

ORIGINAL ARTICLE

JOB-RELATED DEPRESSION AMONG ICU AND NON-ICU HEALTHCARE WORKERS IN A TERTIARY CARE HOSPITAL**Ahmad Ali, Hamza Munir*, Yousaf Ali**, Hamid Ali***, Shakirullah, Abdul Rehman Israr[†]**DHQ Hospital, Lakki Marwat, *Department of Community Medicine, Muhammad College of Medicine, Peshawar, **Support Agency for Rural and Human Association Development, ***DHQ Hospital, Mishiti Mela, Orakzai, [†]Rehman College of Dentistry, Peshawar, Pakistan

Background: A higher levels of job stress among healthcare staff showing an inverse relationship between job stress and job performance among healthcare workers has been reported. The aim of current study was to compare the frequency of depression among intensive and non-intensive unit healthcare workers in a tertiary care hospital in Peshawar. **Methods:** This was a cross-sectional study conducted in Hayatabad Medical Complex, Peshawar. A purposive questionnaire was designed to collect data from hospital staff working at intensive care unit (ICU) and non-ICU specialties while another questionnaire was used based on 'Beck's Depression Inventory' for determination of depression levels. Sample size was calculated using WHO sample size calculator. The data was analysed on SPSS-21. Shift duration and unit of working were analysed through univariate and multivariate logistic regression for depression status. Odds ratio was calculated with 95% confidence interval by applying Chi-square test. **Results:** The study included 214 participants. Average age of the included study participants was found to be 28.37±5.94 years. A significant difference was found in healthcare workers having shift duration more than 8 hours and in those working in ICU than non-ICU specialities ($p<0.05$). On multivariate logistic regression, shift duration of more than 8 hours (OR: 2.58, $p=0.03$) and being working in ICU (OR: 13.89, $p<0.001$) were significantly associated with depression. **Conclusion:** Healthcare workers working at ICU and with shift duration of more than 8 hours are more prone to be mentally depressed.

Keywords: Healthcare, ICU, non-ICU, Depression, Peshawar

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INTRODUCTION

Occupational stress is an emerging global health issue and is currently reported as the 2nd most common occupational disorder in most parts of the world.¹ The WHO labels major depression as the major cause of disability. Depression is a chronic illness that has conspicuous effects in terms of quality-adjusted life year and disability-adjusted life year.² It causes 30% of psychiatric disabilities in women while 12.6% in men.³ Doctors and nurses are the two major victims of occupational depression.^{4,5} The globalization and emergence of the economies led the population toward a higher depression.⁶

Researchers still are trying to quantify depression-related variables in different sectors in business. Unfortunately, the health sector is still unable to receive attention from researchers.⁷ Nurses and doctors are at a high depression risk edge.⁸ Most of the research related to the healthcare sector entertained the attitudes and behaviours of doctors and nurses related to patients.⁹ The most prevalent risk factor for depression is the number of working hours. Some researchers determined that in professional work environment, working hours can be related with depression while some studies contradict any association between working hours and work related depression.¹⁰ In developing countries, it is worthwhile considering working hours in relation to depression. The study in Taiwan pin-points

that working hours were strongly associated with depression amongst nurses and doctors.¹¹

The staff of the healthcare unit is sensitive to many other stressors like the upholding of miraculous professional behaviour, a very high degree of patient care, prevalence of special friendly relationships with patients, clinical audits and a zero error working attitude.¹² Many researcher had limited their study towards the less experienced and general medical doctors and nurses while undermining the rest.¹³ Therefore, such studies have less utility for the policy makers for physicians. Social support acts as a better treatment for depression.¹⁴ It has not yet been proved whether the social factor is significant for the physicians who work in a continually tedious and high emotional environment.¹⁵

A study in intensive healthcare units of hospitals in the UK suggested that one in every five doctor needs special psychiatric distress treatment. While the result of the same study about nurses showed that every sixth nurse is a victim of depression.¹⁶ In the developing countries the high skills and experience required amongst workers in intensive care units makes it impractical for the management to rotate the medical staff.¹⁷ The highly demanding service of ICUs makes it near impossible to suggest free vacations for doctors and nurses. Such dilemmas present in underdeveloped countries are examples of triggers for depression in ICU medical staff in underdeveloped countries as compared to the developed ICU medical staff.¹⁸ The level of

depression has been linked with factors like fatigue and work efficiency.¹⁹ The cardinal causes behind such serious levels of depression are the highly demanding work environment where the death ratio is at a peak in daily routines.²⁰ The increased population rate in developing countries makes serious challenges for management in the healthcare sector. To overcome these challenges one of the primary suggestions is to create friendly and efficient work environment. Nurses and doctors in intensive care units are trained to face depression related challenges in the UK hospitals.^{21,22} Occupational stress and its role in developing psychological illnesses among healthcare workers is a neglected area in developing regions, including Pakistan.

There is an immediate need to identify the factors responsible for this alarming rise in occupational health related problems among healthcare providers particularly related to those working in intensive healthcare units. The purpose of the current study was to compare the frequency of depression among intensive and non-intensive unit healthcare workers in a tertiary care hospital in Peshawar.

METHODOLOGY

This cross-sectional study was conducted in Hayatabad Medical Complex, Peshawar, from 1st September 2021 to 30th June 2022. Non-probability purposive sampling was used. Sample size was calculated by using WHO sample size calculator. Confidence level (1- α %) was taken as 95%, with precision (d) of 0.05 and a power of 80%. Prevalence of depression in the population (P1), working in non-intensive care unit areas was taken as 39% and for population (P2) working in intensive healthcare unit the prevalence is assumed to be 60%.²³ The calculated sample size was 214.

Only healthcare workers working as Physician or Registered Nurse in any of two stratified in-patient healthcare areas were included in the study. Healthcare workers of either gender working in the same in-patient healthcare unit for past 3 months were included in the study while any healthcare worker with a recent history of divorce (in last 3 months), death of close relative, separation, injury or acute illness, pregnancy and change in living conditions were excluded from the study.

Selected participants were approached, preferably during break hours or at the end of a shift duty. The eligible participants were invited to participate in the study and an informed consent was taken. A questionnaire was designed to collect information regarding socio-demographic and work-related information including work hours, shift of work and other personal information regarding substance use and family medical history while another questionnaire based on 'Beck Depression Inventory', a well-known tool for screening and measurement of levels of depression, was used to study work-related depression

among healthcare workers of intensive and non-intensive healthcare units. Individual having a score of 17 or more on Beck Depression Inventory scale was considered as 'depressed'.

The collected data were analysed on SPSS-21. Frequencies were calculated for proportion of depression among intensive care unit and non-intensive care unit health workers and then statistically compared. Shift duration and unit of working were analysed through univariate and multivariate logistic regression for depression status. Odds ratio was calculated with 95% confidence-interval by applying Chi-square test.

RESULTS

Data was collected from 214 participants, i.e., 139 (65%) participants were female while 75 (35%) participants were male. Average age of all the included study participants was found to be 28.37 \pm 5.94 years. Majority of the participants belonged to Muslim ethnicity (87.4%). Among the participants, 149 (69.6%) were single while 55 (25%) were married, 2 (0.9%) were divorced and 8 (3.7%) were engaged. 45 (21%) participants had more than 2 children with maximum number of 3. About 70% of the study participants had completed their graduation while around 25% had completed intermediate education. Experience in the same unit was reported to be 5.25 \pm 4.82 years. Duration of shift ranged from 5–12 hours with an average of 8.11 \pm 1.47. Around 33% of participants had spent more than 5 years in their respective unit. Around 31% of the participants had shift durations of more than 8 hours.

The ratio of doctors to nurses within the study participants was almost equal. Only 2% of the study participants had co-morbid conditions of hypertension. The number of participants from ICU and non-ICU units was almost the same.

The history of depression was reported by 14% of the study participants. On Beck's depression inventory, about 64% of all the participants were found to have some form of depression. Average score on Beck's Depression Inventory scale for all the participants was found to be 22.17 \pm 10.10. Among all the categories of depression, moderate depression and severe depression were common, i.e., 31% and 19% respectively. Stratification of depression with respect to socio-demographic variables is shown in Table-1.

On Univariate logistic regression for depression status, only shift duration and unit was found to be significantly associated with the outcome variable (Table-2).

Similarly, on multivariate logistic regression, Shift duration of more than 8 hours was (OR: 2.58, $p=0.03$) and being working in ICU (OR: 13.89, $p<0.001$) was significantly associated with depression (Table-3).

Table-1: Demographics data and comparison

Variable	Depression Status		p
	Yes	No	
Gender			
Male	45	93	0.314
Female	30	46	
Age			
<30 yrs	99	56	0.761
>30 yrs	39	20	
Religion			
Muslim	121	66	0.860
Non-Muslim	17	10	
Marital Status			
Single	102	47	1.00
Engaged	5	3	
Married	31	24	
Divorced	0	2	
No. of children			
0-1	110	28	0.721
2 or more	28	17	
Years of experience			
0-5 yrs	89	53	0.437
> 5 yrs	49	23	
Shift Duration			
Up to 8 hrs	104	43	0.05
>8 hrs	34	33	
Designation			
Doctors	66	43	0.22
Others	72	33	
Unit			
ICU	92	12	<0.05
Non-ICU	46	64	

Table-2: Univariate logistic regression

Variables	Odds Ratio	Confidence Interval (95%)	p
Shift Duration (Up to 8 hrs vs More than 8 hrs)	2.347	1.293-4.262	0.005
Working Unit (ICU vs Non-ICU)	10.667	5.239-21.716	0.000

Table-3: Multivariate logistic regression

Variables	Odds Ratio	Confidence Interval (95%)	p
Shift Duration (Up to 8 hrs vs More than 8 hrs)	2.583	1.096-6.086	0.03
Working Unit (ICU vs Non-ICU)	13.895	6.296-30.665	0.000

DISCUSSION

The higher risk of depression among healthcare professionals is related to the psychosocial and organizational characteristics of their job including long and irregularly timed work shifts.^{24,25} Literature reports that healthcare workers operating in intensive care units where work is very exhaustive due to constantly dealing with critically ill patients, leads to a higher burden of psychosocial stress and psychological morbidity.²⁶ In Pakistan, occupational stress is due to organizational factors; moreover, a lack of proper training and illiteracy have their own impacts on the coping mechanisms and capacities of the working population. Studies conducted

in the healthcare settings of Pakistan, report higher levels of job stress among healthcare staff showing an inverse relationship between job stress and job performance among healthcare workers. A study conducted by the Family Physicians of Karachi, reports the prevalence of depression as high as 39%.²⁷

In current study, a very high frequency of depression amongst healthcare personnel was observed. This finding is important from two perspectives. First, the mental health of healthcare personnel is severely affected negatively. It also acts as a promoting factor for other non-communicable diseases such as cardiovascular diseases, diabetes etc. It can lead to further issues such as job dis-satisfaction and job rotations which in turn further create more issues in the healthcare workforce from a healthcare system perspective. It also leads to anxiety and dis-satisfaction of patients and patient attendants. Second, it can lead to increasing numbers of medical errors, thus compromising patient care.²⁸

In this study, we found that the ICU had a significant association with depression as compared to non-ICU units. This finding is similar to other studies done previously.^{29,30} There are several reasons for this finding. The overall environment of the ICU is usually very negative and not optimistic, generally promoting depressed moods. Second, the patients in the ICU are very much critical. Patients need intensive care and even minor mistakes may cost a patient their life. This puts extra responsibility on the shoulders of ICU healthcare personnel. Studies have also shown that attendants of patients are also depressed and anxious³¹, which also leads to staff in ICU becoming depressed.

Besides this, we also found that prolonged working hours, specifically beyond 8 hours had a significant association with depression. This finding is in line with other related studies which shows a strong biological plausibility for our finding. Prolonged working hours leads to reduced sleep and exhaustion and thereby leading to depression.³² The odds of having depression are 2.58 times higher in those healthcare workers whose shift duration is more than 8 hours as compared to those whose shift duration is up to 8 hours.

The odds of having depression are 13.98 times higher in those healthcare workers who work in ICU as compared to those who work in units other than ICU. In our study, we did not find any relationship between depression and gender, or age group, designation, ethnicity, education status etc. These findings were somewhat non-consistent in the literature as well. There are several reasons for these findings. We selected a very tightly matched target population through rigorous inclusion and exclusion criteria which helped decrease the differences in many socio-demographic characteristics of the population leading to no significant association with depression.

CONCLUSION

Healthcare workers working at ICU and shift duration of more than 8 hours are more prone to be mentally depressed.

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AA: Principal author

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