Research Article

# Suicidal Behaviours and Depression in Adolescents in an Outpatient Department of a Tertiary Care Hospital in Lahore, Pakistan

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## Abstract

**Background:** Adolescents' changing emotional, physical, and psychological needs make them vulnerable to different psychiatric illnesses, including suicidal behaviors.

**Objective:** To assess the prevalence and gender differences of suicidal behaviours, depression, the role of previous suicidal attempts and depression severity in predicting suicidal behaviours among adolescents presenting to a tertiary care hospital in Pakistan.

**Methods:** Following ethical approval and informed consent, 300 adolescents aged 10–18 years presenting to Child and Family Psychiatry Outpatient Department, King Edward Medical University, Lahore, Pakistan were interviewed. Suicidal behaviors and Depression were assessed using the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS)-Suicidality items and the Beck Depression Inventory (BDI), respectively. Data was analyzed using SPSS.

**Results:** 300 adolescents (53% females with a mean age of 14.11(SD=2.54) years were recruited. Overall, 13% (n=40) of the adolescents displayed suicidal behaviors. Among these, 5% (15) had suicidal ideations, 5.3% (16) reported suicidal attempts and 3% (9) were engaged in non-suicidal self-injury (NSSI). There were no significant gender differences in the type of suicidality, although suicidal behaviors were more prevalent in girls. About 56% of adolescents (168) had moderate to severe or severe depression according to BDI. Girls had significantly higher mean depression scores than boys ($p < .001$). The severity of depressive symptoms differed significantly between suicidal behavior groups ($p < .001$). Adolescents with attempted suicide had significantly higher levels of depression than those with no suicidal behaviors. History of past suicidal behaviors significantly predicted suicidal ideation and attempts, while moderate to severe depression significantly predicted NSSI but not suicidal ideation or attempts.

**Conclusion:** This study demonstrates significant suicidal behaviors and depression among adolescents presenting to psychiatric settings in Pakistan. Assessment and management of depression and suicidality, and adequate treatment, is important to reduce the burden of psychiatric problems and suicide risk in this vulnerable population.

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## Introduction

Adolescence (10-19yrs) is a crucial period marked by significant alterations in physical, psychological, cognitive, and socio-emotional

domains. In Pakistan, adolescents comprise approximately 20% of the population.[1] They may encounter various intricate cultural, societal, familial, environmental, and economic circumstances that can detrimentally affect social and emotional well-being,[2] while increasing their susceptibility to depression and suicidal behaviours.[2]

Suicidal Behaviors include completed suicide and suicidal thoughts, plans, and attempts. Among adolescents, common etiological factors of suicidal behaviours are high emotional liability, poor communication in their families, and unsupportive peer relationships.[3,4] Literature reports that the majority of the patients with suicidal behaviours suffer from mental illnesses.[5] Among mental illnesses, depression has been identified as one of the consistent predictors of suicidal ideation, attempts, and self-harm.[6,7] Depression, a mental health illness, has been characterized by persistent sadness, loss of interest, cognitive biases, and a negative view of self and others. These symptoms may contribute to an individual's perception of life as useless and suicide as a viable solution to escaping such hopelessness in life. Suicidal attempts are reported to be five times higher in patients with depression compared to the normal population.[7] Analyses from review studies have estimated a prevalence of suicidal attempts to be nearly 31% and suicidal ideation to be around 38% in patients with major depression.[8,9] While evidence suggests a strong connection between depressive disorders and suicidality, the role of depression severity in different suicidal behaviours ranging from suicidal ideation to lethal suicidal attempts is less clear. In a study conducted previously, depression severity was a positive but weak predictor of suicidal intent.[8] Another study reported a significant relationship between the levels of depression severity and severity of suicidal ideation among adolescents.[10] Lower levels of depression severity were associated with less severe suicidal ideation. Some of the factors linked with the onset of suicidal ideation amongst adolescents include higher levels of emotional liability, increasing responsibilities with growing age, and related social, emotional, and academic challenges.[10]

Recent global literature highlights a concerning rise in adolescent depression and suicide. Data from the Adolescent Behaviours and Experiences Survey in the USA indicate that 37.1% of U.S. high school students reported poor mental health during the COVID-19 pandemic, with 19.9% considering and 9.0% attempting suicide in the preceding year.[11] Given the limited research from Pakistan, our study aims to assess the prevalence and gender difference of depression and suicidal behaviours as well as the role of previous suicidal attempts and depression in predicting the suicidal behaviours among adolescents seeking care at a psychiatry outpatient clinic in a tertiary hospital in Pakistan, to understand their relationship and inform suicide prevention strategies.

## Methods

Following ethical approval and informed consent from parents/guardians of participants, 300 adolescent outpatients aged 10–18 years, presenting to the outpatient department of the Child and Family Psychiatry department, King Edward Medical University, Lahore, Pakistan, were interviewed. Confidentiality of data was assured. The study was carried out between December 2023 and October 2024. Suicidal behaviour and Depressive symptoms were assessed by the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS) Suicidality items and Beck Depression Inventory (BDI), respectively. The sample was collected through purposive sampling. All adolescents (10-18 years), presenting to the Child and Adolescent Department Outpatient department, were included in the studies expect those with learning disability and other neurodevelopmental disorders, those who did not give ascent or parents refused to participate in the studies. Among 328 patients and families approached during study period meeting inclusion exclusion criteria, 28 refused to participate, so the final sample was of 300 participants.

KIDDIE-SADS suicidality items includes four questions related to suicidal ideation ("1" none, "2" occasional, "3" frequent), suicidal attempt ("1"none, "2"ambivalent, "3" serious), serious need for any medical intervention/Lethality after suicidal attempt ("1" none, "2"not life-threatening, "3" life-threatening), and non-suicidal self-harm attempt ("1" none, "2" occasional, "3" frequent).[8] Based on these questions, four mutually exclusive subgroups of suicidal behaviour present were constructed: (1) subjects coded "1" or "2" in all items were coded "non-suicidal", (2) "suicidal ideation" consisted of subjects who had suicidal thoughts frequently ("3") but had not attempted suicide, (3) the "deliberate self-harm behaviour "group included subjects who had frequent deliberate self-harm ("3") and (4) the "suicide

attempts" group consisted of adolescents who had made one or more serious or life-threatening suicide attempts.[12] In our study, the Cronbach's alpha for the KIDDIE-SADS was 0.90, indicating excellent internal consistency.

Beck depression inventory is a twenty-one-item scale, and answers range from 0 to 3. Its total score ranges from 0 to 63. In those diagnosed with depression, scores of 0–9 indicated no depression, Mild-Moderate Depression (10-18), Moderate-Severe Depression (19-29) and Severe Depression (30-63).[13] The Cronbach's alpha for BDI in study was 0.8.

Statistical analyses were performed using SPSS. Initially, the data were screened and corrected for data-entry errors. Descriptive statistics (Means, Standard Deviations (SD), frequencies, and percentages) were calculated for sample characteristics and study variables. Gender differences in measures of suicidality and depression were calculated using the chi-square test of association. Significance of all statistical analyses was tested at a p <.05 level of significance. Finally, multinomial logistic regression analysis was used to predict suicidal behaviours from depression severity levels. The model fit was assessed by the goodness-of-fit Chi-square test.

## Results

Three hundred adolescents (53% girls) with a mean age of 14.11(SD 2.54) were recruited. Overall, 13% (n=40) of adolescents displayed suicidal behaviours. Among these, 5% (15) had suicidal ideation, 5.3% (16) reported suicidal attempts, and 3% (9) were engaged in Non suicidal self-injury (NSSI). There were no statistically significant gender differences in the type of suicidality, although all suicidal behaviours were more prevalent in girls. More than half of the adolescents (168, 56%) had moderate to severe or severe depression according to BDI Categories. Girls had significantly higher mean depression scores than boys (p <.001). The severity of depressive symptoms differed considerably between suicidal behaviour groups (p <.001). In subgroup comparisons, adolescents with attempted suicide (but not suicidal ideation and NSSI) had significantly higher levels of depressive symptoms than those with

**Table 1:** *Prevalence of Suicidality and Gender Differences in Suicidality and Depression among Adolescent Psychiatric Outpatients.*

| Variable Categories | Girls n=158 | | boys n=142 | | Total n=300 | | Chi Sq | Sig |
|---|---|---|---|---|---|---|---|---|
| | n | % | N | % | n | % | | |
| **Suicidal Behaviour** | | | | | | | | |
| Non-Suicidal | 129 | 81.6 | 131 | 92.3 | 260 | 86.7 | (df=3)7.48 | *p* =.058 |
| Suicidal Ideation | 11 | 7 | 4 | 2.8 | 15 | 5 | | |
| Deliberate Self-Harm | 7 | 4.4 | 2 | 1.4 | 9 | 3 | | |
| Suicidal Attempts | 11 | 7 | 5 | 3.5 | 16 | 5.3 | | |
| **Beck Depression Inventory** | | | | | | | | |
| No Depression (0-9) | 33 | 20.9 | 46 | 32.6 | 79 | 26.4 | (df=3)24.19 | *p*< .001** |
| Mild-Moderate Depression (10-18) | 16 | 10.1 | 36 | 25.5 | 52 | 17.4 | | |
| Moderate-Severe Depression (19-29) | 48 | 30.4 | 29 | 20.6 | 77 | 25.8 | | |
| Severe Depression (30-63) | 61 | 38.6 | 30 | 21.3 | 91 | 30.4 | | |

**P value <.001**

no suicidal behaviours. History of past suicidal behaviours significantly predicted suicidal ideation and attempts, while moderate to severe depression significantly predicted NSSI but not suicidal ideation or attempts.

The secondary objective of the study was assessed from multinomial logistic regression analysis to predict suicidal behaviour from depression severity levels and history of suicidal behaviours. Demographics (age and gender were covaried in regression analysis to rule out any confounding effect due to these variables. After controlling age and gender, it was found that the overall model fit was significant [$\chi 2$, (df:18) = 138.9, $p$ <.001] with Cox and Snell pseudo $R^2$ = 37.1 %, Nagelkerke $R^2$ = 56.4 %, Mc Fadden $R^2$ = 43.3 %. Likelihood Ratio Test showed that depression severity levels [$\chi 2$, (df:9) = 27.69, $p$ <.001] and history of suicidal behaviours including self-harm [$\chi 2$, (df:3) = 82.51, $p$ <.001] were significant predictors of suicidal behavior. Parameter estimates showed that moderate to severe depression significantly predicted deliberate self-harm [Exp(B)= 14.10, P<.05] but not suicidal ideation and suicidal attempts. History of suicidal behaviours significantly predicted Suicidal ideation [Exp(B)= 23.24, P<.001] and suicidal attempts [Exp(B)= 14.10, P<.05]. deliberate self-harm [Exp(B)= 22.45, P<.001] but not suicidal ideation and suicidal attempts. While age [$\chi 2$, (df:3) = 1.34, $p$ >.05] and gender [$\chi 2$, (df:3) = 1.77, $p$ >.05] remained insignificant covariates of suicidal behaviour.

## Discussion

Suicide is the third leading cause of death in 15-19-year-olds [8] with 77% of global suicides occurring in low- and middle-income countries. This large naturalistic study investigated the prevalence of suicidal behaviours amongst adolescents in an outpatient psychiatric setting and whether suicidal ideation, deliberate self-harm behaviour, and suicide attempts differed between gender and with severity of depression. To the best of our knowledge, this is a priori study in Pakistan in this area.

Approximately 13% of adolescents in our sample reported past suicidal behaviours, with 5% of participants admitted to frequent suicidal ideation, 5.3% reported previous suicidal attempts, and 3% were engaged in non-suicidal self-injury (NSSI). A review noted anonymous surveys of suicidal behaviour yielding lifetime prevalences of 7% to 10% for adolescents, whereas studies using structured interviews have found lifetime prevalences of 3% to 4%.[14] A youth risk behaviour survey from Thailand showed that 12% of participants had suicidal ideations.[10] A meta-analysis on Chinese adolescents showed that 15.4% of adolescents reported suicidal behaviours.[15] Our sample showed a relatively lower rate of suicidal ideation, possibly due to the inclusion of adolescents with frequent suicidal thoughts while excluding those with occasional thoughts. This could also be due to patients' reluctance to share suicidal thoughts for various reasons, including stigma. Although prevalence estimates differ among clinical and non-clinical samples, it's striking that 4.1% of teenagers have attempted suicide at least once by 18 years old, and 12.1% of adolescents worldwide experience suicidal thoughts. [16,17] A recent study conducted in Romania focused on adolescents admitted to emergency services for non-suicidal self-harm behaviors, suicide attempts, or suicidal ideation. Among those who attempted suicide (n = 32), nearly all had a history of non-suicidal self-injury (NSSI) and reported ongoing suicidal thoughts ideation.[18] This highlights that all suicidal behaviours should be carefully assessed, especially in clinical settings. Gender, mental health conditions, socioeconomic and cultural factors, as well as environmental and genetic factors, all influence the prevalence of suicidal behaviours in children and adolescents.[18]

In agreement with previous studies of adolescent populations,[19] we found that suicidal behaviours were more common among female than male aadolescents, although this did not reach statistical significance. Literature suggests that females are more likely than males to have suicidal thoughts and attempt suicide, while males die from suicide attempts more frequently. This may be because females are more likely to disclose such thoughts compared to males.[20]

There is a strong association between suicidal ideation, suicide attempts, self-harm behaviours, and mental health problems, particularly depression, in adolescents. We found that more than half of the adolescents in our sample (56%) experienced moderate to severe or severe. This resembles earlier literature that reports a greater risk of depression among girls compared to boys, with a ratio of 2 to 1 during and after adolescence.[21-22] Adolescent females may feel hesitant or shy about discussing their distress and problems with friends or family, which can contribute to feelings of social isolation. While

many studies indicate that adolescent boys have a higher incidence of completed suicide, they tend to report fewer suicidal ideations. This discrepancy may stem from societal expectations that portray males as emotionally resilient, discouraging them from expressing vulnerability or seeking help. One study found that 67% of patients exhibiting suicidal behaviours reported depressive symptoms, compared to 35% of non-suicidal patients presenting to the outpatient department.[23] We also noted that the severity scores of depressive symptoms vary significantly between suicidal behaviour groups in our sample ($p < .001$). Findings from previous studies suggest that with the increase in depressive severity levels, intense symptoms may prompt or at least increase suicidal ideation among depressive adolescents. For example, with severe depressive symptoms, the adolescent is more likely to have intensified self-blame and negative self-image that could eventually lead to suicidal ideation.[24] History of past suicidal behaviours significantly predicted suicidal ideation and attempts, while moderate to severe depression significantly predicted NSSI in our study. This association between history of past suicidal behaviours and future suicide risk is complex and is likely to be affected by several psychological, neurological, and social factors.[25]

The findings of the study must be interpreted considering a few limitations. Primarily, a cross-sectional study design limits the study's ability to establish a causal relationship between depression severity and suicidal behaviours, thereby limiting the directionality of the evidence presented. Moreover, considering that the sample is from the outpatient setting of a single tertiary care hospital in Lahore, the generalizability of the findings is limited. Finally, the current study did not consider other psychiatric disorders, which may further restrict the generalizability of the findings. Nevertheless, the current findings contribute to the existing literature, unveiling the association between depression severity and different suicidal behaviours.

Despite these limitations, strengths include a relatively large, clinic-based adolescent outpatient population with depression and suicidality precisely assessed using standardized assessment tools.

**Conclusion:** The study highlights the critical role of early identification and intervention, reinforcing the responsibility of mental health professionals to incorporate regular screening into clinical practice to better support at-risk adolescents and ultimately reduce suicide rates within this vulnerable population

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**Ethical Approval:** The Institutional Review Board, KEMU, Lahore approved this study vide letter No. 728/ RC/ KEMU.

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**Authors' Contribution:**

**MIS:** Acquisition of data, conception & design, analysis & interpretation of data, drafting of article

**NI:** Analysis & interpretation of data, conception & design, drafting of article, critical revision for important intellectual content, final approval

**AA:** Acquisition of data, conception & design, drafting of article

**SF:** Analysis & interpretation of data, drafting of article, critical revision for important intellectual content

**SN:** Drafting of article, critical revision for important intellectual content

**AN:** Drafting of article, critical revision for important intellectual content

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