



ISSN: 2476-8642 (Print)

ISSN: 2536-6149 (Online)

www.annalsofhealthresearch.com

African Index Medicus, Crossref, African Journals
Online, Scopus, C.O.P.E &

Directory of Open Access Journals

Annals of Health Research

(The Journal of the Medical and Dental Consultants' Association of Nigeria, OOUTH, Sagamu, Nigeria)

IN THIS ISSUE



- **Mother-To-Child Transmission of HIV**
- **Knowledge on Postpartum Warning Signs**
- **Problem Gambling Among Students**
- **Burn-Out Syndrome Among Health Professionals**
- **Comorbid Anxiety and Depression**
- **Pituitary Adenomas**
- **Surgical Treatment of Ankyloglossia**
- **Bronchiectasis in Children**
- **Elimination of Cervical Cancer**

**PUBLISHED BY THE MEDICAL
AND DENTAL CONSULTANTS ASSOCIATION
OF NIGERIA, OOUTH, SAGAMU, NIGERIA.**

www.mdcan.outh.org.ng

ORIGINAL RESEARCH

Prevalence of Burnout Syndrome and the Associated Factors Among Healthcare Professionals in Saudi Arabia: A National Cross-Sectional Study

Battar SS¹, Al-Mutairi KMA², Al-Qahtani FS*³, Alshaikh AA³

¹Department of Preventive Medicine, King Khalid University Medical City, Abha, Saudi Arabia

²Community Health Sciences Department, College of Applied Medical Sciences, King Saud University, Riyadh, Saudi Arabia

³Department of Family and Community Medicine, College of Medicine, King Khalid University, Abha, Saudi Arabia

*Correspondence: Dr FS Al-Qahtani, Postal Address: 62585, Department of Family and Community Medicine, College of Medicine, King Khalid University, Abha, Saudi Arabia. E-mail: drfaisalqahtani@gmail.com ; ORCID - <https://orcid.org/0000-0001-5207-0797>.

Abstract

Background: Burnout syndrome (BOS) is a syndrome characterised by high emotional exhaustion with depersonalisation and low professional accomplishment associated with the workplace. It is well known that working in the healthcare industry significantly increases stress and psychological fatigue rates.

Objective: To explore the prevalence of BOS and its associated factors among healthcare professionals in Saudi Arabia.

Methods: In this cross-sectional study, 385 healthcare professionals out of 809,533 were randomly surveyed. The questionnaire had three components: sociodemographic data, the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) tool to assess BOS, and questions about personal, work-related and health status information.

Results: Most of the 450 participating professionals were males and were married (66.2% and 75.8%, respectively). Precisely, 42.4% of the participants had high emotional fatigue, 42.4% experienced high depersonalisation, and 33.8% showed low personal accomplishment. Females, younger age groups, nurses, those with fewer years of experience, those with on-call duties, those with increased daily working hours, those with sleep difficulties, those who are exercising, and those experiencing high discrimination and harassment were associated with the development of burnout syndrome.

Conclusion: It is essential to establish multidimensional and diversified therapies to decrease the incidence of BOS syndrome and its effect on healthcare.

Keywords: *Burnout syndrome, Healthcare professionals, Saudi, Stressors, Work-related stress.*

Introduction

Burnout is a psychological term created by human services professionals in the early 1970s to describe a stressful syndrome with reported symptoms, including fatigue, frustration,

hostility, carelessness, and the perception of ineffectiveness and failure. [1] Burnout syndrome typically develops from continuous exposure to persistent stressors at work. Still, several organisational elements, such as an excessive workload, insufficient compensation,

and impaired interpersonal interactions, also play a role. [2] Healthcare professionals like doctors and nurses deal with emotionally tasking situations and are exposed to clients' psychosocial issues. Hence, they are more likely to develop burnout syndrome. [2] These symptoms might eventually result in unsatisfactory work performance and patient care. [3]

Burnout is prevalent among medical workers worldwide. [4, 5] Burnout in this population can have detrimental effects on both the healthcare professionals and the patients. Medical professionals who experience workplace burnout may experience symptoms of irritability, depression, sleep problems, and loss of interest in their jobs or personal lives. [6] These health consequences may also affect a physician's capacity to provide excellent care by affecting their clinical judgment. [7] An organisation's ability to keep its doctors happy can assist in reducing the high costs associated with turnover among physicians and employees. Therefore, paying attention to doctors' health promotes patient safety and lowers the likelihood of errors. [8]

Burnout has been found to have a negative impact on the care given to patients by decreasing empathy and other communication skills, such as a positive outlook and listening skills. These are crucial components of patient care for all physicians, especially primary care physicians. For these reasons, it is essential to pay attention to burnout in primary care physicians and the risk factors that contribute to it. [9]

This study aimed to contribute to the existing literature by providing new insights into burnout syndrome's prevalence and associated factors among healthcare professionals in Saudi Arabia. By addressing these research gaps, we aim to advance our understanding of the aetiology of burnout syndrome among healthcare professionals and inform the development of effective interventions to prevent and manage burnout. Due to these

occupational and healthcare quality difficulties, examining burnout in the healthcare professional population is critical. Ministry of health, occupational health departments, and hospital administrators can use such data to improve healthcare professionals' programs. They are also helpful in designing occupational health policies and prevention programs to reduce the impacts of burnout and improve patient care. Therefore, this study aimed to assess the prevalence of burnout syndrome and its associated factors among healthcare professionals in Saudi Arabia.

Methods

Study design, Setting and duration

This was a cross-sectional, descriptive study.

Study participants

The target population was healthcare professionals accredited and licensed by the Saudi Commission for Health Specialties all over Saudi Arabia. Based on the 2021 data and statistics provided by the Ministry of Health, Kingdom of Saudi Arabia (KSA), the total number of healthcare professionals in the country is 809,533.

Study sample size and sampling techniques

Using probability sampling, the questionnaire was sent to all registered healthcare professionals through the Saudi Commission for Health Specialties (SCFHS) database, after which the quota sample was taken to meet the objectives. After the first invitation to participate was sent, the targeted sample goal still needed to be achieved, so another invitation was sent. Several social media techniques, including the X platform and *WhatsApp*, were utilised to attract additional participants in the allotted period.

The formula stated below was applied to determine the study's sample size. However, due to significant variations in the prevalence

of BOS obtained from previous studies in Saudi Arabia, we determined the effect size of 0.5 with a confidence interval of 95% and an alpha error of 0.05 [4,10,11]. The calculated sample size was 384.

$$\text{Unlimited population: } n = \frac{z^2 \times \hat{p}(1-\hat{p})}{\epsilon^2}$$

$$\text{Finite population: } n' = \frac{n}{1 + \frac{z^2 \times \hat{p}(1-\hat{p})}{\epsilon^2 N}}$$

Where:

z - z score; ϵ - margin of error; N - population size; \hat{p} - population proportion.^[12]

Study tool

Data collection in this study was carried out using a questionnaire. The first section of the self-administered questionnaire sought biographical information, employment history, medical history, particular habits and risk factors. The second section contained the Maslach Burnout Inventory (MBI) scale used to measure the diagnosis of BOS. This is a reliable, valid, and easy-to-administer instrument that has been utilised nationally and globally. The 22 items are divided into three subscales. The instrument accurately measures the three components of BOS: emotional exhaustion (EE), depersonalisation (DP) and decreased personal accomplishment (PA). Items 1 through 9 assessed EE, items 10 through 14 assessed DP, while items 15 through 22 assessed PA and dedication. The responses to these questions were quantified by seven levels of degrees that indicate the magnitude and frequency of this item's existence, ranging from (0) never existing to daily existence (7). The EE Scale evaluated job-related feelings and emotions and how emotionally they engage with and are affected by their work. The DP scale assessed the response to and engagement with patients or clients and how things are handled. The PA Scale assessed dedication, interest, and success at work.^[13]

The responses were classified as high, moderate, or low based on the Cut-off Point Scale. Thus, EE was considered high if the score

was more than or equal to 26, DP was considered high if the score was more than or equal to 9, and PA was low if the score <33.^[14] The higher the score on the first two components, the closer to a burnout syndrome diagnosis. The MBI has adequate internal consistency coefficients (0.74 for emotional exhaustion EE, 0.78 for depersonalisation, and 0.71 for personal success subscales).^[15] The final section consisted of seven multiple-choice questions to examine the causes of burnout, solutions, and coping techniques, as well as two yes/no questions to assess harassment and discrimination that participants may have experienced.

Data Collection

The questionnaire was distributed through multiple pathways to healthcare professionals working in any healthcare entity in Saudi Arabia. Included in the study were healthcare professionals who were accredited by the Saudi Commission for Health Specialties, those who worked in different healthcare entities in Saudi Arabia, and those who were still on the job. Those excluded were healthcare professionals who worked outside Saudi Arabia, healthcare professionals who had a history of psychiatric disorders or taking antipsychotic medications, retirees or those who were not working, and unaccredited healthcare professionals. Different social media tools were also used to recruit more participants within the required timeframe. Six hundred e-mails were sent to reach the target sample size of 385, of which 502 responses were achieved with a response rate of 83.66%. After applying the inclusion and exclusion criteria, 450 responses were retained following the exclusion of 52 professionals receiving antipsychotic medications.

Statistical analysis

The data was analysed using IBM Statistical Package for Social Sciences (SPSS) version 21 (IBM Corp., Armonk, NY, USA). The mean and standard deviations were used to describe quantitative variables, whereas percentages were used to describe categorical variables. The data were evaluated for normal distribution.

The Chi-Square test was used to determine the relationship between categorical characteristics and the diagnosis of BOS across different health-related specialisations, geographies, and degrees of healthcare providers, in addition to other categorical variables. An independent *t*-test was used to determine the relationship between quantitative factors and the diagnosis of BOS. Logistic regression was used to test the associations between variables while controlling for confounders, measured as Odds ratio. The odds ratios indicate the likelihood of job satisfaction for each factor, with values greater than 1 indicating higher odds and values less than 1 indicating lower odds. A *P*-value less than 0.05 defined statistical significance.

Ethical Approval

The local research ethics committee of King Saud University approved this research in accordance with the ethical principles outlined in the Declaration of Helsinki with the number KSU-HE-22-570. Before their participation, all participants were appraised of the purpose and procedures of the study, and written informed consent was obtained. Confidentiality was maintained throughout the study, and potential risks were mitigated to the greatest extent possible.

Results

Demographic Characteristics

Table I illustrates the sociodemographic characteristics of the study participants: 66.2% of the participants were males, and 75.8% were married. Regarding distribution, they were more concentrated in the central and southern regions: 35% of the participants were from the southern regions, including Aseer, Najran, Jizan, and Al Baha. Most respondents were physicians (55.1%), while 90.4% were Saudis.

Work-Related Factors

Table II shows the job characteristics of the participants, which are ultimately related to the

onset of burnout syndrome. One hundred and twenty-eight (28.4%) were on-call in the hospital, 122 were on-call at home, and 200 (44.4%) were not part of the on-call system. Ninety-three (20.7%) participants worked fewer than eight hours per day. Regarding income, 161 (35.8%) earned between 15,000 and 25,000 Saudi Riyals. As BOS is closely associated with job satisfaction, only 35 (7.8%) were highly dissatisfied with their jobs, while 61 (13.6%) were dissatisfied (13.6%). On the other hand, 148 (32.9%) reported being satisfied, and 79 (17.6%) reported being extremely satisfied. The majority (67.8%) were employed by the Ministry of health: 202 (44.9%) in hospitals and 83 (18.4%) in primary health care centres (PHCCs). The monthly average number of call duties for all participants during the previous six months was 7.8 ± 6.4 . There were 187 (41.6%) individuals who had been subjected to workplace harassment, and 208 (46.2%) had been exposed to workplace discrimination.

Health status results

Health status results are shown in Table III. Only two respondents had a chronic disease, and 4.9% of them requested mental health evaluations within the past six months. The prevalence of smoking among participants was 22.2%. Regarding sleep problems, 254 (54.5%) reported having sleep disorders. Eight of the participants were underweight (Body Mass Index (BMI) $< 18 \text{ kg/m}^2$), 156 (34.7%) had normal body weight (BMI $18\text{--}24.9 \text{ kg/m}^2$), 131 (35.8%) had overweight (BMI $25\text{--}29.9 \text{ kg/m}^2$), while the remaining 124 (27.6%) were obese (BMI $> 30 \text{ kg/m}^2$). The mean BMI of the participants was $27.48 \pm 5.25 \text{ kg/m}^2$. Thus, the mean BMI in this study indicated that most participants were overweight.

Burnout syndrome

Burnout syndrome was assessed with the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) using three components as depicted in Table IV.

Table I: Demographic characteristics of participants

<i>Characteristics</i>	<i>Categories</i>	<i>Frequency</i>	<i>Percentages</i>
Gender	Male	298	66.2
	Female	152	33.8
Nationality	Saudi	407	90.4
	Non-Saudi	43	9.6
Age	Less than 25 years	11	2.4
	25–35 years	228	50.7
	36–45 years	137	30.4
	46–55 years	48	10.7
	More than 55 years	26	5.8
Marital Status	Single	90	20.0
	Married	341	75.8
	Divorced	17	3.8
	Widowed	2	0.4
Region	Central Region	124	27.6
	Eastern Region	51	11.3
	Western Region	65	14.4
	Southern Region	158	35.1
	Northern Region	52	11.6
Job Title	Physician	248	55.1
	Dentist	42	9.3
	Nurse	64	14.2
	Non-physician Specialist	58	12.9
	Other specialities	38	8.4
Years of Experience	Less than one year	15	3.3
	1–5 years	102	22.7
	6–10 years	144	32.0
	11–15 years	79	17.6
	16–20 years	48	10.7
	More than 20 years	62	13.8

Over forty per cent of the participants had high EE, 19.8% had moderate EE, and 36.9% had low EE. One hundred and ninety-one (42.4%) participants had high DP, 85 (18.9%) had moderate DP, and 178 (38.5%) had low DP. In addition, 196 (43.6%), 102 (22.7%) and 152 (33.8%) had high PA, moderate PA, and low PA, respectively.

BOS Risk Factors

Table V presents the associations between various demographic and job-related factors and Burnout Syndrome (BOS) among healthcare professionals. Gender, age, job title,

region, and years of experience were all significantly associated with BOS as shown in Table V. At the same time, marital status, nationality, and place of work lacked statistically significant associations. Specifically, females, younger age groups, nurses, and those with fewer years of experience had a higher likelihood of being diagnosed with BOS compared to their counterparts.

There was a statistically significant association between BOS and the year of medical school graduation ($p = 0.002$).

Table II: Work-related characteristics of healthcare professionals in the Kingdom of Saudi Arabia

Variables	Category	Frequency	Percentage
On-call in	Hospital	128	28.4
	Home	122	27.1
	No on-call	200	44.5
Daily Working Hours	Less than 8 hours	93	20.7
	8-10 hours	307	68.2
	More than 10 hours	50	11.1
Monthly Income	Less than 5000 SR	16	3.6
	5000-15,000 SR	120	26.7
	>15,000-25,000 SR	161	35.7
	More than 25,000 SR	153	34.0
Job Satisfaction	Highly unsatisfied	35	7.8
	Unsatisfied	61	13.6
	Neutral	127	28.2
	Satisfied	148	32.9
Work Entity	Highly satisfied	79	17.5
	Ministry of Health	305	67.7
	Military Hospital	66	14.7
	University	40	8.9
	Private sector	21	4.7
Workplace	Other governmental Entities	18	4.0
	Hospital	202	44.9
	Medical City	71	15.8
	PHCC	83	18.4
	Polyclinic	15	3.4
	Specialised Centre	28	6.2
	Administration	51	11.3

Table III: Health status and lifestyle habits of healthcare professionals in the Kingdom of Saudi Arabia

Indicators of health status	Response	Frequency (n)	Percentage
Do you have any chronic diseases?	Yes	88	19.6
	No	362	80.4
In the last year, did you have or request any mental health assessment?	Yes	34	7.6
	No	416	92.4
Have you taken any antipsychotic medications in the last year?	Yes	0	0.0
	No	450	100
Did you smoke in the last year?	Yes	100	22.2
	No	350	77.8
Do you have any sleep disorders?	Yes	245	54.4
	No	205	45.6
Do you engage in physical exercises?	Yes	224	49.8
	No	226	50.2

Still, there was no significant association between BOS and transportation to work or the average number of call duties per month ($p = 0.354$ and 0.360 , respectively), as shown in Table VI. Table VII shows the odds of the

various factors affecting job satisfaction among healthcare workers. The gender of female healthcare workers had an odds of job satisfaction of 1.424 compared to male healthcare workers.

Table IV: Grading of the parameters of BOS among healthcare professionals in the Kingdom of Saudi Arabia

<i>Clinical Characteristics</i>	<i>Category</i>	<i>Frequency (n)</i>	<i>Percentage</i>
Emotional Exhaustion	High	195	43.3
	Moderate	89	19.8
	Low	166	36.9
Depersonalisation	High	191	42.4
	Moderate	85	18.9
	Low	174	38.7
Personal Accomplishment	High	196	43.7
	Moderate	102	22.7
	Low	152	33.8

The age categories of 25–35, 36–45, and 46–55 all had higher job satisfaction odds than those over 55, though without statistical significance. Nurses, non-physician specialists, and other specialists had higher odds ratios than dentists, indicating higher odds of job satisfaction. Participants with more than 20 years of service experience had a high odds ratio of 3.65 for job satisfaction.

Multiple regression Analysis

Table VIII shows the results of a multiple regression analysis examining the association between burnout syndrome diagnoses and various demographic and work-related factors among healthcare workers. The female sex ($p = 0.004$), having a job title of dentist ($p = 0.042$), working in the eastern region of the country ($p = 0.030$), and having more than 20 years of experience ($p < 0.001$) were significantly associated with BOS. Age, marital status (other than divorce), nationality, work pace, and workplace location were not significantly associated with BOS.

Discussion

The Agency for Healthcare Research and Quality estimates that BOS may impact healthcare professionals, which could affect the provision of high-quality care. [16] This study's findings showed that BOS is extremely common among healthcare workers in Saudi Arabia. The current working environment may

cause detrimental mental and physical health conditions that significantly impact the calibre and effectiveness of patient care. Addressing these findings is necessary because they have implications for public health.

The findings were consistent with another study that revealed a significant prevalence of burnout among healthcare workers (84.2%). Close to a third of respondents reported having high EE, whereas one-fifth of respondents reported having high DP (cynicism), and a sizeable minority of healthcare workers reported having low personal accomplishment (high burnout). [17] Another study revealed that during the COVID-19 pandemic, there was a considerably high incidence of burnout among healthcare workers. Sociodemographic, occupational, economic, and exposure characteristics showed significant correlations with higher degrees of burnout. [18]

The present study revealed that there was a significant level of burnout among healthcare professionals. Sociodemographic factors like gender, for example, were strongly correlated. This is similar to the findings in another study that showed a substantial burnout level among healthcare professionals during the COVID-19 pandemic. Higher burnout degrees were strongly associated with sociodemographic characteristics like gender, occupational, economic, and work stress exposure factors. [19] In the current study, gender also had a significant association with BOS.

Table V: Associations between BOS and sociodemographic and professional characteristics

Variable	Category	Burnout Syndrome Diagnosis				p-value
		Diagnosed		Not Diagnosed		
		n	%	n	%	
Gender	Male	83	57.24	215	70.49	0.004
	Female	62	42.76	90	29.51	
Marital Status	Single	34	23.45	56	18.36	0.250
	Married	102	70.34	239	78.36	
	Divorced	8	5.52	9	2.95	
	Widowed	1	0.69	1	0.33	
Age	Less than 25 years	0	0.00	11	3.61	0.003
	25-35 years	84	57.93	144	47.21	
	36-45 years	47	32.41	90	29.51	
	46-55 years	12	8.28	36	11.80	
	More than 55 years	2	1.38	24	7.87	
Nationality	Saudi	130	89.66	277	90.82	0.407
	Non-Saudi	15	10.34	28	9.18	
Job title	Physician	67	46.20	181	59.34	0.001
	Dentist	14	9.66	28	9.18	
	Nurse	35	24.14	29	9.51	
	Non-physician Specialist	16	11.03	42	13.77	
	Other specialty	13	8.97	25	8.20	
Region	Central	32	22.07	92	30.16	0.032
	Eastern	17	11.72	34	11.15	
	Western	18	12.41	47	15.41	
	Southern	52	35.86	106	34.75	
	Northern	26	17.93	26	8.52	
Years of experience	Less than one year	2	1.38	13	4.26	0.012
	1-5	43	29.66	59	19.34	
	6-10	48	33.10	96	31.48	
	11-15	27	18.62	52	17.05	
	16-20	15	10.34	33	10.82	
	More than 20 years	10	6.90	52	17.05	
Employer	Ministry of Health	109	75.17	196	64.26	0.061
	Military Hospital	21	14.48	45	14.75	
	University	6	4.14	34	11.15	
	Private sector	4	2.76	17	5.75	
	Other governmental Entities	5	3.45	13	4.26	
Place of Employment	Medical City	20	13.79	51	16.72	0.353
	Hospital	66	45.52	136	44.59	
	PHCC	34	23.45	49	16.07	
	Polyclinic	3	2.07	12	3.93	
	Specialised Center	9	6.21	19	6.23	
	Administration	13	8.97	38	12.46	

Table VI: Factors affecting the development of BOS

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	Lower	Upper
Graduation year from health school (Gregorian)	Assumed	15.695	0.000	3.137	448	0.002	2.721	0.869	1.018	4.433	
	Not assumed			3.456	363.252	0.001	2.726	0.789	1.175	4.277	
How many minutes does it take to transport yourself to work?	Assumed	0.848	0.358	-	448	0.354	-1.774	1.914	-5.536	1.987	
	Not assumed			-	346.816	0.317	-1.774	1.770	-5.255	1.706	
Average number of call duties per month in the last six months:	Assumed	0.418	0.518	0.440	448	0.660	0.276	0.628	-0.958	1.509	
	Not assumed			0.426	262.595	0.670	0.276	0.647	-0.998	1.550	

Assumed - Equal variances assumed; Not assumed - Equal variances not assumed

Table VII: Logistic regression analysis of factors affecting job satisfaction in healthcare professionals

Variables		Odds Ratio	95% CI		p-value
			Lower	Upper	
Gender	Female	1.424	1.129	1.793	0.004
Marital Status	Married	0.940	0.802	1.104	0.520
	Divorced	1.386	0.964	1.993	0.074
	Widowed	15.126	0.854	267.028	0.066
Age (Years)	25-35	3.973	0.456	34.677	0.208
	36-45	2.998	0.723	12.437	0.134
	46-55	3.842	0.997	14.816	0.051
	>55	1.972	0.790	4.925	0.147
Job title	Dentist	0.540	0.303	0.962	0.037
	Nurse	1.550	0.912	2.636	0.101
	Physician	1.414	1.256	2.545	0.012
	Non-physician Specialist	1.776	1.207	2.612	0.003
	Other Specialty	1.488	0.939	2.355	0.090
Region	Eastern	0.537	0.243	1.186	0.123
	Western	1.131	0.760	1.680	0.550
	Southern	1.490	0.947	2.341	0.087
	Northern	1.009	0.202	5.052	0.991
Years of experience	1-5	0.533	0.211	1.345	0.190
	6-10	0.896	0.496	1.620	0.720
	11-15	1.441	0.816	2.544	0.201
	16-20	1.424	0.750	2.706	0.276
	>20	3.650	1.945	6.852	0.000

This was, however, comparable with another study finding, which showed that in terms of sociodemographic characteristics, the female gender was at higher risk of BOS. However, the

existing literature shows disparate gender outcomes. While some research revealed no gender differences in burnout, others found that females had higher burnout than males. [20]

Table VIII: Regression analysis of various demographic and work-related factors and their association with BOS

Variable		Coefficient	Standard Error	t-value	p-value
Gender	Female	0.354	0.121	2.921	0.004
Marital Status	Married	-0.062	0.090	-0.685	0.250
	Divorced	0.326	0.395	0.826	0.408
	Widowed	2.771	2.088	1.328	0.185
Age	25-35	1.380	0.436	3.165	0.002
	36-45	1.104	0.481	2.292	0.022
	46-55	1.346	0.734	1.834	0.067
	>55	0.679	1.055	0.644	0.521
Job title	Dentist	-0.615	0.302	-2.038	0.042
	Nurse	0.438	0.193	2.267	0.024
	Physician	0.429	0.254	2.121	0.015
	Non-physician Specialist	0.574	0.274	2.096	0.037
	Other Specialty	0.397	0.276	1.441	0.150
Region	Eastern	-0.620	0.285	-2.174	0.030
	Western	0.123	0.287	0.429	0.668
	Southern	0.399	0.239	1.671	0.095
	Northern	0.009	0.249	0.036	0.972
Years of experience	1-5	-0.629	0.233	-2.700	0.007
	6-10	-0.110	0.240	-0.457	0.648
	11-15	0.366	0.267	1.372	0.170
	16-20	0.354	0.315	1.122	0.262
	>20	1.295	0.369	3.511	0.000

This present study revealed that the prevalence of burnout syndrome among healthcare professionals in Saudi Arabia is comparable to findings in earlier research conducted there. [17, 18] The global prevalence of this syndrome among healthcare professionals is one in three. This study revealed that the prevalence of BOS among healthcare workers in Saudi Arabia is greater than the global prevalence. We anticipate Saudi Arabia to be among the countries with the most significant prevalence of burnout syndrome. [21] A review of the literature revealed substantial similarities between the factors related to this syndrome and these factors.

The present study contributes to the growing literature on BOS among healthcare professionals, particularly in Saudi Arabia. The

findings are consistent with previous studies that have identified high levels of burnout among healthcare professionals and highlight the importance of addressing burnout as a public health issue. Despite the increasing research on BOS among healthcare professionals, there is still a need for more evidence-based research in this area. As suggested by Chirico and colleagues, [22] future studies could use systematic review and meta-analysis methods to synthesise the existing literature and identify the most effective interventions for preventing and managing burnout among healthcare professionals.

In particular, the studies suggested by the reviewer could contribute to the existing literature by providing insights into the prevalence and risk factors of burnout among

healthcare professionals in different contexts. For example, the study by Chirico *et al.* [22] could inform interventions for preventing burnout among healthcare workers. In contrast, the study by Chirico and Magnavita [23] could help identify gaps in the literature and inform future research priorities. Magnavita *et al.* [24] discussed the challenges of the COVID-19 pandemic in healthcare systems and courts, highlighting the need to protect HCWs from workplace violence. Chirico *et al.* [25] conducted a systematic review of workplace violence against HCWs during the COVID-19 pandemic, emphasising the impact of burnout and workplace violence on HCWs' mental health and job performance. Chirico and Leiter [26] proposed strategies to prevent stress, burnout, and suicide among HCWs during and after the pandemic to maintain the sustainability of healthcare systems and reach the 2030 Sustainable Development Goals.

This study highlights the need for further research on BOS among healthcare professionals in Saudi Arabia. Future research could investigate the relationship between BOS and other factors, such as work-related stress, workload, and job satisfaction, as well as the long-term effects of BOS on healthcare professionals' physical and mental health. Additionally, research could explore the effectiveness of mindfulness-based interventions, cognitive-behavioural therapy, and organisational interventions. Finally, policymakers should prioritise implementing policies and regulations that support a healthy work-life balance for healthcare professionals.

Limitations

While our findings provided valuable insights into the prevalence and factors associated with burnout among healthcare professionals in this context, several limitations to the present study must be acknowledged. The cross-sectional study limited the ability to establish causality between the factors identified and BOS. Additionally, self-report measures were used to assess burnout among participants, which

may be subject to response bias and social desirability bias. Future studies could use more objective measures of burnout, such as physiological or behavioural measures, to complement self-report measures.

Conclusion

A substantial percentage of healthcare professionals suffer from BOS. This issue may also affect the provision of healthcare and the wellness of healthcare professionals. BOS is a growing mental problem that needs an awareness campaign to be conducted in different healthcare institutes in Saudi Arabia. We consider it essential to establish multidimensional and diversified therapies to decrease the incidence of this syndrome and its effect on healthcare.

Acknowledgements: The authors would like to express gratitude to King Saud University.

Authors' Contributions: BSS and AMK conceived and designed the study, while BSS and AFS reviewed the literature. BSS, AFS, and AAA analysed and interpreted the data. BSS and AMK drafted the manuscript, while AFS and AAA revised it. All the authors approved the final draft of the manuscript.

Conflict of Interest: None.

Funding: Self-funded.

Publication History: Submitted 30 December 2023; Accepted 08 March 2024.

References

1. Felton JS. Burnout as a clinical entity--its importance in health care workers. *Occup Med* 1998;48:237-250. <https://doi.org/10.1093/occmed/48.4.237>
2. Pavlakis A, Raftopoulos V, Theodorou M. Burnout syndrome in Cypriot physiotherapists: A national survey. *BMC Health Serv Res* 2010;10:63. <https://doi.org/10.1186/1472-6963-10-63>.

3. Parker PA, Kulik JA. Burnout, self- and supervisor-rated job performance, and absenteeism among nurses. *J Behav Med* 1995;18:581-599.
<https://doi.org/10.1007/BF01857897>.
4. Aldrees TM, Aleissa S, Zamakhshary M, Badri M, Sadat-Ali M. Physician well-being: prevalence of burnout and associated risk factors in a tertiary hospital, Riyadh, Saudi Arabia. *Ann Saudi Med* 2013;33:451-456.
<https://doi.org/10.5144/0256-4947.2013.451>.
5. Burhamah W, AlKhayyat A, Oroszlányová M, Jafar H, AlKhayyat A, Alabbad J. The predictors of depression and burnout among surgical residents: A cross-sectional study from Kuwait. *Ann Med Surg* 2021;65:102337.
<https://doi.org/10.1016/j.amsu.2021.102337>.
6. Dimou FM, Eckelbarger D, Riall TS. Surgeon Burnout: A Systematic Review. *J Am Coll Surg* 2016;222:1230-1239.
<https://doi.org/10.1016/j.jamcollsurg.2016.03.022>.
7. Balch CM, Freischlag JA, Shanafelt TD. Stress and burnout among surgeons: understanding and managing the syndrome and avoiding the adverse consequences. *Arch Surg* 2009;144:371-376.
<https://doi.org/10.1001/archsurg.2008.575>.
8. Crane M. Why burned-out doctors get sued more often. *Med Econ* 1998;75:210-218.
9. Hall LH, Johnson J, Heyhoe J, Watt I, Anderson K, O'Connor DB. Exploring the Impact of Primary Care Physician Burnout and Well-Being on Patient Care: A Focus Group Study. *J Patient Saf* 2020;16:e278-e283.
<https://doi.org/10.1097/PTS.0000000000000438>.
10. Alsaawi A, Alrajhi K, Albaiz S, Alsultan M, Alsalamah M, Qureshi S, et al. Risk of burnout among emergency physicians at a tertiary care centre in Saudi Arabia. *J Hosp Adm* 2014;3:20-24.
<https://doi.org/10.5430/jha.v3n4p20>.
11. Al-Turki HA, Al-Turki RA, Al-Dardas HA, Al-Gazal MR, Al-Maghrabi GH, Al-Enizi NH, et al. Burnout syndrome among multinational nurses working in Saudi Arabia. *Ann Afr Med* 2010;9:226-229.
<https://doi.org/10.4103/1596-3519.70960>.
12. Daniel WW. *Biostatistics: A foundation for analysis in the health sciences*. 7th Edition, John Wiley & Sons, Inc., Hoboken. 1999.
13. Rafferty JP, Lemkau JP, Purdy RR, Rudisill JR. Validity of the Maslach Burnout Inventory for family practice physicians. *J Clin Psychol* 1986;42:488-492.
[https://doi.org/10.1002/1097-4679\(198605\)42:3<488::aid-jclp2270420315>3.0.co;2-s](https://doi.org/10.1002/1097-4679(198605)42:3<488::aid-jclp2270420315>3.0.co;2-s)
14. Truzzi A, Souza W, Bucasio E, Berger W, Figueira, Engelhardt E, et al. Burnout in a sample of Alzheimer's disease caregivers in Brazil. *Eur J Psychiatry* 2008;22:151-160.
<https://doi.org/10.4321/S0213-61632008000300004>.
15. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organ Behav* 1981;2:99-113.
16. Wallace JE, Lemaire JB, Ghali WA. Physician wellness: a missing quality indicator. *Lancet*. 2009;374:1714-1721.
[https://doi.org/10.1016/S0140-6736\(09\)61424-0](https://doi.org/10.1016/S0140-6736(09)61424-0).
17. Alfaleh HM. Burnout among Saudi board residents: comparison between Family Medicine and Internal Medicine. *IJMDC* 2017;1:11-17.
<https://doi.org/10.24911/IJMDC.1.1.3>.
18. Youssef D, Youssef J, Abou-Abbas L, Kawtharani M, Hassan H. Prevalence and correlates of burnout among physicians in a developing country facing multi-layered crises: a cross-sectional study. *Sci Rep*. 2022;12:12615.

- <https://doi.org/10.1038/s41598-022-16095-5>.
19. Ramírez MR, Otero P, Blanco V, Ontaneda MP, Díaz O, Vázquez FL. Prevalence and correlates of burnout in health professionals in Ecuador. *Compr Psychiatry*. 2018;82:73–83. <https://doi.org/10.1016/j.comppsy.2017.11.011>.
20. McMurray JE, Linzer M, Konrad TR, Douglas J, Shugerman R, Nelson K. The work lives of women physicians results from the physician work life study. The SGIM Career Satisfaction Study Group. *J Gen Intern Med* 2000;15:372–380. doi:10.1111/j.1525-1497.2000.im9908009.x
21. Al-Sareai NS, Al-Khaldi YM, Mostafa OA, Abdel-Fattah MM. Magnitude and risk factors for burnout among primary health care physicians in Asir Province, Saudi Arabia. *East Mediterr Health J* 2013; 19: 426–434.
22. Chirico F, Ferrari G, Nucera G, Szarpak L, Crescenzo P, Ilesanmi O. Prevalence of anxiety, depression, burnout syndrome, and mental health disorders among healthcare workers during the COVID-19 pandemic: a rapid umbrella review of systematic reviews. *J Health Soc Sci*. 2021;6:209-220. <https://doi.org/10.19204/2021/prv17>.
23. Chirico F, Heponiemi T, Pavlova M, Zaffina S, Magnavita N. Psychosocial risk prevention in a global occupational health perspective. A descriptive analysis. *Int J Env Res Public Health* 2019;16:2470. <https://doi.org/10.3390/ijerph16142470>.
24. Magnavita N, Chirico F, Sacco A. COVID-19: from hospitals to courts. *The Lancet* 2021;397:1542. [https://doi.org/10.1016/S0140-6736\(21\)00472-4](https://doi.org/10.1016/S0140-6736(21)00472-4).
25. Chirico F, Afolabi AA, Ilesanmi OS, Nucera G, Ferrari G, Szarpak L, Yildirim M, Magnavita N. Workplace violence against healthcare workers during the COVID-19 pandemic: A systematic review. *J Health Soc Sci* 2022;7:14-35. <https://doi.org/10.19204/2022/WRKP2>.
26. Chirico F, Leiter M. Correct use of the Maslach Burnout Inventory to develop evidence-based strategies against burnout syndrome during and post COVID-19 pandemic. *Work* 2022;73:107–108. <https://doi.org/10.3233/WOR-220072>.



This open-access document is licensed for distribution under the terms and conditions of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by-nc/4.0>). This permits unrestricted, non-commercial use, reproduction and distribution in any medium, provided the original source is adequately cited and credited.