# Stressors Amongst Jordanian Nurses Working in Different Types of Hospitals and the Effect of Selected Demographic Factors: a Descriptive- Explorative Study

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**Abstract**

**Background:** High stress among nurses is commonly found in clinical settings. Factors affecting stress levels are countless. In Jordan, studies have addressed a limited number of these factors, leaving others unexplored, including different work areas.

**Aims:** This study aimed to identify the frequency of work stressors among nurses encountered in different types of hospitals and work settings, and to evaluate the association of stressors with demographic variables.

**Materials and Methods:** This is a quantitative, cross sectional, descriptive-explorative study conducted in three Jordanian hospitals in Amman: public, private, and training. A convenient sample of 252 Jordanian nurses working in different settings was used. Data were collected using an anonymous, self-reporting, quantitative questionnaire with two main parts. The first was the non-identifying demographic component. The second part was the Nursing Stress Scale (NSS) used to determine the total stress score.

**Results:** The overall score of the participants suggests that stress is significantly higher than the reported levels in the literature. Specialty and marital status were significantly associated with high stress levels among nurses. Nurses in the training hospital had the highest stress amongst all participants. Higher than the other specialties, pediatric nurses reported significant stress levels. Although statistically insignificant, nurses working in training hospitals scored higher scores than the others.

**Conclusion:** Stress levels are associated with the specialty and marital status of the nurses. There is a necessity to introduce stress management course for students and nurses. Further exploration in this area is required to identify sources of stress that can be managed and strategies that can work.

**Keywords:** Nurses, Jordan, Stress, Stressors, NSS.

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## Introduction

Stress is a concept that has historically been relevant to several disciplines, including nursing. Selye utilized the term stress to represent a set of bodily defense mechanisms against any form of noxious stimuli, physical or psychological.[1]

Anxiety is a normal reaction to stress. It often helps an individual to accomplish certain tasks. However, when anxiety is constant and becomes overwhelming, it may fall under the classification of an anxiety disorder that leads to stress and burnout. [2]

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Nursing professionals face extraordinary stress in the present medical environment, and studies have frequently found moderate-to-high levels of stress among nurses. [3]

Nurses often experience stress for a variety of reasons, some inherent to the profession and others related to social changes. [4, 5] Some of the inherent difficult situations include role conflict, role ambiguity and lack of managerial and social support, all of which provoke stress. [6, 7, 8] The Jordanian health care system and professionals are no exception, yet limited knowledge existed until the time of this study. [9, 10] Accordingly, this study explored stressors amongst nurses working in different clinical settings and examined the effect of their demographic characteristics on this level.

## Literature Review

In Jordan, stress levels among nurses working in hospitals have been reported.[9, 10] These reports; however, have not been explicit in their definition of the problem and its dimensions. Many health organizations around the world, including the Department of Health in the USA and the National Health Services in the UK, have recognized job stress to be one of the most negatively impacting issues on individual productivity leading to many issues that affect productivity. These issues include increased absenteeism, increased sick leaves and decreased individual accomplishment.[3, 11] Moreover, Hayes et al. reported that the poor quality of patient care and increasing system costs were issues commonly found in nurses with high work-related stress. [12]

According to the National Institute for Occupational Safety and Health in the USA [NIOSH], job stress has become a common and costly problem in the workplace; it listed several occupations as highly stressful, including nursing. [13] Nurses usually face new and uncertain challenges each day, and much of the stress results from their lack of control over these day-to-day situations. [14] Some people have enduring properties that allow them to tolerate far higher levels of stress than other people. Given this fact, nurses develop variable levels of stress; however, the common factor amongst them is the presence of a considerable level of work-related stress.

The Jordanian literature, on the other hand, offers limited knowledge about stress levels among nurses. In her study, Mrayyan examined stress levels among nurses working in intensive care units and general wards. Using the same tool adopted in this study (i.e. Nursing Stress Scale [NSS]), Mrayyan has offered valuable information on the effect that gender, age, years of experience, marital status, daily census of the unit/ward and model of nursing care have on stress. Her findings suggested that the overall score on the NNS scale was slightly higher among intensive care unit (ICU) nurses.[10] These findings were similar to the findings of other studies, like Soh et al. and Thomason. However, their studies lacked comparisons among different nursing specialties. They also offered a limited presentation of the effect of the demographic characteristics and did not explicitly define their implications in practice.[15, 16] Similarly, Abualrub et al. (2009) examined the moderating effect of social support on nurses' work- related stress and job satisfaction. They offered a detailed presentation of their quantitative findings. Yet their study was not initially conducted to examine the relationship between stress levels and demographic variables. They, however, presented a good reference to examine where social support was demonstrated to have a positive effect on decreasing stress, enhancing job satisfaction and promoting better job retention. [17] her level of stress and related burnout than those who worked in ICU or wards. [18, 19]

Contemplating stress amongst nurses from a broader perspective was the main concern of a study held by Lambert and Lambert.[14] They identified several factors that contribute to the occurrence of stress in nurses. These factors include lack of control over the job, lack of supportive relationships, allocating and moving patients' care units within the organization, dealing with death and dying, shortages of resources and work overload, unhelpful families and clients, inability to reach or contact physicians, concern about the poor quality of the medical team and patient care, shift rotation and time demands, supervision problems, poor relationships with co-workers and physicians, extension of work time, low organizational commitment issues as well as managing family and work duties. Similar findings were reported by Elfering et al., McGarth et al. and Tyson et al.[20-22] McGrath et al. added that the highest levels of stress could be found among nurses who care for dying patients. [21] On the other hand, Elfering et al. suggested that the least reported stressors were lack of support and inadequate preparations [20] which is contrary to what Mrayyan (2009) reported in her study in Jordan.[10]

Moving to demographic factors, Lambert, Lambert and Ito found positive correlations between stress and age, educational level, years of working as a nurse, years spent working in clinical units, income and number of household members. [23] Tsai et al. reported that younger nurses with higher education levels had more work stress than others. [24] On the contrary, Landa et al. found that younger nurses reported lower levels of stress than older ones along with workers who possessed shorter periods of service. On the other hand, this study reported that married participants were less stressed about problems with colleagues than those who were single. [25] Whereas Hays et al. found no statistical significance between any of the demographical variables and stress.[12]

The findings linked to work environment and/or predicting variables are the scope of this study. Data in this regard were limited in the Middle East region. Data on the frequency of stress amongst the nurse population in Jordan are limited, with the exception of Abualrub and Al-Zaru and Mrayyan. [9, 10] In this study, we have expanded the scope of investigation to include more associated factors reported in the literature to affect stress levels amongst nurses.

## The Aim

This study aimed to identify the frequency of work stressors among Jordanian nurses encountered in different work settings (i.e. intensive care units and wards) to compare between work stressors in private, governmental and training sector and to evaluate the association between stressors and selected demographic variables.

## Materials and Methods

### Design and setting

This is a quantitative, cross sectional, descriptive-explorative study conducted in three Jordanian hospitals in Amman (the capital city): public, private, and training. Data were collected using an anonymous, self-reporting questionnaire.

### Participants

There was a convenient sample of 252 nurses, aged 21 years and above, possessing a diploma degree in nursing as a minimum level of education and with a minimum of three months experience in nursing practice and at least 3 months in their current unit (Table 1).

### Instruments

A two-part questionnaire was used to collect data. The first part, which took approximately 5 minutes to complete, was developed by the researchers to collect data about a selected demographic data (Table 1).

The second part of the questionnaire was the Nursing Stress Scale (NSS) by Gray-Toft & Anderson, which consisted of 34 items referring to different situations that cause or may cause stress in nurses. [26] This tool was used after permission was granted by the author. On a 4-point Likert scale, this 34 item-scale ranges from: 1 = never; 2 = occasionally; 3 = frequently; and 4= very frequently. This scale consists of 7 sources of stress (subscales): workload, uncertainty concerning treatment, insufficient preparation, lack of support, conflict with other nurses, conflict with physicians, and death and dying. A total score ranges from 0 to 102, with higher scores indicating more frequent stress. The participants took 10-15 minutes to complete this NSS. The score was calculated by accumulating the individual item responses for each subscale;

this provided a score for each subscale.

To obtain a total score, all 34 item responses were added together. To measure reliability for the scale, Cronbach's Alpha was used. It yielded a value of 0.92 for the whole scale with a range of 0.49-0.83 for the subscales. These values were similar to Mrayyan [10] for the whole scale, yet, for the subscales, higher values were reported (i.e. Mrayyan reported a range of 0.82-0.84 for the subscales).

***Table (1): The demographic findings of the participants.***

| Variables | | No. (%) |
|---|---|---|
| **Gender** | Female | 100 (39.7%) |
| | Male | 152 (60.3%) |
| **Age** | Group1 (21-24 yr) | 73 (29 %) |
| | Group 2 (25-29yr) | 107 (42.5 %) |
| | Group 3 (30-34yr) | 42 (16.7 %) |
| | Group 4 (35-40yr) | 19 (7.5 %) |
| | Group 5 (> 40 yr) | 11 (4.4 %) |
| **Income** | ≤350 | 49 (19.4%) |
| | 351- 450 | 159 (63.1%) |
| | >450 | 44 (17.5%) |
| **Experience in the area** | ≤5 years | 161 (63.9%) |
| | 5.1-10 years | 46 (18.3%) |
| | >10 years | 45 (17.9%) |
| **Highest level of education** | Diploma | 22 (8.7%) |
| | Bachelor | 215 (85.3%) |
| | Master | 15 (6%) |
| **Specialty** | Emergency Room | 20 (7.9%) |
| | Intensive Care Unit | 73 (29%) |
| | Pediatric Ward | 37 (14.7%) |
| | Medical Surgical Ward | 62 (24.6%) |
| | Operation Room | 21 (8.3%) |
| | Nurse In-charge | 56 (22.2%) |
| | Managerial | 19 (7.5%) |
| **Marital status** | Single | 138 (54.8%) |
| | Married | 114 (45.2%) |
| **Type of hospital** | Private | 61 (24.2%) |
| | Public | 73 (29%) |
| | Training | 118 (46.8%) |

## Ethical considerations

This study was approved by the University of Jordan Ethics Committee along with the ethics committee in each of the participating hospitals. In addition, official letters were sent to each hospital and then approvals were granted to conduct this study. Nurses were approached by the researchers, and the decision to either participate or not participate was made entirely by the nurses without any pressure from their managers or any other senior personnel. The questionnaires were completed anonymously, and the collected data were used in this study collectively; no individual participants' data could be identified.

## Analysis

Statistical analysis was conducted using a statistical package for social sciences (SPSS) version 16. Frequencies were utilized for categorical variables; mean and standard deviation were obtained for continuous variables.

The frequency rates were measured by simple percentages and were presented with 95% confidence intervals. For multiple comparisons univariate analysis was used to assess associations.

**Results**

**Demographic findings**

Participants were 100 female (40%) and 152 male (60%), aged between 21 to 49 years with a mean of 27.8 years. 46.8% of the participants worked in the training hospital and 85.3% of them had Bachelor degrees in nursing. Almost 75% had less than five years of experience, and 63.9% had less than five years of experience in the same unit. 24.6% of the sample worked in the medical-surgical adult ward and 29% worked in the ICU. 70.2% of them worked as registered nurses (RN) and 54.8% of the sample were single (Table 1).

**Predictors of nurses' stress levels**

Table (2) illustrates that nurses' sum stressors mean was 77.46 on the NSS scale. The death and dying subscale was the highest (mean 15.39, SD 3.97), followed by workload (Mean 14.73, SD 3.28) while the least subscales were lack of support (mean 6.25, SD 1.89) and inadequate preparation (mean 6.87, SD 1.94).

Nurses working in training hospitals scored higher than the other two hospitals. Nurses in the training hospital scored 79.27 on the stress scale, while participants from the private and public hospitals scored 74.74 and 77.84, respectively. However, statistically these differences were not significant between the three types of hospitals (*P*< 0.05). Interestingly, all nurses who worked predominantly in operation rooms (OR) showed the lowest stress levels amongst all participants.

Pediatric ward nurses scored the highest stress score amongst all hospitals (mean 81.17, SD 20.99), followed by ICU nurses who scored a mean score of 79.1, SD 13.98. Medical surgical ward and emergency room (ER) nurses scored a mean of 78.8 and 76.91, respectively (Table 3). OR nurses scored the lowest stress score with a mean of 69.98 and a SD of 13.38. Submitting these findings to the analysis of variance (ANOVA) showed that working as a pediatric nurse has a significant association with stress ($P < 0.05$), where they yielded the highest scores in all hospitals. On the other hand, OR nurses scored the lowest rates on the scale amongst all participants. Table (4) shows that marital status was significantly associated with stress scale score ($P < 0.05$). Marital status was another factor found to significantly affect stress in nurses. Single nurses have higher scores compared with married nurses. The mean score for the sum stressors was 79.02 (SD 15.02) compared with the married nurses who scored 75.55 (SD 14.29); this finding is statistically significant ($P<0.05$).

***Table (2): Participants' mean scores and standard deviation on the subscales. ****

| Subscale | Mean | SD |
|---|---|---|
| *Death & dying* | 15.39 | 3.97 |
| *Conflict with physician* | 10.97 | 2.90 |
| *Inadequate preparation* | 6.87 | 1.94 |
| *Lack of support* | 6.52 | 1.89 |
| *Workload* | 14.73 | 3.28 |
| *Conflict with nurses* | 11.29 | 2.88 |
| *Uncertainty concerning treatment* | 11.68 | 2.78 |
| *Sum stressors* | 77.46 | 14.77 |

***(P<0.05)***

***Table (3): Nurses' subscales and sum stressors mean scores and standard deviation according to the clinical area.***

| Subscale | Area of specialty | | | | |
|---|---|---|---|---|---|
| | ER<br>Mean (SD) | ICU<br>Mean (SD) | Pediatric<br>Mean (SD) | Med-Surg<br>Mean (SD) | OR<br>Mean (SD) |
| **Death & dying** | 15.55<br>(3.96) | 16.04<br>(3.59) | 15.56<br>(4.74) | 15.53<br>(3.29) | 13.55<br>(4.24) |
| **Conflict with physician** | 11.21<br>(3.32) | 11.28<br>(2.93) | 10.58<br>(3.00) | 11.27<br>(2.86) | 10.18<br>(2.29) |
| **Inadequate preparation** | 6.46<br>(2.14) | 7.01<br>(1.87) | 7.19<br>(2.03) | 7.07<br>(1.88) | 6.21<br>(1.73) |
| **Lack of support** | 6.49<br>(1.73) | 6.56<br>(1.92) | 6.57<br>(1.92) | 6.69<br>(2.02) | 5.97<br>(1.82) |
| **Workload** | 14.79<br>(3.25) | 15.07<br>(3.70) | 15.38<br>(2.80) | 15.00<br>(3.08) | 12.79<br>(2.80) |
| **Conflict with nurses** | 11.46<br>(2.77) | 11.25<br>(2.68) | 12.08<br>(2.69) | 11.15<br>(3.25) | 10.45<br>(2.80) |
| **Uncertainty concerning treatment** | 10.97<br>(2.47) | 11.75<br>(2.55) | 12.17<br>(2.87) | 12.13<br>(2.78) | 10.82<br>(3.11) |
| **Sum stressors** | 76.91<br>(15.67) | 79.07<br>(13.98) | 79.63<br>(16.20) | 78.84<br>(13.78) | 69.98<br>(13.38) |

***(P<0.05)**

***Table (4): Nurse's mean scores on the subscales and sum-stressors according to their marital status.****

| Subscale | Marital status | |
|---|---|---|
| | Single<br>Mean (SD) | Married<br>Mean (SD) |
| **Death & dying** | 15.65 (3.88) | 15.06 (4.06) |
| **Conflict with physician** | 11.30 (2.87) | 10.57 (2.91) |
| **Inadequate preparation** | 7.00 (1.97) | 6.70 (1.89) |
| **Lack of support** | 6.79 (1.89) | 6.20 (1.84) |
| **Workload** | 15.01 (3.46) | 14.39 (3.03) |
| **Conflict with nurses** | 11.47 (2.86) | 11.07 (2.90) |
| **Uncertainty concerning treatment** | 11.77 (2.76) | 11.57 (2.81) |
| **Sum stressors** | 79.02 (15.02) | 75.55 (14.29) |

***(P<0.05)**

## Discussion

This study aimed to identify the frequency of work stressors among Jordanian nurses encountered in their work settings in intensive care units and wards, to compare between work stressors in private, governmental and training sector, and to evaluate the association between stressors and selected demographic variables.

Generally, higher stress levels were demonstrated in this study compared with those reported in the literature. These findings require consideration from nurse leaders and legislators in the health care system so that more retention rates and better job satisfaction can be achieved.[27]

Specialty had a significant association with stress scale scores. Interestingly, at $P < 0.05$, pediatric ward nurses showed statistically significant higher levels of stress amongst all other specialties (mean 79.63, SD 16.20), followed by ICU nurses (mean 79.07, SD 13.98) and then medical surgical ward nurses (mean 78.84, SD 13.78). There is limited literature exploring stress levels among nurses working in different types of pediatric subspecialties.[28] Although death and dying and conflict with physician scales (mean scores 16.04 and 11.28, respectively) among ICU nurses were higher, pediatric nurses achieved statistically significant higher scores in the remaining scales with the sum stressors at $P < 0.05$.

As illustrated in Table (3), ICU nurses scored significantly higher than the other specialties. This finding has also been reported in the literature. Mrayyan in her study, which compared stress levels between nurses working in the ICU and the general wards in Jordan, reported higher stress levels for nurses in the ICU. Although the only significant subscale reported by Mrayyan was conflict with physician, the mean scores of all other subscales and the sum stressors were higher among ICU nurses than those reported for the general ward (medical-surgical) nurses.[10] Gillespie and Melby and Mrayyan suggested that nurses in acute care environments have higher stress levels.[10, 19] Thomason suggested that ICU nurses may build up defense mechanisms against the consequences of constant exposure to death and suffering by rationalizing their feelings to protect themselves.[16] On the other hand, Adali et al. found that emergency room nurses experienced the highest levels of stress among nurses working in the internal medicine (medical-surgical) ward and ICU in Greece.[18]

Operation room (OR) nurses yielded the lowest stress levels amongst other nurses. This finding could be related to a number of factors. Nurses working in the OR have limited exposure to factors that influence stress levels, including role conflict and ambiguity.[6] It might also be related to the fact that OR nurses have greater stress tolerance than nurses working in other areas. OR nurses might voluntarily select the area in which they prefer to work and may have certain coping strategies or personality characteristics to deal with stress. Hollenbeck agreed with the proposed assumption which states that the personal selection of the area of specialty assists in dealing with stressful circumstances and operating in a specific organizational structure.[29] Yet, such a suggestion also might apply to the other nursing specialties.

Among the other variables, marital status has been reported to have a statistically significant effect on stress levels ($P < 0.05$). In this study, being a single nurse had a significant association with higher stress in the regression model of analysis (Table 4). This finding is consistent with the findings in the Hays et al. study, which reported that married participants showed lower stress levels than those who were single.[12] The influence of marriage as a major support system in the Eastern culture could be considered as a factor that decreases stress among nurses (Mrayyan 2009).[10] This is contrary to Lambert et al. who reported that being married exposes people to more stress.[23] Yet, the justification for this finding was not clearly stated. In this study, being married has been associated with positive social support, which single nurses do not usually receive.

On the other hand, examining the relationship between stress levels on different subscales and the other demographic variables showed that the dissimilarity in stress levels from uncertainty over treatment was not linked to length of time or specialization. While acknowledging the importance of this point, as conflict with physicians and uncertainty concerning treatment often are interlinked, the differences between groups reflected the nature and scope of doctor-nurse communication. Furthermore, the physical environment caused a greater level of stress for nurses in private hospitals, while the psychological aspects of the work environment caused more concern to the public and training sector nurses. This issue is obviously important as it concerns nurses' wellbeing and patient care. This issue needs to be further investigated thoroughly.

Concerning the aspects of the work environment, our participants showed that the highest levels of stress amongst all participants were in the stressor death and dying. This finding is consistent with studies conducted by Elfering et al., Lambert et al. and Mrayyan.[10, 20, 23] On the other hand, Hays et al. ascertained that death and dying caused minimal frequent stress in nurses, and did not represent the highest amongst the different subscales.[12]

Although lack of support caused minimal stress amongst our participants, other studies, like Mrayyan, found that this factor had a considerable effect on nurses' stress.[10] The participants in this study felt stressed as they found it difficult to support one another or engage in team building activities in their work. It is worthwhile mentioning that monthly income has yielded no statistically significant scores with stress levels of the NSS sub scales, so it was not included in the presentation or discussion of the results.

## Conclusion

Undoubtedly, stress levels are crucial indicators that affect the psychological and physical well-being of nurses. [30] Increased stress levels have been reported to cause a number of problems, including increased absenteeism and decreased productivity.[8, 31] The frequency of stress is considerably high amongst Jordanian nurses in all sectors. The process of proper diagnosing of stress, its sources, influencing factors and identifying methods that ameliorate the coping strategies are essential. The introduction of nurses' training on coping strategies while studying, and the identification of particularly stressful units of hospitals in which in-service training and support programs might assist in preventing high stress levels and burnout. In addition, the support programs could assist in identifying nurses who are under excessive stress, on the verge of burnout, which may lead to unpredictable results of turnover and absenteeism. The expected endeavor in that respect might achieve higher retention rates, better job satisfaction and better productivity levels.

In the area of research, qualitative studies investigating processes by which effects of stress can be limited by different coping strategies are overlooked. Although the constructs of stress and coping are measured by a number of existing quantitative instruments, there is still a limited number of studies examining valuable qualitative information that might promote the development of coping strategies. Thus examining stress and coping in qualitative domain is required for future research. In addition, the effect of the stress levels reported in this study on the quality of patient care was not included in this study. Therefore, correlating stress levels with patient care indicators are required in future studies.

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# الضغوطات التي يتعرض لها الممرضون الأردنيون العاملون في المستشفيات المختلفة، وتأثير بعض العوامل الديموغرافية المختارة: دراسة وصفية، استكشافية

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**الملخص**

**الخلفية**: توجد الضغوط بين الممرضات في الظروف الطبية، اما العوامل التي تؤثر في مستويات هذه الضغوط فلا تُحصى في الأردن. هناك دراسات تتطرق الى عدد محدود من هذه العوامل وتترك العوامل الأخرى دون بحث في مجالات العمل المختلفة.

**الأهداف**: تهدف هذه الدراسة إلى توضيح التكرار لضغوطات العمل بين الممرضات في ظروف عمل مختلفة وتقييم ارتباط الضغوطات بمتغيرات التوزع السكاني.

**الطريقة**: هذه الدراسة كمّية، مقطعية، وصفية، استكشافية،طُبقت في ثلاثة مستشفيات في عمان: حكومية، خاصة، وتدريبية، وفيها تم أخذ عينة مناسبة تتكون من (252) ممرضاً أردنياً يعملون في ظروف مختلفة. وتم جمع البيانات باستخدام استبانة كمية، ذاتي التقرير، غير معرّف لهوية صاحبها ، وتتكون من جزئين: الجزء الأول، هو محتوى التوزيع السكاني غير المعرّف، والجزء الثاني هو مقياس الضغوطات على الممرضين المستخدم لتحديد نتيجة الضغوط الكلية.

**النتائج**: النتيجة الكلية للمشاركين تقترح بأن الضغوط هي أعلى بشكل ملحوظ من المستويات المذكورة في الأبحاث السابقة.

**الكلمات الدالة**: الضغوط، العوامل السكنية، الممرضون الأردنيون.