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# Job-related stress among nurses in primary healthcare centers in Arar city, Saudi Arabia

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**Abstract**

**Background:** Occupational stress can lead to poor health and work-related injuries. Nurses have a unique work place environment that can impact job-related stress in a unique way.

**Objectives:** To determine the prevalence and associated factors of job stress among nurses in primary health centers in Arar city.

**Methods:** This cross-sectional study was carried out on 101 nurses covering all primary healthcare centers (n=12) in Arar city, Saudi Arabia between December 2017 and February 2018. All nurses working in primary healthcare levels, of all ages, sexes, Saudi and non-Saudi were eligible for study inclusion. Nurses with mental health problems and those of work duration less than one year were excluded from the study. Data were collected using a self-administered questionnaire including demographic characteristics of nurses and a work stressor questionnaire to evaluate job stress among them. The data were entered and analyzed using IBM© SPSS© Statistics version 20. Chi-Square test of independence and Fisher Exact test were used. $p \leq 0.05$ was considered significant.

**Results:** All nurses at primary healthcare centers in Arar city were included in the study (101nurses). The most frequent areas of work-related stress among nurses were time pressure (42.6%), followed by boredom-induced stress (32.7%), pressure on the job (31.7%), work underload stress (26.7%), and disagreement and indecision (25.7). Almost one-third (34.7%) of the nurses had work-related stress. Higher educated nurses (Bachelor or above) were more likely to have work-related stress compared to diploma educated nurses; 55.2% versus 26.4% (OR=3.4, CI: 1.3-8.4, p=0.006)

**Conclusion:** Work-related stress is a considerably prevalent problem among nurses working at primary healthcare centers in Arar city, Saudi Arabia as it impacts almost one third of them. Application of interventional programs to relieve sources of stress, and providing more training of nurses on stress management is a necessity.

**Keywords:** Nurses; Stress; Primary care center; Saudi Arabia

## 1. Introduction

Nurses are particularly at risk from stress-related problems, with high rates of turnover, absenteeism, and burnout. Stress is a composite term that sums up physical, mental and emotional strains or tension on an individual. Stress also reflects the failure of an individual to respond adequately to physical or emotional threats that are either actual

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or imagined (1). When stress improves the functionality of mental, physical or challenging work, it may be considered eustress. Persistent stress that remains unresolved through coping or adaptation, deemed distress, may lead to anxiety or withdrawal behavior triggered by depression (2). Work-related stress (WRS) can lead to poor health and work-related injuries (3). Healthcare professionals have a unique work place environment that can impact job-related stress unique to its conditions (4, 5). Occupational stress among health professionals can negatively impact their quality of patient care (6, 7). A variety of causes of job stress have been identified among healthcare professionals, and include heavy workload, night shifts, and different working hours among the many other causes, with little control over work place environment (8). A clear example of how job stress influences nurses was highlighted in 1981 when over a third of the 1.4 million nurses in the USA quit the nursing profession. Those nurses who remained were more likely to have high-risk psychological distress or substance abuse (9).

Studies have revealed that a number of sources of stress can be found in the nursing profession. Anderson et al. found that sources of stress related to the nursing profession included responsibilities, workload, bereavement, uncertainty, tasks, role conflicts, relationships, conflicts at home, and satisfying others' expectations of the role of the nurse (10). There are published studies assessing the prevalence of stress among nurses in the Kingdom of Saudi Arabia (KSA) with prevalence exceeding 45%. Also, a recent study in Saudi Arabia found that depression, anxiety and stress among nurses are higher than of those in the general population, in addition to the shortage of nurses. Work-related stress compromises quality of care and leads to burnout, turnover and job dissatisfaction (6, 11-14). There is no published study on job-related stress among nurses in the Northern borders region, so the overall aim of this study is to improve job satisfaction through the following objectives: 1) to determine the prevalence of job stress among Nurses in primary health centers in Arar city, and 2) to identify it's associated demographic factors.

## 2. Material and Methods

### *2.1. Design and setting*

This cross-sectional study, covering all primary healthcare centers in Arar city was carried out from November 2017 to August 2018. All twelve primary healthcare centers in Arar city were covered in the study and all nurses working in primary healthcare levels, of all ages, sexes, Saudi and non-Saudi were eligible for study inclusion.

### *2.2. Inclusion and exclusion criteria*

Regarding the inclusion criteria, all nurses working in primary healthcare centers in Arar city regardless of gender or nationality were included in the study. The exclusion criteria were: 1) nurses with mental health problems, 2) nurses with work duration less than one year.

### *2.3. Instrument and data collection*

All nurses working in the primary health centers were contacted. Researchers tried also to contact those healthcare professionals who were on leave. The data collection was completed between December 2017 and February 2018. The instrument used in the study was a questionnaire consisting of two parts.

#### *2.3.1. Demographic characteristics*

These variables included gender, age, education level (Diploma/Bachelor degree/ Master or PhD/ Board qualified or fellowship from Arab/ US/CA/UK), nationality (Saudi/ Non-Saudi), work experience (years), and monthly income (<5000 SR/ 5000-10000 SR/ 10001-20000 SR/ > 20000) (SR: Saudi Rials).

#### *2.3.2. Work Stressor Questionnaire*

To evaluate Job stress, a survey questionnaire comprising of 10 domains was used. This questionnaire was adopted from the American institute of preventive medicine (15). A panel of experts translated the questionnaire into Arabic using a forward-backward translation method. It was tested by a pilot study. The questionnaire consisted of the following sections: disagreement and indecision, pressure on the job, job description conflict, communication and rapport with supervisor, job-related health concerns, work overload stress, work underload stress, boredom-induced stress, problems of job security, and time pressure. Each domain consists of five questions. Good internal consistency has been found for each domain with Cronbach's alpha coefficients between 0.73 and 0.89.

### *2.4. Administrative & Ethical approval*

All the procedures in this study were in conformity with the Declaration of Helsinki and were approved by Human Research Ethics Committee of the Northern Borders Region (Kingdom of Saudi Arabia) (Ref: 39/7). Also, approval was taken from the administrator of each primary healthcare center. Participation in the study was voluntary and verbal informed consent was obtained from the participants before they entered the study.

### *2.5. Statistical analysis*

The data were entered and analyzed using IBM© SPSS© Statistics version 20 (IBM© Corp., Armonk, NY, USA). P-value ≤0.05 was used to indicate statistical significance. Qualitative data were described by number and percentage whereas continuous quantitative data were described by mean and standard deviation. Chi-Square test of independence and Fisher Exact test were used to investigate association between qualitative variables.

## 3. Results

The study included 101 nurses. Thirty five percent of nurses working in primary healthcare centers reported work-related stress. Their mean age was 31.9 years (±6.1), and 85.1% of them were females. All were Saudis and most of them (71.3%) were diploma holders. Years of experience ranged between 1 and 28 years, with a mean of 8.4 years (Table 1). Almost one third (34.7%) of nurses working at primary healthcare centers in Arar city had work-related stress The most frequent area of work-related stress among nurses were time pressure (42.6%), followed by boredom-induced stress (32.7%), pressure on the job (31.7%), work underload stress (26.7%) and disagreement and indecision (25.7). None of the studied factors (age, sex, education, years of work and income) was significantly associated with having problems in the area of time pressure of work-related stress (Table 2).

**Table 1.** Demographic profile of the participated nurses (n=101)

| Demographic factors | | n | % | Range | Mean ± SD |
|---|---|---|---|---|---|
| Age (year) | 24-30 | 40 | 39.6 | 24-60 | 31.9±6.1 |
| | 31-40 | 53 | 52.5 | | |
| | >40 | 8 | 7.9 | | |
| Sex | Male | 15 | 14.9 | NA | NA |
| | Female | 86 | 85.1 | | |
| Education | Diploma | 72 | 71.3 | NA | NA |
| | Bachelor or more | 29 | 28.7 | | |
| Work experience (year) | <5 | 25 | 24.8 | 1-28 | 8.4±5.2 |
| | 5-10 | 34 | 33.6 | | |
| | ≥10 | 42 | 41.6 | | |
| Income (SR/month) | 5000-10000 | 59 | 58.4 | NA | NA |
| | ≥10000 | 42 | 41.6 | | |

SR: Saudi Rials

**Table 2.** Factors associated with domain of time pressure of work-related stress

| Demographic factors | | Time pressure | | OR (95% CI) | p-value |
|---|---|---|---|---|---|
| | | No, n (%) | Yes, n (%) | | |
| Age (year) | 24-30 | 20 (50.0) | 20 (50.0) | 3 (0.5-16.6) | 0.26 [F] |
| | 31-40 | 32 (60.4) | 21 (39.6) | 1.97 (0.4-10.7) | 0.48 [F] |
| | >40 | 6 (75.0) | 2 (25.0) | 1[a] | |
| Sex | Male | 8 (53.3) | 7 (46.7) | 1.2 (0.4-3.6) | 0.78 [C] |
| | Female | 50 (58.1) | 36 (41.9) | 1[a] | |
| Education | Diploma | 43 (59.6) | 29 (40.3) | 1[a] | 0.46 [C] |
| | Bachelor or more | 15 (51.7) | 14 (48.3) | 1.4 (0.6-3.3) | |
| Work experience (year) | <5 | 14 (56.0) | 11 (44.0) | 1.2 (0.4-3.2) | 0.77 [C] |
| | 5-10 | 19 (55.9) | 15 (44.1) | 1.2 (0.5-2.9) | 0.75 [C] |
| | ≥10 | 25 (59.5) | 17 (40.5) | 1[a] | |
| Income (SR/month) | 5000-10000 | 31 (52.5) | 28 (47.5) | 1.6 (0.7-3.6) | 0.24 [C] |
| | ≥10000 | 27 (64.3) | 15 (35.7) | 1[a] | |

[C] Chi-square test. [F] Fisher Exact test; 1[a] Reference category

Higher educated nurses (Bachelor or above) were more likely to have problems in the area of boredom-induced stress than Diploma educated nurses (48.3% versus 26.4%, OR= 2.6, CI: 1.06-6.3). The difference was statistically significant (p=0.034). Nurses with lower monthly income (5000-<10000 SR/month) were more likely to have problems in the area of boredom-induced stress of work-related stress than those with income exceeding 10000 SR/month (40.7% versus 21.4%, OR= 2.5, CI: 1.02-6.1, p=0.042) (Table 3). Higher educated nurses (Bachelor or

above) were more likely to have overall work-related stress compared to Diploma educated nurses (55.2% versus 26.4%, OR= 3.4, CI: 1.3-8.4). The difference was statistically significant (p=0.006). Other studied factors (age, sex, years of work and income) were not significantly associated with work-related stress (Table 4).

**Table 3.** Factors associated with domain of boredom-induced stress of work-related stress

| Demographic factors | | Boredom Induced Stress | | OR (95% CI) | p-value* |
|---|---|---|---|---|---|
| | | No, n (%) | Yes, n (%) | | |
| Age (year) | 24-30 | 24 (60.0) | 16 (40.0) | 4.6 (0.5-41.6) | 0.23 [F] |
| | 31-40 | 37 (69.8) | 16 (30.2) | 3.02 (0.3-26.6) | 0.42 [F] |
| | >40 | 7 (87.5) | 1 (12.5) | 1[a] | |
| Sex | Male | 7 (46.7) | 8 (53.3) | 2.7 (0.9-8.5) | 0.07 [F] |
| | Female | 61 (70.9) | 25 (29.1) | 1[a] | |
| Education | Diploma | 53 (73.6) | 19 (26.4) | 1[a] | 0.03 [C] |
| | Bachelor or more | 15 (51.7) | 14 (48.3) | 2.6 (1.06-6.3) | |
| Work experience (year) | <5 | 16 (64.0) | 9 (36.0) | 1.2 (0.4-3.5) | 0.67 [C] |
| | 5-10 | 23 (67.6) | 11 (32.4) | 1.06 (0.4-2.8) | 0.88 [C] |
| | ≥10 | 29 (69.0) | 13 (31.0) | 1[a] | |
| Income (SR/month) | 5000-10000 | 35 (59.3) | 24 (40.7) | 2.5 (1.02-6.1) | 0.04 [C] |
| | ≥10000 | 33 (78.6) | 9 (21.4) | 1[a] | |

[C] Chi-square test. [F] Fisher Exact test; 1[a] Reference category

**Table 4.** Factors associated with work-related stress among nurses working at primary healthcare centers, Arar city.

| Demographic factors | | Overall work stress | | OR (95% CI) | p-value* |
|---|---|---|---|---|---|
| | | No, n (%) | Yes, n (%) | | |
| Age (year) | 24-30 | 22 (55.0) | 18 (45.0) | 0.8 (0.1-3.7) | **1.0** [F] |
| | 31-40 | 40 (75.5) | 13 (24.5) | 0.3 (0.07-1.4) | 0.2 [F] |
| | >40 | 4 (50.0) | 4 (50.0) | 1 [a] | |
| Sex | Male | 10 (66.7) | 5 (33.3) | 1 [a] | 0.92 [C] |
| | Female | 56 (65.1) | 30 (34.9) | 1.07 (0.3-3.4) | |
| Education | Diploma | 53 (73.6) | 19 (26.4) | 1 [a] | 0.006 [C] |
| | Bachelor or more | 13 (44.8) | 16 (55.2) | 3.4 (1.3-8.4) | |
| Work experience (year) | <5 | 16 (64.0) | 9 (36.0) | 1.01 (0.3-2.8) | 1.0 [C] |
| | 5-10 | 23 (67.6) | 11 (32.4) | 0.8 (0.3-2.2) | 0.76 [C] |
| | ≥10 | 27 (64.3) | 15 (35.7) | 1 [a] | |
| Income (SR/month) | 5000-10000 | 37 (62.7) | 22 (37.3) | 1.3 (0.6-3.07) | 0.51 [C] |
| | ≥10000 | 29 (69.0) | 13 (31.0) | 1 [a] | |

[C] Chi-square test. [F] Fisher Exact test; 1[a] Reference category

**4. Discussion**

The nursing job is very stressful as they are exposed to a high psychological and physical work load including needs and safety of patients, shortage of staff, long shifts, work, work-related conflicts with patients, relatives and, supervisors, bias as well as lack of organizational support (16, 17). This study was carried out to determine the prevalence of job stress among nurses in primary health centers in Arar city and to identify its associated factors.

In the present study, almost one third of nurses working at primary healthcare centers in Arar (34.7%) had work-related stress. This rate is lower than that reported in another similar study carried out in Dammam (2014) (12), as an overall prevalence of WRS among nurses was 45.5%; being 43.1% and 46.2% in primary and secondary levels, respectively. A comparable figure has been reported in Jordan by Al-Hawajreh as 30% of hospital nurses had job stress (18). In South-West Ethiopia (19), the average overall job-related stress level of 58.46±12.62 (out of 26-116) was reported among nurses working in public hospitals. In another Ethiopian study, the prevalence of work stress was 37.8% (20). In Egypt, a very high prevalence was reported (72.5%) (21). In Iran, 75% of the nurses experienced average and high levels of stress (22). Also in Iran, a meta-analysis revealed a pooled prevalence of work-related stress of 69% among nurses working in public and private hospitals (23). The difference in rates reported from various studies including the present one could be attributed to different categories of nurses, their socio-demographics, cultural background as well as different tools assessing work-related stress in different studies. Stress

is a state, not an illness, which may be experienced as a result of an exposure to a wide range of work-related demands and in turn, it leads to a wide range of outcomes.

In the current study, the only significant demographic factor with work-related stress among nurses was the educational level as more educated nurses expressed a higher rate of work-related stress than that of lower educated nurses. Concerning specific domains, higher educated nurses (bachelor or above) were more likely to have problems in the issues of work overload stress, work underload stress, boredom-induced stress and job security stress compared to lower educated nurses. Female and older nurses (>40 years) were more likely to report problems in the area of disagreement and indecision compared to males and younger nurses. Nurses with lower income had more problems in the area of boredom induced stress than their counterparts. Although demographic factors are unmodifiable, they highlight the most affected group of nurses; hence, all stresses can be modified in a positive way.

Variable results have been observed from various studies carried out in Saudi Arabia and beyond. In Riyadh, KSA, Alshehri (2012) found that less experienced nurses, divorced nurses and those with salary ranged between 10,000-12,000 SR experienced higher levels of stress (24). This is congruent with Alenezi et al. whose study found that the most commonly perceived source of WRS was workload, whereas the least common source was inadequate preparation. Other major sources of WRS are conflicts with physicians and nurses in primary centers. Demographics such as nurses' age, marital status, job position, and nationality are significantly acknowledged as major attributes of stress (25). Also, in Riyadh, Al-Omari (2003) reported that age and experience of nurses showed significant negative relationship with work-stress level among the MOH hospital staff and also reported that Saudi nurses had a higher level of work-stress than the non-Saudis (26). In Dammam (2014), Al-Makhaita et al. reported that in the primary level of healthcare, married, nurses with three or more children were more likely to express a higher rate of work-related stress, while in the secondary level of healthcare, younger age group of 20-<30 years, Saudi nationality, being married, with non-bachelor degree, nurses experienced higher rates of work-related stress (12). Amongst nurses working within pediatric intensive care units (PICUs) in Saudi Arabia, Alabdullah et al. (2018) reported that male nurses and those with a Bachelor of Science in nursing perceived higher levels of workplace stress and non-Saudi nurses perceived more workplace stress than Saudi nurses (25).

Regarding international studies, in China (2018), Tao et al. reported that professional and career advancement, work environment and resources, management and interpersonal relationships, and workload and work duration were significant contributors for job-related stress (28). In Egypt, Salem indicated that young married nurses who had worked more than 10 years and worked at ICUs or at operation rooms showed higher rates of stress (21). In Iceland (2006), Sveinsdóttir et al. showed that the stressful conditions were observed more severely among hospital nurses than among nurses working outside hospital settings (29). In Ethiopia (2014), Salilih and Abajobir observed that gender, work shift, illness, marital status, and worksite or unit were significant predictors for work-related stress among nurses working in a public hospital (20). In china, Yau et al. (2012) revealed that the significant stressors among nurses in a hospital were working environment, resources, workload and work time (30). In Nigeria, Ojekou and Dorothy revealed that level of stress among nurses working in a teaching hospital was higher among the staff nurses who had worked for 3 years or less (31). In Ghana (2016), Adzakpah et al. found the most common stressors among hospital nurses were workload, inadequate resources and conflicting demands (32). This variation between studies, including the present one, could be explained in the light of different categories of the study population, different background and different studied stressors. In the present study, we included only demographic factors.

In this study, nurses' age was not significantly associated with work-related stress. However, age was significantly related to work-related stress in several other studies where younger nurses expressed higher levels of work-related stress (33-35). Additionally, in the present study, total duration of work experience was not associated with work-related stress. This finding agrees with what has been reported by others in Saudi Arabia (12), Jordan (18), and Egypt (36). However, Wilson and Laschinger reported a positive relationship between years of experience and job stress (37). Many studies have reported an association between income of nurses and work-related stress (29, 38). Al-Makhaita et al. (12), in agreement with the present study, did not find a significant association. Al Hosis et al. stated that the most common type of work-related stress for Saudi nurses was due to job pressure followed by poor rapport with managers (39). Its prevalence depended on the age, experience, nationality and the employment status of the nurses. Work-related stress and burnout impacted negatively on job performance and job satisfaction in nurses. Providing proper task allocation, more training and stress management intervention is a necessity (40).

**5. Limitations**

The cross-sectional design applied in the study allows only association and not causality between studied variables. Second, the conduction of the study is among only nurses working in primary care settings, which could impact the application of results on all nurses in Arar. Finally, work-related stressors such as number and duration of shifts, occurrence of health problems, changing the place of work, and relationship with coworkers were not included in the analysis. Despite those limitations, the study could have a public health importance in discovering the rate and some predictors of work-related stress among nurses in Arar city.

**6. Conclusions**

Work-related stress is a considerably prevalent problem among nurses working at primary healthcare centers in Arar city. The most frequent areas of work-related stress among nurses were time pressure, boredom-induced stress, and pressure on the job. The study recommends application of interventional programs to relieve sources of stress and training of nurses on stress management. Further studies are needed that include nurses from different disciplines in Arar, to have a more comprehensive profile of the problem. Inclusion of work-related factors are suggested for further studies, to investigate their impact on work-related stress.

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**Conflict of Interest:**

There is no conflict of interest to be declared.

**Authors' contributions:**

All authors read and approved the final manuscript. AA: concept, design, data collection, and writing manuscript. HS: concept, design and revising the manuscript. MA: concept, revising the manuscript. AA: data collection, writing manuscript

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