Original Article

Prevalence and associated factors of stress among primary health care nurses in Saudi Arabia, a multi-center study

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Abstract

Background: Nursing practice has been identified as one of the most stressful professions within the healthcare systems. The current study aimed to determine the prevalence of stress and its associated factors among primary healthcare nurses. **Materials and Methods:** This analytical cross-sectional study was conducted among 200 Saudi nurses in the government primary health care centers in Medina city, Saudi Arabia. Stress was measured by the stress subscale of the 21-Item Depression, Anxiety and Stress Scale. Sources of stress were assessed by 15 items. **Results:** The majority were females (68.0%) and aged less than 40 years (72.5%). Thirty percent had severe or very severe stress. Stress was associated significantly with the presence of chronic diseases ($P = 0.037$) and with working in night shifts ($P = 0.042$). All sources of stress in the workplace were associated significantly and positively with stress ($P < 0.01$). **Conclusion:** About one-third of the participants had stress. Improving work conditions and minimizing stress in the workplace should be a priority in the primary health care setting.

Keywords: Mental health, nursing, primary health care, Saudi Arabia, stress

Introduction

Occupational stress has been classified as worker's negatively perceived feelings or sentiments due to the inability to cope with the expected organizational job demands.[1] Nursing practice has been identified as one of the most stressful professions within the healthcare systems. The global prevalence of workplace stress among nurses was reported to be around 9%–68%,[2] varying across different countries and specialty sectors within healthcare institutions.[3] The stressful work environment has been reported to cause negative consequences to most healthcare institutions, with hospital managers having to deal with a high number of cases on workers absenteeism, turnover intentions, medical errors, and impaired job performances.[4] Such situations were prone to compromise the quality of health service delivery and patient satisfaction.

Factors associated with perceived psychological stress among nurses were attributed to occupational and nonoccupational risk factors.[4] From the occupational risk perspective, organizational structure, resources, staffing, work demands, insecure job employment, unfair assessments or rewards, exposure to danger or violence, conflicts among peers, and time management were established stressors to escalate workers mental health

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repercussions.[3–5] In contrast, common nonoccupational risk factors attributed to nurses' psychological stress include demographic characteristics such as age, gender, marital status, and health status.[3,4,6,7] The current study aimed to determine the prevalence of stress and its associated factors among primary healthcare nurses in Medina city, Saudi Arabia.

Materials and Methods

This analytical cross-sectional study was conducted among 200 Saudi nurses in the government primary health care centers (PHC) in Medina city, Saudi Arabia. Madinah city is divided according to the hospital cluster into 5 areas with a total of 54 health care centers. Three health care centers were chosen randomly from each area and all nurses in each center were approached to participate.

A self-administered questionnaire was used to collect data. The questionnaire consisted of four parts. The first part included questions on the sociodemographic characteristics such as gender, age, body mass index (BMI), marital status, smoking, and chronic disease. The second part included questions about the work-related factors such as the number of patients seen every day, working hours, working in night shifts, and number of colleagues. The third part included 15 questions on source of stress that were obtained from the literature.[8] These items were headed by the following question: "to which extent do the following conditions cause stress to you." Each item was scored from 0 (causing no stress) to 4 (causing severe stress).[8] The fourth part measured stress by using the stress subscale of the 21-Item Depression, Anxiety and Stress Scale (DASS-21). The stress subscale consists of 7 items and participants were asked to score every item on a scale from 0 (did not apply to me at all) to 3 (applied to me very much). The total score was computed by adding up the scores on all the items and then multiplying the total score by a factor 2 in order to yield equivalent scores to the full DASS 42.[9] The total score ranges between 0 and 42 and higher score indicates higher level of stress. Scores 0–14 indicate normal (absence of stress), 15–18 mild stress, 19–25 moderate stress, 26–33 severe stress, and >33 very severe stress.[9] This instrument was validated in many languages including Arabic language. The internal consistency (Cronbach's alpha) for each of the subscales of the 21-item versions were: Cronbach α of 0.97 for DASS-Depression, 0.92 for DASS-Anxiety, and 0.95 for DASS-Stress.[10]

Analysis was performed by using the Statistical Package for the Social Sciences (SPSS®) (version 22.0, IBM, Armonk, NY, USA).

The reliability analysis of DASS-stress yielded Cronbach alpha of 0.84. Test of normality was performed for DASS-stress subscale by using the Shapiro test, and the distribution was normal. *T*-test and analysis of variance were used to assess the association between stress and the sociodemographic and work-related variables. Pearson correlation coefficient was used to assess the association between stress and sources of stress. The accepted level of significance was below 0.05 ($P < 0.05$).

Ethical Considerations

Ethical approval was obtained from the Ethics Committee of the Directorate of Health in Al-Madinah. Objectives and benefits of the study were explained to the participants. Confidentiality and anonymity of the participants were assured. Signed consents have been received from the participants.

Results

The majority were females (68.0%), aged less than 40 years (72.5%), married (83.0%), and had diploma (79.0%). About 23% were currently smokers and 19.5% had chronic diseases. About 37.5% were overweight and 28.5% were obese [Table 1]. The majority see ≤40 patients per day (69.5%), working for ≤40 h/week (69.5%) and had no night shifts (72.5%) [Table 2].

Regarding the prevalence of stress, 9.5% had mild stress, 12.0% had moderate stress, and 30% had severe or very severe

Table 1: Sociodemographic characteristics of the participants

	n	%
Gender		
Male	64	32.0
Female	136	68.0
Age		
<40	145	72.5
≥40	55	27.5
BMI		
Normal	68	34.0
Overweight	75	37.5
Obese	57	28.5
Marital status		
Not married	34	17.0
Married	166	83.0
Currently smoking		
Yes	46	23.0
No	154	77.0
Smoke in the past		
Daily	27	13.5
Less than daily	19	9.5
Not at all	154	77.0
Chronic disease		
Yes	39	19.5
No	161	80.5
Education		
Diploma	158	79.0
University	42	21.0
Income		
<12000	77	38.5
≥12000	123	61.5
Years of service		
≤10	76	38.0
>10	124	62.0
Administrative duties		
Yes	76	38.0
No	124	62.0

stress [Table 3]. Stress level was significantly higher among those who had chronic diseases (15.8 ± 3.1) compared to those who had not (12.3 ± 3.2), ($P = 0.037$) and among those who had night shifts (16.7 ± 3.2) compared to those who had not (12.1 ± 2.9), ($P = 0.042$) [Tables 4 and 5]. All sources of stress in the workplace were associated significantly and positively with stress (Pearson correlation coefficient ranged from 0.375 to 0.604), ($P < 0.01$) [Table 6].

Discussion

This study aimed to determine the prevalence of stress and its' associated factors among primary health care nurses in Al-Madinah, Saudi Arabia. The prevalence of stress among nurses in the current study was approximately 30%, lower than that found among nurses in Slovenia (56.5%),[11] Eastern Saudi Arabia (43.1%),[12] and Hong Kong (41.1%),[13] but higher than that found among nurses in Malaysia (14.4%),[14] Vietnam (18.5%),[4] and Ghana (21%).[15] The inconsistent prevalence rates of stress among nurses in the literature could be attributed to differences in measurement tools utilized, coupled with its scoring methods and cultural adaptability of the instruments used to the population's local setting. Geographical variations and occupational settings that determine the type of healthcare services offered may also contribute to the varying level of stress among nurses. For example, healthcare facilities situated in urbanized settings as in cities or metropolitans are capacitated to provide wider range of services to patients, thus increasing patient loads as compared to health care centers located in semiurban or rural areas. Without compromising quality of service delivery and patient satisfaction,[16] such situations may pose greater job demands to nurses who provide primary point of care to patients, and subsequently escalates their psychological stress levels.

Table 2: Work-related factors of the participants

	n	%
Patients seen every day		
≤40	139	69.5
41-80	40	20.0
>80	21	10.5
Working hours/week		
≤40	183	91.5
>40	17	8.5
Number of colleagues		
≤5	159	79.5
>5	41	20.5
Night shift		
Yes	55	27.5
No	145	72.5

Table 3: Prevalence of stress among the participants

Level of stress	*n*	%
No stress	97	48.5
Mild stress	19	9.5
Moderate stress	24	12.0
Severe	40	20
Very severe	20	10

This study found that nurses being afflicted with chronic diseases had higher stress level as compared to healthy nurses. This finding was contradictory to previous studies from Hong Kong[13] and Vietnam.[4] Chronic diseases may collapse one's coping mechanisms due to the emotional shock of the diagnosis, causing such individuals to be anxious or depressed, which subsequently leads to elevated psychological distress.[17,18] The current study found that nurses working in night shifts were more stressful as compared to those who were not. This finding was consistent with previous studies from Eastern Saudi Arabia[12] and Hong Kong,[13] but contradictory to a study from Malaysia.[14] Night shift rotations may affect one's sleep quality due to distorted circadian rhythm, which subsequently affects individual's physical health, leading to increased psychological distress.[19] The clinical environment has been perceived to be stressful, yet leading to a bulk of physical, emotional, and mental related stressors.[19] This study found that the work environment, coupled with long work hour demands, work overload, and interaction with patients and their relatives were significant stressors for nurses. These findings were consistent with previous studies from Riyadh,[19] Ghana,[15] and Ethiopia.[2] Job demands such as dealing with terminally ill patients, counseling patients and their relatives, change of work schedule, and lifting and transferring patients were documented as plausible attributes to be associated with greater job stress among nurses.[20] Literature postulated that such work demands may affect healthcare workers personal and home life, triggering greater chances for psychological repercussions.[8,9,21,22] This study found that work demands that affected nurses' personal and home life were significantly associated with psychological distress. Fear of violence among nurses in the current study was significantly associated with perceived stress. Similar finding was reported in a previous study.[23] As primary contacts within the clinical environment, nurses are prone to encounter violent and aggressive patients or their relatives. These situations cause emotional disturbances to nurses, which subsequently increases their stress levels and impair their job performances.[19] Mental repercussions are triggered when one believes that he or she was treated unfairly as compared to their peers. Such situations may trigger frustrations in daily work routine, thus increasing psychological stress.[8] The current study found that nurses who were negatively rewarded, those working with uncooperative colleagues, those who were unable to participate in decision making, and those performing office work reported significant positive correlations with psychological stress. These associations were consistent with previous studies.[3,4,6,11,13] Such bullying acts that advocate injustice or unfairness within organizational structures cause negative emotions or behaviors that are capable to increase occupational stress substantially.[8,24] This study found that organizational attributes like lack of resources and staffs and performance pressures that impose time limitations were significantly correlated with nurses' psychological stress.[6,11] Concurrently, this study found

Table 4: Association between stress and sociodemographic characteristics of the participants

	Mean	SD	*P*
Gender			
Male	12.2	3.1	0.449
Female	13.4	3.4	
Age			
<40	12.6	3.2	0.367
≥40	14.0	3.5	
BMI			
Normal	13.0	3.3	0.693
Overweight	12.3	3.3	
Obese	14.8	3.4	
Marital status			
Not married	14.5	3.6	0.310
Married	12.6	3.3	
Chronic disease			
Yes	15.8	3.1	0.037
No	12.3	3.2	
Education			
Diploma	13.9	3.5	0.135
University	15.9	2.7	
Income			
<12000	12.9	3.3	0.988
≥12000	13.0	3.3	
Years of service			
≤10	11.5	2.9	0.096
>10	13.9	3.6	
Administrative duties			
Yes	14.2	3.6	0.372
No	12.6	3.3	

Table 5: Association between stress and work-related factors

	Mean	SD	*P*
Patients seen every day			
≤40	13.7	3.3	0.442
41-80	13.4	3.3	
>80	15.6	3.4	
Working hours/week			
40 or les	13.2	3.6	0.254
>40	10.3	2.7	
Number of colleagues			
≤5	12.6	4.1	0.319
>5	14.3	3.3	
Night shift			
Yes	16.7	3.2	0.042
No	12.1	2.9	

Table 6: Correlation between stress and sources of stress in the workplace

Sources of stress	Pearson Correlation	*P*
Work overload	0.460	<0.001
Long working hours	0.463	<0.001
Fear of violence	0.544	<0.001
Work environment	0.651	<0.001
Lack of resources	0.522	0.012
Fear of making mistakes that can lead to serious consequences	0.375	0.013
Working with uncooperative colleagues	0.487	<0.001
Work in offices	0.492	<0.001
Cannot participate in decision making	0.604	<0.001
Work demands affect my personal/home life	0.574	<0.001
Lack of staff	0.449	<0.001
Worries about finances	0.488	<0.001
Negative rewards	0.547	0.003
Interaction with patients and relatives	0.476	0.002
Time pressure and difficulty to meet deadlines	0.592	0.003

that nurses who fear of making mistakes and their worries about finances, which indirectly relates to job insecurity, were significantly correlated with psychological stress. The limitations of the current study should be acknowledged. The cross-sectional nature of this study could not establish causality. Self-reported data are subjected to social desirability or recall bias.

In conclusion, occupational stress among nurses in this study accounted for approximately 30%. Occupational stresses among nurses were correlated with work-, organizational-, and system-related attributes. A wide-ranging interventional approach is required to minimize and prevent stress among nurses in the PHCs. There were three types of interventions to manage stress: organizational focused, individual focused, and combine interventions. Organizational interventions aimed to reduce stress and to mitigate the impact of stressors in the workplace; they included workload or schedule rotation, stress management training program, access to peer mentoring, and help and guidance from experienced work colleagues. Individual-focused interventions included self-care workshops, stress management skills, communication skills training, yoga, mindfulness, meditation, and coping programs. The best strategy is to combine both organizational individual-focused interventions.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of Interest

There are no conflicts of interest.

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