

PREVALENCE AND RISK FACTORS OF BURNOUT AMONG HEALTHCARE WORKERS IN JAZAN, KINGDOM OF SAUDI ARABIA.

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Abstract:

Background: Burnout is a syndrome that results from stressors in the workplace environment that have not been successfully managed. The prevalence of burnout among healthcare workers is relatively high rate. **Objective:** To assess the prevalence and risk factors associated with burnout among healthcare workers in Jazan, Saudi Arabia. **Methods:** This is a cross-sectional study which was carried out among healthcare workers at general hospitals in Jazan Region. A multistage cluster random sampling technique was employed to select the participants. A self-administered questionnaire was used for data collection. Burnout was assessed using the Maslach Burnout Inventory (MBI) tool. **Results:** The prevalence of burnout among healthcare workers was 24.3%. Different sociodemographic and clinical factors were significantly associated with burnout, such as gender, occupation type, departments, depression, smoking, and physical activity status. **Conclusion:** Burnout is present among healthcare workers at a relatively high rate. Numerous factors associated with burnout were evident, particularly work-related factors in the workplace. Therefore, decision-makers should act to improve working conditions and work–life balance by providing burnout screening, management, and educational programs.

Keywords: burnout; prevalence; risk factors; healthcare workers; Jazan region

1. Introduction

Burnout is a syndrome resulting from chronic workplace stress that has not been successfully managed.[1] Work-related stress is the response individuals may have when confronted with work demands and pressures that exceed their knowledge and skills and challenge their ability to adapt.[2] Maslach and Jackson considered burnout to have three different aspects: emotional exhaustion (EE), depersonalization (DP), and lack of personal and professional completions (PA).[3] Workload and time pressure have been mentioned as the primary causes of high levels of burnout, with both qualitative and quantitative workloads contributing to burnout, particularly in the dimension of emotional exhaustion.[4]

Healthcare institutions are among the most hazardous environments to work in. Employees at these institutions are constantly exposed to a complex variety of health hazards in the course of

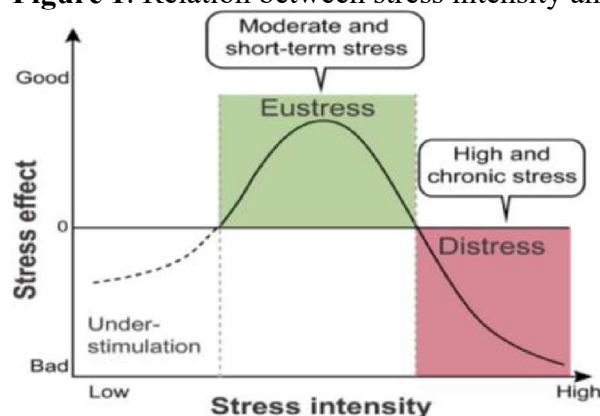
their work.[5] The estimated prevalence of burnout in the United States is about 54.4% and 19% in Japan.[6,7] In Arab countries, the prevalence of burnout among healthcare workers ranges between 12.6% and 70% according to a recent review.[8] Many risk factors affect burnout, including age, gender, marital status, smoking, physical activity, occupation type, and average hours of sleep.[9]

There are two types of stress: positive psychological stress (eustress), which may result in motivation, and negative stress (distress), which can lead to anxiety. Although commonly grouped together, the different forms of stress should be regarded as distinct concepts.[10] **Figure 1** shows the relation between stress intensity and effect, showing the distinction between eustress and distress.[11] The clinical manifestations of burnout and workplace stress include headache, anxiety, depressed mood, loss of interest, irritability, fatigue, concentration difficulties, withdrawal from society, apathy, muscle tension, gastrointestinal problems, sleep disturbance, loss of libido, and excessive alcohol and drug use.[12] The Maslach Burnout Inventory (MBI) is the most commonly used tool to assess burnout, being composed of subscales for each of the three components of burnout (EE, DP, and low PA).[13]

Regarding burnout prevention, decreasing stressful behaviors is one of the most common strategies and techniques, which can include self-monitoring, tailoring, social reinforcement, support groups, and professional assistance.[14] Burnout prevention programs have traditionally focused on cognitive-behavioral therapy (CBT), cognitive restructuring, didactic stress management, and relaxation techniques (including physical and mental techniques). In the healthcare setting, CBT, relaxation techniques, and schedule changes are the best-supported techniques for reducing and preventing burnout.[15]

The purpose of this study is to assess the prevalence and risk factors of burnout among the healthcare workers in Jazan Region.

Figure 1. Relation between stress intensity and effect.



2. Materials and Methods

2.1. Design, Setting, and Participants

We conducted a cross-sectional study from March to September 2020 on medical and paramedical healthcare workers at five general hospitals, two tertiary hospitals, and three secondary hospitals out of the 21 hospitals in Jazan Region, Saudi Arabia. These 21 hospitals serving the region employ 1,505 physicians and 3,753 nurses. Jazan Region is located on the Red Sea coast at the southwestern border of Saudi Arabia and is one of the most populated areas in the

Kingdom, with 1,637,361 inhabitants. It is bordered by the Republic of Yemen to the south and east, by Asir Region to the north, and by the Red Sea to the west.[16]

2.2. Sampling Procedure

The sample size was calculated using the Epi Info program (version 6; November 1993) based on the statistical formula for cross-sectional study designs: $n = Z^2 \cdot p \cdot (1-p) / MOE^2$, where n is the estimated sample size, z is the standard of value for 5% level of significance ($z=1.96$), p is the prevalence, and MOE is the margin of error, which we considered acceptable at 5%. According to the following parameters—28% estimated prevalence in the population,[17] 5% margin of error, and 95% confidence interval—we initially calculated the minimum required sample size as 305 subjects. We adjusted it to 340, taking into account a 10% non-response rate. In this study, we employed a multistage cluster random sampling technique. First, we divided all the hospitals in Jazan Region (21) into five clusters based on their geographic location. We then selected one hospital from each cluster using the simple random sampling technique. Finally, we invited all medical and paramedical staff, physicians, nurses, and technicians and included those who agreed to participate in the study.

2.3. Data Collection and Study Instruments

We used a four-part self-administered questionnaire to collect the data. The first part contains sociodemographic data, including age, gender, marital status, nationality, residence, and family income. The second part assesses behavioral and work-related factors: smoking status, physical activity, average daily sleep hours, depression condition, occupation type, department, and years of service. The third part contains the depression assessment scale, and the fourth consists of a burnout questionnaire.

2.3.1. Maslach Burnout Inventory—Health Services Survey

A valid Arabic version of the Maslach Burnout Inventory—Health Services Survey assessed burnout. This questionnaire has three domains: emotional exhaustion, depersonalization, and low personal accomplishment. The questionnaire consists of 22 questions, which are answered in terms of the frequency with which the respondent experiences these feelings on a 7-point scale (from 0 “never” to 6 “every day”). The nine items in the emotional exhaustion subscale (Statements 1–9) assess feelings of being emotionally overextended and exhausted by one’s work. The five items in the depersonalization subscale (Statements 10–14) measure an unfeeling and impersonal response toward one’s service, care, treatment, or instruction recipients. Finally, the eight items in the personal accomplishment subscale (Statements 15–22) assess feelings of competence and achievement in one’s work with people. We used the cut-off scores of ≥ 26 for emotional exhaustion, ≥ 9 for depersonalization, and ≤ 33 for diminished personal accomplishment. We analyzed these components according to Heidari and Gorjian’s study to describe each component as yes or no.[18]

2.3.2. Depression Assessment Scale

We used the Arabic-translated version of the Patient Health Questionnaire (PHQ-9). The PHQ-9 is a valid and reliable instrument for determining the prevalence of depression using a 4-point Likert scale. The possible responses to each item are 0 “not at all,” 1 “several days,” 2 “more than half the days,” and 3 “nearly every day.” The PHQ-9 instrument consists of 9 items; each one

is scored from 0 to 3, yielding a severity score of 0 to 27. A PHQ-9 score ≥ 10 was considered as signifying depression.

2.4. Data analysis

We used the Statistical Package for Social Sciences (SPSS) version 23 for Windows (IBM Corporation, Armonk, NY, USA) for data entry and analysis. The data analysis included both descriptive and inferential statistics. In descriptive statistics, we calculated the frequency and percentages for qualitative variables and the mean and SD for quantitative ones. Burnout condition was the study's dependent variable, and various sociodemographic, behavioral, and work-related factors were considered as independent variables. We used chi-squared to test the statistical significance of associations. In addition, we performed multivariate logistic regression analysis to predict the factors associated with burnout. A p-value < 0.05 was considered statistically significant.

3. Results

3.1. Sociodemographic, Behavioral, and Work-Related Characteristics of the Study Participants

A total of 305 participants were included in the analysis. **Table 1** shows the relationship between participants' characteristics and burnout. The mean age was 32.3. There were 156 male respondents, comprising 51.1% of the study sample, with a male-to-female ratio of 1.1. The majority (65.9%) of the study participants were married. Approximately 83.6% of the participants were Saudi. About half of the participants lived in the city. The majority (73.4%) of the study participants had a middle or high family income level. Regarding the occupation type, 137 (44.9%) were physicians, and 17.4% of participants worked in the emergency department. Approximately 53.4% had less than 5 years of service. Most of the study sample slept an average of 6 to 8 hours per day, and 18% of them were smokers. In addition, 70.5% of participants were physically inactive.

Table 1. Sociodemographic characteristics of HCWs, Jazan, KSA (n=305)

Variable	Frequency (%)	Healthcare worker burnout		
		Normal (%)	Burnout (%)	P value
Age				0.962
≤ 30	160 (52.5%)	121 (75.6%)	39 (24.4%)	
< 30	145 (47.5%)	110 (75.9%)	35 (24.1%)	
Gender				0.000
Male	156 (51.1%)	140 (89.7%)	16 (10.3%)	
Female	149 (48.9%)	91 (61.1%)	58 (38.9%)	
Marital status				0.436
Single	104 (34.1%)	76 (73.1%)	28 (26.9%)	
Married	201 (65.9%)	155 (77.1%)	46 (22.9%)	
Nationality				0.442
Saudi	255 (83.6%)	191 (74.9%)	64 (25.1%)	
Non-saudi	50 (16.4%)	40 (80%)	10 (20%)	
Residence				

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City	161 (52.8%)	122 (75.8%)	39 (24.2%)	0.987
Village	144 (47.2%)	109 (75.7%)	35 (24.3%)	
Family income				0.217
Low	81 (26.6%)	65 (80.2%)	16 (19.8%)	
Middle	103 (33.8%)	72 (69.9%)	31 (30.1%)	
High	121 (39.7%)	94 (77.7%)	27 (22.3%)	
Job title				0.012
Physician	137 (44.9%)	98 (71.5%)	39 (28.3%)	
Nurse	118 (38.7%)	87 (73.7%)	31 (26.5%)	
Paramedics	50 (16.4%)	46 (92%)	4 (8%)	
Department				0.000
Emergency	53 (17.4%)	26 (49.1%)	27 (50.9%)	
Ob&gyn	16 (5.2%)	11 (68.8%)	5 (31.3%)	
Surgery	49 (16.1%)	34 (69.4%)	15 (30.6%)	
Pediatric	24 (7.9%)	19 (79.2%)	5 (20.8%)	
Radiology	5 (1.6%)	4 (80%)	1 (20%)	
Internal medicine	27 (8.9%)	22 (81.5%)	5 (18.5%)	
Physiotherapy	9 (3%)	8 (88.9%)	1 (11.1%)	
Laboratory	15 (4.9%)	14 (93.3%)	1 (6.7%)	
Pharmacy	16 (5.2%)	15 (93.8%)	1 (6.3%)	
Other	91 (29.8%)	78 (85.7%)	13 (14.3%)	
Years of service				0.271
Less than 5 years	163 (53.4%)	128 (78.5%)	35 (21.5%)	
From 5 years to 10 years	63 (20.7%)	43 (68.3%)	20 (31.7%)	
More than 10 years	79 (25.9%)	60 (75.9%)	19 (24.1%)	
Average hours of sleep per day				0.004
Less than 6 hours	104 (34.1%)	67 (64.4%)	37 (35.6%)	
From 6 hours to 8 hours	186 (61%)	151 (81.2%)	35 (18.8%)	
More than 8 hours	104 (4.9%)	13 (86.7)	2 (13.3%)	
Smoking status				0.008
Non-smoker	250 (82%)	197 (78.8%)	53 (21.2%)	
Smoker	55 (18%)	34 (61.8%)	21 (38.2%)	0.022
Physical activity				
Inactive	215 (70.5%)	155 (72.1%)	60 (27.9%)	
Active	90 (29.5%)	76 (84.4%)	14 (15.6%)	0.000
Depression				
Normal	195 (63.9%)	177 (90.8%)	18 (9.2%)	
Depressed	110 (36.1%)	54 (49.1%)	56 (50.9%)	

3.2. Burnout among Study Participants

Figure 2 shows that the prevalence of burnout among study participants was 24.3%. Many factors were found to be significantly associated with burnout among the healthcare workers (**Table 1**). Female healthcare workers had a significantly higher rate of burnout compared to males (38.9% vs. 10.3%; $p<0.001$). Regarding the occupational type, burnout was higher among physicians (28.3%) and nurses (26.5%) compared to paramedical staff (8%; $p<0.012$). Burnout prevalence varied significantly according to hospital departments, with the emergency, ob-gyn, and surgical departments reporting the highest rates (50.9%, 31.3%, and 30.6%) compared to other departments (**Figure 3**). About one-third (35.6%) of the participants who slept less than 6 hours per day experienced burnout, compared to those who had normal sleep duration ($p=0.004$). In addition, 38.2% of smokers expressed a significantly higher rate of burnout compared to nonsmokers ($p=0.008$). Also, burnout was more prevalent among participants who were physically inactive (27.9%) than among physically active participants (15.6%; $p=0.022$). About 56.8% of healthcare workers who had symptoms of depression suffered from burnout ($p=0.001$). Other risk factors such as age, marital status, nationality, residency, family income, and years of service were not significantly associated with burnout.

Figure 2. Prevalence of burnout among the healthcare workers.

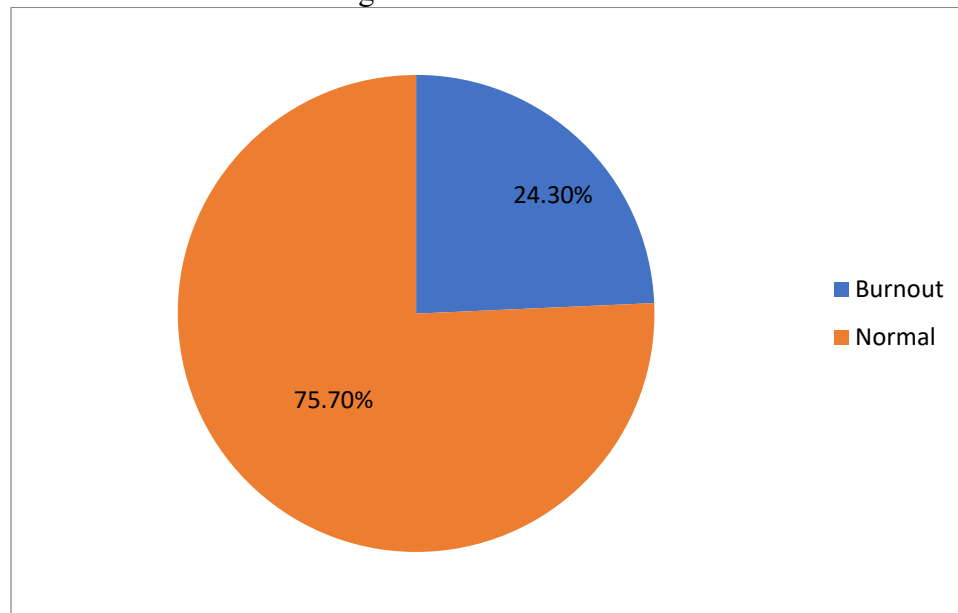
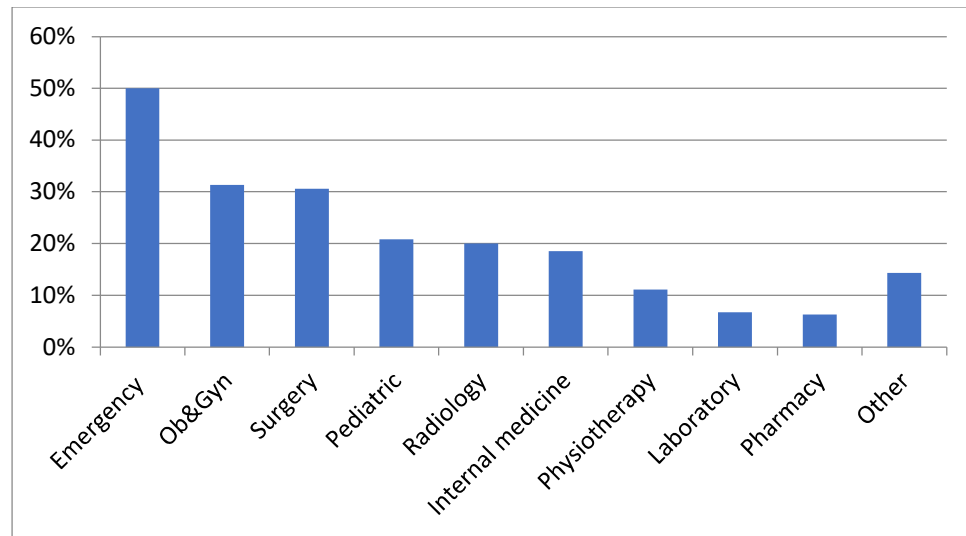


Figure 3. Prevalence of burnout according to the departments



3.3. Multivariate Logistic Regression Analysis

Table 2 shows the multivariate logistic regression analysis, which revealed that female healthcare workers had almost five times the risk of developing burnout compared to males (OR=5.58; 95% confidence interval (CI): 3.021–10.297; $p=0.000$). Physicians and nurses had a four-times-higher risk of developing burnout compared to paramedical staff. Healthcare workers who worked in the emergency department showed a higher risk of burnout than other departments (OR=2.354; 95% CI: 1.045–5.301; $p=0.039$). Regarding the average hours of sleep per day, the participants who slept less than 6 hours had twice the risk of developing burnout compared to participants who slept more than 8 hours (OR=2.383; 95% CI: 1,382–4,106; $p=0.002$). Smokers were at a significantly higher risk of burnout compared to nonsmokers (OR=2.296; 95% CI: 1.232–4.280; $p=0.009$). In addition, physically inactive healthcare workers had twice the risk of burnout (OR=2.101; 95% CI: 1.104–3.998; $p=0.024$), while the most significant predictor of burnout (10 times higher risk) was reporting depression symptoms (OR=10.198; 95% CI: 5.528–18.81; $p=0.000$).

Table 2. Multivariate logistic regression model of burnout among HCWs, Jazan, KSA (n=305)

Factors	B	SE	Wald	Df	P value	OR	(95% CI)	
							Lower	Higher
Gender								
Male *	-	-	-	-	-	-	-	-
Female	1.719	0.313	30.179	1	0.000	5.577	3.021	10.297
Job title								
Para-medics*	-	-	-	-	-	-	-	-

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Physician	1.521	0.555	6.521	1	0.006	4.577	1.543	13.571
Nurse	1.410	0.562	6.305	1	0.012	4.098	1.363	12.321
Department								
Pharmacy*	-	-	-	-	-	-	-	-
Emergency	0.856	0.414	4.271	1	0.039	2.354	1.045	5.301
Ob&gyn	0.030	0.622	0.002	1	0.962	1.030	0.304	3.487
Surgery	0.020	0.701	3.071	1	0.993	0.988	0.298	2.980
Pediatric	-0.517	0.591	0.766	1	0.382	0.596	0.187	1.898
Radiology	-0.568	1.160	0.240	1	0.624	0.567	0.058	5.507
Internal medicine	-0.663	0.584	1.288	1	0.256	0.515	0.164	1.620
Laboratory	-1.821	1.081	2.839	1	0.092	0.162	0.019	1.346
Physiotherapy	-1.261	1.105	1.302	1	0.254	0.283	0.032	2.471
Other	-0.973	0.431	5.100	1	0.024	0.378	0.162	0.879
Average hours of sleep per day								
More than 8 hours*	-	-	-	-	-	-	-	-
From 6 hours to 8 hours	-0.410	0.782	0.274	1	0.600	0.664	0.143	3.076
Less than 6 hours	0.868	0.278	9.770	1	0.002	2.383	1.382	4.106
Smoking status								
Non-smoker*	-	-	-	-	-	-	-	-
Smoker	0.831	0.318	6.840	1	0.009	2.296	1.232	4.280
Physical activity								
Active*	-	-	-	-	-	-	-	-
Inactive	0.743	0.328	5.120	1	0.024	2.101	1.104	3.998
Depression								
Normal*	-	-	-	1	-	-	-	-
Depressed	2.322	0.312	55.26	1	0.000	10.198	5.528	18.810

*Reference group

4. Discussion

Healthcare institutions are among the most stressful environments for workers. Employees at these institutions are constantly exposed to various health hazards.[5] We conducted this study among healthcare workers in Jazan Region in southwestern Saudi Arabia using the Maslach burnout inventory for burnout evaluation. However, a few studies have previously assessed burnout among HCWs in Saudi Arabia.

The current study found that 24.3% of the participants were experiencing burnout. This prevalence is comparable to the findings in the studies conducted by Ghazwani et al. and Bany et al.[17,19] However, another study by Gualano et al. demonstrated a higher prevalence, 49.3% [20]; this difference could be due to the methodological heterogeneity used; for instance, this study was conducted among healthcare workers in the emergency department, as they are usually highly exposed to critical cases and work-related stressors.

Consistent with other studies, our study did not find a significant relationship between age and burnout.[21–23] However, another study reported a significant association between age and burnout.[24] This inconsistency may be due to the difference in the mean age of their study participants (41 years) compared to our study (32 years), as the older group would have more exposure to other burnout risk factors.

In our study, being a female HCW was independently associated with burnout (38.9%), with a higher prevalence than in male participants (10.3%). Nevertheless, the relationship between gender and burnout is controversial. Some studies reported a higher burnout rate among female HCWs,[22,25] while other studies found a higher prevalence of burnout among male participants.[21,26] Several explanations can be considered for this variation in findings, including each gender's coping skills, work expectations, and social support. We can also attribute it to the roles of males and females in carrying out the burdens of life according to different cultures.

In the present study, there was no significant association of marital status, residency, years of service, family income, and nationality with burnout, and this was consistent with studies conducted by Alqahtani et al., Mahfouz et al., Ghazwani et al. and Alshabanah et al. [19,21,25,27] However, another study found an effect of income on burnout,[24] though this was mainly a matter of satisfaction rather than the amount of money.

The current study found a significant association between HCWs' occupation type and burnout, as the burnout rate was higher among physicians (28.3%) and nurses (26.5%) compared to paramedical staff (8%), and this finding was in line with a study conducted by Alwhaibi et al.[26] However, this may be due to the work's nature, workload, and critical situations. Our results showed that burnout was more likely to affect HCWs who are working in the emergency (50.9%), ob-gyn (31.3%), and surgery (30.6%) departments compared to other departments. This finding was similar to studies conducted by Alenezi et al. and Mudallal et al.:[22,28] this can be explained by the high workload and greater exposure to critical cases in the emergency and surgical departments in comparison to other departments.

In the current study, HCWs who slept less than 6 hours per day had a higher risk of burnout: about one-third (35.6%) of participants compared to 18.8% of those who had normal sleep

duration. This finding was consistent with a study conducted by Mahfouz et al.,[27] who found that those who slept less than 8 hours per day were more likely to get burned out. Sleep deprivation and sleep disruptions can lead to severe cognitive and emotional problems and burnout.[29]

The current study revealed that participants with decreased physical activity and a positive history of smoking were significantly associated with a higher rate of burnout, as supported by the majority of studies conducted by Almalag et al., Ageel et al., and Alqahtani et al.[21,23,25] Interestingly, a randomized clinical trial was conducted in 2018 to assess the effect of five months of physical activity on burnout among the participants. This study found that burnout was reduced by 30 percent in the intervention group compared to the control group.[30] Regarding to smoking, nicotine affects the secretion of serotonin and dopamine in the brain through neurotransmitters, and with time, this can lead to violation and disturbance of their synthesis in the body, which can lead to depression and psychological disorder.[31] The current study found that participants with depression had a higher likelihood of experiencing burnout, and this was consistent with studies conducted by Golonka et al. and huan Ma et al.[32,33] A systematic review was conducted In 2019 reported that, depression was associated with a high risk of emotional exhaustion, depersonalization, and personal accomplishment.[34]

Limitations

The limitation of this study is the cross-sectional design, which proves association and not causality. Burnout was subjectively assessed using the MBI tool. However, MBI is an accepted, valid, and reliable tool for measuring burnout and is widely used in research studies around the world.

5. Conclusions

Burnout is present among healthcare workers at a relatively high rate. The present study found that the prevalence of burnout among healthcare workers was 24.3%. Based on our study results, numerous factors associated with burnout were evident, particularly female gender, medical staff; physicians and nurses, workers in the emergency department, abnormal sleep duration, smokers, physical inactivity, and depression. Therefore, decision-makers should act to improve working conditions and work–life balance by providing burnout screening, management, and educational programs.

Author Contributions: Conceptualization, Y.D. and A.D.; methodology, Y.D. and A.D.; software, Y.D.; validation, A.D., Y.D. and M.E.; formal analysis, Y.D., A.D. and A.K.; investigation, A.D. and M.O.; resources, Y.D. and B.A.; data curation, M.S., M.H. and M.A.; writing—original draft preparation, Y.D.; writing—review and editing, A.D., Y.D. and M.E.; visualization, A.D.; supervision, A.D.; project administration, Y.D. and A.D. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was approved by the Jazan research ethics committee, Saudi Arabia (reference number: NO.2012). Each participant was provided with detailed information about the research and was assured of confidentiality. Written informed consent was obtained, and participants were aware of their right to participate or withdraw from the study at any time and their right not to answer any questions if they don't like to do.

Informed Consent Statement: Informed consent was obtained from all participants involved in the study.

Data Availability Statement: The data used to support the findings of this study are available from the corresponding author upon request.

Acknowledgments: The authors would like to thank the study participants for their time.

Conflicts of Interest: The authors declare no conflict of interest.

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