Original Article

Depression, Anxiety, Stress and Workplace Stressors among Nurses in Tertiary Health Care Settings

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Abstract

Background: Chronic job stress adversely impacts both mental health of nurses and patient care. There is paucity of data regarding workplace stressors and negative emotions among nurses. **Aims:** To assess depression, anxiety and stress among nurses and analyse their association with workplace stressors. **Settings and Design:** A hospital based cross-sectional study was conducted in two tertiary care hospitals. **Methods and Material:** Four hundred and thirty one nurses completed nurses rated depression, Anxiety and Stress instrument (DASS-21) and a questionnaire probing perceived workplace stressors on a 4 point Likert scale . The stressors across subgroups of workareas were compared. **Satistical Analysis:** Association between stress, anxiety or depression and workplace stressors were analysed using binary logistic regression. **Results:** 50.8% of nurses had stress; 74% had anxiety; 70.8% had depression. 79.1% had at least one of them. Stressed, anxious or depressed nurses were more concerned about lack of job satisfaction and conflicts with supervisors. Work-place stressors varied with work areas: private hospital, no job satisfaction, conflicts with doctors and patients; government hospital, acquiring infectious diseases; ICUs, inadequate salary; non-ICUs, odour and sounds in workplace and conflicts with patients. **Conclusions:** Prevalence of depression, anxiety and stress was high. Workplace stressors varied across different working areas. Interventions need are to be tailored accordingly.

Keywords: Depression; stress; workplace stress; nurse; job satisfaction; perceived work stressors; mental health

Introduction

Chronic job stress adversely impacts both physical and mental health of workforce. Over time, this type of stress could lead to severe health problems like heart disease, elevated blood pressure, diabetes, and mental disorders like depression and anxiety.[1]

Among the various professionals in the health care industry, role of nurses is paramount. It has been observed that nurses spend a longer time than physicians caring for ill people.[2] Moreover, it has also been reported that nurses are the most stressed among health care professionals.[3,4] Besides, occupational stress among nurses is known to adversely influence patient caring behaviour.[5] Thus it is important to identify stressors affecting nurses in the workplace, for both a healthy nursing workforce and quality patient care.

Various studies have revealed that nursing professionals are subject to severe stress due to conflicts with doctors, conflicts with colleagues, conflicts with patients or their bystanders and supervisors.[5-9] Deaths and sufferings of patients, odour and sounds in workplace, fear of spread of infectious diseases add to the mental trauma. There is also lack of time for family, sleep and recreation. Inadequate pay and increased work load are major causes of lack of job satisfaction.[5-13] However, there is no uniformity in the stressors affecting nurses and are different with varying settings. Hence it is imperative to identify the specific stressors in the given settings in order to initiate corrective measures.

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Indian studies have reported job related stress in various professions.[14-17] However, in the Indian context, there are very few reports of workplace stress among nurses.[4,8,18] Therefore the present study was undertaken to identify depression, anxiety and stress amongst nursing professionals in India, probe their association with perceived workplace stressors and compare the various workplace stressors in different working areas.

Subjects and Methods

This hospital based cross-sectional study was conducted in two tertiary care hospitals, one was a government hospital and other was run by the private sector. This hospitals catered to the health care needs of many individuals within and the nearby districts, also many students of medicine and nursing field were trained. Eligible nurses included were informed and consent was obtained. Individuals on medications for psychiatric conditions were excluded. Study was carried out from March 2019 to May 2019. Sample size of 368 was needed considering the proportion of depression, anxiety and stress to be 40% in the study population based on a previous study[11] at a desired precision of 5%. However, anticipating incomplete questionnaires, a convenience sample of 450 nurses who consented were included. The included nurses were asked to fill the response sheets. First part of the document included demographic details such as age and marital status. Employment details like sector of work, unit working in, overall experience as staff nurse, experience in the current department, number of night duties in a month and hours of duty per week were also collected. Second part consisted of a questionnaire with 15 statements each of which were rated by the respondents on a 4 point Likert scale ranging from 0 to 3 (0: did not apply at all, 1: applied to some degree, or some of the time; 2: applied a considerable degree, or a good part of time; 3: applied very much or most of the time) as presented in Table 1. The questionnaire included responses to statements regarding job satisfaction, stress due to conflicts within nursing team, stress due to conflicts with doctors, stress due to conflicts with nursing supervisors, stress due to conflicts with patients, lack of recognition of work, inadequate salary, work overload, effect of work on sleep and relationship with family, stress due to patient deaths and sufferings, stress due to odour and sounds in workplace, stress due to lack of equipment and/or availability of drugs, stress due to fear of spread of infectious diseases and stress due to lack of knowledge of operation of special equipment (e.g., ventilator) or knowing special procedures. This questionnaire was formulated after literature review and discussions with six working clinical nurses. It was validated by panel of six experts, an associate professor in community nursing, a paediatrician and four senior nurses in charge of hospitals and intensive care unit. Further, it was pretested on 40 respondents and found to be reliable with Crohnbach's alpha of 0.823.

The third part of the document was the Depression, Anxiety and Stress Scale - 21 Items (DASS-21), a shorter version of

Table 1: Questionnaire with statements each of which were rated by the respondents on a 4 point Likert scale ranging from 0 to 3

	Statement requiring response on Likert scale 0 to 3
1	I feel there is no job satisfaction in this profession.
2	I feel there is stress on me due to conflicts within our nursing team
3	I feel there is stress due to conflicts with doctors in unit
4	I feel there is stress due to conflicts with nursing supervisors
5	I feel there is stress due to conflicts with patients
6	I feel there is lack of recognition of work
7	I feel there is inadequate salary and other perks
8	I feel there is work overload
9	I feel my job has affected sleep
10	I feel my job has affected my relationship with family/ friends
11	I feel there is stress due to patient deaths and sufferings
12	I feel there is stress due to odour and sounds in workplace
13	I feel there is stress due to lack of equipment and/or availability of drugs
14	I feel there is stress due to fear of spread of infectious diseases from patients
15	I feel there is stress due to lack of knowledge of operation of special equipment (eg.ventilator)/ knowing special procedures

DASS.[19] DASS-21 is a valid and reliable self-administered psychological instrument consisting of three subscales with seven items in each: DASS-21 Depression, DASS-21 Anxiety and DASS-21 Stress. Respondents needed to rate the presence of these symptoms over the past week on a 4-point Likert scale ranging from 0 to 3 (0: did not apply at all, 1: applied to some degree, or some of the time; 2: applied a considerable degree, or a good part of time; 3: applied very much or most of the time). The higher subscale scores indicated more severe symptoms in the particular domain. Scores for depression, anxiety and stress were analysed by adding the scores for the relevant items. The total scores in each subscale was multiplied by 2 for the final score. Scores thus obtained were categorised as 'normal', 'mild', 'moderate', 'severe' and 'extremely severe' for each of the 3 subscales as in previous studies.[11,16,20,21] Any nurse who was screened to be positive for depression, anxiety or stress as per the DASS-21 was referred to a psychiatrist for further management. DASS-21 showed good reliability in the present study with Crohnbach's alpha for each of the three subscales as follows: stress, 0.856; anxiety, 0.848 and depression, 0.842. This instrument has been used previously by researchers to measure stress among nurses[4,11,21,22] and among other occupations.[16,17] The study was conducted after aproval of the study protocol by the after Institutional Ethics Committee, the number of the approval letter is IEC KMC MLR 02-19/66.

The data collected were put to SPSS, version 15.0 (SPSS Inc., Chicago, Ill., USA). Data were expressed as mean ± standard deviation and percentages. The Likert scores for perceived stress across subgroups of work areas were compared using Mann-Whitney U test. Depression, anxiety and stress subscales were dichotomized individually based on scores

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into groups – normal and present. Category 'normal' was included in the normal group and those categorized 'mild', 'moderate', 'severe' and 'extremely severe' were merged under group- present. Univariate analysis using Chi-square test was performed to analyse significant differences between the two groups across all 15 statements in the questionnaire to measure perceived stress for all 3 subscales of DASS21. They were selected as covariates to be entered in the binary logistic regression analysis model, depression absent (normal)/present; anxiety absent (normal)/present; and stress absent (normal)/present as dependent variable. Other parameters like age, years of experience, number of night duties and holiday duties were compared using Mann-Whitney test.

Results

Out of 450 nurses enrolled 19 were excluded due to partially complete responses. The participants were all female nurses working on day shift during the study period. The baseline characteristics of the nurses is as given in Table 2. Majority of the nurses in the study population worked in private sector for an average 48 hours per week. They were distributed across thirty different work areas in the hospitals.

In the depression subscale, it was found that 29.2% (126) of the 431 nurses studied were normal; 11.1% (48) had mild; 33.4% (144) had moderate, 15.1% (65) had severe, and 11.1% (48) had extremely severe depression. In the anxiety domain, 26% (112) nurses were found to be normal; 4.2% (18) had mild; 23.2% (100) had moderate; 14.4% (62) had severe and 32.3% (139) had extremely severe anxiety. There was no stress among 49.2% (212), whereas, 11.8% (51) had mild, 16.3% (70) had moderate, 18.8% (81) had severe and 1.9% (8) had extremely severe stress. 20.9% (90) of the 431 nurses screened were normal in all 3 subscales of depression, anxiety and stress.

The frequencies of responses by nurses on a Likert scale 0, 1, 2 and 3 for the questionnaire probing the perceived causes of stress showed that majority of the nurses felt that were stressed due to lack of job satisfaction, lack of appreciation/recognition of work, inadequate salary, lack of sleep and work overload [Table 3].

Table 2: Demographic and employment characteristics of the study population

Parameter	Value
Age, years, mean (SD)	31.43 (9.4)
Marital status, married, *n* (%)	240 (55.7)
Sector, Private hospital, *n* (%)	371 (86.1)
Type of employment, contract basis, *n* (%)	136 (31.6)
Working in Intensive care unit, *n* (%)	101 (23.4)
Years of nursing experience, mean (SD)	8.45 (8.7)
Years spent in current unit, mean (SD)	4.16 (5.8)
Hours of work in a week, mean (SD)	48.44 (22.7)
Number of night duties per month, mean (SD)	6.45 (2.2)

Comparison of perceived causes of stress showed that the nurses working in private sector had significantly lesser job satisfaction, more stress due to conflicts with doctors and patients and felt that work affected their relationship with family and friends when compared those working in government hospital. Significantly increased fear of acquiring infectious diseases from patients in hospital was seen with the nurses in the government sector (P = 0.003) [Table 4]. The nurses working in private hospital were more significantly anxious compared to those in the government hospital [75.7% (281) versus 63.3% (38) respectively; P = 0.042]. The private hospital nurses were also more depressed, but differences were not statistically significant [72% (267) versus 63.3% (38); P = 0.172]. The prevalence of stress was lesser in the private hospital nurses [50.1% (186) versus 55% (33); P = 0.491).

The nurses working in ICUs were stressed due to lack of adequate salary commensurate with workload P = 0.003. The nurses working in non-ICUs were significantly more stressed due to odour and sounds in workplace, conflicts with patients/their families and lack of equipment or unavailability of drugs (P = 0.036; P = 0.047; P = 0.035, respectively) when compare to nurses working in ICUs [Table 4]. The nurses working in intensive care units were more anxious and stressed compared to those working in other areas, though the differences were not statistically significant [79.2% (80) versus 72.4% (239); P = 0.174 and 55.4% (56) versus 49.4% (163); P = 0.287]. However, prevalence of depression was marginally lesser among intensive care nurses [69.3% (70) versus 71.2% (235), respectively; P = 0.713] and differences were not statistically significant.

The likert scores to each of the fifteen perceived causes of stress were compared across all 3 subscales of DASS21, showed statistically significant differences between the 2 groups (normal vs. present) on univariate analysis (Chi-square test). Hence a binary logistic regression analysis was done with presence of depression; anxiety; and stress as dependent variables. A significant association between stress in nurse and lack of job satisfaction, conflicts with nursing supervisors, lack of knowledge of operation of special equipment or knowing special procedures was present. There was also a significant association between depression in nurses and lack of job satisfaction, conflicts with nursing supervisors, lack of knowledge of operation of special equipment or knowing special procedures. Anxiety in nuses was found significantly associated with lack of job satisfaction, conflicts with nursing supervisors and lack of sleep [Table 5].

Discussion

The study done among nurses it was found that 50.8% of nurses had varying degrees of stress; 74% had varying degrees of anxiety and 70.8% had mild to very severe depression. 79.1% were positive for at least one of the negative emotional states. The participants were all female nurses this is because in the hospitals where study was done the overall ratio of male to

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Table 3: Table depicting the frequency of responses to statements probing the perceived causes of stress among nurses

Statement requiring response	Response 0 *n* (%)	Response 1 *n* (%)	Response 2 *n* (%)	Response 3 *n* (%)
There is no job satisfaction in nursing	75 (17.4)	131(30.4)	162(37.6)	63(14.6)
There is stress due to conflicts within our nursing team	64 (14.8)	176 (40.8)	138 (32.0)	53 (12.3)
There is stress due to conflicts with doctors in unit	76 (17.6)	171 (39.7)	133 (30.9)	51 (11.8)
There is lack of recognition of work/ appreciation of good work	54 (12.5)	148 (34.3)	146 (33.9)	83 (19.3)
There is inadequate salary and other remuneration	44 (10.2)	112 (26.0)	135 (31.3)	140 (32.5)
My job has affected my sleep	98 (22.7)	111 (25.8)	108 (25.1)	114 (26.5)
My job has affected my relationship with family/ friends	99 (23.0)	131 (30.4)	124 (28.8)	77 (17.9)
There is work overload	40 (9.3)	135 (31.3)	145 (33.6)	111 (25.8)
There is stress due to conflicts with nursing supervisors/administrators	73 (16.9)	161 (37.4)	142 (32.9)	55 (12.8)
There is stress due to patient deaths and sufferings	88 (20.4)	169 (39.2)	123 (28.5)	51 (11.8)
There is stress due to odour and sounds in workplace	102 (23.7)	168 (39.0)	122 (28.3)	39 (9.0)
There is stress due to conflicts with patients/ bye standers	70 (16.2)	178 (41.3)	132 (30.6)	51 (11.8)
There is stress due to lack of equipment and availability of drugs	93 (21.6)	154 (35.7)	140 (32.5)	44 (10.2)
There is stress due to fear of spread of infectious diseases from hospital	73 (16.9)	173 (40.1)	115 (26.7)	70 (16.2)
There is stress due to lack of knowledge of operation of special equipment (ventilator)/ knowing special procedures	83 (19.3)	167 (38.7)	123 (28.5)	58 (13.5)

*The respondents were asked to rate the statement based on what they felt during the past few days. The rating scale is as follows: 0 Did not apply to me at all; 1 Applied to me to some degree, or some of the time; 2 Applied to me to a considerable degree or a good part of time; 3 Applied to me very much or most of the time

Table 4: Comparison of perceived causes of stress among nurses working in different settings

Perceived causes of stress	Place of work, mean (SD) of scores			Sector of work, mean (SD) of scores		
	Intensive care unit, *n*=101	Non ICU, *n*=330	*P*	Government, *n*=60	Private, *n*=371	*P*
Lack of job satisfaction	1.6 (0.88)	1.46 (0.96)	0.215	1.2 (1.17)	1.54 (0.89)	*0.018
Conflicts within nursing team	1.4 (0.84)	1.42 (0.9)	0.724	1.28 (0.9)	1.44 (0.88)	0.169
Conflicts with doctors in unit	1.34 (0.85)	1.38 (0.92)	0.541	1.02 (1.11)	1.43 (0.86)	**0.001
Inadequate salary and other perks	2.13 (0.85)	1.78 (1.01)	**0.003	1.62 (1.15)	1.9 (0.95)	0.079
Work has affected relationship with family/friends	1.46 (1.12)	1.4 (1)	0.656	1.12 (1.09)	1.46 (1.01)	*0.014
Odour and sounds in workplace	1.06 (0.81)	1.28 (0.94)	*0.036	1.3 (0.9)	1.22 (0.91)	0.501
Conflicts with patients/ their family	1.23 (0.85)	1.43 (0.9)	*0.047	1.13 (0.91)	1.42 (0.88)	*0.015
Lack of equipment and unavailability of drugs	1.16 (0.91)	1.36 (0.92)	*0.035	1.43 (1.08)	1 .29 (0.89)	0.312
Fear of spread of infectious diseases from hospital	1.37 (0.99)	1.44 (0.94)	0.373	1.78 (1.05)	1.36 (0.92)	**0.003

*P<0.05; **P<0.01. Mann-whitney U test was used to compare the groups

Table 5: Binary logistic regression analysis with moderate to very severe anxiety or depression as dependent and causes of stress as perceived by nurses as covariates

*Covariates perceived by nurses to cause stress	Stress		Anxiety		Depression	
	Odds ratio (IQR)	*P*	Odds ratio (IQR)	*P*	Odds ratio (IQR)	*P*
Lack of job satisfaction	1.58 (1.19-2.08)	0.001	1.34 (1.01-1.77)	0.041	1.37 (1.0-1.73)	.05
Conflicts with nursing administration/supervisors	1.55 (1.12-2.12)	0.007	1.67 (1.17-2.38)	0.005	1.62(1.16-2.2)	.005
Lack of knowledge of operation of special equipment / knowing special procedures	1.75 (1.29-2.37)	0.001	1.13 (0.8-1.60)	0.48	1.45 (1.03-2.02)	.031
Job has affected sleep	1.23 (0.94-1.61)	0.130	1.40 (1.06-1.86)	0.017	1.18 (0.89-1.55)	.234

*Other covariates perceived to cause stress in nurses included in the analysis: Odour and sounds in workplace, fear of spread of infectious diseases, conflicts with patients/ their families, conflicts within nursing team, conflicts with doctors, lack of recognition of work, inadequate salary, job affecting relationship with family/ friends, work overload, patient deaths/ sufferings and lack of equipment/ unavailability of drugs

female nurse was 1:20 and the male nurses were working only in emergency and trauma, orthopedics and surgery wards. And also the proportion of male nurses working during the day shift was further less, hence our sample comprised of all female nurses.

Though the variances in the overall prevalence of stress and depression were not statistically significant, it was observed that causes of job stress were different across different working areas. Nurses working in the intensive care felt stressed as

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their pay was perceived to be inadequate for their services. Nurses working in non-intensive care areas felt stressed due to conflicts with patients and non-availability of drugs or lack of equipment as compared to those working in the intensive care units. The nurses working in private sector were more anxious, experienced lower job satisfaction, and had greater job stress due to conflicts with doctors or patients. Private hospital nurses also felt that work affected their relationship with family or friends. The nurses in the government sector were more stressed due to the fear of acquiring infectious diseases from the hospital as compared to those in private sector.

Analysing the relationship between presence of stress, anxiety or depression and the perceived causes of job stress showed that nurses who had mild, moderate, severe or extremely severe degree of stress, anxiety or depression as per the DASS-21 instrument were more worried due the lack of job satisfaction and conflicts with supervisors as compared those with corresponding normal attributes. Nurses with anxiety were more concerned about their job affecting sleep than those without anxiety.

In this study stress, anxiety and depression among Indian nurses were higher than that reported in studies done elsewhere using DASS-21 psychological instrument. All the nurses having stress, anxiety or depression were referred to psychiatrist for detailed examination and management. Report from Hong Kong showed prevalence of stress, anxiety and depression among 41.1%, 37.3% and 35.8% nurses, respectively[11] whereas another from Vietnam showed prevalence of stress, anxiety and depression among 18.5%, 39.8% and 13.2% nurses respectively.[21] The differences observed could be attributed to the different demographic characteristics of the study populations and difference in working conditions.

In Gujarat, India[18] 68.29% of nurses working in intensive care units were stressed as compared to the lower proportion of 50.8% observed in our study. Another study from Meerut, India reported that 54% of nurses had moderate to severe stress.[8] These reports are in line with our findings and indicate higher stress among nurses in India.

The causes of perceived job stress were different for nurses working in government versus private hospital and those working in intensive care versus others. Similar observations were made in a study from Ireland, which concluded that stress varied within different work areas in same hospital.[23]

The findings concur with several studies that point that low job satisfaction[6,10] and conflicts with doctors, patients and colleagues[6,8,10,12,22-25] are important causes of workplace stress. The sub-group of nurses working in the government hospital in the present study were stressed due to fear of contracting infectious diseases in the hospital as reported in another study.[9] Our finding of stress among subgroup of nurses due to sounds and odour at workplace has also been reported earlier.[12] The subgroup of nurses in the intensive care units were also stressed about inadequate pay as reported in other studies.[8,22,24]

India has more than 1.78 million registered general nursing midwives and 0.78 million registered auxiliary nursing midwives[26] who work in various government and private setups. Our findings show that this large workforce which is dominated by women has been significantly affected by stress, anxiety and depression. The prevalence of these negative emotional states among nurses in this study was higher than that reported among other Indian occupations like- intensive care doctors,[4] cab drivers,[17] call centre workers[27] and factory.[16] The differences could imply that nursing profession in India is more demanding.

The present study was cross-sectional and had several limitations. This being a questionnaire based study, social desirability response bias cannot be ruled out. The respondents recruited were all female nurse from a private and a government hospital and results cannot be generalized. The study would have been more informative if data on the effect of stress among nurses on patient care was also collected. A longitudinal study involving follow up of enrolled nurses would have yielded better information. Besides, details of personal and familial issues which could also affect the mental state of respondents were not collected.

However, despite the limitations, the index study has pointed the high prevalence of stress, anxiety and depression amongst Indian hospital nurses. In view of higher prevalence of these negative emotions among Indian nurses, health administrators in India need to take urgent and concrete steps to tackle job stress, thereby ensuring quality patient care. The observations also suggest that interventions designed to address job stress need to be tailored specifically for the different working areas as stressors vary. At a personal level, individual nurses could be sensitized about stress and trained in strategies to cope with stress, teamwork, improving interpersonal relationships and communication skills. The doctors and managerial staff also need to be sensitized about these issues. At the hospital level, measures like: rotation of duties, training in use of new equipment, providing adequate salary, increasing the number of personnel when there is higher workload and appreciation of hard work could be useful. At the community level it is important to formulate policies regarding duty hours, night duties, holidays and nurse-bed ratios.

Conclusion

More than three fourths of the Indian female nurses studied were positive for at least one of the 3 emotional states of depression, anxiety and stress. The high prevalence of stress, anxiety and depression amongst Indian nurses indicate demanding work conditions. The perceived stressors at workplace were different for ICU or non-ICU and private or government hospital. Concrete steps need to be taken by administrators in India to address the issue of higher stress among nurses as it is vital for both aspects: a healthy nursing work-force and quality patient care.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have

given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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