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Comparative Analysis of Depression, Anxiety, and Stress Scores among Nurses in Different Departments from a Single Center in North India

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ABSTRACT

Introduction: Mental health of health care workers is of utmost importance as they are at high risk of psychological problems due to the demanding nature of their profession. Periodic assessment of nurse's mental health should be of priority so that timely measures can be taken. **Aims and Objectives:** This study was conducted with the aim to assess – (1) the prevalence of depression, anxiety, and stress among intensive care unit (ICU), operation theater (OT), and inpatient ward (IPD) nurses, (2) to compare the levels of depression, anxiety, and stress within departments, and (3) to correlate the level of above parameters with certain variables. **Materials and Methods:** A cross-sectional study was conducted at Mayo Super Specialty Hospital, India. A total of 90 nursing staffs were interviewed regarding incidence of depression, anxiety, and stress using a DASS pro forma. The scores were then interpreted according to the categories given in the pro forma. **Results:** Out of the 90 study participants, 30 were male and 60 were female. Average age was 29 years. The overall prevalence of depression in ICU, OT, and IPD was 53.3%, 33.3%, and 40%, respectively. The incidence of anxiety was 73.3% and stress was 40% in ICU which was higher than OT and IPD areas. However, the above differences were not statistically significant. **Conclusion:** Our study demonstrates that levels of depression, anxiety, and stress were higher among nursing staff of ICU as compared to other areas within the same hospital and timely preventive measures should be taken to avoid any serious mental illness.

Keywords: Anxiety, DASS score, Depression, Mental health, Nursing, Stress

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Introduction

Mental health of an individual is rapidly gaining importance and is of huge concern worldwide. According to the World Health Organization (WHO), mental health includes subjective well-being, perceived self-efficiency, autonomy, competence, intergenerational dependence, and self-actualization of one's intellectual and emotional potential among others.[1] On the contrary from the perspective of positive psychology or of holism, mental health may include an individual's ability to enjoy life and to create a balance between life activities and efforts to achieve psychological resilience.[2] The term mental illness refers collectively to all diagnosable mental disorders – health conditions characterized by alterations in thinking, mood, or behavior associated with impaired function. Mental health problems may arise due to stress, loneliness, depression, anxiety, relationship problems, death of loved ones, suicidal thoughts, grief, and addiction.[3] Nowadays, the incidence of

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mental illnesses is more common than cancer, diabetes, or heart diseases. Evidence from the WHO suggest that nearly half of the world's population is affected by mental illness which can affect their physical health, relationships, and day-to-day functioning.[4] According to the WHO, about 500 million people in the world are suffering from diseases related to mental health, out of which 200 million people are suffering from depression, anxiety, and stress.[5]

Out of many groups which are affected by such emotional states and disorders, medical staff comprises an important group because of the nature of their profession. Nurses are an essential component of health-care system all over the world, yet their profession can be incredibly stressful and challenging. Dealing with seriously ill and dying patients, long duty hours, nightshifts, and job unsatisfaction are some of the reasons behind this.[6] Periodic assessment of nurse's mental health should be of priority in hospitals so that measures can be taken to implement good health of medical staff which, in turn, leads to good health of the patients. Hence, this study was planned with an objective to assess – (1) the prevalence of depression, anxiety, and stress among intensive care unit (ICU), operation theater (OT), and inpatient ward (IPD) nursing staff working in Mayo Super Specialty Hospital, India, (2) to compare the levels of depression, anxiety, and stress within departments of same hospital, and (3) to correlate the level of above parameters with certain variables.

Materials and Methods

Study design

A cross-sectional study was conducted among the health-care nurses working in the ICU, OT, and IPD of Mayo Super Specialty Hospital, Mohali, North India. A total of 90 nursing staffs, 30 each from ICU, OT, and IPD, were contacted and interviewed using pro forma containing DASS rating scale. The data collection was carried out over a period of 1 month. The staff selected for study was contacted by the investigator personally and participants were counseled to provide correct information to be used for research purposes. The pro forma was divided into two parts. The first part contained information about sociodemographic factors such as personal information, previous history of any illness, and work experience. The second part consisted of DASS scale which is a standard questionnaire to elicit the presence of depression, anxiety, and stress levels in the study population. The self-administered pro forma was filled by the study participants.

Score used in the study

DASS scale is a 42-item self-report instrument designed to measure the three related negative emotional states of depression, anxiety, and stress with 14 items each. Each item must be rated by a 4-point rating scale. 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), and 3 (applied to me very much or most of the time). In the present study, depression, anxiety, and stress assessment were carried out, and hence, all 42 questions were administered to participants. The final scoring was done by adding 42 items and categorized as normal, mild, moderate, severe, and extremely severe as given in the DASS instrument. However, the score interpretation varies for depression, anxiety, and stress. For example, score of 0–9 is normal for depression whereas a score of 0–7 is normal for anxiety.

Data analysis

The data collected were entered into MS Excel data sheet. Data analysis was performed using SPSS (Statistical Package for the Social Sciences) version 22.0 developed by IBM Corporation. Qualitative data were expressed using frequency and percentage. Quantitative data were explained using descriptive statistics. To compare the level of depression, anxiety, and stress with various parameters, Chi-square test was used. $P = 0.05$ was considered as statistically significant.

Results

Out of the 90 study participants, 30 were male and 60 were female [Table 1]. Age ranges between 24 and 45 years. Average age was 29 years. Of them, 18 nurses were <25 years of age, 46 belonged to 26–30 years group, 13 belonged to 31–35 years group, and 13 were over 35 years. Forty-two nurses were married and 48 were unmarried. Working experience ranged from 9 months to 6 years. Average working experience was 3.1 years. None of the medical staff had any previous history of mental illness or any medication.

Depression scores

In the ICU, the incidence of depression was seen in 16 out of 30 nurses (53.3%), 8 nurses had mild depression (26.6%), 4 had moderate depression (13.3%), and only 2 nurses had depression of severe and extremely severe category each (6.6%) [Table 2]. In the OT, 10 out of 30 nurses had depression (33.3%), 7 had depression of mild category

Table 1: Demographic distribution in the study cohort

Demographic characteristic	Variable	Number	Percentage
Gender	Male	30	33.3
	Female	60	66.6
Age (in years)	<25	18	20
	26–30	46	51.1
	31–35	13	14.4
	>35	13	14.4
Marital status	Married	42	46.6
	Unmarried	48	53.3

(23.3%), and 1 had depression of moderate, severe, and extremely severe type each (3.3%). In the IPD, 12 out of 30 nurses suffered from depression (40%) with 4 nurses each in mild, moderate, and severe category (13.3%) and no case of extremely severe depression.

Anxiety scores

In the ICU, the prevalence of anxiety was 73.3% (22/30) in the responders, 7 nurses had mild and moderate anxiety each (23.3%), 5 nurses had severe anxiety (16.6%), and only 10% had extremely severe anxiety [Table 3]. In the OT, 18/30 (60%) of the staff experienced symptoms of anxiety, 10% had mild anxiety, 46.6% had moderate anxiety, and only 3.3% had severe anxiety. In the IPD, 15/30 (50%) of the staff experienced anxiety, 20% had mild anxiety, 16.6% had moderate, and 13.3% suffered from severe anxiety.

Stress scores

In the ICU, it was seen that 12 out of 30 staff experienced stress (40%), 16.6% were mildly stressed, 6.6% of staff was moderately stressed, 10% of staff was severely stressed, and 6.6% was extremely severely stressed [Table 4]. In the OT, only 9 out of 30 staffs were stressed (30%), with mild and moderate stress was seen in 13.3% each and extremely severe in 3.3% of staff only. In the IPD, 11 out of 30 staffs were stressed (36.6%) with 20% mildly stressed and 10% moderately stressed, and severe and extremely severe in 3.3% of staff each.

Table 2: Scores of depression in ICU, OT, and IPD

Depression scale	ICU (%)	OT (%)	IPD (%)
Normal	14 (46.6)	20 (66.6)	18 (60)
Mild	8 (26.6)	7 (23.3)	4 (13.3)
Moderate	4 (13.3)	1 (3.3)	4 (13.3)
Severe	2 (6.6)	1 (3.3)	4 (13.3)
Extremely severe	2 (6.6)	1 (3.3)	0
Total	30 (100)	30 (100)	30 (100)

ICU: Intensive care unit, OT: Operation theater, IPD: Inpatient ward

Table 3: Scores of anxiety in ICU, OT, and IPD

Anxiety scale	ICU (%)	OT (%)	IPD (%)
Normal	8 (26.6)	12 (40)	15 (50)
Mild	7 (23.3)	3 (10)	6 (20)
Moderate	7 (23.3)	14 (46.6)	5 (16.6)
Severe	5 (16.6)	1 (3.3)	4 (13.3)
Extremely severe	3 (10)	0	0
Total	30 (100)	30 (100)	30 (100)

ICU: Intensive care unit, OT: Operation theater, IPD: Inpatient ward

Table 4: Scores of stress in ICU, OT, and IPD

Stress scale	ICU (%)	OT (%)	IPD (%)
Normal	18 (60)	21 (70)	19 (63.3)
Mild	5 (16.6)	4 (13.3)	6 (20)
Moderate	2 (6.6)	4 (13.3)	3 (10)
Severe	3 (10)	1 (3.3)	1 (3.3)
Extremely severe	2 (6.6)	0	1 (3.3)
Total	30 (100)	30 (100)	30 (100)

ICU: Intensive care unit, OT: Operation theater, IPD: Inpatient ward

Statistical analysis

In terms of DASS-42 subscales association with demographic variables, no significant relationship with age, sex, marital status, and work experience was seen. However, it was seen that ICU and IPD staff between 25 and 30 years of age had a high prevalence of depression, anxiety, and stress compared to other age groups. In the OT, there was no age predilection. Sex wise, females of ICU and IPD had more incidence of depression, anxiety, and stress as compared to males, whereas in OT, such incidence was more common in males. Unmarried staff of ICU and IPD had more incidence of depression, anxiety, and stress as compared to married, whereas in OT, married staff had more prevalence. Depression, anxiety, and stress scores were higher in ICU as compared to OT and IPD, however, it did not achieve any statistical correlation.

Discussion

Mental health of health care workers is of utmost importance for the better functioning of hospitals. There are immense data on mental health of health care workers from Western countries, however, there is a scarcity of such research in developing countries. Stress and burnout in ICU staff have been studied in various studies but a comparative analysis with other departments is not done in any study so far, which makes our study unique.

Our study showed that most of the responders were between age group 25 and 30 years in all three departments. Similar finding was seen in a study by Lakshmikanthcharan *et al*., where most of the participants were <30 years of age.[7] This may be because 20–30 years are the most common working age group among nurses in India. The DASS scores were higher in the age group of 26–30 years which may be because of the higher number of respondents in this age group.

Sex wise, 60 responders were female and 30 were male as seen in other studies,[7,8] highlighting the fact that nursing profession is mainly female driven all over India. This led to increased score of DASS in females of ICU and IPD, whereas in OT, male responders were more common, so higher DASS scores was seen in men of OT. This can be explained by the view that females tend to take responsibilities more seriously than males, so the DASS level is high. However, it did not reach any statistical significance when these scores were compared with gender groups.

When assessed according to marital status, it was seen that unmarried staff had more incidence of DASS as compared to unmarried. This was more conspicuous in ICU and ward as compared to OT. This is because more responders were

unmarried in ICU and IPD. However, marital status did not reach to any significance in relation to DASS. This is consistent with the finding of Callghan who reported that singles had higher stress level as compared to married.[9] This can be explained as singles have added responsibility of home and this extra responsibility is shared by the partners and family when they get married. The family is like a shock absorber to the stress and strains of life and is the topmost support system to provide social and mental security to a person.[10]

In our study, the average working experience was 3 years which is consistent with other studies.[11,12] However, it was found that the younger nurses with <2 years' experience were more stressed than other the older nurses with more than 5 years' experience. This may be attributed to the fact that once the nurse has acquired the knowledge and skill, the degree of stress is reduced. Furthermore, the newer staff is given more work from their seniors.

We used DASS scale which is a standardized questionnaire to assess the three common components of mental health, namely, depression, anxiety, and stress. This questionnaire was first presented in 1995 by Lovibond and Lovibond.[13] It has four options for each question. The lowest score is 0 and the highest score is 3. Several studies are published on its reliability and validity worldwide, all showing its established role in measuring depression, anxiety, and stress.[14] In a study by Henry and Crawford, DASS-42 tool was compared with two other tools related to depression and anxiety and a tool related to positive and negative affection.[15] They concluded that the best results are obtained when all three components of DASS are assessed as a whole as is done in our study. In this way, we can get a complete mental health assessment of a staff. Furthermore, DASS scale is easy to understand and use for clinical purposes.

The overall prevalence of depression in ICU, OT, and IPD was 53.3%, 33.3%, and 40%, respectively, in our study [Figure 1]. This is in concordance with other studies where the incidence of depression reported is between 18% and 55% among nurses of various departments.[16-18] Furthermore, the prevalence of depression in ICU staff of our cohort is higher than that of OT and IPD staff, implying that ICU staff is more mentally challenged than that of other departments.

The incidence of anxiety in our cohort in ICU, OT, and IPD was 73.3%, 60%, and 50%, respectively, with ICU staff having more levels of anxiety than others. However, this difference was not statistically significant. Other studies have reported prevalence of anxiety ranging from 20% to 60%.[19-21]

Similarly, the incidence of stress was also higher in ICU staff (40%) than staff working in other areas with no statistical difference. An Indian study used DASS questionnaire to assess only level of stress in ICU staff including both doctors and nurses.[8] They found that 68.29% of nursing staff was stressed which is quite higher than seen in our study.

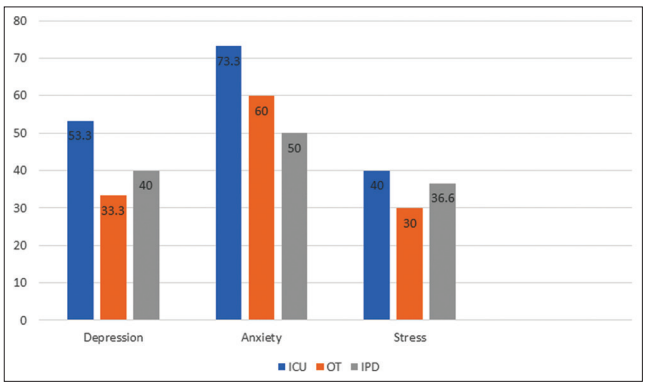

Figure 1: Comparative analysis of depression, anxiety, and stress in intensive care unit, operation theater, and inpatient ward

The reasons for higher DASS scores in ICU as compared to other areas can be explained as follows – (1) death and dying of patients are the most common source of stress which the ICU staff faces during their work more than in other hospital areas such as OT, outpatient, and inpatient department. Furthermore, it may be since traditionally they had not received sufficient education about dealing with death/dying so they do not know how to express their emotions when encountering such an episode. This idea was supported by Mallory and Mok *et al*.[22,23] (2) The second factor is attributed to the increased workload for ICU staff which does not give them enough time to support each other's emotions in general. They are burdened with extra responsibilities such as too many non-nursing tasks and having to work through breaks as compared to staff of other areas. These findings were obtained by Gillespie and Melby[24] and Astbury[25] who reported that the most ICU stressors were resulting from non-nursing tasks, overburden, and inadequate staffing. (3) Issues of dealing with patients and their families are also a source of stress to ICU staff. Unreasonable demands from the patients and relatives and the staff being blamed for anything that goes wrong are an extremely stressful event for ICU nurses.[26,27] (4) Other explanation for the high DASS level in ICU is that most of participants in this study were women. In general, women tend to experience greater sadness and anxiety, and are more vulnerable to psychological strains.[28-30]

When compared between OT and IPD, depression and stress were seen more commonly in IPD in our study, whereas anxiety was more common in OT (60% vs. 50%). This may be due to fact that OT staff comprised more males than females and males are stronger emotionally, so depression and stress were less common in them. However, higher anxiety scores in OT can be related to work culture OT dealing with high-risk patients and anesthesia-related issues.

Conclusion

Our study explicitly demonstrates that levels of depression, anxiety, and stress were higher among nursing staff of ICU

as compared to other areas within the same hospital. Nursing staff of critical care units is more mentally challenged than staff of other departments and they need special attention to prevent serious mental disorders.

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