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## Prevalence of Work Stress among Nurses in a Major Tertiary Care Hospital, Colombo, Sri Lanka

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#### **ABSTRACT**

**Introduction:** Stress is a harmful physical and emotional response caused by an imbalance between the perceived demands and the perceived resources and in-abilities of individuals to cope up with those demands.

Aim: The study aimed to assess the prevalence of stress among nursing officers in a major tertiary care hospital in Sri Lanka.

**Methodology:** A descriptive cross-sectional study was conducted over three months among 427 samples of ward nursing officers at National Hospital Sri Lanka. Sampling was done by two-stage stratification with a simple random sampling method. Nursing Stress Scale (NSS), an internationally validated self-administered questionnaire developed was used to measure the level of stress.

**Results**: In the present study, 26.8% (N=97) had mild stress, 52.1% (N=188) moderate stress, and 21.1% (N=76) had severe stress. The prevalence of moderate and severe stress was 73 % (N=264). The highest mean stress score was found in the death and dying subscale with a mean of 2.2 (SD=0.42) and a median of 2.2 (IQR=1.8-2.6). This was followed by workload sub-scale (Mean 2.1(SD=0.35) and median 2.1, IQR=1.9-2.3).

**Recommendation**: In-ward nursing officers in the major tertiary care Hospital of Sri Lanka had a high prevalence of moderate work-related stress. Developing systems for effective two-way communication, proper recruitment of health staff, counseling should be made available. Therefore, it's recommended that supporting mechanisms be formulated by policymakers and implemented by hospital authorities.

Keywords: Work-related stress, National Hospital of Sri Lanka, Nursing stress scale.

#### 1. Introduction

Nursing is considered a highly stressful occupation [1]. Stress in nurses is an endemic problem [1]. It contributes to health problems in nurses and decreases their efficiency [1]. The nursing profession is known to be stressful throughout the world and has detrimental effects on the physical and psychological well-being of an individual's health [2]. All professionals are prone to job stress and nurses are not left out. Nurses' stress is demarcated as the "emotional and physical feedbacks resulting from the communications between the nurse and her/his work setting where the demands of the job surpass the abilities and resources" [3].

The nursing population of Sri Lanka is largely represented by a female. The female nurse plays a significant role as a "mother, a wife, and a daughter in their own life in addition to the role of a nurse" [4]. The health care system of Sri Lanka is undergoing major changes, particularly in its level of quality and safety in the health care delivery system, despite its inadequate recourses [5]. Compared to other developing countries Sri Lanka is well ahead in carrying out its health care service provision in the region. Due to a lack of resources, most of the health care workers, including nurses are undergoing considerable work-related stress that is mostly attributable to a huge workload [6].

#### 2. Methodology

The study was conducted with the objective of determining the prevalence of stress among nursing officers in a major tertiary care hospital, Colombo Sri Lanka. It was a hospital-based descriptive cross-sectional study carried



out at the National Hospital of Sri Lanka (NHSL) which is the main tertiary care hospital of Sri Lanka. 427 nursing officers were included and conducted from August 2019 to November 2019 and data collection was carried out in April and May 2019. Two-stage stratification with a simple random sampling method was used. Nurses were classified into strata/sections according to the type of units that they were attached to. The strata were identified considering the similarity of the work carried out by nurses in each stratum. The number to be selected from each stratum was calculated proportionate to the number of nursing officers in the strata. All wards in each stratum were listed and the number of nursing officers selected from each ward was proportionate to the total number of nursing officers in the ward. Simple random sampling methods were used to select nursing officers from the ward.

The principal Investigator explained the aim of the study and informed written consent was obtained before administering the self-administered questionnaire. Stress was assessed by nursing stress scale [7], which is an internationally validated self-administered questionnaire, 4-point scale how frequently they experienced situations considered as stressful in the current place of the unit in which they work. The mean stress score for each subscale was measured and the mean total score of participants was calculated. Each option carried out marks as follows, never (0), occasionally (1), frequently (2), and very frequently (3) [7],[8],[9].

Since there is no specific cut-off value was mentioned in the Nurses Stress Scale the categorization of the level of stress was done by the interquartile range (IQR) of the total nursing stress score. Values within less than the 25<sup>th</sup> centile of the interquartile value were considered as no stress and mild stress, 25<sup>th</sup> - 50<sup>th</sup> centile as moderate stress, and more than 75th centile as severe stress. The prevalence of stress in this population was calculated by taking moderate and severe as having stress. This was done based on the literature and opinions of the experts. Data was entered and analysed at a 95% confident interval using Statistical Package for Social Sciences (SPSS) version 21.

## 3. Results

The sample consisted of 427 nursing officers and 361 responded with a response rate of 84.5%. Of the 361 respondents, 98.1% (N=354) were females. A majority (77.6 %, N=280) were in the age group 25 to 35 years. 40.1 % (N= 145) were unmarried. Of the sample, 27.5 % (N=99) had a monthly family income of above Rs.75, 000/=. Of the sample, a majority (73.4%, N=265) were doing six to ten-night shifts per month. A majority (40.7%, N=147) of nurses did 31 - 40 shifts per month. This shows that 178 (49.3%) of nurses were doing 5 to 10 double shifts, per month (Table 1).

**Table 1.** Distribution of nursing officers by their socio-demographic characteristics (N=361)

Characteristic	Number (%)	Characteristics	Number %
Sex		Age (Years)	
Female	354(98.1)	<25	23(6.4)
Male	7(1.9%	25 to 35	280(77.6)
		36 to 45	40(11.0)



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		46 to 55	18(5.0)
		>55	0(0.0)
Marital status		Income (Rs)	
Unmarried	145(40.1)	Less than 30,000	0(0.0)
Married	205(56.8)	30,000 -45,000	2(0.5)
Divorced	4(1.1)	45,001 -60,000	62(17.2)
Widowed	5(1.4)	60,001 -75,000	198(54.8)
Separated	2(0.6)	More than 75,000	99(27.5)
Service period		Number of night shifts/month	
Less than 3 years	31(8.6)	No night shifts	0(0.0)
3 to 5 years	88(24.4)	1 to 5 shifts	64(17.7)
6 to 10 years	149(41.4)	6 to 10 shifts	265(73.4)
11 to 15 years	50(13.8)	11 to 15 shifts	23(6.4)
16 to 20 years	25(6.9)	More than 15 shifts	9(2.5)
More than 20 years	18(4.9)		
Number of shifts		Double shifts in a row /month	
Less than 30 shifts	8(2.2)	Never	0(0.0)
31 - 40 shifts	147(40.7)	Less than 5	77(21.3)
41 - 50 shifts	138(38.2)	5 to 10	178(49.3)
More than 50 shifts	68(18.8)	More than 10	106(29.4)

Of the seven subscales, the highest stress score was on the "death and dying scale" (mean=2.2, SD=0.42) and the lowest stress score was in "conflicts with other nurses" (mean=0.9, SD=0.36) (Table 2).

**Table 2.** Items included in the subscales of NSS

Minimu		Minimum	ım	
Sub Scale	Mean (SD)	and maximum	Median (IQR)	
Death and dying	2.2(0.42)	(1.0-3.0)	2.2(1.8-2.6)	
Conflicts with physician	1.4(0.40)	(0.4-2.4)	1.4(1.2-1.6)	

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Inadequate preparation	1.6(0.45)	(0.7-2.7)	1.7(1.3-2.1)
Lack of support	1.0(0.41)	(0.3-2.3)	1.0(0.7-1.3)
Conflicts with other nurses	0.9(0.36)	(0.0-2.0)	1.0(0.8-1.2)
Work load	2.1(0.35)	(1.0-2.8)	2.1(1.9-2.3)
Uncertainty concerning treatment	1.2(0.38)	(0.2-2.0)	1.2(1.0-1.4)

SD= Standard deviation, IQR= Inter Quartile Range

Table 3 shows that the total mean score of the seven subscales was 1.57 (SD = 0.26) and the median was 1.60(IQR=1.40-1.80). The total stress score of mean and median was derived from the average of the mean and median scores of seven sub-scales in NSS.

Table 3. Total Nursing Stress Score

Parameter	Stress score
Mean	1.57
SD	0.26
Minimum and maximum	(0.82-2.18)
Median	1.6
Inter Quartile Range	(1.40-1.80)
Mode	1.32

SD= Standard deviation

Table 4 shows that 26.8% (N=97) of nursing officers were having mild stress,52% (N=188) were moderate stress, and 21.1% (N=76) were having severe stress.

**Table 4.** Perceived level of stress among nursing officers(N=361)

Level of stress	Frequency	Percentage %
Mild	97	26.8
Moderate	188	52.1
Severe	76	21.1
Total	361	100.0



#### 4. Discussion

The total mean of the stress score was 1.57(SD=0.26) and the median was 1.61(IQR=1.40-1.80). The total stress score ranged from a minimum of 0.82 to a maximum of 2.18. A study of work-related stress and associated factors among nurses working in public hospitals of Addis Ababa, Ethiopia [10] showed that the mean NSS score for the study population ranged from 0.15 to 2.68 with a mean of 1.40.

In the present study 26.8% (N=97) had mild stress, 52.1% (N=188) moderate stress and 21.1% (N=76) severe stress. The prevalence of moderate and severe stress was 73 %(N=264). A study by Pai Vernekar & Shah (2018) among nurses in tertiary care hospitals, in India, illustrated that 98.4% of the nurses showed moderate to very severe stress [11].

A study showed by Bhatia (2010) in a tertiary care hospital in Delhi, India determined that the prevalence of occupational stress among nurses was 87.4% which included nurses with moderate and severe stress. Out of that, 32.2% reported having severe or extreme stress [12].

Salilih & Abajobir (2014) in their research on nurses done in Ethiopia found a prevalence of 37.8 % [10]. The study of Rajeswari & Sreelekha (2016) for nurses working in tertiary care hospitals in India revealed that out of 200 nurses 2(1%) had less stress, 79(39.5%) had moderate and 119(59.5%) had severe stress [13].

The highest mean stress score was found in the death and dying subscale with a mean of 2.2 (SD=0.42) and a median of 2.2 (IQR=1.8-2.6). This was followed by workload sub-scale (Mean 2.1(SD=0.35) and median 2.1, IQR=1.9-2.3). The lowest mean score was reported in conflicts with other nurses (Mean 0.9(SD=0.36) and Median 1.0, IQR=0.8 -1.2). The death of a patient is a distressing psychological experience, and 84% of the study population was less than 35 years old.

Lack of experience in the younger age group may affect their psychology and lead to a high level of stress. In addition, nurses may not receive adequate training on dealing with death and dying during their nursing education. Similar results were seen in the study of Pai Vernekar & Shah (2018) which was done among registered nurses in tertiary care hospitals, India to assess the level of work-related stress by using the Nursing Stress Scale [11].

The results of this study also presented that the death and dying subscale was the highest subscale (mean=2.35, SD=0.61), which was followed by the workload subscale (mean=2.11, SD=0.53) that causes work-related stress in nurses. Out of 253 nurses, more than 50% were less than 30 years old which was similar to the distribution of the present study. Therefore, the age factor may be one reason for the stress scores to be high in this subscale.

In a study among Jordanian nurses by Hamaideh (2008) using the same Nursing stress scale tool that the death and dying sub-scale score the highest stress (mean=16.1, SD=3.9) followed by workload (mean=14.5, SD=3.6) [14]. In this study, 90% of the population was less than age 35 years. Similar findings were also found by Qiao (2011) in their research done for new graduate nurses in China using the NSS tool [15].

The study concluded that that death and dying was the strongest work-related stressor gain by new graduate nurses followed by workload.



## 4.1. The major implication of the study

This study was done to describe the prevalence of stress related to stress experienced by the in-ward nursing officers in the national hospital of Sri Lanka. It was shown that the nursing officers were experiencing a considerable level of work-related stress.

## 4.2. Limitation of the study

Being a hospital-based study, this investigation has limitations that are common for any hospital-based study. In the process of recruiting study units to the study, there was a chance of volunteer bias.

Nursing offices with a high level of work-related stress could have been missed while officers with a low level of work-related stress might have consented to result in volunteer bias. The descriptive cross-sectional nature of the study itself limits establishing the temporal relationship of work-related factors and demographic factors with work-related stress. Longitudinal studies are needed to investigate such relationships in the future.

#### 5. Conclusions and Recommendations

Of the nursing officers, 97(26.9%) had mild stress, 188(52.1%) had moderate stress and 76(21.1%) had severe stress. The prevalence of stress among the study population was 73 %(N=264).

In-ward nursing officers in the National Hospital of Sri Lanka had a high prevalence of moderate work-related stress. Therefore, it is recommended to establish a supporting mechanism for nursing offices to cope up with work stress. Psychological support and counselling services could be made available for those who are affected and the proper mechanism of referring nursing officers to such services needed to be established.

Developing systems for effective two-way communication, proper recruitment of health staff, counselling should be made available. Therefore, it's recommended that supporting mechanisms be formulated by policymakers and implemented by hospital authorities. Policies that decrease stress from shift work must be established such as the equal distribution of shifts in holidays as well as arrange the rest time between shifts.

The supportive mechanism should be organized for younger nurses in dealing with the death and dying of patients. The finding of the study highlights the advantages of psychological health for nurses in their job. Policymakers should develop systems to ensure the mental health of health professionals especially nurses which is the sixth most stressful profession.

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## **Declarations**

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## **Competing Interests Statement**

The authors declare no competing financial, professional and personal interests.

## Ethical Approval

Ethical approval was obtained from the Ethical Review Committee of the Post Graduate Institute of Medicine, University of Colombo.

## Consent for publication

Authors declare that they consented for the publication of this research work.

## Availability of data and material

Permission for data collection was obtained from the Deputy Director-General, Consultants, Chief Nursing Officer, and relevant ward Nursing Sisters in the National Hospital, Sri Lanka. Permission for the tool of Nursing Stress Scale was obtained from the original author of the tool. Authors are willing to share data and material according to the relevant needs.

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