

Prevalence of Depression and its Contributing Factors

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ABSTRACT

Introduction: Adolescence represents a critical phase of development and is characterized by major changes in all areas of human life; physical, emotional, spiritual, cognitive and moral. Depression has been found to be the most common psychiatric disorder among adolescents.

Methods and materials: A survey approach with a school based cross-sectional design was adopted. Convenient sampling was used to select the main setting (Udupi block); random sampling was used to select the schools, PUCs, & students. The data collection tools used comprised of demographic proforma, Beck Depression Inventory-I, Factors contributing to adolescent depression questionnaire and scale, Rosenberg's self-esteem scale.

Statistical analysis: Data collected were analyzed using SPSS version 16 by computing the descriptive and inferential statistics.

Results: The main findings of the study show overall prevalence of adolescent depression was 44%. Depression was found to be significantly associated with gender ($r=4.69$, $p=0.030$), family history of depression or any mood disorders ($r=30.81$, $p<0.001$), presence of any illness ($r=23.692$, $p<0.001$), stressful life events ($r=80.183$, $p<0.001$), loss of someone close ($r=1.107$, $p<0.001$) and failure in final examinations ($r=41.906$, $p<0.001$). There was no association of adolescent depression with age. Depression was found to be negatively correlated with self-esteem ($r=-0.794$, $p<0.001$), anxiety ($r=-0.729$, $p<0.001$) and confidence ($r=-0.760$, $p<0.001$). Depression was found to have a significant negative correlation with family relationships ($r=-0.700$, $p<0.001$), peer relationship ($r=-0.575$, $p<0.001$) and relationship with teachers ($r=-0.589$, $p<0.001$). Depression was found to be independent of the selected demographic variables as class of study, age, religion, type of family, parental marital status, parental occupation, and annual income. However, there was a significant association between depression and father's education ($r=57.21$, $p<0.001$), and mother's education ($r=23.62$, $p=0.003$).

Conclusion: The community health department may extend their services to the school by planning adolescent health education on prevention and identification of depression. Further exploration

of factors contributing to adolescent depression may be conducted through qualitative research.

Keywords: Depression; Adolescents; Adolescent Depression; Adolescent Anxiety; Adolescent Health.

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INTRODUCTION

Adolescence represents a critical phase of development and is characterized by major changes in all areas of human life; physical, emotional, spiritual, cognitive and moral. Metaphorically it is like a bridge that transits an individual from a

tender childhood to fully mature adulthood. It is a turbulent period for a child, where she or he is faced with many unexpected and dramatic changes in all areas of development. It is the time when a fully dependent child exercises his autonomy by trying to separate from the care giver. Thus, this period is of immense value in the life of every individual, for it is the foundation that shapes the future of every child. This period of growth and development is not bereft of hurdles and obstacles. Adolescents encounter numerous concerns related to physical, emotional, social, moral and spiritual dimensions of life. Amongst the major concerns of adolescence, issues related to depression, as a common psychiatric problem is on the rise. They need to be thoroughly guided and screened as depression negatively impacts growth and development.

Depression is the most important global public health problem because of its relatively high life time prevalence and the significant disability it causes¹. In 2002, depression accounted for 4.5% of the world-wide total burden of disease, in terms of disability adjusted life years.

By the year 2020, depression will be the second most common health problem in the world, second to Ischemic Heart disease¹. Lifetime prevalence rates rise to 14% for adolescents 15 to 18 years of age, from an average of less than 3% in any given point in time. About 3% to 8% of adolescents face major depressive disorder, making it more common than asthma or other medical diseases in this age group.²

Depression in children and adolescents' manifests as a combination of feelings of sadness, loneliness, irritability, worthlessness, hopelessness, agitation and guilt. It may also co-exist with other disorders as anxiety, social withdrawal, somatic difficulties, phobias and obsessive compulsive disorders. The externalizing disorders that occur with depression are conduct disorder, oppositional defiant behavior, hyperactivity, and substance abuse disorders. A diagnosis of major depression requires that the symptoms be present for two weeks or more.³ These symptoms can be detrimental at times leading to major depression and finally suicide.

Depression in children was an incredible occurrence 40 years ago. However, a growing body of evidence has confirmed that children and adolescents not only experience the whole spectrum of mood disorders but also suffer from the significant morbidity and mortality associated with them. Unfortunately, depression in children usually goes undetected as parents or significant others attribute the depressive symptoms to some mood swings, common in adolescence. Thus, under

diagnosis and under-treatment further enhances the incidence of major depression among the adolescents which may be later associated with serious psychiatric problems. More than 70 percent of children and adolescents with depressive disorders do not receive appropriate diagnosis and treatment.⁴

Adolescent depression has many negative consequences. It may inadvertently affect the teen's socialization, family relations, and performance at school and suicidal ideations, often with potentially serious long-term consequences. They are at risk for increased hospitalizations, recurrent depressions, psychosocial impairment, alcohol abuse, and antisocial behaviors as they grow up. The most devastating outcome of concern for adolescent depression is suicide, the third leading cause of death among older adolescents (Center for Disease Control).¹ Depressive disorders are the most common diagnosis present in all suicides. In 2001, there were 1,833 cases of suicides in children and adolescents 10 to 18 years of age, and in 2000, suicide was the third leading cause of death among those 10 to 19 years of age.^{3,4,5}

Numerous studies conducted globally and nationally have shown progressive increase in the prevalence of depression among adolescents. Sundet. al, investigated the prevalence and characteristics of depressive disorders in early adolescence in Central Norway in 2011. They found that almost one in four subjects (23%) had lifetime depression. Prevalence of Major Depressive Disorder was 2.6%, followed by dysthymia accounting for 1% of the subjects.⁴ This implies the growing concern for recognition and timely treatment of depressive symptoms quite early in life.

The researcher could not trace precise information on the national statistics related to prevalence of depression in adolescents. Nevertheless, studies have been conducted in different parts of the country, providing the scenario in few states.

In India, as reported by the National Institute of Mental Health and Neurosciences, Bangalore, 2010, suicide rates have been increasing by 5-10% every year. Major depressive disorder is the cause commonly associated with suicide in adolescents. The autopsy records of a hospital in Delhi revealed that the commonest age group involved in these suicide cases was between 15 to 18 years of age. National data shows female predominance in suicide cases. The common factors were recognized as depression resulting from academic failure, family conflicts, romantic relationships, illnesses

and poverty.⁵

According to the systematic review by Grover et al. in India, many studies have estimated the overall prevalence of depression in community samples to range between 1.7 to 7.4 per thousand population.⁶ The meta-analysis carried out by Reddy and Chandrasekhar, that included 13 studies on epidemiology of psychiatric disorders including 33572 adolescents from the community in India, reported the prevalence of depression to be 7.9 to 8.9 per thousand populations and the prevalence rates were nearly twice in the urban areas.⁷

Based on various prevalence studies conducted in our country, the prevalence of depression has been shown to vary between 18.4% to 79.2% among the adolescents.⁸⁻¹¹ The figure is quite alarming, as these adolescents represent the segment of population whose symptoms usually go unrecognized or under treated. The authors emphasize the importance of understanding the prevalence of adolescent depression for appropriate screening strategies and treatment.

Depression has been found to be the most common psychiatric disorder among adolescents. The World Health Organization has also taken an initiative to address the issue of depression as a global crisis by adopting it as the theme for this year's World Mental Health Day. Prevention of depression by early identification and screening is of paramount importance to put a stop to the ever-increasing menace of suicide that is gripping our nation. The information on prevalence of depression in adolescents will help in identification, screening and appropriate management at the earliest. It is often associated with suicide, a phenomenon that is on the rise among adolescents in India in recent times. However, depressive symptoms are an unrecognized problem among adolescents that necessitate the need for recognition. Thus, understanding the prevalence of depressive symptoms among adolescents is important for developing appropriate screening strategies, treatment planning, and follow-up care.¹²

Objectives of the study

The objectives of the study were to:

1. Assess the prevalence of depression among the adolescents by using Beck Depression Inventory.
2. Identify the factors contributing to depression

among adolescents.

MATERIALS AND METHODS

A survey approach with a school based cross-sectional design was adopted. The study was conducted in the English medium schools and pre-university colleges of Karnataka. A total of 10 secondary schools and 10 Pre-university colleges were randomly selected for data collection from a sampling frame of 44 English medium schools and pre-university colleges. The researcher obtained permission from 15 schools only, out of which one was one selected for pre-testing and reliability, two for pilot study and remaining twelve (seven EHS & five PUCs) for the main study. English medium schools and colleges were preferred for the study as the local language was unknown to the researcher. The population of the study was the adolescent students of standard IX to XII, studying in English medium schools of Udupi district, Karnataka.

Udupi block was selected by convenient sampling from five blocks in Udupi district, Karnataka. Sampling frame of English medium high schools and pre-university colleges was procured from the DDPI and DDPU, Udupi district, which comprised of 44 schools and Pre-university colleges. Ten higher secondary schools and ten PUCs were selected by Simple Random sampling for the main study. Proportionate stratified random was initially planned for the selection of adolescents from these schools. However, the researcher was able to get the permission from 15 schools only, including 7 high schools and 5 PUCs. Proportionate sampling of adolescents was possible in 2 schools only as in most of the schools, classes were allotted by the principal (in view of their academic routine) and thus random sampling was impossible. Thus, in some schools random selection of sections of classes were done and adolescents were selected conveniently maintaining the proportion keeping the gender in mind. Convenient sampling technique was used to select the main setting (Udupi block); schools, PUCs, & students. The data collection tools used comprised of demographic proforma, Beck Depression Inventory-I, Factors contributing to adolescent depression questionnaire and scale, Rosenberg's self-esteem scale. Data collected were analyzed using SPSS version 16 by computing the descriptive and inferential statistics.

RESULTS

Table 1's data reveals that 639 (32% of the total number of adolescent were in the tenth grade. 1305 teenagers, or 65.2% of them, identified as Hindus. The majority of the adolescents 1570 or 78.5% belonged to nuclear families. The majority of parents in 1942 (98.2%) were married and residing together. Majority 1274 (63.7%) of fathers were self-employed and 1683 (84.2%) of mothers were housewives.

Table 1: Frequency and Percentage distribution of adolescents based on sample characteristics

| (n=2000) | | |
|--------------------------------|---------------|----------------|
| Factors | Frequency (f) | Percentage (%) |
| <i>Class of study</i> | | |
| 9th standard | 606 | 30.3 |
| 10th standard | 639 | 32 |
| 11th standard | 366 | 18.3 |
| 12th standard | 386 | 19.4 |
| <i>Religion</i> | | |
| Christian | 260 | 13 |
| Hindu | 1305 | 65.2 |
| Muslim | 433 | 21.7 |
| Sikh | 2 | 0.1 |
| <i>Type of family</i> | | |
| Nuclear | 1570 | 78.5 |
| Joint | 430 | 21.5 |
| <i>Parental marital status</i> | | |
| Married | 1942 | 97.1 |

| | | |
|----------------------------|------|------|
| Separated | 9 | 0.5 |
| Widow | 5 | 0.2 |
| Widower | 44 | 2.2 |
| <i>Father's occupation</i> | | |
| Unemployed | 18 | 0.9 |
| Self-employed | 1274 | 63.7 |
| Employed | 644 | 32.2 |
| Daily wager | 14 | 0.7 |
| Others, please specify | 50 | 2.5 |
| <i>Mother's occupation</i> | | |
| Housewife | 1683 | 84.2 |
| Self-employed | 130 | 6.5 |
| Employed | 180 | 9 |
| Daily wager | 1 | 0 |
| Others (unknown/ dead) | 6 | 0.3 |

Section 2: Prevalence of depression among adolescents

The categories according to the inventory were normal, mild mood disturbances, borderline clinical depression, moderate depression, severe depression and extreme depression. Figure 1 represents the data on the prevalence of depression in the adolescents. Out of 2000 adolescents 30.2% adolescents were normal, while 25.8% were having mild mood disturbances and 14% belongs to the borderline clinical depression. Considering the scores above 17 as significant according to BDI, majority 22.4% was having moderate depression as shown in the fig. 1.

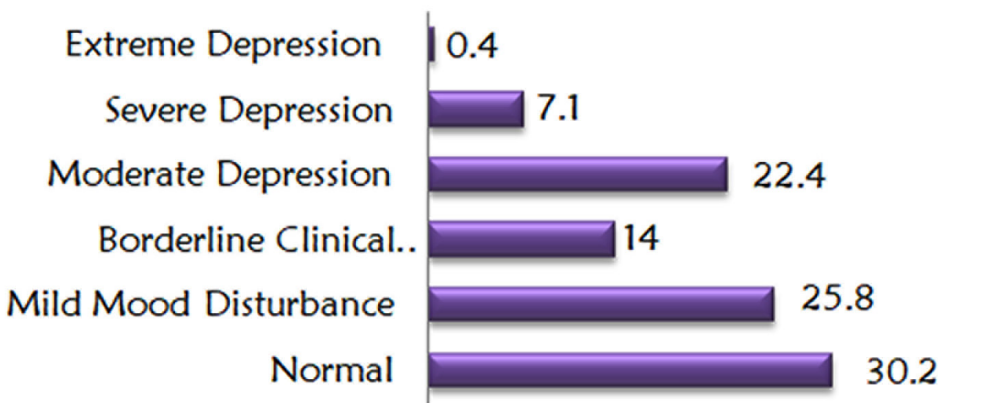


Fig 1: Percentage of depression in the adolescents

(n=2000)

For further analysis, different categories of depression were consolidated into two groups, normal (0-16) and depression (17 and above) as shown in fig. 1.

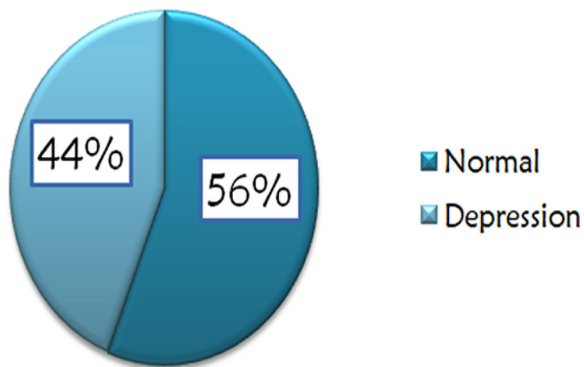


Fig 2: Pie diagram showing percentage of adolescents with depression (n=2000)

Fig. 2 represents the consolidated data on the prevalence of depression in the adolescents. Out of 2000 adolescents, 603 (30.2%) adolescents were normal, while 517(25.8%) were having mild mood disturbances. These two categories of depression were included in the normal category constituting 56% of the sample; while those with borderline clinical depression (14%), moderate depression, severe depression (7.1%) and extreme depression (0.4%) were included in the category of adolescents having depression. Thus, 44% were found to be having depression.

Section 3: Description of factors contributing to adolescent depression 3.A. Biological Factors:

Table 2: Frequency and percentage distribution based on factors

| Factors | Frequency (f) | Percentage (%) |
|---------------|---------------|----------------|
| <i>Gender</i> | | |
| Male | 1009 | 50.4 |
| Female | 991 | 49.6 |
| <i>Age</i> | | |
| 14 | 476 | 23.8 |
| 15 | 598 | 29.9 |
| 16 | 453 | 22.6 |
| 17 | 391 | 19.6 |
| 18 | 82 | 4.1 |

Family history of depression/mood disorders

| | | |
|-----|------|------|
| No | 1924 | 96.2 |
| Yes | 76 | 3.8 |

Presence of any illness in the student

| | | |
|-----|------|------|
| No | 1910 | 95.5 |
| Yes | 90 | 4.5 |

Precipitating Factors: Stressful experiences in the past one year

| | | |
|-----|------|------|
| No | 1724 | 86.2 |
| Yes | 276 | 13.8 |

Loss of someone close in past one year

| | | |
|-----|------|------|
| No | 1578 | 78.9 |
| Yes | 422 | 21.1 |

Failure in final examination

| | | |
|-----|------|------|
| No | 1892 | 94.6 |
| Yes | 108 | 5.4 |

The data presented in table 2 provides information on distribution of sample based on biological factors. Majority 1009 (50.4%) were males. Majority 598 (29.9%) were 15 years of age. About 76(3.8%) of the adolescents reported presence of significant family history and 90(4.5%) were suffering from significant illnesses. Assessment of the precipitating factors revealed 422(21.1%) adolescents had under gone stressful events. The adolescents who reported of having lost near and dear ones in the last one year were 1892(94.6%). A total 108 (5.4%) had failed in the final examinations atleast once in their lifetime.

Few open ended questions were used to identify some factors. It was found that the adolescents mostly suffered from illnesses as shown in below fig 3.

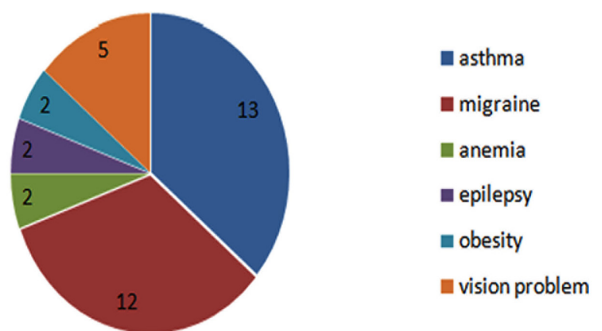


Fig 3: Frequency distribution based on illness suffered by adolescents

n=36

The major stressful events reported were: examination stress (100), love failure (24), hospitalization (13), school embarrassment incidents as caught stealing (4), being bullied by friends (7), being rusticated from school as he was epileptic (1), family and death of their family members and friends (6) in the last one

year. Witnessing a suicide (1), menarche (1) and watching adult movies (1) were among the other reasons for adolescent stress.

3.B. Psychological/ personality Factors:

The data represented in table 3 shows that self esteem scores averaged at 20.97 with a standard deviation of 5.839.

Table 3: Mean, median, and standard deviation of self-esteem scores

| Sub-factor | Mean | Minimum | Maximum | Median | SD |
|-------------|-------|---------|---------|--------|-------|
| Self-esteem | 20.97 | 0 | 30 | 21 | 5.839 |

n=2000

3.B.2: Anxiety: Anxiety was assessed by using a 4 point rating scale. The total scores were interpreted into three categories as mild anxiety (31-40), moderate anxiety (21-30) and severe anxiety (10-20). The data illustrated in figure 4 shows that majority 1116(55.8%) of adolescents were having mild anxiety, while only 167(8.4%) were having severe anxiety.

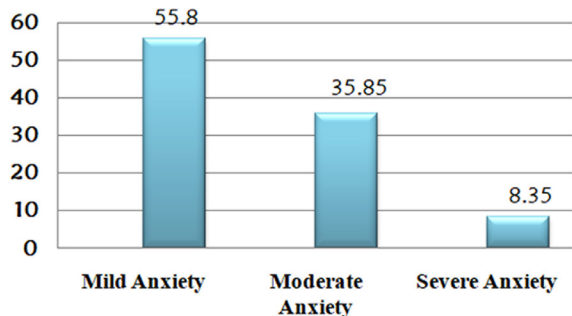


Fig 4: Percentage distribution of anxiety scores of adolescents n=2000

3.B.3: Confidence: Confidence was assessed by administering a 4 point rating scale. The scores were interpreted at three levels as low confidence (11-21), moderate confidence (22-31) and high confidence (32-44). The data given in figure 5 shows that 113 (5.6%) of adolescents had low confidence.

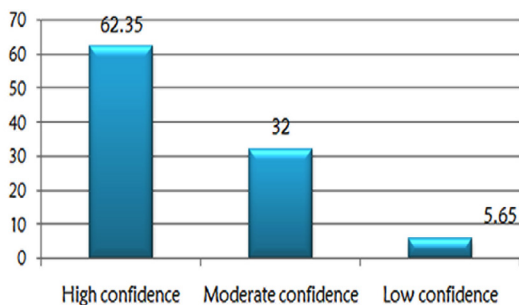


Fig 5: Percentage distribution of confidence scores of adolescents n=2000

3.C: Interpersonal Factors

3.C.1: Family Relationship: The family relationship was assessed by administering a 4 point rating scale. The total scores were interpreted as good family relationship (41-80) and impaired family relationship (20-40). The data illustrated in fig 6 shows that only 23(1.2%) of adolescents had impaired family relationship.

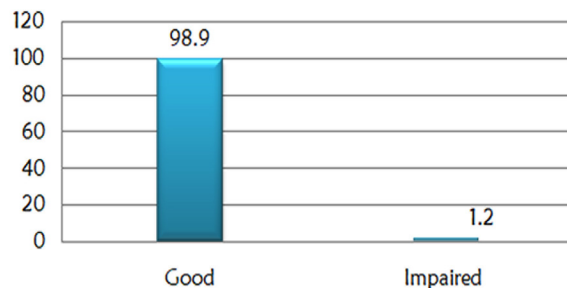


Fig 6: Percentage of distribution of family relationship score n=2000

3.C.2: Peer Relationship: Peer relationship was assessed by using a 4 point rating scale. The categories for this sub-factor were good (22-44) and impaired peer relationship (11-21).

Fig 7 shows that 32 (1.6%) adolescents had impaired peer relationship.

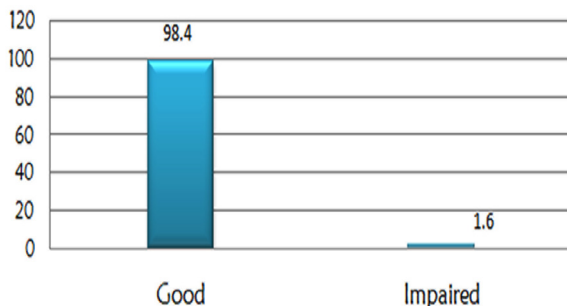


Fig 7: Percentage distribution of peer relationship scores n=2000

3.C.3: Relationship with Teachers:

Fig 8 show that only 70 (3.5%) adolescents had impaired relationship with teachers.

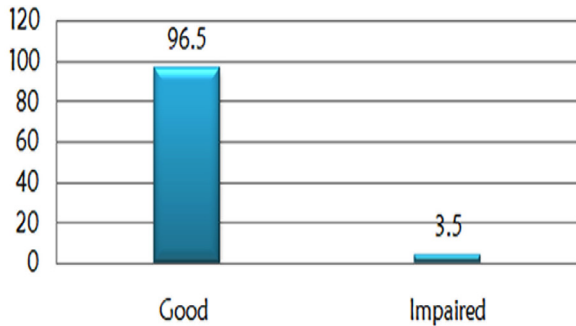


Fig 8: Percentage distribution of relationship with teachers
n=2000

The data shows significant association of depression with gender ($\chi^2= 4.69$ $p=0.03$), family history of depression or any other mood disorders ($\chi^2=30.81$ $p<0.001$); presence of significant illness ($\chi^2= 24.896=p<0.001$); stressful experience in past one year $\chi^2=80.464$ $p<0.001$); loss of someone close ($\chi^2=110.7$ $p<0.001$), and failure in final examination ($\chi^2=41.906$ $p<0.001$), among the biological factors. Age has no significant association with depression

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Section 4: Relationship of depression with the identified factors.

4.A. Association of depression with biological factors:

Table 4: Chi-square showing association of biological factors with depression

(n=2000)

| Biological factors | Normal f (%) | Depression f (%) | χ^2 (df) | p-value |
|---|--------------|------------------|---------------|---------|
| <i>Gender</i> | | | | |
| Male | 541(53.6) | 468(46.4) | 4.691*(1) | 0.030 |
| Female | 579(58.4) | 412(41.6) | | |
| <i>Age</i> | | | | |
| 14-15 | 607(56.5) | 467(43.5) | 0.252(1) | 0.616 |
| 16-18 | 513(55.4) | 413(44.6) | | |
| <i>Family history of depression/ mood disorders</i> | | | | |
| No | 1101(57.2) | 823(42.8) | 30.812*(1) | 0.001 |
| Yes | 19(25) | 57(75) | | |
| <i>Presence of significant illness</i> | | | | |
| No | 1093(57.2) | 818(42.8) | 24.896*(1) | 0.001 |
| Yes | 27(30.3) | 62(69.7) | | |
| <i>Stressful experiences in past one year</i> | | | | |
| No | 1035(60) | 690(40) | 80.464*(5) | 0.001 |
| Yes | 85(30.9) | 190(69.1) | | |
| <i>Loss of anyone close in last one year</i> | | | | |
| No | 979(62) | 599(38) | 110.7*(5) | 0.001 |
| Yes | 141(33.4) | 281(66.6) | | |
| <i>Failure in final examinations Depression</i> | | | | |
| No | 1092(57.7) | 800(42.3) | 41.906*(1) | 0.001 |
| Yes | 28(25.9) | 80(74.1) | | |

4.B. Correlation between depression and psychological/personality factors:

Table 5: Correlation between depression and psychological/personality factors

n=2000

| | Depression | Self-esteem | Confidence | Anxiety |
|------------------------|---------------|---------------|---------------|--------------|
| Depression r; p-value | 1 | -0.794 <0.001 | -0.760 <0.001 | -0.729<0.001 |
| Self esteem r; p-value | -0.794 <0.001 | 1 | 0.773 <0.000 | 0.727 <0.001 |
| Confidence r; p-value | -0.760 <0.001 | 0.773 <0.001 | 1 | 0.764 <0.001 |
| Anxiety r; p-value | -0.729<0.001 | 0.727 <0.001 | 0.764 <0.000 | 1 |

Age has no significant association with depression ($\chi^2=0.252$ $p=0.615$).

The presence of significant illness in adolescents, experiences of stressful events in past one year, loss of someone close and failure in final examination are also found to precipitate depression in adolescents. However, depression is found to be independent of age, among the biological factors.

The normality of data was tested using kolmogorov smirnov test and it was found that the data was not following the normal distribution. Thus, these factors were correlated with depression using Spearman's rho test of significance. The data shows that there is significant negative correlation of all psychological/personality factors with depression as evident by the correlation coefficients of -0.794, -0.729, -0.760 for self esteem, anxiety score and confidence respectively at 0.001 level of significance. The table also suggests that self esteem and confidence share a strong positive correlation, implying that with increase in self esteem, confidence increases. The correlation with anxiety shows that with the increase in self esteem and confidence, the anxiety scores also increase which

indicates lower level of anxiety. Thus, it implies that an adolescent with high self esteem and confidence has lower level of anxiety and vice versa.

The data shows that all the interpersonal factors as family relationship, peer relationship and relationship with teachers have significant negative correlation with depression with correlation coefficients of -0.700, -0.575 and -0.589 respectively. Thus, it is inferred that depression is inversely related with these interpersonal factors. Level of depression increases with impaired family, peer and teacher relationships.

4.C: Correlation between depression and interpersonal factors:

Table 6: Correlation between depression and interpersonal factors

(n=2000)

| Interpersonal factors | Y | p-value |
|---------------------------------------|---------|---------|
| Family relationship Depression | -0.700* | 0.001 |
| Peer relationship Depression | -0.575* | 0.001 |
| Relationship with teachers Depression | -0.589* | 0.001 |

Section 5: Association of depression with the selected demographic variables

Table 7: Chi-square value showing association between depression and selected demographic variables

n=2000

| Variables | Normal f (%) | Depression f (%) | χ^2 | df | p-value |
|-----------------------|--------------|------------------|----------|----|---------|
| <i>Class of study</i> | | | | | |
| 9 | 335(55.3) | 271(44.7) | | | |
| 10 | 369(57.7) | 270(42.3) | | | |
| 11 | 193(52.7) | 173(47.3) | 2.782 | 3 | 0.426 |
| 12 | 223(57.3) | 166(42.7) | | | |

Table cont.....

| | | | | | |
|--------------------------------|------------|-----------|---------|---|-------|
| Religion | | | | | |
| Christian | 159(61.2) | 101(38.8) | | | |
| Hindu | 734(56.2) | 571(43.8) | 5.409 | 3 | 0.144 |
| Muslim | 226(52.2) | 207(47.8) | | | |
| Sikh | 1(50) | 1(50) | | | |
| Type of family | | | | | |
| Nuclear | 891(56.8) | 679(43.2) | 1.669** | 1 | 0.001 |
| Joint | 229(53.3) | 201(46.7) | | | |
| Parental marital status | | | | | |
| Married | 1094(56.3) | 848(43.7) | | | |
| Divorced | 3(33.3) | 6(66.7) | | | |
| Separated | 3(60) | 2(40) | 4.020 | 4 | 0.403 |
| Widow | 18(45) | 22(55) | | | |
| Widower | 2(50) | 2(50) | | | |
| Father's occupation | | | | | |
| Unemployed | 6(33.3) | 12(66.7) | | | |
| Self employed | 707(55.3) | 571(44.7) | | | |
| Employed | 379(58.9) | 264(41.1) | 9.723 | 5 | 0.083 |
| Daily wager | 8(57.1) | 6(42.9) | | | |
| Retired | 2(40) | 3(60) | | | |
| Others (dead) | 18(42.9) | 24(57.1) | | | |
| Mother's occupation | | | | | |
| Housewife | 929(55.3) | 752(44.7) | | | |
| Self employed | 84(64.1) | 47(35.9) | | | |
| Employed | 105(57.4) | 78(42.6) | 5.348 | 4 | 0.253 |
| Daily wager | 0 | 1(100) | | | |
| Others (dead) | 2(50) | 2(50) | | | |
| Father's education | | | | | |
| Primary | 104(40.6) | 152(59.4) | | | |
| Matriculate | 287(52.2) | 263(47.8) | | | |
| PUC | 372(65) | 200(35) | | | |
| Graduate | 234(59.5) | 159(40.5) | | | |
| Post-graduate | 40(65.6) | 21(34.4) | 57.218* | 8 | 0.001 |
| Professional | 40(54.8) | 33(45.2) | | | |
| Uneducated | 0 | 1(100) | | | |
| Others (not known) | 26(50) | 26(50) | | | |
| Not applicable (Dead) | 17(40.5) | 25(59.5) | | | |
| Mother's education | | | | | |
| Primary | 198(47.4) | 220(52.6) | | | |
| Matriculate | 431(58.6) | 305(41.4) | | | |
| PUC | 265(60) | 177(40) | | | |
| Graduate | 162(59.1) | 112(40.9) | | | |
| Post-graduate | 16(53.3) | 14(46.7) | 23.628* | 8 | 0.003 |
| Professional | 14(42.4) | 19(57.6) | | | |
| Uneducated | 4(33.3) | 8(66.7) | | | |
| Others (not known) | 28(54.9) | 23(45.1) | | | |
| Not applicable (dead) | 2(50) | 2(50) | | | |

Table cont.....

| <i>Family Annual income In rupees</i> | | | | | |
|---------------------------------------|-----------|-----------|-------|---|-------|
| < 100000 | 467(54.1) | 396(45.9) | | | |
| 100001 - 300000 | 490(58.5) | 347(41.5) | 5.657 | 3 | 0.130 |
| 300001 - 500000 | 102(51.5) | 96(48.5) | | | |
| >500001 | 61(59.8) | 41(40.2) | | | |

** Fisher's exact value

The data shows that there is no statistically significant association between depression and the selected demographic variables such as class of study, age, religion, type of family, parental marital status, parental occupation, and annual income. However, there is a statistically significant association between depression and father's education ($\chi^2=57.21$ $p=0.001$), and mother's education ($\chi^2=23.62$ $p=0.003$).

DISCUSSION

Prevalence of depression among adolescents

The prevalence of depression among adolescents overall in the current study is 44%. The majority of adolescents, 449 (22.4%), were depressed, followed by 280 (14%) who had borderline clinical depression. 142 people (7.1%) were judged to have severe depression, and 9 (0.4%) of them were experiencing extreme depression. The findings are consistent with those of other Indian studies, which found that the prevalence of adolescent depression ranged from 18.4% to 79.2%.⁸⁻¹¹ Mild mood disturbances were found to be the most prevalent type of depression (25.8%). Adolescence is a time of significant transition from childhood to adulthood, and as such, it is possible that adolescents are stressed out by the physiological and biological changes they must manage while also seeking to fit in with their families, friends, and peers and school environment.

However, the cut-off score for depression according to BDI is 17. Taking this into consideration, moderate depression (22.4%) is found to be the common level of depression in the present study that is in line with the other studies.^{9,12-14}

Factors contributing to Adolescent depression

A. Gender and depression

Depression and gender were significantly correlated ($r=4.69$, $p=0.03$). According to the information acquired through open-ended questionnaires, the main causes of male depression were exam stress, failed romantic relationships, hospitalization, and humiliating experiences like peer bullying. Recently, it has been noted that men

can tolerate certain pressures less. Compared to females, they are more involved in the environment and therefore more vulnerable to stressors. The finding is supported by a study conducted by Sun et al in China.¹⁵

This finding, is however incongruent with the results of other studies where female gender scored higher on depression than the males.^{8,15-19}

B. Family History of depression/ any mood disorders and depression:

The present study found a significant association of depression with family history ($r=30.81$, $p<0.001$). The finding is congruent with the findings of a many other studies conducted previously, which revealed a significant association of adolescent depression with family history of the same.^{20,21}

C. Stressful life experiences and depression:

Stressful life experiences had significant association with depression ($r=80.183$, $p<0.001$). Stressful experiences as identified in the study were death of a near one, shaming experiences, examination preparation stress and hospitalization. These experiences are known to affect the person's coping skills. The reaction to these stressors depends on the person's personality, coping skills and support from significant individuals. The sustained presence of these stressors may eventually give rise to development of depression.

The study findings are congruent with the findings of other studies that concluded the presence of stressful life experiences as one of the precipitating factor of adolescent depression.^{10,23,24,25}

D. Academic failure and depression:

Strong association was identified between academic failure and depression ($\chi^2=41.906$, $p<0.001$). This finding is comparable with the findings of a studies conducted by Lipps et al.²⁶ and Basavarajjapa and Khanekeshi²⁷, stating that academic failure is significantly related with depression

E. Self-esteem and depression:

Self-esteem was found to have significant negative correlation with depression ($r=-0.791$, $p<0.001$). This correlation is supported by another study conducted by Avison and McAlpine in

Ontario. Linear regression showed that self-esteem along with other factors, accounted for 39% of the variance in the CES-D score for adolescent depression.²⁸

Another study conducted on personality, self-esteem predictors of happiness and depression among high school student in Iran by Malekiha et al in 2012, also supports the findings. They studied the correlations between personality, self-esteem and happiness, depression among 110 boys in a high school. The participants completed Myers-Briggs Type Indicators, Rosenberg Self Esteem Scale, Beck Depression Inventory, and Oxford Happiness Inventory. The results of the study revealed that self-esteem was significantly correlated with happiness and depression ($r = 0.46$, $r = -0.57$; $p < 0.01$).²⁹

F. Anxiety and depression:

Anxiety was seen to be significantly related to depression ($r = -0.729$, $p < 0.001$). The findings suggest that an adolescent who is very prone to or is in a constant state of anxiety is also prone to develop depression.

Matos et al carried out a cross-sectional study with Portuguese children and adolescents, aged 10 to 17 attending 6th, 8th and 10th grade in public schools, to examine the relationship between feelings of anxiety and depression; to examine the association of positive peer relationships, and anxiety and depression in school-age adolescents; to examine the relationship between health, peer relationships, depression and anxiety; and finally, and to assess age and gender differences with regard to the above issues. Consistent with previous studies, anxiety and depression were found to be significantly correlated. A *Manova* revealed that females and adolescents in grades 8 and 10 were more likely to report high anxiety and/or depressive symptoms. High anxiety and depression in adolescence was associated with poor peer relationships and poorer health. These researchers confirmed a significant association between depression and anxiety.³⁰

Yet another study supports the present findings. The study was conducted by Sahoo and Khess to assess the prevalence of depression, anxiety, and stress among young male adults in India. Ranging from mild to extremely severe, depressive symptoms was present in 18.5% of the population, anxiety in 24.4%, and stress in 20%. Clinical depression was present in 12.1% and generalized anxiety disorder in 19.0%. Comorbid anxiety and depression were high, with about 87% of those having depression also suffering from anxiety disorder.³¹

G. Confidence and depression:

Confidence was found to have significant negative correlation with depression ($r = -0.760$, $p < 0.001$). The findings say that an adolescent who is has low confidence may be at risk for development of depression in favorable situations. Confidence is a part of individual personality. The results are supported by a study by Cheng and Furnham, who looked at how peer relationships, self-confidence, and academic success connected to adolescents' self-rated happiness and loneliness. Significantly opposing correlations between happiness and loneliness were found for personality traits, self-confidence, friendship, and academic performance. According to regression analysis, neuroticism and extraversion directly predicted happiness and self-confidence, while psychoticism and extraversion directly predicted loneliness. While psychoticism was a direct predictor of loneliness, extraversion was also a substantial predictor of overall self-assurance and social interactions, both of which had a direct impact on loneliness. While general confidence and social connections were linked to adolescents' self-reported loneliness, self-rated academic success was the only factor that directly predicted happiness.³²

H. Family relationship and depression:

The findings of the study suggest that depression has significant negative correlation with family relationships ($r = -0.700$, $p < 0.001$). This finding is supported by the similar findings of few studies where family relationship was shown to have a significant negative correlation with adolescent depression.^{10,17,33,34,35}

I. Peer relationship and depression:

The correlation coefficient for peer relationship and depression was found to be -0.575 with p value of less than 0.001, suggestive a significant negative correlation between the two. This study finding is congruent with the results of other studies, that concluded a significant negative correlation between adolescent depression and peer relationship.^{17,36,33,37,34}

Relationship with teachers and depression:

Depression was also found to be significantly inversely correlated with relationship with teachers ($r = -0.589$, $P < 0.001$).

A study by Reddy et al. in Boston, USA, to evaluate the impact of teacher assistance on student adjustment during the middle school years lends credence to the study's conclusions. From the sixth to the eighth grades, 2,585 students were monitored in a longitudinal sample. Over the duration of middle school, students' views of teacher support

and overall self-esteem decreased, while depression symptoms rose. They also discovered that changes in teachers' perceived support accurately predicted changes in both self-esteem and depression for both boys and girls. Students who perceived more teacher support in particular displayed similar declines in depressed symptoms and gains in self-esteem. This study under scores the role of teacher support in facilitating students' adjustment to middle school and highlights the importance of using idiographic methodologies in the study of developmental processes.³⁸

CONCLUSION

The study concludes that depression is a relatively common phenomena in adolescents, given that 44% of adolescents in this study were found to be depressed. This indicates that adolescents are facing considerable turmoil in this phase of their life. This calls for the need for proper attention to be given to adolescents and to institute relevant screening measures to identify adolescents with early signs of depression. The common factors identified are biological factors as gender (more in males), demographic factors as parent's educational status. Amongst the psychological factors self esteem, confidence and anxiety are significantly correlated with the occurrence of depression. Interpersonal factors as family relationship, peer relationship and relationship with teachers were also found to have significant correlation. Thus it becomes imperative for early screening, identification of these factors so as to prevent the development of depression in the adolescents. The findings highlight the need for the education of the parents, teachers and adolescents themselves regarding depression and measures to prevent it. Various school based interventions could be developed as well to identify and provide needed interventions to minimize the development of serious problems as drug abuse and suicide in the future.

Recommendations

To stop adolescent depression from developing, a school based intervention may be devised, created, and implemented. The study could be repeated to include public schools, as this group of teenagers might have a distinct pattern of prevalence. The parents and teachers could be involved in further factor exploration. To determine the prevalence of depression in urban, rural, private, and public schools, respectively, comparative studies may be carried out. By organising teen health education on depression prevention and detection, the

community health department may expand its services to the school.

Limitation

- Beck's Depression Inventory (BDI) is a screening tool only, not diagnostic of depression. As it is a cross-sectional study, it is difficult to firmly establish the causal link between adolescent depression and the factors.
- Proportionate stratified sampling method for the selection of adolescents was not possible in majority of the schools as priority was given to the academic routine and thus random sampling was impossible.
- Since the data collection period was less and school examinations were round the corner, information from parents and teachers was impossible. The data collected from this group would have been more valid and rich.
- The setting was limited to English medium schools only as the language was unknown to the investigator. Thus, the generalization of findings to adolescents from government schools remain restricted.

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