Journal of Chitwan Medical College 2021;11(35):64-67
Available online at: www.jcmc.com.np

ORIGINAL RESEARCH ARTICLE

PERCEIVED LEVEL OF STRESS AMONG NIGHTSHIFT WORKING NURSES IN HOSPITALS OF KATHMANDU CITY

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Received: 14 Dec, 2020

Accepted: 15 Mar, 2021

Published: 25 Mar, 2021

Key words: Hospital; Nightshift; Nurse; Sleeping hours; Stress.

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Citation

Baniya A, Paudel AK, Chhetri MR, Thapa P. Perceived level of stress among nightshift working nurses in hospitals of Kathmandu city. Journal of Chitwan Medical College.2021;11(35):64-7.

ABSTRACT

Background: Nurse's professionals experience an overwhelming level of stress due to socio-demographic and work place related factors. This cross-sectional hospital-based study was designed to assess perceived level of stress and influencing factors among nightshift working nurses in Kathmandu, Nepal.

Methods: A cross-sectional hospital-based study using multistage sampling techniques among 266 randomly sampled nightshift working nurses was conducted. Perceived Stress Scale used to assess level of stress and associated factors. Self-administered Perceived Stress Scale was pretested and finalized before data collection. Data analyzed by using IBM SPSS verson-20 and relevant statistical test applied.

Results: Mean age of nurses was 24.46 years ± 3.771 S.D. Most of the nurses (41.3%) were between 22-26 years and 70.9% of nurses were unmarried. Nearly eighty percent of the nurses had moderate level perceived stress followed by low level (15.5%) and high level (4.9%) stress. There is significance association between sleeping hours of the nurses and stress (p= 0.013).

Conclusions: Prevalence of moderate level perceived stress was highest among nightshift working nurses in hospitals of Kathmandu, Nepal. There is significance association between sleeping hours of the nurses and stress. Longer working hours in nightshift, shorter sleeping hours, unequal and overloaded duty were main factors related to higher rates of self reported stress.

INTRODUCTION

Depression and anxiety are considered most frequent mental disorders in human life.[1,2] Nurses appear to suffer more severe mental health problems than other health practitioners and the general population.[3,4] Depression, anxiety and stress are the most prevalent mental disorders among nurses.[5,6] Mental disorders are found associated with absence from work, intention to leave, and high turnover[7,8] and these mental health problems can contribute to occupational accidents and quality of services.[9,10] Some studies have measured and reported all three[11] and other studies have reported findings separately on stress, anxiety and depression.[12-14] Nurses working in nightshift may be at risk for decreased personal health and increased errors in patient care resulting from the cumulative stressful effects of shift work.[15] So, this cross sectional hospital based study was conducted to determine the prevalence and influencing factors related to stress among the nightshift working nurses of Hospitals in Katmandu, Nepal.

METHODS

It was a cross-sectional hospital-based study where nightshift working nurses were the study population. Study population was selected on the basis of multistage sampling technique. Data was collected from September 2019 to October 2019. The list of hospitals in Kathmandu city was obtained from the District Health Office and Ministry of Health and Population. Out of total hospitals of Kathmandu, four hospitals (Upendra Devkota Memorial National Institute of Neurological and Allied Science; Nepal National Hospital; BP Smiriti Samudahik Sahakari Hospital and Vinayak Hospital and Maternity Home) were shortlisted for the study by simple random sampling method because of logistics reasons and approached for permission to conduct the study. After the permission was granted, the nightshift working nurses of these hospitals were considered for the study. Moreover, for the selection of nurses from each of the hospital, the attendance register of the nurses was used. A separate list of nightshift working nurses of each hospital was prepared. Nightshift working nurses, willing to participate and present on the study schedule were included in the study. Nurses those were not working as nightshift nurses, reluctant, absent on the study; were excluded from the study population. Sample size was derived by using the formula, $n=z^2pq/e^2$ (where, n = required sample size, z=1.96, considering 95% CI, p = prevalence of stress (50%), e=level of

precision (5%). With the addition of five percent non response rate, the total sample was 206 nurses. Next, Probability Proportional to Size (PPS) method used to determine desired numbers of nurses to be selected from sampled hospitals and finally Simple Random Sampling techniques used to select the nurses for data collection from four sampled hospitals. Globally used structured self-administered Perceived Stress Scale (PSS)[16] was used to assess perceived level of stress among the nightshift working nurses. Perceived Stress Scale (PSS) scores were calculated by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. A short 4 item scale was made from questions 2, 4, 5 and 10 of the Perceived Stress Scale (PSS) 10 item scale. Based on globally used structured self-administered Perceived Stress Scale (PSS), 0-13 was considered low stress level, 14-26 was considered moderate stress level and 27-40 was considered high level of perceived stress. Perceived Stress Scale (PSS) was pretested, edited and finalized before data collection. Self administrated Perceived Stress Scale (PSS) was the tool used to collect data and self-administered by respondents. The purpose of the study was explained to the nurses before data collection; written informed consent was obtained from the nurses and ethical approval from Nepal Health Research Council (NHRC). Respondents were instructed to return the questionnaire after completing those. The collected data were reviewed and checked for completeness. To assure anonymity, code numbers given on completed questionnaires after they return to the investigator. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 20. The results were summarized and presented by tables. Percentages, frequency, mean calculated and relevant statistical test has been applied.

RESULTS

Socio-demographic characteristics of respondents

All of the respondents were female nurses and mean age of the nurses was 24.46 years ± 3.771 S.D. Table-1 indicates that out of 206 nurses, most of the nurses (41.3%) were between 22-26 years, 35.4% were below 22 years and remaining 23.3% of nurses were above 26 years of age. Similarly, 70.4% of nurses were unmarried and 29.1% were married. By religion, most of the nurses were Hindu (80.1%) followed by Buddhist (15.5%). Regarding the ethnicity, Chhetri category represents the highest proportion (39.3%), followed by Janjati (36.9%) while the lowest was Brahmin (22.8%). Likewise, 51% of nurses belong to nuclear family, 45% to joint family and only 4% belongs to extended family (Table-1).

Prevalence and level of stress among nightshift working nurses based on PSS

The categorization of stress level has been done based on standard tool of Perceived Stress Scale (PSS). Table-2 showed that out of 206 nurses, large majority (79.6%) of nightshift working nurses had moderate level of perceived stress, followed by low level stress (15.5%) and high level of perceived stress (4.9%).

Table 1: Socio-demographic characteristics of nurses

n=206

Socio-demographic variables	Frequency (%)
Age (completed yrs)	
<22	73 (35.4)
22-26	85 (41.3)
>26	48 (23.3)
Mean age ± S.D	24.46 ± 3.771
Marital Status	
Unmarried	145)70.4)
Married	60 (29.1)
Divorce/separated	1 (0.5)
Religion	
Hindu	165 (80.1)
Buddhist	32 (15.5)
Christian	9 (4.4)
Ethnicity	
Brahmin	47 (22.8)
Chhetri	81 (39.3)
Janjati	76 (36.9)
Dalit	2 (1)
Types of Family	
Nuclear	105 (51)
Joint	92 (45)
Extended	9 (4)

Table 2: Level of perceived stress among nightshift working nurses

Level of perceived stress	Frequency (%)
Low stress	32 (15.5)
Moderate stress	164 (79.6)
High stress	10 (4.9)

Influencing factors and stress among nightshift working nurses

Younger nurses may have less coping skills and capacity than elder and it causes more stress to the younger. Table 3 disclosed that the higher percent of the nightshift working nurses below 24 yrs age group perceived more stress compared with greater or equal to 24 yrs of age group. However, there was no significance association between age of the nurses and perceived stress (p= 0.754), since p- value was more than 0.05.

Table 3. Association between age of nurses and perceived level of stress

Age of nurses	Perceived level of stress			χ^2	p-value
	Low N (%)	Moderate N (%)	High N (%)		
< 24	6 (60.0)	108 (58.1)	7 (70.0)	0.565	0.754
≥ 24	4 (40.0)	78 (41.9)	3 (30.0)		

Table 4: Duration and distribution of working hours among nightshift nurses (n=206)

Variables	Frequency (%)
Working hours in nightshift	
< 8 Hours	82 (39.8)
≥ 8Hours	124 (60.2)
Distribution of work	
Equal	135 (65.5)
Unequal	34 (16.5)
Overload	37 (18.0)

Long working hours, unequal and overloaded work distribution in hospitals are the factors related to stress among the nurses. Table 4 showed that six out of ten (60.2%) of nurses did more than 8 hours nightshift duties and 39.8% did less than 8 hours nightshift. Majority of the nurses (65.5%) reported that distribution of work was equal but 16.5% of the nurses reported about unequal distribution of work and overloaded (18%) in hospitals.

Long working hours causes overstress. Study also reveals that the nurses working for greater or equal to 8 hrs have higher proportion of stress compared to working less than 8 hrs. However, Chi- square test disclosed that there was no significance association between working hours of nurses and level of perceived stress (p=0.163) (Table 5).

Table 5: Association between working hours and perceived level of stress

Working hours of nurse (in a day)	Perceived level of stress			χ2	p-value
	Low N (%)	Moderate N (%)	High N (%)		
< 8	2 (20.0)	78 (41.9)	2 (20.0)	3.626	0.163
≥ 8	8 (80.0)	108 (58.1)	8 (80.0)		

Table 6: Association between sleeping hours and perceived level of stress

Sleeping hours of nurses (in a day)	Perceived level of stress			χ2	p-value*
	Low N (%)	Moderate N (%)	High N (%)		
< 6	5 (50.0)	79 (42.5)	9 (90.0)	8.756	0.013*
≥ 6	5 (50.0)	107 (57.5)	1 (10.0)		

**Statically significant between sleeping hours of nurses and level of stress*

Sufficient sleeping and resting hours are essential to minimize the prevalence of stress among the nurses. So, association between sleeping hours and level of perceived stress has been measured by using Chi-square test. Chi-square test showed that there is significance association between sleeping hours of the nurses and stress (p= 0.013) since p- value was less than 0.05 (Table 6).

DISCUSSION

Stress is an emotional and physical reaction and is caused by imbalance between individual's priorities and resources. As nurses are concerned, stress among them is prone to take place since they have to perform monotonous and complex nature of task repeatedly. Nursing profession is a highly stressful profession and stress among nursing professionals is becoming a crucial issue in health care delivery system. Factors such as age, marital status, workload, sleeping hours, working hours, procedural injustice, role ambiguity, conflicts in family or at workplace and environment affect mental health and job performance. However, there is a limited research on level of stress among nightshift working nurses in Nepal including developing countries. So, this is cross-sectional hospital-based study was done to assess level of stress and influencing factors among nightshift working nurses of Hospital in Kathmandu, Nepal.

In other countries males are also involved in nursing profession. However, due to various social stigmas attached only females choose this profession in Nepal. The results of this study disclosed that 79.6 percent of the nurses had moderate level of perceived stress, followed by low level (15.5%) and high level (4.9%) of perceived stress. Studies done in Iran, showed prevalence of stress and anxiety among the nurses were at a significant level.[17] Similarly, stress among nurses was reported 18.5 percent in Vietnam,[18] 41.2 percent in Autralia,[19] 41.1 percent in Hong Kong[20] and 25.7 percent stress was found among the nurses in Nepal.[21]

Concerning cause of stress, nurses working for greater or equal to 8 hrs have higher proportion of stress and 60.2 percent of nurses did more than 8 hours nightshift duty, distribution of work was unequal (16.5%) and overloaded (18%). Chi-square test of current study showed that there is significance association between sleeping hours of the nurses and stress (p= 0.013) since p- value was less than 0.05. In associating the variables with the level of stress, the variables like age, working hours have no significant association at the level of p<0.05.

A study done in USA[22] found that 92 percent of the nurses had moderate-to-very high stress levels and 78 percent of them slept less than 8 hours of sleep per night; cross sectional study done in India noted 1% mild stress, 39.5% moderate stress and 59.5% severe stress among the nurses;[23] the higher the job stress scores were, the worse the quality of sleep among the nurses in China;[24] significant correlation was observed between stress and sleep (Spearman Analysis; r = 0.21318; p = 0.0026) in Brasil[25] and 59.3% of nurses experienced moderate level stress, 36.8% severe, 2.4% experienced very severe stress in Goa of India.[26] Based on these review, it is clear that the results of current study is found compatible with previous studies; however finding of this study were not well-matched with some of the previous results because of variances in study design, sampling method, data collection tool and age of the respondents.

CONCLUSION

Large majority (79.6%) of nightshift working nurses had moderate level of perceived stress, followed by low level stress (15.5%) and high level of perceived stress (4.9%). So, moderate, level stress among nightshift working nurses in Hospitals of Kathmandu, Nepal is found alarming. There is significance association between sleeping hours of the nurses and stress. Longer hours of working in nightshift, shorter hours of sleeping, unequal and overloaded duty were the main factors related to higher rates and severity of self-reported stress among nurses, which seeks immediate attention. This finding has also some clear implications for mental health policy and for hospital management. There is urgent need to develop workplace mental health policies, workplace mental health promotion programs and effective supports within workplaces for nurses experiencing significant mental health problems. These developments are essential for improving quality of services and safety of patients and staff in high-pressure environments in hospitals.

ACKNOWLEDGEMENT

We acknowledge to the management of the hospitals for their support; nursing staffs for facilitating the study and appreciate respondents for their valuable time and kind cooperation.

CONFLICT OF INTEREST: None

FINANCIAL DISCLOSURE: None

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