

# Prevalence of Depression and Its Associated Risk Factors among Nursing Students of Public Sector Institute in Karachi, Pakistan

Sabir Hussain<sup>1</sup>, Mahmooda A. Razzaque<sup>2</sup>, Majid<sup>3</sup>, Sumera yasmeen<sup>4</sup>

<sup>1,2</sup>Faculty of Ziauddin college of Nursing Karachi

<sup>3</sup>Faculty of Sindh Government School of Nursing Korangi 5 Karachi

<sup>4</sup>Head Nurse of PIMS hospital Islamabad Karachi, Pakistan

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**Abstract:** To estimate the prevalence of depression and its associated risk factors among nursing students of a public sector institute in Karachi, Pakistan.

**Methods:** A cross sectional study was conducted among B.Sc. Nursing students of public sector institute in Karachi. Data was collected after written consent from the participants with the help of self-administered questionnaires through convenient sampling technique. Outcome variable depression was defined (a score  $\geq 10$ ) by using Beck Depression Inventory. Multivariable model was built by using logistic regression analysis to determine the factors independently associated with depression.

**Results:** The mean ( $\pm$ SD) age of the student was 25.2( $\pm$ 5.4) years. Majority (61.6%) of the students were females. Approximately two third (67.4%) of the participating students were from Post RN. B.Sc. Nursing program. Over half (52.3%) of the participating students were from semester-1. A very high prevalence of depression (79.1%) was found among students. Of these, (57.3%) had mild, (23.5%) moderate, (11.8%) severe and (7.4%) very severe anxiety and depression. There was no significant difference among those who suffered from depression in terms of age, gender, degree program and current semester.

**Conclusion:** This study highlights a high burden of depression among nursing students of public sector institute of Karachi. There is a need to provide counseling and supportive services to the nursing students to enable them to cope with existing psychological morbidity in better way and maintain their academic performance efficiently.

**Keywords:** Depression, Nursing students, Karachi, Pakistan.

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## I. INTRODUCTION

"Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration". It is recurrent and often chronic diseases consisting of psychological and physical symptoms that are frequently undiagnosed or inadequately treated<sup>1</sup>.

Now depression is the leading cause of disability as measured by years lived with disability (ylds). In global burden of disease it is 4<sup>th</sup> leading contributor in 2000. In year 2020, it is may be on 2<sup>nd</sup> place of the ranking of disability adjusted life years (dalys) calculated for all ages, both sexes. Today, depression is 2<sup>nd</sup> cause of DALYS in the age category 15-44 years for without gender difference<sup>2</sup>.

There is a rising trend of depression in developing countries. Specifically, the medical and nursing educational institutes are recognized as a stressful environment that often exerts negative effects on the academic performance, physical health, and psychological wellbeing of the students. Depression interferes with interpersonal relationship between students and his/her family members and also has effects on the everyday activities. Students are more prone to have more psychiatric problems including depression because of their interpersonal and emotional conflicts as well as economical and

academics problems. There are many studies on depression among students. Nursing students are more prone to get depressed than others because of their busy schedule. Specially, when graded assignments are not completed on given time, they become depressed.

Objective of study is to estimate the prevalence of depression and its associated risk factors among nursing students of Institute of Nursing, Dow University of Health Sciences, and Karachi, Pakistan. Rational of study is that there is deficiency of studies and knowledge regarding depression among nursing students in our part of the world. This research is planned to study the prevalence of depression among nursing students of Institute of Nursing, Dow University of Health Sciences, and Karachi, Pakistan. So there is strong need to quantify the overall magnitude of this problem, so that counseling and support services to the students can be referred. This will help in decreasing the negative consequences of depression among nursing students. So, in future intervention can be design for prevention of depression among nursing students, who are in future health care professional.

## II. METHODOLOGY

A cross sectional study was conducted among B.Sc. Nursing students of public sector institute in Karachi, where students come from all provinces of Pakistan, and belongs to all socio economic status. All nursing students who had spent at least three months in this institution, belongs to 1st year to final year, and boys and girls are included in the study. Those students who are absent for one-month, and student have any physical or mental illness other than depression are excluded from study. The sample size for the study is calculated by software Open epi. By taking 70% prevalence of depression, 5% level of significance, and power of test is 80%. So, the final sample size to be calculated is 323. Due to limited time period we collected data from 86 participants. Data was collected after written permission from the participants with the help of self-administered questionnaires through convenient sampling technique.

Beck Depression Inventory (BDI) tool is used to measure the level of depression. BDI is a 21 item questionnaire; each has four choices with scores ranging from zero to three. Therefore, total score would be 0 – 63. Scoring the questionnaire consequently subdivided them into normal (0 – 9, no depression), mild (10 – 19), moderate (20 – 29), severe (30-39), and very severe (> 40) depression<sup>4</sup>.

We used software SPSS version 16 for analyzing and interpret data of the study. In descriptive statistics, we reported frequency and percentages. Multivariable model was built by using logistic regression analysis to determine the factors independently associated with depression.

## III. RESULTS

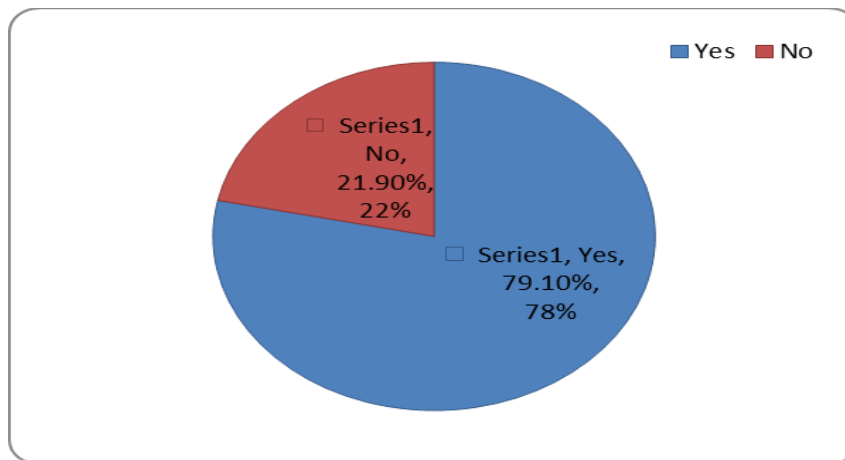
A total of 86 students participated in study. The mean ( $\pm$ SD) age of the student was 25.2( $\pm$ 5.4) years. Majority (61.6%) of the students were females. Participation rate was higher from the Post RN. B.Sc. Nursing program as approximately two third (67.4%) of the participating students were from Post. RN. B.Sc. Nursing program. In terms of semester, over half (52.3%) of the participating students were from semester-1.

**TABLE I: DESCRIPTIVE CHARACTERISTICS OF NURSING STUDENTS OF A PUBLIC SECTOR INSTITUTE IN KARACHI (N = 86)**

Variables	Frequency	%
Age:	25.17*	5.42**
Gender:		
Male	33	38.4
Female	53	61.6
Degree Program:		
Post RN BScN	58	67.4
Generic BScN	28	32.6
Current Semester:		
Semester 1	45	52.3
Semester 3	31	36.0
Semester 5	10	11.6
Anxiety and Depression:		

No	18	20.9
Yes	68	79.1
Nature of Depression:		
Mild	39	57.3
Moderate	16	23.5
Severe	08	11.8
Very severe	05	7.4

A very high prevalence of depression (79.1%) was found among students as per Beck Depression Inventory. Of these, (57.3%) had mild (score 11-20), (23.5%) moderate (score 21-30), (11.8%) severe (score 31-40) and (7.4%) very severe (score  $\geq 41$ ) depression.



GRAPH I: OVERALL PREVALENCE OF DEPRESSION AMONG NURSING STUDENTS (N=86)

At univariate analysis, we considered cut-off p-value of  $\leq 0.25$  for variables to be considered as significant and to take at multivariable analysis.

We categorized the variable age into binary variable based on the mean age of participants; age group  $\leq 25$  years and age group  $> 25$  years. It is evident that depression was nearly equally prevalent among both age groups; age group  $\leq 25$  years (76.5%), age group  $> 25$  years (82.9%). Similarly, depression was equally prevalent among male (78.8%) and female (79.2%), those enrolled in post RN BSN (79.3%) or generic BSN (78.6%), or currently in semester 1 (82.2%), semester 3 (74.2%) or semester 5 (80%). Results are summarized in table 2 in terms of crude odds ratio, 95% confidence interval and p-value.

Variables such as age, gender, degree program and current semester did not show significant association with depression, they were taken into multivariable analysis because of biological significance.

TABLE II : SUMMARY OF UNIVARIATE ANALYSIS FOR FACTORS ASSOCIATED WITH DEPRESSION AMONG NURSING STUDENTS OF PUBLIC SECTOR INSTITUTE IN KARACHI (N = 86).

VARIABLES	CRUDE ODD RATIO	95% CONFIDENCE INTERVAL	P-VALUE
Age:			0.476
$\leq 25$ years	1		
$> 25$ years	1.49	0.50 – 4.43	
Gender:			0.960
Male	1		
Female	1.03	0.35 – 2.97	
Degree Program:			0.937
Post RN BScN	1		
Generic BScN	0.96	0.32 – 2.89	
Current Semester:			0.700
Semester 1	1		
Semester 3	0.62	0.21 – 1.89	
Semester 5	0.87	0.15 – 4.87	

At multivariable level, we considered a cut off p-value of  $\leq 0.05$  for variables to be considered significant. However, variables age [OR 1.74 (95% CI: 0.48 – 6.35)], gender [OR 1.22 (95% CI: 0.35 – 4.39)], degree program [OR 2.16 (95% CI: 0.24 – 19.36)] and current semester of students did not show any significant association with depression.

Table 3 shows the final magnitude of association of variables in the form of adjusted odds ratio along with 95% confidence intervals and p-value.

**TABLE III: SUMMARY OF MULTIVARIABLE ANALYSIS FOR FACTORS ASSOCIATED WITH DEPRESSION AMONG NURSING STUDENTS OF PUBLIC SECTOR INSTITUTE IN KARACHI (N = 86).**

VARIABLES	ADJUSTED ODD RATIO	95% CONFIDENCE INTERVAL	P-VALUE
Age:			0.404
$\leq 25$ years	1		
$> 25$ years	1.74	0.48 – 6.35	
Gender:			0.761
Male	1		
Female	1.22	0.35 – 4.39	
Degree Program:			0.492
Post RN BScN	1		
Generic BSc	2.16	0.24 – 19.36	
Current Semester:			0.442
Semester 1	1		
Semester 3	0.21	0.10 – 1.65	
Semester 5	0.78	0.10 – 5.47	

#### IV. DISCUSSION

According to national institute of mental health (America), "mental disorders are common in the United States and internationally. An estimated 26.2 percent of Americans ages 18 and older and about one in four adults are suffering from a diagnosable mental disorder in a given year 2008. Mental disorders are the leading cause of disability in the U.S. and Canada for ages 15-44. Many people suffer from more than one mental disorder at a given time"<sup>4</sup>.

Nursing schools are recognized as a stressful environment, because of frequent graded assignments, continuous clinical duties, and many other factors. These stressors combine with other stressors like family matters and causing depression in nursing students. There are very few studies on depression in nursing, there for we selected medical students for compare our study with them. Our study result shows that 79.1% depression present in nurses. A similar study from Tehran showed that more than half of nursing students have depression and they further reported that it is increasing. Prevalence of depression among nursing students is 60% mild to severe depression; 34% with mild depression, 18.4% moderate and 7.6% severe depression<sup>5</sup>.

Another study in Malaysian medical university showed that prevalence of depression among medical students is 35.9%. The prevalence of depression is higher among female medical students compare to males in this study. This study found that depression among medical student were significantly associated with the female gender, Malays, level of pressure due to exam, relationship with siblings and problem in love. Prevalence of depression was higher in female students (41.4%) compare to males (27%). Due to pressure of exam 42.7% compare to do not complain of any pressure due to exam 27.9%. Prevalence of depression is also higher who relationship is not good with siblings (49.1%) compare to those who had good relationships (33.7%). Those students who had problem in love relationship (51.3%) were also significantly more depressed compared to students who had not problems (31.6%)<sup>6</sup>.

According to epidemiological studies conducted by Haider Naqvi in 2007 in Pakistan showed that North-West Frontier Province (N.W.F.P.) females are 46% and 15% males, rural Punjab females 66% and 25% males, urban Punjab females are 25% and 10% males, urban Karachi females are 57.5% and 25.5% males and semi-urban Karachi females are 42.2% and 18.1% males are affected by this disorder<sup>7</sup>.

In Pakistan, various studies had documented depression among medical students. A study conducted in a private medical university (Karachi) reported 60% prevalence of anxiety and depression. Prevalence of the disease among 1st year, 2nd year, 3rd year, and 4th year students were 66%, 73%, 47%, and 49% respectively<sup>8</sup>.

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Similarly, there is another study conducted in Karachi on prevalence of depression, anxiety and their associated factors among medical students. According to this study prevalence of anxiety and depression 70% was found. This study further showed that students with substance abuse 2.66 times, having family history of depression and anxiety 2.35 times, and who had lost a relative in last 1 year have 3.4 times more likely to have depression and anxiety<sup>9</sup>.

### V. CONCLUSION

Approximately 79.1% of the students suffered from depression; mild depression: 57.3%, moderate depression: 23.5% , severe depression: 11.8%, very severe depression: 7.4%. There was no significant difference among those who suffered from depression in terms of age, gender, degree program and current semester.

This study highlights a high burden of depression among nursing students of public sector institute of Karachi. There is a need to provide counseling and supportive services to the nursing students to enable them to cope with existing psychological morbidity in better way and maintain their academic performance efficiently.

### VI. LIMITATION

The generalizability of the study results is limited by the characteristic of the sample, which was recruited from a single public sector nursing institution. Cause-effect association between the studied factors and depression cannot be determined from the study. Other limitations include lack of baseline information concerning mental status of nursing students at the time of entrance in the institution and lack of population-based data to support our results and to compare our findings with general population.

### VII. RECOMMENDATION

Nursing institutes should provide the coping tools to students to deal with stress throughout their nursing education. Along with academic education, provide them more leisure activities in their curriculum, promote better interaction between students and faculty, have advisory services and peer group counseling at the campus and instigate rehabilitation programs for victims of depression. Student on their part should address and maintain their mental health and well-being, making it a lifelong focus.

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