Research Article

A study on depression and functional impairment among university students in Mangalore, Karnataka

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ABSTRACT

Background: Depression often starts at a younger age and due to its increasing prevalence and various risk factors in this age group and its impact on work, social, and family life. **Objectives:** The objectives of this study were to assess the magnitude of depression and functional impairment among the 1st year university students and to study the association of various sociodemographic variables and functional impairment with depression. **Materials and Methods:** A cross-sectional study was conducted among the 1st year students of a university situated in Mangalore, Dakshina Kannada district of Karnataka, for 1 month. Sociodemographic profile of the study participants and information on depression and functional impairment was collected using a predesigned and pretested questionnaire. **Results:** Prevalence of depression was found to be 70.5% of which majority of them were having mild depression (56.12%). Female gender and various faculties were the statistical significant attributes of depression ($P < 0.05$). There was statistically significant difference in the mean scores of functional disability among individuals with depression against without depression ($P < 0.001$) and patient health questionnaire-9 scores were found to have positive correlation with functional impairment scores ($P < 0.001$). **Conclusion:** The prevalence of depression is high among the university students and requires rigorous efforts for early diagnosis and planning appropriate interventions.

KEY WORDS: Depression; Patient Health Questionnaire-9; Functional Impairment; University Students

INTRODUCTION

Depression a mental disorder is one of those disorders that have an early onset[1] and is the significant contributor to the worldwide magnitude of disease and affects people of various communities across the world.[2] Worldwide depression had affected 322 million in 2015.[3] The lifetime prevalence of depression is 17%, and by 2020, it is expected to be the second leading cause of global disability.[2] In India, the prevalence of depression in terms of DALYs is 31 million and is increased by 67% from 1990 to 2013.[4] A meta-analysis of psychiatric epidemiological studies estimated the magnitude of morbidity secondary to mental illness of 22.2/1000 population among 15–24 years of age group.[5] Depression has varying presentation across various age groups, sociodemographic profile, cultural diversity, and severity of illness, and in adults, it is often accompanied by extreme difficulty in the functioning level or even with suicidal thoughts and behavior.[4] There are various risk factors for depression such as female gender,[2,4,6] social and economic disadvantages, genetic, violence exposure, being separated or divorced or parents being separated or divorced, and various chronic illness.[2,4] There are various other risk factors that make an adolescent or the young adult more prone for depression, and they are traumatic experiences in early childhood, frequent migration, negative life events,

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educational setbacks, early relationship problems, stress at school and family, lack of support system in the globalizing environment, and urbanization.[4] Depression can be chronic or recurrent in nature, the consequence of which can be individual's inability to take care of everyday responsibilities and the endpoint could be suicide,[2] in young people often it leads to impaired functioning making an impact on education, marriage, work, and social life and that in turn may lead loss of productivity, increased health-care cost and intense emotional suffering.[4] Thus, in view of increasing burden of mental health problems and its impact on individual's and family life, we conducted a study among the engineering students in one of the universities located in Mangalore to assess the magnitude of depression and functional impairment among the engineering undergraduate students across various faculties and to find the association of various sociodemographic variables with depression.

MATERIALS AND METHODS

A cross-sectional study was conducted among the 1st year students, belonging to various faculties of an engineering university situated in Mangalore, Dakshina Kannada District of Coastal Karnataka. The study was carried out for 1 month during 2015.

All 1st year students willing to participate on voluntary basis and without any psychiatric morbidity were included. Those with any psychiatric morbidity and drugs that are likely to produce panic like or depressive symptoms were excluded from the study.

Total enumeration method was employed for selecting study participants, and thus, the total number of study participants was 326. The study was approved and ethical clearance was obtained by the institutional ethics committee, and necessary permission was sought from the concerned authority of the selected university. After obtaining written informed consent from all the study participants, the data were collected using a predesigned and pretested questionnaire along with patient health questionnaire-9 (PHQ-9), the scale was developed by Drs. Kroenke *et al.* PHQ-9 is a 9 item scale which scores each of the 9 DSM-IV criteria with "0" (not at all) to "3" (nearly every day). PHQ-9 scores of 5,10,15, and 20 represents mild, moderate, moderately severe, and severe depression, respectively. A PHQ-9 score of more than or equal to 10 had a sensitivity and specificity of 88%, respectively, for major depression. An item at the end of the diagnostic portion of the PHQ-9 was added in the form of "How difficult have these problems made it for you to do your work, take care of things at home, or get al.ng with other people?" For those who had experienced any of the problems as enumerated in PHQ-9. This single item is an excellent global rating of functional impairment and has been shown to correlate strongly with a number of quality of life, functional status, and health-care usage measures.[7] Information regarding age of the participant, religion, type of family, education status of the head of the family, occupation of the head of the family, marital status of the participant, study branch, per capita monthly income, and socioeconomic status using modified Prasad's classification,[8] was also collected.

Analysis was done using the SPSS version 16.0. descriptive statistics in terms of mean and standard deviation was applied for continuous variables and in terms of frequency, percentages, and proportions for categorical variables. Logistic regression, Chi-square test using Yate's correction for continuity, and the Fisher's exact test were applied for categorical variables. Continuous variables were analyzed by the *t*-test. Correlation analysis was done using the Karl Pearson correlation coefficient.

RESULTS

As shown in Table 1, majority of the study participants were in the age group of 16–18 years (82.1%) and majority (74.4%) were males. Most of the study participants were Muslim (63.1%) by religion. With respect to education of the parents, 95.8% and 88.7% of the study participants were having the father and mother literate, respectively, and 97.0% and 95.8% of the study participant's parents (father and mother, respectively) were employed. Majority of the study participants were in Class I to Class II socioeconomic status (73.2%) according to modified BG Prasad's classification. Out of various faculties, most of the study participants interviewed were in the mechanical branch (36.3%), followed by computers (30.7%).

Majority of the study participants (70.5%) were found to have PHQ-9 score more than 5, which is suggestive of having depression as shown in Table 2.

Out of the total students found to be suffering from depression, majority, as shown in Table 3, were found to have mild depression (56.12%), followed by moderate depression (27.84%), and only 1.69% were having severe depression.

As shown in Table 4, religion and various faculties of education were found to have statistically significant association with depression with $P = 0.004$ and 0.018, respectively.

There was statistically significant difference in the mean scores of functional disability at <0.001 level as reflected in Table 5, indicating higher functional disability scores among study participants with depression when compared to study participants without depression.

There is statistically significant moderate to strong positive correlation between depression and functional disability as shown in Table 6, indicating as the scores of depression increases, functional disability increases ($P \leq 0.001$).

Table 1: Sociodemographic variables of the study participants (*n*=336)

Variables	Frequency (%)
Age (years)	
16–18	276 (82.1)
19–21	60 (17.9)
Gender	
Male	250 (74.4)
Female	86 (25.6)
Religion	
Muslims	212 (63.1)
Hindu and others	124 (36.9)
Occupation of father	
Employed	323 (96.1)
Unemployed	13 (3.9)
Occupation of mother	
Employed	326 (97.0)
Unemployed	10 (3.0)
Education of father	
Literate	322 (95.8)
Illiterate	14 (4.2)
Education of mother	
Literate	298 (88.7)
Illiterate	38 (11.3)
Socioeconomic status	
Class I–II	246 (73.2)
Class III–V	90 (26.8)
Education branch	
Mechanical	122 (36.3)
E and E	12 (3.6)
Computers	103 (30.7)
Biotechnology	19 (5.7)
Civil	41 (12.2)
E and C	39 (11.6)

Table 2: Prevalence of depression among the study participant's (*n*=336)

Depression	Frequency (%)
Present	237 (70.5)
Absent	99 (29.5)

DISCUSSION

The present study was conducted to assess the burden of depression and functional impairment secondary to depressive symptoms among the 1st year students belonging to various faculties of a selected university. Among the study participants interviewed, majority of the study participants were in the age group of 16–18 years with the mean age of 18.05 ± 0.676 years as they were pursuing education. In our study, the prevalence of depression was found to be 70.5% of which majority (56.12%) were suffering from mild depression followed by 27.84%, 14.35%, and 1.69% were found to be suffering from moderate, moderately severe, and severe depression, respectively. When the association of various sociodemographic variables was assessed with depression, we found that Muslim religion

Table 3: Grades of depression among the study participants with depression (*n*=237)

Depression grades	Frequency (%)
Mild	133 (56.12)
Moderate	66 (27.84)
Moderately severe	34 (14.35)
Severe	4 (1.69)

Table 4: Association of sociodemographic variables with depression (*n*=336)

Variables	Depression		Chi-square value	*P*
	Present	Absent		
Age				
16–18	78 (78.8)	198 (83.5)	1.077	0.299
19–21	21 (21.2)	39 (16.5)		
Gender				
Male	74 (74.7)	176 (74.3)	0.009	0.926
Female	25 (25.3)	61 (25.7)		
Religion				
Muslim	51 (51.5)	161 (67.9)	8.083	0.004
Hindu and others	48 (48.5)	76 (32.1)		
Father education				
Literate	95 (96.0)	227 (95.8)	0.006	0.940*
Illiterate	4 (4.0)	10 (4.2)		
Mother education				
Literate	91 (91.9)	207 (87.3)	1.459	0.227
Illiterate	8 (8.1)	30 (12.7)		
Father occupation				
Employed	95 (96.0)	228 (96.2)	0.010	0.922*
Unemployed	4 (4.0)	9 (3.8)		
Mother occupation				
Employed	97 (98.0)	229 (96.6)	0.099	0.753*
Unemployed	2 (2.0)	8 (3.4)		
Socioeconomic status				
Above Class III	69 (69.7)	177 (74.7)	0.885	0.347
Class III and below	30 (30.3)	60 (25.3)		
Education branch				
Mechanical	29 (29.3)	93 (39.2)	13.690	0.018
E and E	8 (8.1)	4 (1.7)		
Computers	28 (28.3)	75 (31.6)		
Biotech	8 (8.1)	11 (4.6)		
Civil	16 (16.2)	25 (10.5)		
E and C	10 (10.1)	29 (12.2)		

*Fisher's exact test with continuity correction

and various faculties of education were found to have statistically significant association with depression ($P < 0.001$) and when the association of depression and functional impairment was assessed, we found to have statistically significant difference in the mean scores of functional impairment among individuals with depression and without depression ($t = 7.507$; $P < 0.05$). We also found that there was moderate to strong positive correlation seen between depression and functional impairment, indicating as the depression score increases, functional impairment increases ($r = 0.633$; $P < 0.001$).

The prevalence in our study was found to be much higher when compared to various other studies,[6,9,10] where the prevalence was found to be 18.5%, 22.5%, and 21.8%, respectively, this difference could be due to increasing competition, diversity in culture, sociodemographic profile, and use of different tool.[11] Of the individuals with depression, only 1.69% were found to have severe depression score and this was in line with the document of the WHO,[4] where in the prevalence of depression ranges from 1.8% (severe) to 39.6% (mild-to-moderately severe). Muslim religion though found to the significant attribute of depression could be because majority of the study population were belonging to Muslim religion and also could be due to various sociocultural context[4] and differences in the prevalence of depression across various faculties of education was found that could be due to the increasing competition.[11] As evident from various studies,[4,11,12] female gender is at more risk of suffering from depression than male and possible evidence of that could be attributed to biological and hormonal factors but our study found males gender had more depression when compared to females (74.7% vs. 25.3%) and this could be due to male gender majority in our study. A study conducted in Bangalore also found that men were more depressed than females (25% vs. 18%).[11] Our study also found that there were a statistically significant differences in the mean scores of functional disability in students with depression and without depression (t: 7.507; $P < 0.05$) and positive correlation between depression and functional disability as seen in Tables 5 and 6, indicating as the scores of depression increases, functional disability increases (r: 0.633; $P < 0.001$). This is in line with the WHO[4] findings, which found that individual with disability across various domains of work life (67.3%), social life (68.8%), and family life (70.2%) was attributed to depressive disorder.

There is a scarcity of studies evaluating mental health across various educational fields, our study had thrown a light on magnitude of depression among engineering students, and functional disability secondary to depression but our study being cross-sectional design does not allow firm statements on a longitudinal association and as only single university students were involved generalizability of results would be a question.

Table 5: Association of depression and functional disability among the study participants (n=336)

Depression	Functional disability {Mean (SD)}	t	P	95% CI
Present	2.08 (0.749)	7.507	<0.001	0.782 – 0.457
Absent	1.46 (0.521)			

SD: Standard deviation, CI: Confidence interval

Table 6: Karl Pearson's correlation between depression and functional disability among the study participants (n=336)

Depression mean (SD)	Functional disability domain mean (SD)	r	P
7.60 (4.914)	1.90 (0.745)	0.633	<0.001

SD: Standard deviation

CONCLUSION

The findings illustrated that there is a high prevalence of depression among the university students. Religion and various faculties of education were the statistically significant predictors of depression and students with depression had marked functional impairment when compared to those without depression. Thus, the finding's illustrates the need for further studies to have an in-depth understanding of the various significant predictors of depression. The study recommends strengthening of the counseling centers of the University for Early Identification of common mental disorder and formulates appropriate preventive strategies.

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