



**RESEARCH ARTICLE**

**PREVALENCE OF DEPRESSION AMONG PRE-UNIVERSITY COLLEGE STUDENTS IN AN URBAN AREA OF SOUTH INDIA**

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**ARTICLE INFO**

**Article History:**

Received 28<sup>th</sup> June, 2011  
Received in revised form  
27<sup>th</sup> July, 2011  
Accepted 29<sup>th</sup> September, 2011  
Published online 30<sup>th</sup> October, 2011

**Key words:**

Depression,  
Prevalence,  
Pre-University college students.

**ABSTRACT**

Onset of depression is occurring earlier in life today than in past decades. Adolescence being transitional period from childhood to adulthood is a stage of emotional instability resulting from demand for separation and independence. Evidence suggests that early intervention for depression in children can improve long term outcomes. This cross sectional study was done in January 2010 to find out the prevalence of depression among pre university students in Mangalore city. Prevalence of depression was assessed using Beck's Depression Inventory II. Data was collected using a self-administered questionnaire. Out of 308 participants, depression was seen among 79.2% students. Majority (41.2%) were found to be suffering from moderate followed by mild (26.6%) depression. Prevalence of depression ( $P=0.027$ ) and severity of depression ( $P=0.0357$ ) was found to significantly increase with age of the participants. Students of commerce were found to be significantly more depressed than students of science stream ( $P=0.002$ ). No association of depression with gender of participants or with the type of college they were studying in was observed. There is a need for college students to be educated about depression in order to improve recognition and diagnosis. Also student counselling service offering mental health assistance needs to be established at colleges.

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**INTRODUCTION**

The term depression describes a wide range of emotional lows, from mere sadness to a pathological suicidal state (Nair *et al.*, 2004). This is a common mental problem encountered in day to day stress filled life. Usually a person who is sad or feeling unhappy should return to normal emotional stability within a reasonable period of time. There are times when this state of sadness or unhappiness may continue to such a degree and for such a length of time that it far outweighs the significance of the precipitating factor. The sufferer continues to be in a prolonged state of sadness and withdrawn from his/her personal, social and occupational activities. In such situations, a diagnosis of depression should be considered (WHO, 2011). There are some people who periodically or chronically remain in a depressed state in spite of their having all social privileges and material comforts, severely compromising all their functions, culminating in about 15% of cases in suicide. A tragic fatality associated with the loss of about 1 million lives worldwide every year (WHO, 2011). According to World Health Report in 1998 an estimated 39% of all Disability-Adjusted Life Year (DALY) lost in low and middle-income countries were attributable to non-communicable diseases of which 10% of the disease burden is due to neuropsychiatric conditions.

A large proportion of the burden of disease resulting from neuropsychiatric conditions is attributable to unipolar major depression. In adults aged 15-44 years neuropsychiatric conditions are the leading cause of DALYs lost worldwide. The disease burden resulting from depression is estimated to be increasing both in developing and developed regions (WHO, 2011). Adolescence which is the transitional period from childhood to adulthood is a stage of emotional instability making them vulnerable to depression. The state of emotional instability results from difficulties in establishing self-identity and self-esteem leading to conflicts within family and peer groups (Nair *et al.*, 2004). In adolescents this may be a part of the adolescent developmental process, resulting from the giving up of childlike security in the drive for separation and independence (Sugar, 1968). Consequences of depression in this age group are phenomenal. It may negatively impact peer or family relationship (Bhatia *et al.*, 2007). Moderate to severe depression can affect the scholastic performance of adolescents (Nair *et al.*, 2004). Above all there is also a danger of students picking up habits like usage of substances of abuse to get over depression. Major depressive disorder is also found to be a leading cause of youth suicidal behaviour and suicide (Kann *et al.*, 2000). Adolescent depression disorder often has a chronic waxing and waning course and there is a 2 to 4 fold risk of depression persisting into adulthood (Pine *et al.*, 1999). In addition research indicates that depression onset is occurring earlier in life today than in

past decades (Klerman *et al.*, 1989). The reasons for this could be the result of rapid urbanization and life style changes. Evidence suggests that early intervention for depression in children can improve long term outcomes (Duffy, 2000). While depression and its effects have been studied in many different population groups and subgroups, the extent of this problem and effect of this disease on college students has not been well documented. This study was hence done to find out the prevalence of depression among college students and to find out risk factors associated with depression. Following this study we also intend to provide career guidance, counselling and other support and services in future among student groups.

## MATERIALS AND METHODS

This cross sectional study was done in January 2010 among pre university college students from two private and one government college in Mangalore city of Karnataka state in south India. The ethical approval for conducting this study was obtained from the institutional ethical clearance committee. The permission to conduct this study in the respective colleges was obtained from the head of these institutions. They were assured that a total confidentiality of college identity shall be maintained. The sample size was calculated using level of the confidence interval 95% and power at 80%. Assuming the prevalence of depression to be 26.2% as reported in a previous study (Bostanci *et al.*, 2005), the sample size was calculated as 282. Incorporating a nonresponse rate of 10% the sample size came to 310. Therefore a total of 310 students (approximately 100 students in each of these colleges) were selected randomly using computer generated random numbers. In this study prevalence of depression was assessed using Beck's Depression Inventory II (BDI - II), a mood-measuring device originally developed by Dr. Aaron T Beck (Beck, 2009). Questions of the BDI II assess the typical symptoms of depression such as mood, pessimism, sense of failure, self-dissatisfaction, guilt, punishment, self-dislike, self-accusation, suicidal ideas, crying, irritability, social withdrawal, body image, work difficulties, insomnia, fatigue, appetite, weight loss, bodily preoccupation, and loss of libido. The multiple-choice questionnaire has 21 groups of statement with the score for each statement ranging from 0 to 3 and the total score being 63. A score of 0-13 is considered as normal, 14-19 border line clinical depression or mild depression, 20-28 moderate depression and 29 to 63 as severe depression. In the beginning the investigators explained the students about the purpose of the study. Later after obtaining informed consent from each of the participants a self-administered questionnaire was handed over to them. The response rate in this study was 99.3% with 308 participants giving a fully completed questionnaire with respect to BDI- II. The data entry and analysis was done using version 11.5 of the Statistical Package for Social Sciences software package (SPSS Inc., Chicago, IL). Statistical tests like Chi-square was used and P value <0.05 was taken as statistically significant.

## RESULTS

A total of 308 students from one government college and two private colleges took part in this study. Of them majority (72.7%) were aged 17 to 18. The mean age  $\pm$  SD of students was found to be 17.27 $\pm$  0.553 years. Majority (66.6%) were

males and majority (68.5%) were studying commerce. The prevalence of depression in this study was found to be 79.2%.

**Table 1: Socio demographic characteristics of students**

	No.	Percentage
Age		
16 years	65	21.1
17 years	113	36.7
18 years	111	36.0
19 years	19	6.2
Gender		
Male	205	66.6
Female	103	33.4
Educational background		
Science	97	31.5
Commerce	211	68.5
Type of college		
Government	107	34.7
Private	201	65.3

(n=308)

Out of the total participants, 26.6% were found to suffer from mild, 41.2% from moderate and 11.4% from severe depression (Table 1). Prevalence of depression was 66.1% in 16 years age group, 81.4% in 17 years age group, 82.9% in 18 years age group and 89.5% in 19 years age group. This increase in prevalence of depression with age was found to be statistically significant ( $X^2=9.19$ ,  $DF=3$ ,  $P=0.027$ ). The severity of depression was also found to significantly increase with the age of the participants ( $P=0.0357$ ) (Table 2). Prevalence of depression was found to be higher among males (81%) than females (75.7%). However this was not statistically significant (Table 3). Students of commerce branch were found have moderate to severe depression significantly more than students of science branch ( $P=0.002$ ) (Table 4). Prevalence of depression was found to more among students in government college (84.1%) than students in private colleges (76.6%). However this difference was not found to be statistically significant (Table 5).

## DISCUSSION

Depression is a common disorder that impacts an individual ability to perform life activities. A recently published longitudinal prospective study found that early onset depression often persists, recurs and continues into adulthood and indicates that depression in youth may also predict more severe illness in adult life. Depression in young people often co-occurs with other mental disorders, most commonly anxiety disruptive behaviour, or substance abuse disorders (Weissman *et al.*, 1999). This makes screening for depression very vital among college going students of the adolescent age groups. Among the 308 students the prevalence of depression was found to be 79.2%. This was comparable to observations made in a study done among University students of Transkei where 53% of were found to have depression (Mkize *et al.*, 1998). However several other studies observations (Bhatia *et al.*, 2007; Bostanci *et al.*, 2005; Ekundayo *et al.*, 2007; Peterson, 2002) done among college students have reported prevalence of depression to be varying from 10% to 27% which is much lower than the present study. The most common type of depression in our study was of moderate (41.2%) followed by mild (26.6%) and severe grade depression

(11.4%). Moderate depression was again the commonest type of depression in a Trivandrum (India) based study conducted among 13 to 19 years school/college students. However the

which might have led to male preponderance of depression among participants in this study. For instance anxiety arising from need for timely employment to take up familial

**Table 2: Association between age of participants and level of depression**

Age	No depression (%)	Mild depression (%)	Moderate depression (%)	Severe depression (%)	Total (%)
16	22 (33.9)	14 (21.5)	25 (38.5)	4 (6.1)	65 (100)
17	21 (18.6)	28 (24.8)	46 (40.7)	18 (15.9)	113 (100)
18	19 (17.1)	32 (28.8)	51 (45.9)	9 (8.2)	111 (100)
19	2 (10.5)	8 (42.1)	5 (26.3)	4 (21.1)	19 (100)
Total	64 (20.8)	82 (26.6)	127 (41.2)	35 (11.4)	308 (100)

$$X^2 = 17.95, DF = 9, P = 0.0357$$

**Table 3: Association between gender of participants and level of depression**

Age	No depression (%)	Mild (%)	Moderate (%)	Severe (%)	Total (%)
Males	39 (19)	55 (26.8)	85 (41.5)	26 (12.7)	205(100)
Females	25 (24.3)	27 (26.2)	42 (40.8)	9 (8.7)	103(100)
Total	64	82	127	35	308

$$X^2 = 1.86, DF = 3, P = 0.601$$

**Table 4: Association between educational background of students and level of depression**

Educational background	No depression (%)	Mild (%)	Moderate (%)	Severe (%)	Total (%)
Science	20 (20.6)	39 (40.2)	29 (29.9)	9 (9.3)	97(100)
Commerce	44 (20.9)	43 (20.4)	98 (46.4)	26 (12.3)	211(100)
Total	64	82	127	35	308

$$X^2 = 14.8, DF = 3, P = 0.002$$

**Table 5: Association between type of college and level of depression among students**

Type of college	No depression (%)	Mild (%)	Moderate (%)	Severe (%)	Total (%)
Government	17 (15.9)	30 (28)	46 (43)	14 (13.1)	107(100)
Private	47 (23.4)	52 (25.9)	81 (40.3)	21 (10.4)	201(100)
Total	64	82	127	35	308

$$X^2 = 2.56, DF = 3, P = 0.464$$

prevalence of moderate depression reported here was 9.6% which was much lower than the findings in this study. The same study (Nair *et al.*, 2004) also reported the prevalence of mild depression to be 6.8% and severe depression as 2% which was again lower than the observations made in the present study. However a Swedish study (Olsson *et al.*, 1997 a) done among 16 to 17 years students found the prevalence of severe depression to be 10.3% which was similar to observations made in this study. The present study found the prevalence of depression increasing significantly with age of the participants. This was similar to the findings of a Turkish study (Bostanci *et al.*, 2005) where prevalence of depression was seen more among older students. This suggests the need for counselling services to be focused more among the senior students in the college as they are most vulnerable to suffer from depression. The prevalence of depression in our study was found to be slightly higher among males than females. This was in contrast to the observations made in several studies (Bhatia *et al.*, 2007; Mkize *et al.*, 1998; Olsson *et al.*, 1997 a; Chabrol *et al.*, 2009; Olsson *et al.*, 1997 b) where depression was found to be significantly more among females than males. The reason for female preponderance to depression in the adolescent age group has been attributed to differences in coping styles or hormonal changes during puberty (Angold A *et al.*, 1999). The converse observations in our study could mean the influence of certain external factors

responsibilities or influence of substances of abuse or peer groups etc. The students of commerce stream having depression significantly more than students from science stream probably indicate the differential expectation from various streams on the mental health of students. Student counsellors are required for each stream to help students to cope up with the necessary course requirements. This will alleviate stress on students and help them perform well academically and have a healthy campus life. Depression levels seen more among students of the government college than private colleges probably could be due to reasons like shortage of facilities, lesser quality of educational systems and lack of social activities in the campus very common of government colleges. Another reason could be that students in government colleges are usually of a poor socio economic background as compared to students of private colleges and are hence more prone to depression. Considering the high frequency of mild to moderate depression among students in our study area, student counselling service offering mental health assistance is necessary. Students should be educated about depression to improve recognition and diagnosis. Clinical assessment should focus on identification of these variables and non-pharmacological interventions may be of relevance in addressing some of the associated factors. Studies have shown that more than 70% of children and adolescents with depressive disorders or other serious mood disorders do

not receive appropriate diagnosis and treatment (Bethsada, 2001). Possible reasons to this is stigma attached to these disorders, atypical presentation, a lack of adequate child mental training for health care professionals, an inadequate number of child psychiatrists and inequalities in mental health care insurance (Bhatia *et al.*, 2007). Current literature supports the use of cognitive behaviour therapy for mild to moderate childhood depression. Antidepressants in conjunction with cognitive behaviour therapy may be considered for severe depression. Adjunctive psychotherapy and family therapy can help consolidate the gains (Bhatia *et al.*, 2007). Adolescent health policy makers should consider these factors when planning health care services or formulating a predictive model for adolescent depression in low income countries.

### Conclusion

The study found that prevalence of depression was very high among pre university college students in the surveyed colleges. The prevalence and severity of depression levels was found to be significantly more in the older age group students. Students from commerce stream were found to suffer from depression significantly more than students from science stream. Depression levels were seen slightly more among males and students from government college. Students should be educated about depression to improve recognition and diagnosis. From a public health perspective, this analysis highlights the importance of access to mental health treatment facilities among the college students.

### Limitation

The study results on prevalence of depression among pre university students in the present study cannot be generalized as depression is a subjective and usually a temporary phenomenon. Several other risk factors associated with depression such as socio economic status of study participants and scholastic performance of students which could influence the depressive mind set of students could not analysed as these information were not revealed by most participants. As depression is multifactorial, more studies analysing these factors are required in future to understand the problem of depression better.

### Acknowledgements

The author thanks Ms.Sarah Naushad, Mr.Waseem Farooqui, Mr.Satish Sharma, Ms.Mukti Rani, Ms.Rajashree Singh and Ms.Supreet Verma, M.B.B.S students of K.M.C, Mangalore for their help in data collection. I thank Dr.Unnikrishnan B, Professor and H.O.D, Department of Community Medicine for his guidance and support during this research study. I also thank the principals, teachers, non-teaching staff and students of the concerned colleges for their cooperation rendered to us for the conduct of this study.

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