Prevalence of Anxiety and Depression among Nurses Working Nightshift at Hospitals in Kathmandu Valley of Nepal

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ABSTRACT

Background: Nurses professionals experience an overwhelming level of depression and anxiety; which remain taboo, despite the prevalence of these mental health conditions within the field. This cross-sectional hospital-based study was conducted to identify the prevalence of anxiety, depression and associated factors among nightshift working nurses of hospitals in Kathmandu Valley of Nepal.

Methods: Cross-sectional hospital-based study was done among randomly sampled nightshift working nurses. Total 206 samples derived by using the formula; $n=z^2pq/e^2$. Hospital Anxiety and Depression Scale used to assess the level of anxiety, depression and associated factors. The self-administered Hospital Anxiety and Depression Scale was pretested and finalized before data collection. Nightshift working nurses were respondents and the purpose of the study explained to the respondents before data collection. Verbal informed consent was obtained from nurses and ethical approval from Nepal Health Research Council was taken. Scientific Package for Social Science version-20 used for data analysis and relevant statistical test applied.

Results: Mean age of nurses was 24.46 ± 3.7 SD. years Forty-one percent of the nurses were between 22-26 years and 70.9% of them were unmarried. Three in four (75.0%) of nightshift working nurses had anxiety and nearly half (49.5%) of them had depression. Age of the nurses and level of anxiety (p= 0.032); working duration of the nurses and level of depression (p= 0.02) was found significantly associated with the depression.

Conclusions: Remarkable proportion of hospital working nurses of Kathmandu Valley has anxiety and depression. Age and working duration of nurses were the factors associated with anxiety and depression respectively. So, there is an insistent need to develop policies, plans and programs to resolve the issues related to the prevalence of anxiety and depression among the hospital working nurses in Kathmandu Valley.

Keywords: Anxiety, Depression, Hospital, Kathmandu, Nightshift, Nurse

INTRODUCTION

A psychological state like stress, anxiety, and depression are some of the key challenges for psychologists, psychiatrists, and behavioural scientists globally and depression is a common mental disorder in the world depression.[1] Depression and anxiety are the most common mental disorders with a prevalence of 10 to 20 percent in the general population.[2-4] In this context, the nursing profession has been reported to be one of the most stressful in both developed and developing countries.[5-6] Nurses appear to suffer more severe mental health problems than other health practitioners in clinical positions and the general population.[7,8] It is also well known that mental disorders are significantly related to absence from work, intention to leave, and high turnover.[9,10] The presence of those one or more psychological problems among the nurses can contribute to decreased quality service and occupational accidents[11,12], impaired work performance and errors of judgment, and a negative attitude at work.[13] Moreover, a nurse's psychological problems could also affect the lives and level of satisfaction of hospital patients and also the standard of services provided[14] and also for her/his employing organization can contribute to reputational damage, and reduced productivity and clinical effectiveness.[15]

In such a situation, nurses working at nightshift is also a threat for decreased personal health and increased errors in inpatient care due to cumulative stressful effects of nightshift work. So, this cross-sectional hospital-based study was conducted to assess the prevalence and associated factors related to anxiety and depression among the nightshift working nurses of hospitals in Kathmandu City of Nepal.

MATERIALS AND METHODS

An observational cross-sectional hospital-based study design was adopted for this study. All nightshift working nurses of the hospitals were the study population in Kathmandu Valley. The study population was selected on the premise of the multistage sampling technique. A list of hospitals of Kathmandu Valley was obtained from the District Health Office and Ministry of Health and Population. Four private 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) of the Kathmandu Valley were shortlisted for this 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 identification 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 within the study. Nurses who were not working as nightshift, reluctant to participate and absent from 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 psychopathy (50%), e=level of precision (5%). With the addition of a five percent non-response rate, the total sample was 206 nurses. Next, the probability proportional to size (PPS) method used to determine desired numbers of nurses were selected from each 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 Hospital Anxiety and Depression Scale (HADS) has been used to assess anxiety and depression level among the nightshift working nurses. The HADS is a frequently used self-rating scale developed to assess psychological distress in non-psychiatric persons[16] and it has demonstrated satisfactory psychometric properties in general populations.[17,18] A recent review of the literature on the validity of the HADS indicates that it is a well-performed tool in assessing the level of anxiety disorders and depression[19] and also found to be a reliable tool for detecting states of depression and anxiety.[20] HADS scores include seven responses to assess anxiety and seven for depression with a total of 14 questionnaires. Each response has four rating scales (i.e, 0= not at all, 1= occasionally, 2= quite often and 4= very often). For this study purpose, the final scores between 0 to 7 is considered as normal and scores 8 to 14 as anxiety or depression. HADS was pretested, edited and finalized before data collection. HADS was the tool used to collect data by self-administering way.

The purpose of the study was explained to the nurses before data collection; verbal 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 were analyzed using Statistical Package for Social Sciences (SPSS) version 20. Percentages, frequency, mean the calculated and relevant statistical test has been applied. Statistical significance was set at p<0.05 level.

RESULTS

All of the respondents were female nurses and the 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, 35.4percent were below 22 years and the remaining 23.3 percent of nurses were above 26 years of age. Similarly, 70.4 percent of nurses were unmarried and 29.1 percent were married. By religion, most of the nurses were Hindu (80.1%) followed by Buddhist (15.5%) and Christian (4.4%). 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 percent of nurses belong to the nuclear family, 45 percent to joint family and only 4 percent belong to extended family (Table 1).

Table 1: Socio-demographic characteristics of respondents

Socio-demographic variables	Frequency (n=206)	Percent
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
Caste/Ethnicity		
Brahmin	47	22.8
Chhetri	81	39.3
Janjati	76	36.9
Dalit	2	1.0
Family types		
Nuclear	105	51
Joint	92	45
Extended	9	4

Prevalence of anxiety and depression among nightshift working nurses based on HADS

Out of 206 nurses, a large majority 155 (75.2%) of nightshift working nurses had anxiety and nearly half (49.5%) of them had depression (Table 2).

Table 2: Anxiety and depression level among nightshift working nurses

Variables	Frequency (n=206)	Percent
Anxiety		
Normal	51	24.8
Anxiety	155	75.2
Depression		
Normal	106	51.5
Depression	100	49.5

Family support and family relationship

More than half (51.9%) of the nurses had sufficient family support, 34.5 percent had very sufficient family support and 12.1 percent had partially sufficient family support. Similarly, more than half (56.8%) of the respondents had a very good family relationship and 41.3 percent had a good family relationship (Table 3).

Table 3: Family support and family relationship of the respondents

Variables	Frequency (n=206)	Percent
Family Support		
Insufficient	3	1.5
Partially sufficient	25	12.1
Sufficient	107	51.9
Very sufficient	71	34.5
Family relationship		
Worst	1	0.5
Bad	3	1.5
Good	85	41.3
Very good	117	56.8

Number of children and their caring roles

Out of a total of 206 respondents, 60 of them were married. Similarly, out of 60 married nurses, 38 (62.3%) of them has children. Furthermore, 42.1 percent of them have 1 child and 57.9 percent had 2 children. Similarly, 55.3 percent of the children were cared for by Mother-in-law and 26.3 percent of children were cared for by the husband of the respondents during night shift duty (Table 4).

Table 4: Number of children and caring roles

Variables	Frequency	Percent
Have child (n=60)		
Yes	38	62.3
No	22	37.7
Number of children (n=38)		
1	16	42.1
2	22	57.9
Take of children (n=38)		
Husband	10	26.3
Mother in law	21	55.3
Others	7	18.4

Factors associated with anxiety and depression among nightshift working nurses

Nightshift working nurses below 24 yrs age group has a higher percent of anxiety (63.2%) compared with greater or equal to 24 yrs of age group (36.8%). Anxiety is also found higher among the nurses working for equal or more than 8 hours (59.4%) compared to less than 8-hour working duration. A significant association has been observed between the age of the nurses and level of anxiety (p= 0.032), since the p-value was less than 0.05 (Table 5).

Table 5: Factors associated with anxiety among nightshift working nurses

Variables	Level of anxiety		Chi- square value	P- value
	Normal	Anxiety		
Age of respondents (yrs)				
< 24	23 (45.1%)	98 (63.2%)	5.203	0.032*
≥ 24	28 (54.9%)	57 (36.8%)		
Working duration (in hrs)				
< 8	19 (37.3%)	63 (40.6%)	0.184	0.668
≥ 8	32 (62.7%)	92 (59.4%)		

Statistically significant between the age of the respondents and anxiety

Depression is higher among the nightshift working nurses below 24 yrs age group (58.0%) compared to the greater or equal to 24 yrs of age group (42.0%). Nurses working for equal or more than 8 hours (52.0%) have a higher percent of depression compared to the nurses working for less than 8-hour working duration (48.9%). A significant association is observed between the working duration of the nurses and level of depression (p= 0.02), since the p-value was less than 0.05 (Table 6).

Table 6: Factors associated with depression among nightshift working nurses

Variables	Level of depression		Chi- square value	P- value
	Normal	Depression		
Age of respondents (yrs)				
< 24	63 (59.4%)	58(58.0%)	0.044	0.834
≥ 24	43 (40.6%)	42 (42.0%)		
Working hours				
< 8	34 (32.1%)	48 (48.0%)	5.446	0.02*
≥ 8	72 (67.9%)	52 (52.0%)		

Statistically significant between working hours of nightshift nurses and depression

DISCUSSION

A mental disorder is an emotional and physical reaction and is caused by an imbalance between an individual's priorities and resources. As nurses are concerned, such mental disorders among them are prone to take place since they have to perform the monotonous and complex nature of task repeatedly. The nursing profession is highly stressful; anxiety and depression among nursing professionals are becoming crucial issue in the health care delivery system. Factors such as age, marital status, workload, working hours, role ambiguity, and support from family or workplace environment affect the mental health and job performance of the nurses. A review of the previous studies has also suggested that depression affects employee performance as well as organizational productivity.[21,22]

Current study showed that 75.2 percent of nightshift working nurses had anxiety and 49.5 percent of them had depression. While comparing with the results of previous studies, we found variation and similarities in the prevalence of anxiety and depression among the hospital working nurses. A cross-sectional study used Depression, Anxiety and Stress Scale-21 tool in

Vietnam and reported the prevalence of anxiety and depression 39.8 percent and 13.2 percent respectively among the hospital working nurses[23] and 40 percent anxiety and 35.8 percent depression has been reported through the use of the HADS tool among the nurses of the hospitals in South India.[24] In Iran, the prevalence of anxiety and depression among the nurses were at a significant level.[25] Depression and anxiety were reported 32.4 percent and 41.2 percent respectively among nurses in Australia,[26] and it was 35.8 percent and, 37.3 percent respectively in Hong Kong.[27] In context of Nepal, prevalence of depression and anxiety among the hospital nurses of Nepal was 39.5 percent and 50 percent respectively.[28] We also noted that the depression prevalence among nurses in our study is also within the ranges reported in previous literature around the world with depression rates ranging from approximately 18-53 percent[29-32] and anxiety prevalence of current study is closer to the result of the Middle East (71.18% had moderate or higher than moderate anxiety, and 11.02% had relatively severe or severe anxiety).[33]

Previous study has suggested that the chance of depression is twice as high among nursing professionals because of poor social support[34]; 31.6 percent of the nurses had high levels of social support and the average social support was $47/65 \pm 93/6$ among the nurses working at Zanjan University of Medical Sciences[35] and depression and anxiety symptoms had highly significant correlations with family functioning and social support among the Chinese medical students.[36] So, the results of the current study are very closer to the past research finding from different countries.

Concerning the factors associated with anxiety, the current study showed that the nightshift working nurses below 24 yrs age group has a higher proportion of anxiety (63,2%) and there is a significant association between age of the nurses and level of anxiety (p= 0.032). Most of the respondents in the current study were young to middle-aged females and unmarried nurses. Literature and previous study results also showed that young age was the key risk factors for anxiety for hospital workers[37], age group have been observed as a significant factor for depression and anxiety in a study from Bangladesh.[38] However in Al-Irsyad Hospital Surabaya, no relationship has been observed between age and level of anxiety among the nurses[39] and the lowest proportion of mental disorders was also observed in the younger nurses who had fewer years of services in Vietnam.[23]

In the current study, the proportion of depression is higher among the nurses working for equal or more than 8 hours (52.0%) and also has a significant association between the working duration of the nurses and level of depression (p= 0.02). A previous study done in China reported that the workload and time pressure was correlated with the prevalence of depression (p=.003) among hospital nurses[40] and working time was significantly positively correlated with depression based on HADS scores.[41] However few previous studies have also reported no significant difference between the depression among the nurses in terms of work shift, and ward of work.[34] Similarly, the insignificant association was also observed between workload and job stress among the nurses of Vasei Hospital, Sabzevar City[42] and no relationship noted between the length of work with the level of depression in Al-Irsyad Hospital, Surabaya.[40]

While reviewing the past studies, we also noted that there were differences in socio-demographic features of the respondents, sampling techniques, sample size and tool used for data collection. So, the results of the current study were similar as well as different from previous studies. This is a cross-sectional study and causality cannot be established regarding the risk factors through this study design. Future research might apply to different study designs (i.e., interventional, longitudinal designs) to identify the contributing factors for anxiety and depression among nightshift working hospital nurses.

CONCLUSIONS
The prevalence of anxiety and depression among nightshift working nurses in Hospitals of Kathmandu Valley, Nepal is found alarming. Age and working duration of nurses are the factors associated with anxiety and depression respectively. Findings have also some clear implications for mental health policy development and hospital management strategy. There is an 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 the quality of services and safety of patients and staff in high-pressure environments in hospitals.

List of abbreviations: HADS: Hospital Anxiety and Depression Scale, NHRC: Nepal Health Research Council, PPS: Probability Proportional to Size, SPSS: Statistical Package for Social Sciences.

Ethics approval and consent to participate: Ethical Approval was obtained from Nepal Health Research Council (NHRC)/Nepal (attached herewith) and verbal consent was obtained from respondents

Availability of data and materials: The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions: All authors have equally contributed to the whole research process including research design, data collection and analysis including developing research article.

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