety and stress) and perceived quality of care. The demographic section asked about gender, nationality, marital status, family monthly income, job status, number of children, professional tenure, typical work shift, number of hours worked per week and number of vacation days taken in the last year.

Section two investigated burnout using the Copenhagen Burnout Inventory (CBI) with a Cronbach's alpha of 0.87 [31]. The CBI consists of seven items with a 5-point range for answers, where always = 100, often = 75, sometimes = 50, seldom = 25, and never/almost never = 0. The average score of the seven questions was used to find a score, with an average of more than 50 points considered to be moderate to high levels of burnout [32], and an average of 50 points or less was considered as low levels or no burnout.

Section three measured depression, anxiety and stress using DASS-21 [33], with Cronbach's alpha values of 0.82 to 0.9 for the subscales [34]. DASS-21 is composed of 21 items, and the total score of unique combinations of seven items on the scale represent depression, anxiety or stress. Scores for depression, anxiety and stress are calculated by totaling the scores for the relevant items. A 4-point scale was applied, where 0 = "Did not apply to me at all", 1 = "Applied to me to some degree or some of the time", 2 = "Applied to me to a considerable degree or a good part of the time", and 3 = "Applied to me very much or most of the time". The score was then multiplied by two and classified as no psychological problems, mild psychological problems, moderate psychological problems, severe psychological problems or extremely severe psychological problems, according to the subscale cutoff points [33].

Section four measured the perceived quality of care using a two-item measure from a validated German questionnaire [12, 35], with a 5-point scale applied for answers (0 = not at all to 4 = to a very great extent). The two items were "My workload frequently leads to reduced quality of work" and "Adverse work conditions frequently lead to a loss of quality".

### Statistical methods

Data analysis was conducted on SPSS v.21 software, with ANOVA, linear and logistic regression, *t*-Test and chi-square tests being used. Statistics were generated by frequency tables and calculating the mean (M) and standard deviations (SDs). A *p*-value of 0.05 was considered significant.

### Ethical consideration

The study obtained the positive opinion of the Ethics Committee (IRB registration number KACST,KSA:H-02-J-002 Research Number:1390 Type of review: Expedited).

### Results

The questionnaires were distributed to 386 participants, and 251 (65%) completed the survey. The mean age of participants was 31.1 years (SD = 7.44). The mean number of hours worked per week was 56.22 (SD = 19.58). The participants had a vacation in the previous year for a mean of 34.14 days

(SD = 16.47). Other demographic data is shown in Table 1. There were more female participants (62.9%) than male participants (37.1%). The majority of participants were Saudi (84.1%). About 58.1% had no children, 27.5% had one to two children, and only 14.3% had three children or more. The percentage of married participants (51%) was close to unmarried (49%). Most participants (79.1%) had a family income of 10 to 30 thousand Saudi Riyal. Most of the participants (70.5%) were residents. The majority of participants (82.1%) were working the morning shift, as shown in Table 1.

Demographic variable	Category	Number	%
Gender	male	93	37.10
	female	158	62.90
Nationality	Saudi	211	84.10
	non-Saudi	40	15.90
Number of children	none	146	58.10
	1–2	69	27.50
	3 or more	36	14.30
Marital status	unmarried	123	49
	married	128	51
Family income (Saudi Riyal)	less than 10,000	16	6.40
	10,000–30,000	196	78.10
	more than 30,000	39	15.50
Position	intern	5	2
	service	18	7.20
	resident	177	70.50
	specialist	37	14.70
	consultant	14	5.60
Type of shift	morning	206	82.10
	evening or night	45	17.90

### Psychological distress

The mean CBI scores for the participants were 60.75 (SD = 16.77). According to the cutoff point, 80.5% of the participants were experiencing high levels of burnout (> 50 points). The mean for depression was 13.67 (SD = 8.9). For anxiety, the mean was 13.09 (SD = 8.3), and for stress, the mean was 16.9 (SD = 8.4). The prevalence of depression, anxiety and stress are

displayed in Table 2. Regarding depression, 10.4% had extremely severe depression, and 11.2% had severe depression. Regarding anxiety, 22.7% had extremely severe anxiety, and 18.3% had severe anxiety. Regarding stress, only 5.2% had extremely severe stress, and 11.6% had severe stress. In fact, the percentages of participants with normal levels of depression, anxiety and stress are 33.5%, 28.7% and 45%, respectively, as detailed in Table 2.

Level	Psychological distress		
	Depression Number (%)	Anxiety Number (%)	Stress Number (%)
Normal	84 (33.5)	72 (28.7)	113 (45.0)
Mild	45 (17.9)	17 (6.8)	52 (20.7)
Moderate	68 (27.1)	59 (23.5)	44 (17.5)
Severe	28 (11.2)	46 (18.3)	29 (11.6)
Extremely severe	26 (10.4)	57 (22.7)	13 (5.2)

The total percentages might not add up to 100% due to foundation.

According to the *t*-Test, there were no significant relationships between burnout, depression, anxiety or stress and marital status, nationality and type of shift. The results of the *t*-Test, ANOVA and Pearson's linear regression for relationships between burnout, depression, anxiety or stress and gender, position, number of children, age, working hours per week and days of vacation per year are shown in Tables 3 and 4. In fact, females had significantly higher scores for burnout, depression, anxiety and stress. Similarly, juniors participants (intern, service and resident) had higher scores for burnout, depression, anxiety and stress. When examining scores in relation to number of children, only participants who had three or more children had significantly lower burnout scores than participants without children and participants with one to two children. However, there were no differences in scores of depression, anxiety or stress. Age had a significant inverse relationship with burnout, depression and stress but not with anxiety. The number of working hours per week had a significant direct relationship with burnout but an inverse relationship with anxiety. Moreover, days of vacation per years had a significant inverse relationship with burnout but no effect on depression, anxiety or stress.

Table 3. Relationships between burnout, depression, anxiety and stress and demographic variables

Demographic variable	Category	Psychological distress			
		Burnout Mean (SD)	Depression Mean (SD)	Anxiety Mean (SD)	Stress Mean (SD)
Gender	male	57.75 (16.95)*	11.89 (8.15)*	11.35 (7.98)*	14.6 (7.15)*
	female	62.52 (16.47)	14.72 (9.19)	14.12 (8.34)	17.9 (8.8)
Position	seniors (specialist or consultant)	50.42 (18.44)*	10.04 (8.03)*	10.24 (8.24)*	13.29 (7.14)*
	juniors (intern, service, resident)	63.39 (15.29)	14.6 (8.91)	13.83 (8.18)	17.5 (8.47)
Number of children	no children	61.11 (15.49)	60.76 (16.78)	10.78 (8.81)	12.9 (8.71)
	1–2 children	63.72 (18.18)	14.3 (8.78)	13.67 (8.91)	11.61 (8.72)
	3 or more children	53.67 (17.46)**	13.86 (9.08)	13.56 (8.01)	13.1 (8.30)

\*  $p < 0.05$ ; \*\* Participants who had three or more children had significantly lower burnout scores than participants without children and participants with one to two children.

Table 4. Correlation between burnout, depression, anxiety and stress and age, working hours and days of vacation

Demographic variable	Psychological distress			
	Burnout	Depression	Anxiety	Stress
Age	-0.211*	-0.158*	-0.113	-0.136*
Working hours per week	0.252*	-0.099	-0.156*	-0.078
Days of vacation per year	-0.128*	0.076	0.045	0.043

\*  $p < 0.05$  using Pearson's linear regression; the minus sign means it is an inverse correlation.

## Perceived quality of care

The participants were asked two questions about how adverse working conditions and workloads lead to reduced quality of work, and the answers are shown in Table 5. The participants reported (always (15.5%) or often (30.3%)) that the adverse working conditions led to loss of work quality. The participants also reported (always (21.1%) or often (27.5%)) that workload led to reduced work quality.

Level	Quality of care question	
	Do your adverse working conditions frequently lead to loss of quality? n (%)	Does your workload frequently lead to reduced work quality? n (%)
Always	39 (15.5)	53 (21.1)
Often	76 (30.3)	69 (27.5)
Sometime	67 (26.7)	80 (31.9)
Seldom	51 (20.3)	31 (12.4)
Never/almost never	18 (7.2)	18 (7.2)

## Discussion

This study aimed to assess the prevalence of burnout, depression, anxiety, stress and lowered perceived quality of care among pediatricians in western regions of Saudi Arabia. The results showed that these pediatricians had a substantial prevalence of psychological distress. Four out of five pediatricians suffered from burnout. The proportions of pediatricians suffering from depression, anxiety or stress were 66.5%, 71.3% and 55%, respectively. It is noteworthy that the proportions of pediatricians who were classified with severe or extremely severe depression, anxiety or stress were 21.6%, 41.1% and 16.7%, respectively. Resident females were the most affected subgroup, and around half of the pediatricians believed that adverse working conditions and heavy workloads led to lower work quality.

Our results indicated that 80.5% of the participants suffered from burnout. This is higher than all previous studies of pediatricians conducted in Brazil (29%–71%) [19], the United States (26.7%–74%) [18, 20–24, 36], Germany (10.2%) [12] and Egypt (18.75%) [16]. Current data cannot explain the reason for this difference. One explanation might be the difference in the measure of burnout, as many of the previous studies used the Maslach Burnout Inventory (MBI) [37]. The reason for using the CBI instead of the MBI in this study is that the MBI, despite being the most commonly used to measure burnout, has been criticized by many authors for being available as a commercial tool [37, 38]. It might be easier for a researcher to use MBI services after purchasing help with analyzing the data, which might have made the MBI used more commonly. Furthermore, the MBI measures reductions in personal achievements, experiences of depersonalization and emotional exhaustion for people who work in the human services sectors [37], and some articles have argued that personal achievement and depersonalization do not reflect burnout [31, 39]. In fact, the CBI was found to surpass the MBI mainly in considering burnout as a fatigue phenomenon [31, 39].

The second factor causing the difference in these results may be the cultural differences between the health care systems of different countries. In fact, this is similar to a previous study that measured burnout among medical students in Saudi Arabia [27] and indicated that the percentage of burnout is

higher there than in other countries. It is suggested that further comparative studies be conducted using a unified instrument to give external validity to the results.

The prevalence of depression, anxiety and stress in the present study was higher than had been reported in any other study conducted in the United States and the Netherlands [14, 18]. The difference here might again arise from the cross-country differences and the different scales used. When we compare our results with previous studies conducted in Saudi Arabia that also used DASS-21, but were among medical students [27, 29], we found similar percentages for depression and anxiety. In fact, our results are alarming by revealing that two out of five pediatricians had severe or extremely severe anxiety, and one out of five had severe or extremely severe depression. This result needs further justification and explanation. One of the important aspects to clarify is that while the data collection was conducted during the emergence of the coronavirus pandemic [40], and recent articles had emphasized that the pandemic created high levels of psychological distress among health care workers in China [41, 42], it is important to note that China was the first country to be affected by the pandemic, but Saudi Arabia was not affected until later. Therefore, attributing the high levels of psychological distress in this study to the coronavirus pandemic is likely not warranted.

In terms of demographic variables, females, being junior pediatricians or younger pediatricians were found to be more distressed than males, specialists/consultants or older participants. While one previous study [23] had different conclusions regarding females, several prior studies have reported poorer psychological health (including suicidal thoughts) among females than among males [43–45]. This might be because women were found to be more vulnerable and exposed to stressful events and emotional problems [46]. Moreover, our data is in line with a previous study that found senior pediatricians had better psychological health than those younger [12, 18].

With regard to perceived quality of care, our data indicates that working with psychological distress does affect the quality of pediatricians' work. This can be serious, because it could lead to further problems that affect patient safety. Therefore, it is recommended that attention should be paid to enhance the working environment based on preparation along with ways to offer incentives and benefits. For example, through appreciation accomplishments of junior physicians along with ways to offer incentives and benefits through, for example, appreciation, constructive reviews, encouragement, job flexibility and autonomy to promote well-being for physicians [47, 48]. It is also recommended that more psychological programs [49], assessments and support be offered to reduce the high levels of psychological burden.

This study is the first to assess the prevalence of psychological distress among pediatricians in Saudi Arabia, but as with any study, the limitations should be mentioned. They include the use of a self-reporting questionnaire and the lack of external validity due to limiting the assessment to only pediatricians in the western region of Saudi Arabia.

## Conclusions

Pediatricians in Saudi Arabia are experiencing high levels of burnout, depression, anxiety and stress, which is accentuated among female, junior and young pediatricians. This distress is suggested to lead to negative effects on the quality of care provided to patients. We urge hospitals to take this seriously and begin designing psychological programs and support to help improve the psychological well-being of Saudi pediatricians. It is also crucial that pediatricians consider the significance of such problem affecting their health, and potentially their patients, in the long term of their career and make some efforts to manage such distress or refer to more professional psychological services.



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