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Burnout among nurses in Jazan General Hospital, Saudi Arabia: its prevalence and associated factors

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Abstract

Burnout is a common psychological phenomenon among nurses. It is categorized by deterioration in physical, emotional, and psychological energy resulting from work-related stress. This study aimed to explore the prevalence and associated factors of burnout among nurses in Jazan General Hospital, Saudi Arabia in 2022 from July to December. A cross-sectional study was conducted among 226 nurses were interviewed from Jazan General Hospital, Saudi Arabia. The validated Maslach Burnout Inventory Human Services Survey for Medical Personnel was used to measure burnout. Sources of stress were assessed by 17 items. Data obtained were analyzed using the Statistical Package for the Social Sciences, version. 22.0. t-test, correlation, and analysis of variance were used to assess the relationship between variables. High burnout was found among 188 (82.2%) participants. The Emotional exhaustion score was significantly higher among those who worked >36 hours per week (p=0.001). The depersonalization score was high significantly among those who had extra hours per week (p=0.001). The personal accomplishment score was higher among those who had age (20-39) years (P=0.004). Burnout among nurses was high and is mainly related to workplace stressors. Improving the work environment and managing workplace stress should be priorities for reducing nurse burnout. *(Afr J Reprod Health 2023; 27 [4]: 43-53).*

Keywords: Burnout; nursing, healthcare system, source of stress, Saudi Arabia. Jazan

Résumé

L'épuisement professionnel est un phénomène psychologique courant chez les infirmières. Il est classé par détérioration de l'énergie physique, émotionnelle et psychologique résultant du stress lié au travail. Cette étude visait à explorer la prévalence et les facteurs associés de l'épuisement professionnel chez les infirmières de l'hôpital général de Jazan, en Arabie saoudite, en 2022, de juillet à décembre. Une étude transversale a été menée auprès de 226 infirmières interrogées de l'hôpital général de Jazan, en Arabie saoudite. L'enquête validée Maslach Burn-out Inventory Human Services Survey for Medical Personnel a été utilisée pour mesurer l'épuisement professionnel. Les sources de stress ont été évaluées par 17 items. Les données obtenues ont été analysées à l'aide du paquet statistique pour les sciences sociales, version. 22.0. Le test t, la corrélation et l'analyse de la variance ont été utilisés pour évaluer la relation entre les variables. Un épuisement professionnel élevé a été constaté chez 188 (82,2 %) participants. Le score d'épuisement émotionnel était significativement plus élevé chez ceux qui travaillaient > 36 heures par semaine (p = 0,001). Le score de dépersonnalisation était significativement élevé chez ceux qui avaient des heures supplémentaires par semaine (p = 0,001). Le score d'accomplissement personnel était plus élevé chez ceux qui avaient l'âge (20-39) ans (P = 0,004). L'épuisement professionnel chez les infirmières était élevé et est principalement lié aux facteurs de stress en milieu de travail. L'amélioration de l'environnement de travail et la gestion du stress au travail devraient être des priorités pour réduire l'épuisement professionnel des infirmières. *(Afr J Reprod Health 2023; 27 [4]: 43-53).*

Mots-clés: Burnout ; soins infirmiers, système de santé, source de stress, Arabie Saoudite, Jazan

Introduction

Job burnout is a special type of work-related stress among healthcare workers. World Health Organization (WHO) defined Burnout as an occupational phenomenon, "a syndrome conceptualized as resulting from prolonged workplace stress that has not been effectively managed" World[1]. Burnout is a syndrome, with reported symptoms including exhaustion, frustration, anger, and a feeling of ineffectiveness and/or failure. It is characterized by the loss of emotional, mental, and physical energy due to high and prolonged levels of occupational stress[2].

Nurses are generally considered a high-risk category regarding work stress. As such, they reported being higher than other health professionals owing to the nature of their work[3]. Approximately 11.2% of nurses suffer burnout syndrome worldwide. Nurses working in intensive and critical care units were more likely to suffer from burnout[4]. Nursing requires the delivery of humane, empathetic, ethnically sensitive, proficient, and moral care, in working environments with restricted resources and increasing responsibilities. Such an imbalance between providing high-quality care and managing stressful working environments can lead to burnout[5].

Burnout Syndrome (BS) is composed of main three dimensions: emotional exhaustion (EE) is the depletion of one's emotional resources and reflects the basic stress dimension of burnout; depersonalization (DP) usually develops due to the effect of EE and exhibits features of detachment and, eventually, dehumanization; and reduced personal accomplishment (PA) reflects reduced feelings of competence and productivity at work, which are linked to depression[6]. The Emotional Exhaustion (EE) of the Maslach Burnout Inventory (MBI) is the most important dimension. A high score in emotional exhaustion or depersonalization is considered indicative of clinically significant burnout[7].

Within the care professions, nursing is considered to be highly susceptible to burnout, due to specific conditions in which nurses work, during which they may be exposed to situations of pain and death, stress, lack of support from supervisors, unfulfilled expectations, inadequate physical conditions, lack of social support, lack of knowledge with which to make decisions conflicts with other staff nurses, conflict with physicians, presence of stressors related to private life. Or cope with difficult situations, or occupational overload[8]. The main causes of the development of burnout are high nurse-patient ratios, the construction of increasingly large hospitals, working in hospitalization units, shift-working, or working in certain hospital services. In addition, other sociodemographic variables, including gender, marital status, and personal characteristics such as reduced sociability or low emotional competence, may also play a part burnout[5].

Burnout had negative effects on both mental and physical health as well as job performance. Staff who suffer from burnout usually feel disengaged, apathetic, and, demotivated[9]. which leads to decreasing the quality of care provided for patients outcomes, medical errors, decreasing productivity, absenteeism, high turnover at the workplace, and early retirement[10].

As the health system delivery in Saudi Arabia underwent a major shift and restructuring exercise, nurses who formed the huge workforce within the healthcare system were geared towards managing greater job demands and expectations from clients**[11].** With these intensified demands on health services and the inflow of patient admissions, the current study aimed to assess the prevalence and associated factors of burnout among nurses in Jazan General Hospital, Saudi Arabia.

Methods

Research setting and study sample

This cross-sectional study was conducted among nurses in Jazan General Hospital, Saudi Arabia in 2022 from July to December. The sample size required for this study is based on data from the literature[12] to calculate the sample size with a precision/absolute error of 5% and type 1 error of 5%, Sample size is calculated according to the following formula,

$n= ((Z1-\alpha/2)^2.P(1-P))/(d^2)$[13]

where, $Z1-\alpha/2$ at 5% type 1 error ($p<0.05$) is 1.96, P is the expected proportion in population based on previous studies and is the absolute error or precision. Therefore, sample size

$n=((1.96)^2.(0.508)(1-0.508))/((0.0652)^2) =225.9$.

Based on the formula, the total sample size required for the study is 226.

Inclusion and exclusion criteria

The researchers have chosen the nurses who met the following inclusion and exclusion criteria. The study included all nurses who were attached to the hospital for more than six months. Those who have been attached to the hospital for less than six months or refused to participate were excluded.

Study instruments

A self-administered questionnaire consisting of three parts was used in this study.

- The first part included questions on sociodemographic characteristics and work-

related characteristics. Sociodemographic characteristics are composed of age, gender, marital status, income, educational level, and history of chronic disease. Work-related characteristics are composed of items such as experience years, ward name, time of work in the actual ward, working hours per week, extra hours per week, and shifts.

- The second part assessed burnout by using the validated Maslach Burnout Inventory-Human Services Survey (MBI-HSS)[14], which is a reliable and commonly used tool for assessing burnout. It is divided three dimensions of burnout: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). It consists of 22 items within these three dimensions (each comprising nine, five, and eight items, respectively)[14]. The questionnaire was scored on a 7-point Likert scale which ranged from 0 to 6, (0 = never, 1 = sometimes per year or less often, 2 = once a month or less often, 3 = several times a month, 4 = once a week, 5 = several times a week, and 6 = daily). We then summed the scores and categorized them into "low," "moderate," and "high" in each subscale category. Lower scores regarding personal accomplishment predicted a greater likelihood of burnout[13]. We defined burnout as the presence of at least one of the following: (i) high score (27 and above) regarding EE, (ii) high score regarding depersonalization (13 and above), and (iii) low score regarding personal accomplishment (0-31)[14]. All three subscales EE, DP, AP showed high internal consistency with Cronbach's alpha coefficient values of 0.844, 0.867, and 0.884, respectively[14].
- In the third part the sources of stress were assessed by 17 items that were obtained from the literature. These items were headed by the following question: "To what extent do the following conditions cause stress to you?" Each item was scored from zero (causing no stress) to 4 (causing severe stress)[15]. The Cronbach's alpha coefficient of these items in this study was 0.91. The questionnaire was distributed in both Arabic and English language[16].

Ethical issues

Ethical approval was obtained from Standing Committee for Scientific Research - Jazan University **No:** REC-43/11/261. The objectives and benefits of the study were explained to the participants in the verbal and written form attached to the questionnaires. Participants' confidentiality and anonymity were assured. Signed consents were obtained from the participants. Participants could withdraw from the study at any time.

Data analysis

Analysis was performed using Statistical Package for the Social Sciences (SPSS®) (version 22.0, IBM, Armonk, NY). The 22 items of MBI were summed to obtain the total score of each subscale[15.]. In the descriptive analysis, mean and standard deviation (SD) were obtained for the continuous variables, while frequencies and percentages were obtained for the categorical variables.

Each subscale was categorized into low, moderate, and high according to the recommended cut-off points[17]. A test of normality was performed for each subscale. T-test and analysis of variance (ANOVA) test were used to assess the association between burnout subscales and the sociodemographic variables. To obtain the significant factors associated with each subscale of burnout, multiple linear regression analysis was employed by using the "Backward" technique. The associations between the burnout subscales and the sources of stress were evaluated by Pearson correlation coefficients. P-value less than 0.05 was considered statistically significant.

Results

Sociodemographic and work characteristics of the participants

Most participants were females (91.2%), aged (20 – 39) years, married (79.6%) and about a third (35.4%) had 5 – 10 years of experience after graduation, had Bachelor (54.0%), most of them had shifts (77.9%) 55.8% worked ≥36 hours per week, 11.1% had administrative tasks and had a monthly income between (8000 – 12000) thousand Saudi Rial (SAR) (50.4%) (Table1).

The most important sources of stress reported by the participants (ranked by mean) were long working hours (3.5±0.7), work overload (3.3 ± 0.8), cannot participate in decision making (3.2 ±0.8), lack of resources (3.1 ± 1.0), fear of making

Table 1: Sociodemographic and work characteristics of study participants (n=226)

Characteristic	No.	%
Age (years)		
20 – 39	152	67.3
40 – 50	67	29.6
>50	7	3.1
Mean ±SD	35.3 ±8.9	
Gender		
Male	20	8.8
Female	206	91.2
Marital status		
Unmarried	46	20.4
Married	180	79.6
Income (SAR)		
< 8000	63	27.9
8000 – 12000	114	50.4
> 12000	49	21.7
Presence of children		
No	23	10.2
Yes	203	89.8
Educational Level		
Diploma	104	46.0
Bachelor	122	54.0
Experience (years)		
<5	103	45.6
5 – 10	80	35.4
>10	43	19.0
Working hours per week		
36	100	44.2
≥36	126	55.8
Do you have extra hours per week		
Yes	109	48.2
No	117	51.8
Do you have shifts?		
Yes	176	77.9
No	50	22.1
Do you have administrative task?		
Yes	25	11.1
No	201	88.9
Ward name		
ICU, Emergency	88	38.9
Medicine, Surgery, Obey, Pediatric Orthopedic	114	50.4
Other	24	10.6
Job perception		
Low	61	27.0
Moderate	86	38.1
High	79	35.0
Relationship with colleagues		
Friendly	219	96.9
Hostile	7	3.1
Have you had (Covid-19)		
Yes	45	19.9
No	181	80.1
History of chronic disease		
Yes	22	9.7
No	204	90.3

Table 2: Sources of stress in the workplace among study participants (n=226)

Sources of stress	Mean	Standard Deviation
Work overload	3.3	0.8
Long working hours	3.5	0.7
Fear of violence	2.3	1.1
Work environment	2.7	1.0
Lack of resources	3.1	1.0
Fear of making mistakes that can lead to serious consequences	3.1	0.8
Working with uncooperative colleagues	2.2	1.1
Work in offices	1.7	0.9
Cannot participate in decision making	3.2	0.8
Work demands affect my personal/ home life	1.7	0.8
Lack of staff	3.1	0.9
Worries about finances	2.4	1.1
Negative rewards	3.1	0.8
Interaction with patients and relatives	2.9	0.9
Time pressure and difficulty to meet deadlines	2.9	0.9
Office work	2.2	1.1
Fear of getting Covid19	2.7	1.1

mistakes that can lead to serious consequences (3.1 ± 0.8), lack of staff (3.1±0.9), and negative rewards (3.1± 0.8) (Table2).

Among the participants, 184 (81.4%) had high PA, and 143(63.3 %) had low DP. Of them, 75 (33.2) showed moderate EE. (Table3). The reliability analysis of the three subscales yielded Cronbach alpha of 0.902 for EE, 0.895 for DP and 0.897 for PA. The overall prevalence of burnout in this study was 0.898. (Table3).

In univariate analysis we used the total score of EE, DP, and PA as a continuous variable. The EE score was significantly higher among those who worked >36 hours per week (35.2 ± 10.6) compared to those who worked 36 hours (13.2±4.9) (p = 0.001), who had extra hours per week (36.1 ± 10.5) compared to those who not had extra hours per week (14.1± 6.0) (p = 0.001), also participants who had shifts per week (40.8± 7.1) compared to those who not had shifts per week(21.1±10.4) (p = 0.001) (Table 4).

Also EE a was higher among those who had an income of <8000 SAR (41.2 ±7.2) compared to those with income of > 12000 (36.2 ±11.3)

T**able 3:** Prevalence of burnout among study participants **(n=226)**

Dimension of burnout	Low (n, %)	Moderate (n, %)	High (n, %)
Emotional exhaustion	67 (29.6)	75 (33.2)	84 (37.2)
Depersonalization	143 (63.3)	39 (17.3)	44 (19.5)
Personal accomplishment assessment	19 (8.4)	23 (10.2)	184 (81.4)

Table 4: Relationship between burnout and sociodemographic and work characteristics among study participants **(n=226)**

Personal Characteristics	Emotional exhaustion		Depersonalization		Personal accomplishment	
	Mean (SD)	P– Value	Mean (SD)	P–Value	Mean (SD)	P–Value
Age (years)						
20 – 39	38.8 (11.0)		8.0 (3.6)		43.9 (2.6)	
40 – 50	40.9 (7.2)		7.2 (1.8)		40.5 (13.2)	
>50	43.0 (6.1)	0.229	7.6 (1.9)	0.220	38.9 (1.8)	0.004*
Gender						
Male	20.2 (4.7)		8.0 (1.8)		43.0 (2.1)	
Female	23.2 (8.2)	0.109	7.1 (2.9)	0.174	40.7 (9.0)	0.256
Marital status						
Unmarried	30.7 (7.2)		6.7 (1.8)		42.0 (12.7)	
Married	31.6 (13.6)	0.665	7.1 (2.0)	0.218	44.0 (6.6)	0.141
Income (SAR)						
< 8000	41.2 (7.2)		9.5 (1.5)		44.3 (2.3)	
8000 – 12000	38.5 (9.1)		9.8 (2.9)		43.8 (2.7)	
> 12000	36.2 (11.3)	0.016*	9.7 (1.9)	0.724	40.8 (12.8)	0.009*
Presence of children						
No	41.1 (7.2)		6.0 (1.8)		40.6 (2.0)	
Yes	40.7 (14.3)	0.895	6.6 (2.9)	0.333	41.4 (8.9)	0.668
Educational level						
Diploma	32.6 (9.0)		9.7 (1.7)		43.8 (2.7)	
Bachelor	35.6 (10.6)	0.024*	10.5 (2.3)	0.004*	43.4 (10.9)	0.715
Experience (years)						
<5	33.5 (8.9)		8.6 (5.7)		43.8 (2.7)	
5 – 10	30.7 (7.2)		8.5 (1.6)		44.2 (2.4)	
>10	32.7 (11.0)	0.101	8.7 (1.8)	0.886	44.0 (12.5)	0.901
Working hours per week						
36	13.2 (4.9)		10.8 (4.6)		43.8 (2.7)	
>36	35.2 (10.6)	<0.001**	10.6 (1.7)	0.652	42.6 (10.8)	0.279
Do you have extra hours per week						
Yes	36.1 (10.5)		10.2 (4.8)		43.8 (2.7)	
No	14.1 (6.0)	<0.001**	2.5 (1.7)	<0.001**	42.2 (11.0)	0.141
Do you have shifts?						
Yes	40.8 (7.1)		7.2 (3.0)		44.0 (2.6)	
No	21.1 (10.4)	<0.001**	2.7 (0.9)	<0.001**	41.2 (12.9)	0.007*
Do you have administrative task?						
Yes	41.0 (7.1)		6.0 (1.9)		39.0 (7.3)	
No	40.5 (14.3)	0.863	6.6 (2.9)	0.315	40.6 (8.5)	0.368
Ward name						
ICU, Emergency	37.9 (8.6)		9.0 (4.3)		43.8 (2.6)	
Medicine, Surgery, Obey, Pediatric, Orthopedic	38.7 (10.9)		8.1 (1.6)		42.9 (10.8)	
Other	40.8 (7.2)	0.429	8.3 (1.9)	0.102	45.2 (7.3)	0.416
Job perception						
Low	27.8 (4.3)		8.3 (4.0)		43.8 (2.7)	
Moderate	25.7 (7.8)		8.0 (3.2)		43.9 (2.6)	
High	26.1 (7.0)	0.157	8.6 (1.8)	0.453	45.4 (12.4)	0.351

Relationship with colleagues						
Friendly	34.9 (14.6)		6.3 (2.7)		39.3 (8.7)	
Hostile	33.0 (6.1)	0.732	6.6 (1.9)	0.771	37.9 (1.8)	0.671
Have you had Covid-19?						
Yes	27.6 (4.0)		9.4 (3.0)		43.6 (2.4)	
No	29.9 (12.9)	0.239	9.2 (3.9)	0.748	42.2 (9.4)	0.323
History of chronic disease						
Yes	41.5 (7.2)		6.1 (1.8)		40.5 (2.0)	
No	34.7 (14.3)	0.029*	6.6 (2.9)	0.429	41.4 (8.9)	0.637
Do you have administrative task?						
Yes	41.0 (7.1)		6.0 (1.9)		39.0 (7.3)	
No	40.5 (14.3)	0.863	6.6 (2.9)	0.315	40.6 (8.5)	0.368

P < 0.05 = * **P** < 0.01 = ** **P** < 0.001 = ***

Table 5: Correlation between burnout and sources of stress in the workplace among study participants **(n=226)**

Items	**Emotional exhaustion**		**Depersonalization**		**Personal accomplishment**	
	r	**p**	**r**	**p**	**r**	**p**
Work overload	0.901	<0.001**	0.919	<0.001**	0.069	0.298
Long working hours	0.902	<0.001**	0.917	<0.001**	0.158	0.018*
Fear of violence	0.956	<0.001**	0.959	<0.001**	0.112	0.093
Work environment	0.903	<0.001**	0.918	<0.001**	0.014	0.832
Lack of resources	0.917	<0.001**	0.165	0.013*	0.090	0.177
Fear of making mistakes that can lead to serious consequences	0.885	<0.001**	0.901	<0.001**	0.068	0.312
Working with uncooperative colleagues	0.828	<0.001**	0.842	<0.001**	0.057	0.395
Work in offices	0.878	<0.001**	0.847	<0.001**	0.148	0.026*
Cannot participate in decision making	0.945	<0.001**	0.954	<0.001**	0.108	0.106
Work demands affect my personal/ home life	0.865	<0.001**	0.838	<0.001**	0.063	0.346
Lack of staff	0.909	<0.001**	0.161	0.016*	0.015	0.828
Worries about finances	0.691	<0.001**	0.152	0.022*	0.085	0.201
Negative rewards	0.789	<0.001**	0.890	<0.001**	0.147	0.027*
Interaction with patients and relatives	0.644	<0.001**	0.882	<0.001**	0.031	0.641
Time pressure and difficulty to meet deadlines	0.695	<0.001**	0.687	<0.001**	0.069	0.298
Office work	0.798	<0.001**	0.652	<0.001**	0.014	0.832
Fear of getting Covid19	0.796	<0.001**	0.679	<0.001**	0.119	0.073

P < 0.05 = * **P** < 0.01 = ** **P** < 0.001 = ***

(P = 0.016), among those who had bachelor's degree (35.6 ± 10.6) compared to those who had diploma (32.6 ± 9.0), (p = 0.024) , among those who had a history of chronic disease(41.5 ±7.2) compared to those who not had a history of chronic disease(34.7±14.3) (P = 0.029) (Table 4). The DP score was significantly higher among participants who had extra hours per week (10.2 ± 4.8) compared to those who not had extra hours per week (2.5 ±1.7) (p = 0.001) and participants who had shifts per week (7.2 ± 3.0) compared to those who not had shifts per week (2.7±0.9) (p < 0.001). Concerning PA score was higher among those who had (20 – 39) years (p= 0.004), and who had < 8000 monthly income was associated with higher PA (p=0.009).

EE was correlated positively and significantly with all the 17 sources of stress (r coefficient ranged from 0.956 to 0.152) (p < 0.001) (Table 5). Out of 17 sources of stress in this study, 15 correlated positively and significantly with EE with r coefficient ranged from 0.959 to 0.152 (p < 0.003) (Table5). The multiple regression analysis models in (Table 6) evaluated the ability of the variables to predict the total burnout score. The strongest variables that can predict the total burnout score was the age and income. (Table1).

Table 6: Multivariate regression analysis of factors that predict the total burnout score among study participants (n=226)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	99.098	9.390		10.554	<0.001**
Age	12.230	2.412	0.529	5.071	<0.001**
Income	- 9.287	3.764	- 0.521	- 2.467	0.014*
Educational Level	0.064	7.179	0.003	0.009	0.993
Working hours per week	3.820	5.402	0.152	0.707	0.480
Do you have extra hours per week	- 2.265	6.084	- 0.091	- 0.372	0.710
Do you have shifts	- 2.161	7.697	- 0.072	- 0.281	0.779
History of chronic disease	- 7.726	3.446	- 0.183	- 2.242	0.026
Work overload	- 1.738	0.911	- 0.124	- 1.909	0.058
Long working hours	1.065	0.896	0.079	1.188	0.236
Fear of violence	0.647	0.849	0.049	0.763	0.447
Work environment	- 1.602	0.870	- 0.122	- 1.840	0.067
Lack of resources	- 1.497	0.890	- 0.105	- 1.681	0.094
Fear of making mistakes that can lead to serious consequences	0.361	0.882	0.027	0.410	0.682
Working with uncooperative colleagues	- 1.064	0.873	- 0.082	- 1.220	0.224
Work in offices	- 0.246	0.886	- 0.018	- 0.277	0.782
Cannot participate in decision making	1.103	0.869	0.083	1.269	0.206
Work demands affect my personal/ home life	0.112	0.855	0.008	0.131	0.896
Lack of staff	0.501	0.897	0.035	0.558	0.577
Worries about finances	0.143	0.847	0.011	0.169	0.866
Negative rewards	- 0.947	0.913	- 0.069	- 1.036	0.301
Interaction with patients and relatives	0.457	0.896	0.034	0.510	0.611
Time pressure and difficulty to meet deadlines	- 0.256	0.900	- 0.019	- 0.284	0.776
Office work	- 0.820	0.915	- 0.059	- 0.897	0.371
Fear of getting Covid19	- 0.576	0.882	- 0.042	- 0.654	0.514

Discussion

Decades of research have explored burnout as a workplace phenomenon. The increased demand of health service utilization in the current digital and industrial area has subpoenaed concerns among stakeholders and researchers globally to discover the burnout syndrome in healthcare workers. While global scale-up efforts have primarily highlighted the burden of burnout among nurses, information from Jazan General Hospital, Saudi Arabia was limited. This preliminary study was aimed to explore the prevalence and associated factors of burnout among nurses in Jazan General Hospital, Saudi Arabia.

The findings showed that most of the participants scored high at least on one subscale of burnout. Low depersonalization was found among 63.3 % of nurses while high EE and PA were reported by 37.2%, and 81.4% respectively. Moderate level of burnout was found among %33.2 (EE), % 17.3(DP) and %10.2 (PA). The magnitude of burnout prevalence amongst nurses appeared inconstant across the local and international literature. A recent study among nurses in a general hospital in Yanbu, Saudi Arabia reported prevalence of burnout was approximately 67.5%. High EE was found among 50.6% of the nurses, while 29.3% and 30.5% of the sample had high DP and low PA respectively[12].

Previous studies among nurses in Saudi Arabia found that 32 % to 71.6% of nurses had high levels of burnout. Another study from Saudi Arabia reported it was noted that found that 44.8% of our nurses who scored high in DP and EE had low scores in PA, indicating suffering from some form of burnout[18]. Nearly 52.8% of nurses from Egypt exhibited high EE, 7.2% had high DP and 96.5% of them exhibited low PA[19]. Another Iranian study reported that 34.6, 28.8, and 95.7% of the nurses had

EE, high DP, and high reduced PA, respectively. All the other mentioned studies used Maslach burnout inventory[20]. Another multicentric comparative study revealed a large percentage of nurses with moderate/high burnout levels (42%, 43% and 42%, respectively in Portugal, Spain and Brazil) and higher scores on Emotional Exhaustion and Personal Achievement[21]. Also another study in Jordan 55% of nurses reported high level of emotional exhaustion, 50% reported high level of depersonalization, and 50% reported low personal accomplishment [22].

The associations between burnout and socio-demographic characteristics appeared subjective and various through different studies. The results of the current study revealed that significantly higher burnout score amongst nurses who worked >36 hours per week (EE) and those who extra hours per week and had shifts per week (EE and Dp) and EE a was higher among those who had bachelor's degree. Study in Spain, found that older nurses with longer working experience had higher levels of burnout[23]. Study findings showed that Emotional Exhaustion and Low Professional Achievement levels were significantly higher among nurses with daytime shifts[24]. Previous Saudi Arabian studies showed mixed findings, with one showing consistency with the current study[25]. Also study reported that nurses who work longer shifts and who experience sleep deprivation are likely to develop burnout[21]. while three others were contrary to the current findings[26,27,17].

This study found higher burnout score amongst nurses who had income of <8000 (EE and PA) and PA burnout score was higher among those who had (20 – 39) years. A study corroborates these results, as they found that burnout syndrome was higher for individuals aged between 22 and 29 years[12].While some studies had not found association between burnout and socio-demographic factors[18]. Some other studies had found a significant association between burnout and age, marital status and education level[28].

There were several work-associated stressors significantly related to burnout among nurses in this study. Nurses in this study reported several sources of stress in the workplace such as long working hours, work overload and cannot participant in decision-making, lack of resources, fear of making mistakes that can lead to serious consequences, lack of staff, and negative rewards. This could be described by the workload of nursing care and procedures during this period. Also, the personal relationship with the multiprofessional team is often more frequent, increasing work-related stress and the development of the burnout. A previous meta-analysis study found that job insecurity, low job control, low reward, high demands and high work load increased the risk for developing burnout[29]. Previous Saudi Arabian studies showed mixed findings, with one showing consistency with the current study[25].

Another study on burnout among hospital workers in Czech Republic also indicated administrative work, being confronted with suffering, and time pressure as the main causes of burnout[30]. A concisely, burnout not only catalyzes serious personal repercussions like substance abuse or family conflicts at the individual[31]. But also compromises the efficiency of health systems and patient satisfaction with health services at the institutional level[32].

The current study found a statistically significant correlation between work overload, long working hours, Lack of resources, Fear of making mistakes that can lead to serious consequences, Lack of staff and burnout among nurses this finding Consistent with our research results, Nantsupawat *et al*[33]. Found that lack of staff, high workload, and longer work hours lead to high emotional exhaustion, increased error and decreased safety of the patients, reduced productivity and career advancement in nurses, increased absenteeism and job dissatisfaction, and intention to quit the job[32]. Also 13 studies looked specifically at measures of workload as a predictor of burnout. Workload was associated with Emotional Exhaustion in five studies[34].

Statistically significant correlations between burnout scores with nurses' fear toward encountering violence in the workplace, working in an office setting and working with uncooperative colleagues were observed in this study, negative rewards These findings were consistent with Saudi Arabian and multi-national nurses working in Saudi Arabia[25,35]. The non-conducive friendly workplace setting, and the bullying phenomenon that emerges as a consequence of individual's behavior within an organization has been postulated to elevate stress, burnout, frustrations and intention to leave service among healthcare workers in previous studies[36]. Factors of negative rewards and restrictions on

nurses for not being able to participate in decision making also showed positive relationships with burnout scores in the current study. When employees are forced into taking on extra work, it can result in burnout or poor mental health[33]. Reward power allows employees who have the energy available to push the company forward. And at the same time, they're rightly compensated for their efforts[31]. Another study found that a higher score in the effort and reward imbalance scale was associated with Emotional Exhaustion, and higher scores in the effort and reward imbalance scale were associated with burnout measured by the Copenhagen Burnout Inventory (CBI)[37]. On the other hand, results from this current study disagree with a similar study by Pavelková and Bužgová et al, where burnout scores were low[31].

The current study found a statistically significant correlation between fear of getting Covid-19 and burnout among nurses. Similar findings were observed in previous studies[38]. The nurse workforce represents most current frontline workers providing care during the COVID-19 pandemic. Literature from previous epidemics (eg, H1N1 influenza, severe acute respiratory syndrome, Ebola virus) demonstrates that nurses experience significant stress, anxiety, and physical impact associated with their work[39].

Healthcare workers (HCWs) were at specific risk for SARS-CoV-2 because they were caring for increasing numbers of people infected with COVID-19[37]. These plausible factors may have influenced nurses' fear of getting Covid-19, yet increased their level of burnout with current job demands.

Limitations

Our study was limited by the location of the participants, the cross-sectional nature of the study, and self-reported data. Due to the cross-sectional nature of our study, the small sample size from single-hospital limits the generalizability of the study findings. We cannot predict causality from the data and can only examine associations between variables.

Conclusions

This study found that nurses had a higher overall burnout rate. Work overload, long working hours, and shift nurses were associated with burnout in the current sample. Work-related stressors ultimately trigger burnout syndrome. Systemic organizational changes are recommended to ease routine tasks and positive psychological support to maintain the emotional and mental health of caregivers. In multiple regression analysis the strongest variables that can predict the total burnout score were age and income.

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Conflict of interest

The authors have no conflict of interest to declare.

Ethical approval

This study was reviewed and approved by Standing Committee for Scientific Research - Jazan University (HAPO-10-Z-001) Reference No.: REC-43/11/261/ Date of decision (Approval):12 June 2022.

Author's contributions

EM conceived and designed the study, conducted research, collected and organized the data, wrote the initial draft of the manuscript, conceptualized, conducted the literature review, reviewed the manuscript, and approved its final revision. OA analyzed and interpreted the data. Wrote the final draft of the manuscript, participated in project administration, designed methodology, reviewed the manuscript, and approved its final revision. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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