

# Psychiatric Comorbidity in Adolescents with Attempted Suicide Attending a Tertiary Care Center in South India: A Cross-Sectional Study

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## ABSTRACT

**Background:** Suicide is one of the most important issues related to mental health. Among adolescents, the ratio of attempted suicides to completed suicides is estimated to be up to 50:1 to 100:1. This study was primarily aimed to estimate the prevalence of psychiatric comorbidity among children and adolescents with suicide attempts.

**Subjects and Methods:** Fifty patients attending suicide prevention clinic were evaluated. Psychiatric comorbidity and suicidality were assessed using MINI International Neuropsychiatric Interview for Children and Adolescents (MINI KID 6.0) and resilience using Brief Resilience Scale (BRS).

**Results:** Prevalence of psychiatric comorbidity was fifty four percent (54%). Twenty-three (46%) were identified with one psychiatric comorbidity while 4 (8%) had more than one identifiable psychiatric comorbidity. Adjustment disorder (22%) was identified as the most common psychiatric disorder followed by major depressive disorder (10%) and oppositional defiant disorder (10%). Family history of suicide or suicide attempt was significantly associated with presence of psychiatric morbidity in children and adolescent with suicide attempt. Suicidality risk was found moderate in 60% of participants, low risk in 32% and high risk in 8% of study population. The level of resilience was found to be low in about 60 % of study participants.

**Conclusion:** Significant proportion of adolescent suicide attempters had a psychiatric comorbidity and needs to be addressed. Adolescents with suicide attempt needs special attention and management.

**Key words:** Suicide attempt, Adolescent, Psychiatric diagnosis, Resilience.

**HOW TO CITE THIS ARTICLE:** Ameena C Hanna, Anil Kumar TV, Anju Mathew. Psychiatric Comorbidity in Adolescents with Attempted Suicide Attending a Tertiary Care Center in South India: A Cross-Sectional Study. J Res Med Dent Sci, 2024, 12(3):05-09.

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**Received:** 26-January-2024, Manuscript No. jrmds-24-128427;

**Editor assigned:** 29-January-2024, PreQC No. jrmds-24-128427(PQ);

**Reviewed:** 12-February-2024, QC No. jrmds-24-128427(Q);

**Revised:** 16-February-2024, Manuscript No. jrmds-24-128427(R);

**Published:** 23-February-2024

## INTRODUCTION

Suicide is one of the most important issues related to mental health. About 800000 people die by suicide every year [1]. Attempted suicides are estimated to be 20 times the number of suicides [2]. World Health Organization (WHO) has prioritized reduction of mortality by suicide as a global target and included as an indicator in United Nations Sustainable Development Goals (SDGs) under target 3.4, in WHO 13th General Programme of Work 2019-2023 and in WHO Mental Health Action Plan 2013-2030.

The National Crime Records Bureau (India), reports that a total of 1,64,033 suicides were reported in the country during 2021 showing an increase of 7.2% in comparison to 2020 and the rate of suicides has increased by 6.2% during 2021 over 2020 [3]. The National Suicide Prevention Strategy of India aims to reduce suicide mortality by 10% by 2030 through time-bound action plans and multi-sectoral collaborations [4].

Around the world there is a shift in the number of suicides from elderly to younger population. Adolescents are the main population target of suicide prevention [5]. With pertaining to the Indian context with a low rate of psychiatric morbidity, the relationship between suicidal behavior and psychiatric diagnosis has always been a matter of debate [6]. Previous research has shown that teenagers attempted suicide more impulsively than adults and opted for less harmful means [7, 8]. Teenage suicide attempters

had fewer psychiatric diagnoses. Their mental illnesses are less recognized or diagnosed by experts [9]. No specific tests capable of identifying a suicidal person are available yet specific risk factors are present. Care should be taken by health care professionals in analyzing and interpreting risk factors [10]. Presence of mental illness is a major risk factor for adolescent suicide.

Psychiatric comorbidities are less frequently identified or diagnosed by health professionals in adolescents presenting with suicide attempts. [8] Psychiatric morbidity is also associated with higher chance if suicidal ideation as well as suicide attempts [11]. All adolescents with a possible suicide attempt should receive a comprehensive mental health and psychosocial assessment [12].

Adolescents with suicidal ideation may have paucity in psychological resilience and problem-solving ability and might serve as potential options for intervention related to suicidal ideation. The intention would be to foster resilience and broader wellbeing in adolescents during a formative and potentially fragile developmental stage [13].

Identification of psychiatric morbidity in younger population presenting with suicide attempts are thus important to understand the underlying cause of suicidal behavior and to develop effective prevention strategies.

#### MATERIALS AND METHODS

The study was conducted in a tertiary care hospital after clearance from the Institution's Human Ethics Committee and was a hospital based cross-sectional study. Fifty consecutive cases (9-19 years old) attending the suicide prevention clinic under department of Psychiatry was recruited for the study. Written informed consent from the patient (if patient aged 18 years or more) and from caregiver (if patient aged less than 18 years).

Assessment of cases using a semi structured questionnaire included sociodemographic data and suicide attempt details. Socio demographic data age sex, religion, physical illness, history of substance use. Suicide attempt data included details of recent suicide attempt, mode of attempt trigger of attempt, previous history of suicide attempt families of suicide/suicide attempt.

Psychiatric comorbidity and suicidality were assessed administering the MINI KID 6.0 (Mini International Neuropsychiatric Interview for children and adolescents) [14]. Resilience was assessed using Brief Resilience Scale (BRS) [15].

#### Statistical Analysis

Data was expressed in its frequency and percentage. To elicit the associations and comparisons between different variables Chi square test and Fischer's exact test were used. A p value of <0.05 was considered statistically significant. Analysis of data was done using computer software Statistical Package for Social Sciences (SPSS) version 26.

#### RESULTS

The mean age of the study population was 16.44 years with a standard deviation of 1.75 and the median age was 17 years. Among them, the majority (56%) were from the age group 17 -19 years and about 22 (44%) from age group of 13 -16years. None of the participants were from the age group of 9 to 12 years; therefore, early adolescents were not represented in this study sample. Majority of participants were females (64%), while males constituted thirty six percent (36%) of the case population.

Among the fifty participants, thirty-three belonged to Hindu religion, twelve were Christian and five belonged to Islam. Fifty-four percentage of population belonged to low socioeconomic status. In this study sixty percent participants hailed from nuclear family and twenty four percent from broken family. About fifty-two percent (52%) of the participants were educated till higher secondary education followed by 32% in high school. Eight percent (8%) were pursuing under graduation.

Only 4% of participants had a history of medical/surgical comorbidity which included hypothyroidism, seizure disorder, asthma, and diabetes mellitus. About nine (18%) participants had a history of substance use while the majority did not report substance use. A small proportion of the study population (10%) had history of seeking mental health interventions.

Twenty Two percent (22%) of participants had a family member with suicide or suicide attempt. Out of the 11 with family history of suicide /

suicide attempt, 7 had family history of suicide while 4 had family history of suicide attempt. Six participants had the history of suicide/suicide attempt in first degree relatives while two study subjects had family history in second degree relatives. The prevalence of psychiatric morbidity was found statistically significant ( $p = 0.36$ ) in study participants with presence of family history of suicide/suicide attempt. History of previous suicide attempt was present in fifteen participants (30%).

Considering the method employed for the most recent suicide attempt, out of the 50 participants about half (50%) had drug over dosage followed by one third (30%) with consumption of poison. Eight percent (8%) had attempted by means of hanging and six percent (6%) by means of sharp/blunt objects. One participant had used two methods consecutively (self-injury with a sharp object followed by drug over dosage).

Nearly one third (34%) of the study participants reported relationship stressor as a trigger for suicide attempt while about 30% cited family problems as a trigger. 2% had problems related to mobile/internet usage while 14% reported miscellaneous problems like legal issues, issues at educational institutions, feeling of loneliness. One participant was reluctant to disclose the trigger for the attempt.

More than half of the study participants (54%) were identified with psychiatric comorbidity. The study found that 46% of the participants had one psychiatric comorbidity, while 8% had two or more comorbidities. Adjustment disorder was diagnosed in 22% of participants followed by major depressive disorder and oppositional defiant disorder (10% for both), generalized anxiety disorder (6%), panic disorder (4%) and alcohol dependence (4%). Manic and hypomanic episodes, substance dependence, attention deficit hyperactivity disorder and conduct disorder were reported in two percent (2%) each.

Of the study participants, thirty (60%) were identified to be at moderate risk of suicidality. Nearly one third had a low risk of suicidality, while four (8%) showed high risk of suicidality. The level of resilience assessed by brief resilience scale was found to be low in about 60 % of study participants while 36% showed a normal level of resilience and 4 % reported high level of resilience.

## DISCUSSION

This study aimed to assess the prevalence of psychiatric comorbidity among children and adolescents attending the suicide prevention clinic of a tertiary care center. Fifty participants who met the inclusion criteria were recruited for the study.

The mean age of the study population was 16.44 years with a standard deviation of 1.75 and the median age was 17 years. Among them, the majority (56%) were from the age group 17 -19 years and about 44% from age group of 13 -16years. None of the participants were from the age group of 9 to 12 years; therefore, early adolescents were not represented in this study sample. In a study on risk factors in adolescents with attempted suicide, mean age as 16.8 years with standard deviation of 1.3. The same study showed 61% were females which was similar to our study of 64% being females [16]. Nearly all studies on adolescent suicide attempts showed female preponderance [17-19].

Lower economic status was more represented in the study population since study was done in a government tertiary care center and higher socioeconomic people may prefer private centers. 52% of study subjects were having higher secondary education, and this can be explained with the mean age group. In this study 60% were from nuclear family while 24% from broken family. Study also showed higher representation from nuclear family (56.8%) [20]. This representation may be due to the increase of number of nuclear families in the society and disintegration of joint family system. Also, the increase in prevalence of suicide attempts in families in which parents were separated may be attributable to the lack of care and stressful childhood in children from such families. In a study in United States that parental separation is an adverse childhood experience that increases the risk of attempted suicide 2 to 5-fold ( $p < 0.01$ ) [21].

12% of cases ( $n=100$ ) had family history of suicide or attempt while our study showed similar data. Our study had 22% with family history of suicide/suicide attempt which was significantly associated with psychiatric diagnosis ( $p=0.036$ ). Seven had a family history of suicide while 4 had a history of suicide attempt. Six participants

had the history of suicide/suicide attempt. In a first degree relative while 2 had family history in second degree relatives. Suicide is considered familial and family history of suicide or attempt is considered as a risk factor from several previous studies. Several studies have identified the history of suicide attempt has been as a risk factor for further suicide. In our study 30% had previous history of suicide attempt. Repeated attempts are possibly due to inadequate intervention or follow-up. About 10% had a history of mental health interventions taken in the past.

In the present study, the prevalence of psychiatric disorder was estimated in 27 participants (54%). A case control study done in age group 13 to 18 years conducted in Tamil Nadu the prevalence of mental illness in cases with suicide attempt was 58.4% (n=60). The study by Mathew et al had a prevalence of about 78% (n=100) while Kumar et al reported that about 65% (n=74) had diagnosable psychiatric comorbidity [20]. The difference in prevalence in our study may be owed to lower sample size. Regarding the prevalence of individual psychiatric disorders, adjustment disorder (22%) was the most common followed by major depressive disorder (10%) and oppositional defiant disorder (10%), generalized anxiety disorder (6%), panic disorder (4%), alcohol dependence (4%). Manic and hypomanic episodes, substance dependence, attention deficit hyperactivity disorder and conduct disorder were reported in 2% each. Study showed most common psychiatric comorbidity as depressive disorders (40%) followed by substance abuse (11%) and adjustment disorder [27%]. A comparatively lesser proportion of different psychiatric disorders demonstrated in the present study might be owed to smaller sample size. Also, the present study used a structured clinician rated interview instead of a screening tool to formulate a psychiatric diagnosis. Still the current findings point out the importance of careful assessment of psychiatric disorder in children and adolescents presenting with suicide attempts.

Suicidality risk assessed using suicidality subset of MINI KID 6.0 showed a moderate risk in 60% participants. A low level of suicidality risk in 32% and a high level of risk in 8% participants. Regarding substance use, this study shows substance use in 18% while alcohol dependence

was identified in two participants and other substance dependence in only one person. Substance abuse (11.25%) a risk factor for suicide attempt. Our study showed 8% had physical/ surgical illness out of which all were having chronic medical illness. Studies show a range from 4% to 18% in prevalence of chronic medical condition in adolescents with attempted suicide.

Studies conducted in past in India had identified organophosphorus poisoning as most common method followed by drug overdose. A study done in Korea by Lee et al had found that analgesics over dosage are significantly associated with adolescent suicide attempts than in adults. Study conducted in Jamshedpur found consumption of phenyl, cleaning solution and drug over dosage in 33% of cases followed by pesticides (27%). Our study showed about 50% had drug over dosage followed by consumption of poison in around 29%. This difference from earlier Indian studies may be due to the fact of increased and easy availability of over-the counter medicines and lesser availability of organophosphorus substances in households especially in urban areas. Seven percent had attempted by means of hanging and an equal number by means of sharp/blunt objects in our study. One participant had used two methods consecutively (self-injury by sharp object followed by drug over dosage).

Regarding trigger for attempt, nearly one third (34%) had relationship stressor as a trigger for suicide attempt while around one third (30%) had family problems as a trigger. 12% had problems related to mobile/internet usage while 14% reported miscellaneous problems like legal issues, conflicts at educational institute, feeling of loneliness and one participant was reluctant to disclose the trigger for the attempt. A study done in Raipur found family related issues accounts as a risk factor in about 72% of study subjects whereas academic problems (57.5%) and relationship disturbances (45%) were also causes for triggering suicide attempt.

In the current study, resilience among the participants was found to be low in 60% whereas 36% showed a normal level of resilience and 4% reported as high. Psychological resilience in adolescents with suicidal ideation in China and suggested that adolescents with suicidal ideation had lower psychological resilience and deficits

in problem solving skills. A study in Iran also suggested resilience and coping strategies are protective factors against suicide attempt. Thus, resilience assessment and methods to improve resilience could be potentially useful areas in the field of suicide [22].

### LIMITATIONS

The study was a hospital based cross-sectional study and did not represent community sample.

### FUTURE IMPLICATIONS

This study paves a step regarding the need for thorough screening and intervention to all children and adolescents with suicide attempt and deliberate self-harm to prevent occurrence of repeated suicide attempts. There is a need for multicenter longitudinal study regarding the prevalence of individual psychiatric comorbidity and its long-term outcome on suicidal behaviours. Strategies to incorporate resilience in the young population may be implemented through educational institutions. Enhanced screening for comorbidities can itself serve as a tool to combat future suicides.

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