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Research Article

Adolescent suicide attempts: sociodemographic, psychiatric characteristics, and follow-up challenges in a clinical setting

Ergen intihar girişimleri: sosyodemografik, psikiyatrik özellikler ve klinik bir ortamda takip süreçlerindeki zorluklar

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Abstract

Introduction: Suicide is a leading cause of death across all age groups, with a significant increase during adolescence. This study aimed to identify the sociodemographic characteristics of adolescents referred to Child and Adolescent Mental Health (CAMHS) specialists due to a suicide attempt within a one-year period at Ankara Etlik City Hospital, one of the leading centers in the region. The study also investigated the presence of pre-attempt psychiatric diagnoses, characteristics of suicidal acts, factors affecting post-attempt treatment and follow-up processes, and determined the necessary measures to prevent suicidal behavior in this age group.

Methods: The study retrospectively reviewed the records of all patients who were presented with suicide attempts to the Pediatric Emergency Department of Ankara Etlik City Hospital between April 1, 2023, and April 1, 2024. Psychiatric diagnoses were made based on clinical interviews conducted by a consultant psychiatrist using DSM-5 criteria. Data collected included demographic characteristics (age, gender, family structure), psychiatric status prior to the suicidal act (pre-existing psychiatric disorders, history of psychiatric hospitalization, self-harm/suicide attempt history, and psychiatric treatment or follow-up), characteristics of the suicidal act (time, method, reason, and whether the act was disclosed to a relative), current psychiatric diagnoses, and details of psychiatric treatment and follow-up post-attempt (expression of regret, need for intensive care, type of psychiatric treatment, and adherence to follow-ups).

Results: Of the 207 cases (mean age: 15.97±1.4 years) evaluated for suicide attempts by CAMHS specialists within one year, 79.7% (n=165) were female, and 20.3% (n=42) were male. While 56% (n=116) had a history of psychiatric disorders, nearly half did not attend psychiatric follow-ups regularly. Upon post-attempt evaluation, 67.62% (n=140) were diagnosed with a psychiatric disorder, with depressive disorder being the most common (42.5%, n=88). Among patients who expressed regret on post-suicide attempt, 99.4% (n=164) were discharged and referred for outpatient follow-up. It was determined that the presence of psychiatric comorbidities and the use of non-pharmacological methods in suicide attempts increased the likelihood of psychotropic medication initiation by clinicians, and those prescribed psychotropic medications adhered more regularly to follow-ups.

Conclusions: Understanding how and why suicide risk emerges during adolescence is the first step toward a preventive approach by accurately identifying risk factors. Measures aimed at improving adolescents' treatment adherence are crucial in preventing the recurrence of attempts and reducing the risk of death.

Key words: Suicide, adolescent, risk factors, prevention, regret

Öz

Giriş: İntihar, tüm yaş gruplarında önde gelen bir ölüm nedeni olmakla birlikte, özellikle ergenlik döneminde belirgin artış görülmektedir. Bu çalışmada, bölgenin önde merkezlerinden biri olan Ankara Etlik Şehir Hastanesi'nde bir yıllık süre içinde intihar girişimi nedeniyle çocuk ve ergen ruh sağlığı ve hastalıkları (ÇERSAH) uzmanlarına danışılan ergenlerin sosyodemografik özellikleri, eylem öncesi psikiyatrik tanı varlığı, gerçekleştirdikleri eyleme ilişkin özellikler, eylem sonrası tedavi ve takip süreçlerini etkileyen faktörler tanımlanmış ve bu yaş grubu için intihar davranışının önlenmesi için gerekli tedbirlerin belirlenmesi amaçlanmıştır.

Yöntem: Çalışma, 01 Nisan 2023 ile 01 Nisan 2024 tarihleri arasında Ankara Etlik Şehir Hastanesi Çocuk Acil Servisine intihar girişimi ile başvuran tüm hastaların dosyaları retrospektif olarak değerlendirilerek gerçekleştirildi. Psikiyatrik tanılar, bir konsültan psikiyatrist tarafından yapılan klinik görüşmeye dayanarak ve DSM-5 tanı ölçütlerine göre konulmuştur. Olguların demografik özellikleri (yaş, cinsiyet, aile yapısı), intihar davranışı öncesindeki psikiyatrik durum (önceden var olan psikiyatrik hastalıkları, psikiyatri servisine yatış öyküsü, kendine zarar verme/intihar girişimi öyküsü, psikiyatrik tedavi veya takip yapılıp/yapılmadığı), intihar davranışının özellikleri (zamanı, kullanılan yöntem, nedeni, yakınına haber verip/vermediği), güncel psikiyatrik tanıları, intihar davranışı sonrasındaki psikiyatrik tedavi ve takip bilgileri (pişmanlık olup/olmadığı, yoğun bakım gereksinimi, uygulanan psikiyatrik tedavi türü, takiplere düzenli gelip/gelmeme durumu) kaydedilmiştir.

Bulgular: Bir yıl içinde ÇERSAH uzmanlarının intihar girişimi nedeniyle değerlendirdiği 207 hastanın (yaş ortalaması: 15,97±1,4 yıl) cinsiyet dağılımları %79,7'si (n=165) kız ve %20,3'ü (n=42) erkek şeklindedir. Olguların %56'sının (n=116) psikiyatrik hastalık öyküsü olmasına rağmen, yaklaşık yarısının psikiyatri takiplerine düzenli gitmediği, olguların intihar girişimi sonrası yapılan değerlendirmede olguların %67,62'sinin (n=140) psikiyatrik hastalığa sahip olduğu ve en sık %42,5 (n =88) ile depresif bozukluk tanısının eşlik ettiği saptanmıştır. İntihar sonrası pişmanlık ifade eden hastaların %99,4'ünün (n=164) taburcu edildiği ve klinisyen tarafından poliklinik takibine yönlendirildiği gösterilmiştir. Psikiyatrik komorbidite varlığının ve farmakolojik olmayan yöntemlerle intihar girişiminde bulunmanın klinisyen tarafından psikotrop ilaç başlama sıklığını artırdığı ve psikotrop ilaç başlanan hastaların takiplere daha düzenli katıldığı belirlendi.

Sonuç: İntihar riskinin ergenlik döneminde nasıl ve neden ortaya çıktığının anlaşılması risk faktörlerinin doğru tespitini sağlayarak koruyucu yaklaşım için ilk adım olacaktır. Ergenlerin tedavi uyumunu arttırmak için alınacak önlemler girişimin tekrarlamasını ve ölümle sonuçlanmasını engellemek açısından oldukça önemlidir.

Anahtar sözcükler: İntihar, ergen, risk faktörleri, önleme, pişmanlık

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Key Points

1. Approximately half of adolescents who attempt suicide have a history of psychiatric disorders.
2. Among adolescents who attempt suicide, major depressive disorder is the most frequently diagnosed condition following post-attempt evaluations.
3. Patients expressing regret after a suicide attempt are more likely to be discharged and referred to as outpatient follow-up by clinicians.
4. In adolescents with a suicide attempt, the presence of psychiatric comorbidity and the use of non-pharmacological methods during the attempts are associated with an increased likelihood of clinicians initiating psychotropic medication.

Introduction

Suicidal behavior is defined as a conscious and deliberate act undertaken by an individual to end their own life [1]. Suicide is a global mental health issue that causes the death of approximately 800,000 people each year, affecting individuals of all ages [2]. While suicide is recognized as a leading cause of death across all age groups, suicidal ideation and suicide attempts during adolescence raise more significant concern due to several distinct factors. The first reason is that the sharpest increase in suicide-related deaths over the lifespan occurs between early adolescence and young adulthood [3]. Secondly, the literature indicates that suicide is a more prevalent cause of death during adolescence compared to other age groups. While suicide is the second leading cause of death in childhood and adolescence, it ranks as the tenth leading cause of death across all age groups [4]. Finally, since the typical age of onset for suicidal ideation and suicide attempts occurs before the mid-20s, many individuals who have experienced suicidal thoughts or engaged in suicide attempts report their first occurrence during adolescence [5].

It is a well-established paradox that adolescent girls are more likely to experience suicidal ideation and attempt suicide, whereas adolescent boys have a higher likelihood of dying by suicide (completed suicide) [6]. Among youth, the most common method of suicide attempt is typically drug overdose, followed by hanging/strangulation and the use of sharp objects [7]. While some suicide attempts among adolescents are carried out according to a premeditated plan, a significant proportion occur without any prior planning [3]. The literature highlights extensive efforts to identify clinical features associated with suicide, particularly in children and adolescents. This focus is crucial for determining risk factors in specific populations. Identifying both risk and protective factors plays a significant role in the prevention of suicidal behavior in adolescents. It is believed that multiple risk factors contribute to the increasing number of suicide attempts and suicides in this age group. Major contributing factors in the etiology of adolescent suicide include genetic predispositions, family dynamics, and external environmental influences such as school, peers, social environment, media, and the internet [8]. Suicidal ideation and previous suicide attempts are other critical risk factors for suicide in children and adolescents [9,10]. Studies have reported that approximately one-quarter of adolescents who attempt suicide will engage in another attempt within the following year [11]. A recent meta-analysis found that the presence of any mental disorder is associated with a tenfold increase in the risk of death by suicide among youth aged 12 to 26 [12]. However, some adolescents only come into contact with healthcare services following a suicide attempt when presenting to emergency departments, and the majority do not continue with follow-up care thereafter [13].

From a clinical perspective, the evaluation of the post-suicide attempt process in adolescents and the development of effective interventions are of great importance. Identifying factors that influence treatment adherence in individuals who have attempted suicide and elucidating the relationship between post-attempt behaviors and clinical outcomes can provide valuable insights for the development of preventive interventions. Notably, some studies suggest that feelings of regret following a suicide attempt in adolescents may enhance their treatment adherence [14]. However, the literature on how post-attempt feelings of regret influence treatment and follow-up processes in adolescents is quite limited, highlighting this topic as a significant area for further research. There is a need for studies that can address this gap in the existing literature.

Recent national statistics indicate that suicide rates in Turkey have been steadily increasing over the past decade, with the most significant rise observed in the 15–29 age group [15]. Descriptive studies conducted on various clinical samples representing the adolescent population in Turkey have highlighted the growing public health concern of adolescent suicidal behavior and contributed to the identification of clinical characteristics that may serve as risk factors. Although there is a substantial body of research in Turkey focused on identifying suicide risk factors [16], studies examining post-attempt emotions such as regret and their influence on clinicians' treatment and follow-up practices remain limited. This study aims to describe the sociodemographic characteristics, the presence of pre-attempt psychiatric diagnoses, features related to the suicide attempt, and factors influencing post-attempt treatment and follow-up processes among adolescents referred to child and adolescent psychiatry (CAP) specialists at Ankara Etlik City Hospital over one year due to a suicide attempt. The objective is to identify necessary preventive measures for suicidal behavior in this age group. It is anticipated that this original contribution to the literature will be valuable for the development of more effective interventions targeting the rising rates of adolescent suicide in Turkey and for informing public health policies.

Methods

This study was conducted through a retrospective review of medical records of all patients who presented with a suicide attempt to the Pediatric Emergency Department of Ankara Etlik City Hospital between April 1, 2023, and April 1, 2024. The inclusion criteria for the study were as follows: cases presenting to the emergency department with a suicide attempt during the specified period, having undergone a psychiatric evaluation by a CAP specialist following a formal consultation, and being under the age of 18. The exclusion criteria included completed suicides, cases with missing data that would hinder analysis, referrals due to non-suicidal self-injurious behaviors, and cases where a parent or guardian did not accompany the adolescent. During the specified study period, a total of 280 children and adolescents presented to the hospital emergency department with suicidal behavior. After applying the inclusion and exclusion criteria, 207 cases were included in the final analyses (Figure 1).

All included cases were referred to the CAP department. These cases were evaluated by child and psychiatrists within the first 24–48 hours following the suicide attempt, and it was noted that the patients were conscious and cooperative during the psychiatric assessment. Psychiatric diagnoses were made by the consulting psychiatrist based on clinical interviews and in accordance with the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria [17]. The following data were recorded: demographic characteristics (age, gender, family structure), psychiatric status prior to the suicidal behavior (pre-existing psychiatric disorders, history of psychiatric hospitalization, history of self-harm or suicide attempts, current or past psychiatric treatment or follow-up), characteristics of the suicidal behavior (timing, method used, reason for the attempt, whether the attempt was disclosed to someone), current psychiatric diagnoses, and post-attempt psychiatric treatment and follow-up information (presence of regret, need for intensive care, type of psychiatric treatment administered, and adherence to follow-up appointments).

Ethical approval, informed consent, and permissions

Ethical approval for this study was obtained from the Scientific Research Evaluation and Ethics Committee of Ankara Etlik City Hospital (No: AEŞH-BADEK-2024-469, Date: 22/05/2024). As the study was retrospective, informed consent could not be obtained. Personal information of the individuals was not recorded during data collection.

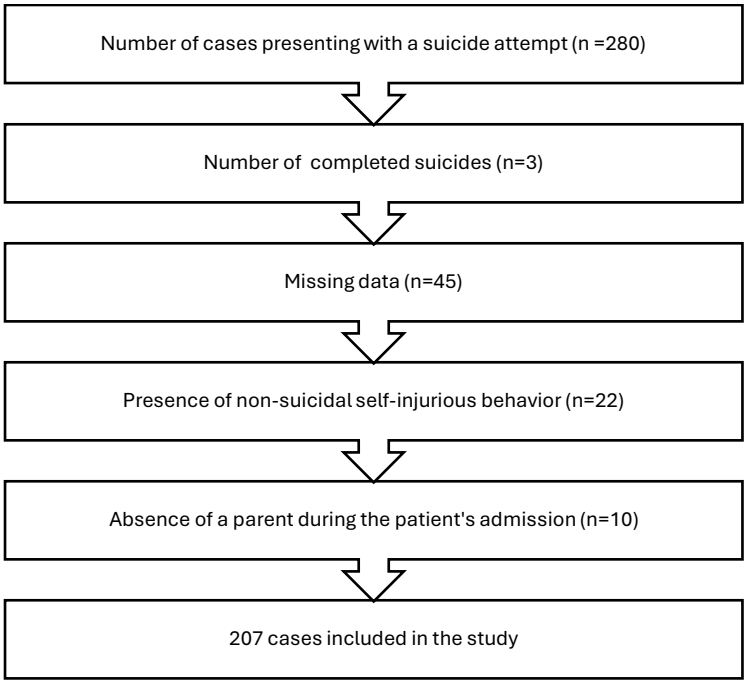

Figure 1. Flowchart of the case inclusion process for suicide attempts between April 2023 and April 2024

Statistical Analysis

IBM SPSS version 26.0 (SPSS Inc., Chicago, IL, USA) was used for data analysis. Descriptive statistics were employed to present demographic and clinical characteristics, reported as frequencies and percentages [n (%)] or as means ± standard deviations (SD). The normality of continuous data was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. Group differences for categorical variables were analyzed using Pearson's chi-square test (χ^2). For continuous variables, independent samples t-tests were applied to normally distributed data, while the Mann-Whitney U test was used for non-normally distributed data. A p-value of <0.05 was considered statistically significant.

Results

Demographic characteristics and psychiatric history

During the one-year, a total of 207 cases (mean age: 15.97 ± 1.4 years) were evaluated by CAP specialists following a suicide attempt. Of these cases, 79.7% (n = 165) were female and 20.3% (n = 42) were male. There was no statistically significant difference in mean age between genders (Z =-0.542, p = 0.589). A history of psychiatric disorders was present in 56% (n = 116) of the cases, with no significant difference between genders regarding the presence of psychiatric disorders prior to the suicide attempt ($\chi^2 = 0.736$, p = 0.391). Among those with a psychiatric history, 57.81% (n = 67) were found to be non-adherent to regular psychiatric follow-ups. The socio-demographic and clinical characteristics of the cases are summarized in Table 1.

Table 1. Sociodemographic and clinical characteristics of the cases

	Total (n=207)	Girl (n=165)	Boy (n=42)	Z or χ2	p
Age (years)	15.97±1.4	16.02±1.4	15.79±1.6	-0.54*	0.589
Family structure, n (%)					
• **Nuclear**	130(62.8)	102(61.8)	28(66.6)		
• **Extanded**	4(1.9)	2(1.2)	2(4.8)	3.027**	0.183
• **Divorced/separated**	73(35.2)	61(36.9)	12 (28.6)		
History of psychiatric disorder, n (%)					
• **No**	91(44.0)	75(45.5)	16(38.1)		
• **Yes**	116(56.0)	90(54.5)	26(61.9)	0.736**	0.391
History of self-harm, n (%)					
• **No**	122(58.9)	100(60.6)	22(52.4)		
• **Yes**	85(41.1)	65(39.4)	20(47.6)	0.936**	0.381
History of psychiatric hospitalization, n (%)					
• **No**	198(95.7)	157(95.2)	41(97.6)		
• **Yes**	9(4.3)	8(4.8)	1(2.4)	0.490**	0.690
History of suicide attempt, n (%)					
• **No**	154(74.4)	119(72.1)	35(83.3)		
• **Yes**	53(25.6)	46(27.9)	7(16.7)	2.209**	0.177

*Mann-Whitney U test, **Chi-square test

Current Psychiatric Diagnoses

Based on clinical interviews conducted after the suicide attempts, it was recorded that 67.62% (n = 140) of the cases were diagnosed with at least one psychiatric disorder. The most common diagnosis was depressive disorder, identified in 42.5% (n = 88) of the cases, followed by anxiety disorder in 8.7% (n = 18), substance use disorder/misuse in 3.4% (n = 7), bipolar disorder in 2.9% (n = 6), attention-deficit/hyperactivity disorder in 2.9% (n = 6), conduct disorder in 3.9% (n = 8), intellectual disability in 1.9% (n = 4), schizophrenia in 0.5% (n = 1), obsessive-compulsive disorder in 0.5% (n = 1), and anorexia nervosa in 0.5% (n = 1). The distribution of current psychiatric diagnoses by gender is summarized in Figure 2.

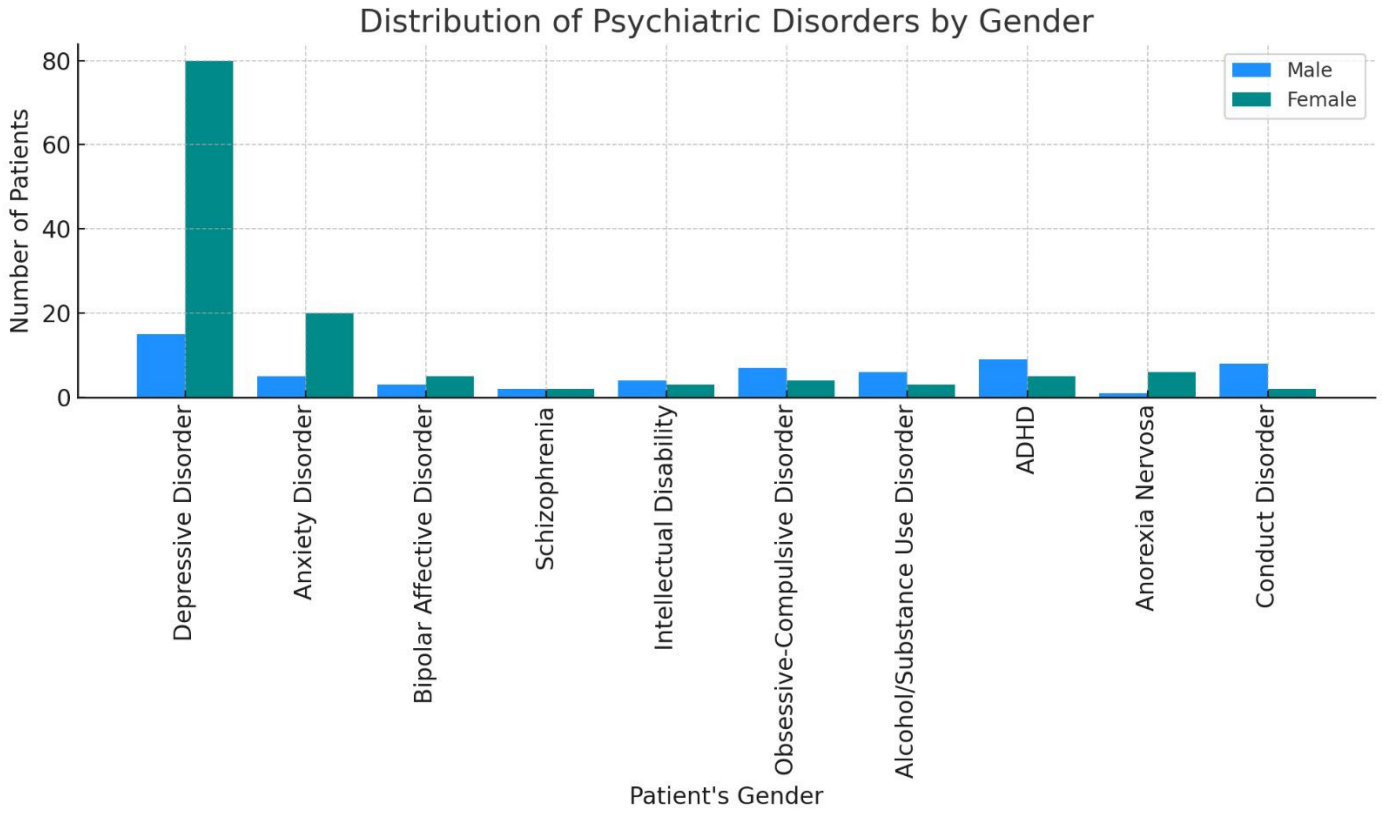

Figure 2. Distribution of current psychiatric diagnoses by gender among cases

Characteristics of suicide attempts

When evaluating the clinical characteristics of suicide attempts, it was found that 73.9% (n = 153) of the cases presented to the emergency department following their first suicide attempt, while 26.1% (n = 54) had a history of repeated suicide attempts. There was no significant difference between genders in terms of the total number of suicide attempts ($\chi^2 = 1.354$, $p = 0.245$). However, the rate of suicide attempts using non-pharmacological methods was significantly higher among males compared to females ($\chi^2 = 8.285$, $p = 0.04$).

The most common timeframes for suicide attempts were in the evening and nighttime hours [n (%) = 85 (41.1%) and 50 (24.2%), respectively]. No significant association was found between the presence of a current psychiatric diagnosis and the timing of the suicide attempt ($\chi^2 = 2.355$, $p = 0.671$). However, there was a significant association between suicide attempts by drug overdose and nighttime occurrences ($\chi^2 = 9.462$, $p = 0.021$), as well as between female gender and suicide attempts occurring in the evening ($\chi^2 = 29.912$, $p < 0.01$). Additionally, no significant association was observed between the presence of current psychiatric comorbidity and the methods of suicide attempts ($\chi^2 = 4.433$, $p = 0.330$). The temporal, causal, and methodological characteristics of suicidal behavior among the cases are presented in Table 2.

Post-suicide attempt process

Following psychiatric evaluations after the suicide attempt, 8.2% (n = 17) of the cases were referred for inpatient psychiatric hospitalization, while 91.3% (n = 189) were discharged with recommendations for outpatient follow-up at child psychiatry clinics. One patient left the emergency department before the completion of their psychiatric assessment, with the consent of their family and based on their request. After discharge, it was found that 75.3% (n = 143) of the cases did not attend their scheduled outpatient child psychiatry follow-up appointments, whereas 24.7% (n = 47) adhered to regular follow-up visits. The psychiatric treatment and follow-up information of the cases following the suicide attempt are presented in Table 3.

The rate of reported regret following a suicide attempt was significantly higher in females compared to males ($p = 0.004$). There was no significant association between the reason for the suicide attempt and the expression of regret ($\chi^2 = 5.608$, $p = 0.678$). Among the cases who reported regret after their suicide attempt, 99.4% (n = 164) were discharged, while 0.6% (n = 1) were referred for inpatient psychiatric hospitalization ($\chi^2 = 64.390$, $p < 0.01$). Of the cases requiring intensive care, 19.3% (n = 11) did not express regret regarding their suicide attempt, whereas 80.7% (n = 46) reported feelings of regret ($\chi^2 = 0.131$, $p = 1.000$). Additionally, 82.5% (n = 137) of those who experienced regret informed a family member or close contact about their attempt, while 17.5% (n = 29) did not ($\chi^2 = 20.442$, $p < 0.01$).

Among the cases with a current psychiatric diagnosis, 54.3% (n = 76) were prescribed psychotropic medication during their pre-discharge psychiatric evaluation, while 45.7% (n = 64) were not ($\chi^2 = 10.879$, $p < 0.01$). Regarding the method of the suicide attempt, 38.3% (n = 62) of

those who attempted suicide via drug overdose were prescribed psychotropic medication, while 61.7% (n = 100) were not. In contrast, 75.6% (n = 34) of those who attempted suicide using non-pharmacological methods were prescribed psychotropic medication, whereas 24.4% (n = 11) were not. It was found that individuals who attempted suicide through non-pharmacological methods were significantly more likely to be prescribed psychotropic medication compared to those who attempted via drug overdose ($\chi^2 = 10.879$, $p < 0.01$). Furthermore, among the cases who regularly attended follow-up appointments after discharge, 70.2% (n = 33) were prescribed psychotropic medication, while 29.8% (n = 14) were not ($\chi^2 = 14.343$, $p < 0.01$).

Table 2. Temporal, Causal, and Methodological Characteristics of Suicidal Behavior

	Total (n=207)	Girl (n=165)	Boy (n=42)	χ2	p
Season, n(%)					
• **Winter**	54(26.1)	38(23.0)	16(38.1)		
• **Spring**	64(30.9)	48(29.1)	16(38.1)	7.503*	0.006
• **Summer**	43(20.8)	38(23.0)	5(11.9)		
• **Autumn**	46(22.2)	41(24.8)	5(11.9)		
Day of the Week, n(%)					
• **Weekday**	166(80.2)	132(80.0)	34(81.0)	0.192*	0.890
• **Weekend**	41(19.8)	33(20.0)	8(19.0)		
Time of Day, n(%)					
• **Morning (06.00-12.00)**	17(8.2)	14(8.5)	3(7.1)		
• **Noon-afternoon (12.00-16.00)**	36(17.4)	32(19.4)	4(9.5)	29.980*	<0.001
• **Evening (16.00-0.00)**	85(41.1)	78(47.3)	7(16.7)		
• **Night (00.00-05.00)**	50(24.2)	26(15.8)	24(57.1)		
• **Not specified**	19(9.2)	15(9.1)	4(9.5)		
Reason for suicide attempt, n(%)					
• **To punish family / response to anger**	91(44.0)	75(45.5)	16(38.1)		
• **To escape problems**	33(15.9)	28(17.0)	5(11.9)		
• **Desire to die**	22(10.6)	17(10.3)	5(11.9)		
• **Intentional self-harm**	10(4.8)	6(3.6)	4(9.5)	5.289*	0.706
• **Chronic physical illness**	10(4.8)	8(4.8)	2(4.8)		
• **Cry for help**	7(3.4)	6(3.6)	1(2.4)		
• **Relationship problems with peers**	7(3.4)	5(3.0)	2(4.8)		
• **Academic stress**	3(1.4)	2(1.2)	1(2.4)		
• **Grief**	2(1.0)	2(1.2)	0		
• **Other**	22(10.6)	16(9.7)	6(14.3)		
Methods of suicide attempt, n(%)					
• **Drug overdose**	162(78.3)	136(82.4)	26(61.9)		
• **Sharp/blunt objects**	15(7.2)	8(4.8)	7(16.7)		
• **Jumping from height**	13(6.3)	9(5.5)	4(9.5)		
• **Hanging**	3(1.4)	1(0.6)	2(4.8)	12.171*	0.09
• **Other**	14(6.8)	11(6.7)	3(7.1)		

*Chi-square test

Table 3. Psychiatric treatment and follow-up ınformation after suicide attempt

	Total (n=207)	Girl (n=165)	Boy (n=42)	χ2	p
Need for ıntensive care, n (%)					
• **No**	150 (72.5)	116(70.3)	34(81.0)	1.903*	0.168
• **Yes**	57(27.5)	49(29.7)	8(19.0)		
Expression of regret, n (%)					
• **No**	42(20.3)	26(15.8)	15(35.7)	8.394*	0.004
• **Yes**	165(79.7)	139(84.2)	27(64.3)		
Informing a family member, n (%)					
• **No**	50(24.2)	34(20.6)	16(38.1)	5.589*	0.018
• **Yes**	157(75.8)	131(79.4)	26(61.9)		
Initiation of psychotropic medication post-attempt, n (%)					
• **No**	111(53.6)	95(57.6)	16(38.1)	5.109*	0.024
• **Yes**	96(46.4)	70(42.4)	26(61.9)		
SSRI	16(16.7)	11(15.7)	5(20.0)	0.242*	0.756
AP	52(54.2)	38(54.3)	14(56.0)	0.022*	0.882
SSRI+AP	24(25.0)	18(25.7)	6(24.0)	0.029*	0.866
BZD	3(3.1)	3(3.2)	0	1.106*	0.564

SSRI: Selective Serotonin Reuptake Inhibitor, AP: Antipsychotic, BZD: Benzodiazepine

*Chi-square test

Discussion

In this study, the characteristics of 207 cases who presented with a suicide attempt over one year at Ankara Etlik City Hospital were described, and comparative analyses were conducted across various clinical features to outline a clinical framework specific to this age group. Despite 57% of the cases having a history of psychiatric disorders, approximately half were found to be non-adherent to regular psychiatric follow-ups. Post-attempt evaluations revealed that 67% of the cases were diagnosed with a psychiatric disorder, with depressive disorders being the most common diagnosis. It was observed that cases expressing regret after their suicide attempt were more likely to be discharged and referred for outpatient follow-up by clinicians. The presence of psychiatric comorbidity and the use of non-pharmacological methods in suicide attempts were associated with an increased likelihood of being prescribed psychotropic medication. Furthermore, cases prescribed psychotropic medication were found to attend follow-up appointments more regularly.

In this study, it was found that girls attempted suicide approximately four times more frequently than boys, while boys used non-pharmacological methods more often than girls. Previous studies showed that the prevalence of suicidal behavior in girls is 3 to 9 times higher than in boys [18]. This discrepancy was interpreted in favor of the hypothesis that differences in hormonal and neurotransmitter systems between males and females may be responsible. Impulsive behavior disorders associated with decreased serotonin levels are more common in girls [19]. This condition hinders girls' ability to cope with stress in a healthy manner, leading them to engage in self-harming behaviors as a maladaptive coping mechanism [20]. Additionally, the challenges girls face in managing gender roles and the responsibilities imposed by society and family may lead them to adopt more covert help-seeking behaviors compared to boys [21]. While boys tend to choose more lethal suicide methods, such as hanging, sharp or piercing objects, or firearms, girls more commonly resort to methods related to toxicity, such as drug ingestion [22]. This phenomenon can be explained by the fact that girls, as a maladaptive coping mechanism, make more impulsive decisions to attempt suicide in situations of intense stress, whereas boys tend to be more determined and willing to complete the act, leading them to choose more fatal methods.

Non-suicidal self-injury (NSSI) [23], a history of psychiatric illness [24], and previous suicide attempts [25] were identified as the most significant risk factors for suicidal behavior. It was shown that adolescents who engage in self-harm tend to perceive suicide as a normative behavior [26]. In this study, 41.1% of the patients had a history of self-harm, with no significant gender differences in prevalence. The frequency of NSSI among individuals with suicide attempts varies across studies. A study conducted in a community sample in Germany reported that 77% of adolescents with a history of suicide attempts also engaged in NSSI [27], whereas studies conducted in Turkey reported rates ranging from 23% to 68% [28,29]. These discrepancies may be attributed to differences in study designs and the potential underrecognition of NSSI prevalence. It was demonstrated that rather than the mere presence of NSSI, its frequency is a strong predictor of future suicidal behavior [30]. A history of psychiatric illness is a significant risk factor for suicidal behavior in adolescents. In this study, 57% of adolescents who attempted suicide had a past psychiatric diagnosis; however, only 57.8% of these patients had attended their follow-up appointments regularly. Large-scale epidemiological studies have shown that the majority of children and adolescents experiencing mental health problems do not utilize mental health services [31]. Our findings indicate that adolescents with multiple suicide attempts exhibit higher rates of NSSI and a more significant history of psychiatric illness compared to those with a first-time suicide attempt. Identifying the factors influencing help-seeking behaviors related to psychiatric disorders and NSSI—both critical risk factors for suicide attempts and completions in adolescents—is essential. Furthermore, additional research is needed to explore the role of peers and family members in the help-seeking process of young individuals.

An increasing number of studies suggest a relationship between seasonal changes and suicide risk [32]. In this study, while suicide attempts were most frequently observed in the spring, a gender-specific analysis revealed that girls had significantly higher suicide attempt rates during the winter months. However, findings in the literature on this topic are inconsistent. Some studies fail to establish a connection between suicide attempts and seasonality, whereas others report a seasonal pattern, with suicide attempts peaking in May in the Northern Hemisphere [33]. Research conducted among adolescents in Turkey indicates that suicide attempts tend to increase during the summer months, coinciding with the end of the school year, while reaching their highest levels during the spring and winter seasons [34]. It was suggested that the increase in suicide attempts during the spring may be related to seasonal fluctuations in serotonin levels, whereas the rise observed in winter may be associated with an increased prevalence of depressive disorders [35].

The timing of suicide attempts varies depending on factors such as the individual's age, level of determination, method selection, and help-seeking behavior [36]. In this study, suicide attempts were found to occur most frequently in the evening and nighttime hours. Specifically, suicide attempts involving medication were more common during nighttime hours, while girls were significantly more likely to attempt suicide in the evening. However, no association was found between this pattern and the presence of psychiatric comorbidities. Similar studies conducted both in Turkey and internationally have reported that the majority of adolescent suicide attempts occur between 18:00 and 24:00 [37,38]. This phenomenon may be attributed to increased interaction with family members during evening hours and the use of suicide attempts as a means to cope with family conflicts. On the other hand, the study by Taktak and colleagues found that completed suicides tend to occur during daytime hours, a finding consistent with the results of the present study [39].

In this study, no association was found between the underlying reason for the suicide attempt, the need for intensive care after the attempt, and the patient’s feelings of regret. In other words, knowing the reason for the suicide attempt, being aware of its potentially severe consequences, or experiencing a severe outcome does not appear to be related to feelings of regret. It was observed that individuals who felt regret were more likely to notify someone close to them. The presence of regret influences clinicians’ discharge decisions, as this study found that patients who expressed regret were more frequently discharged by clinicians. Henriques et al. (2005) emphasized that individuals who wished they had died after a suicide attempt had a 2.5 times higher risk of subsequent suicide compared to those who were either glad to be alive or ambivalent about their survival [40]. This study highlights that post-suicide attempt regret may be an important predictor of eventual suicide and that this response is a clinically significant variable that can be easily assessed during post-attempt evaluations. Identifying patients at the highest risk of repeating a suicide attempt or dying by suicide remains a significant challenge for clinicians [41]. There is a limited number of studies investigating individuals’ emotional responses after a suicide attempt and their predictive value for future suicide risk. Longitudinal studies in this area could contribute to the development of new tools that facilitate suicide risk assessment. Furthermore, as seen in this study, assessing regret in a binary manner (i.e., merely

as “present” or “absent”) may limit the reliability of the findings. In future research semi-structured interviews and self-report scales could enable a more comprehensive and objective evaluation of this critical factor.

Considering that a prior suicide attempt is the primary risk factor for future suicide, the impact of treatment on suicidal behavior becomes a critical area of interest in these patients. In this study, it was found that approximately half of the individuals who attempted suicide were initiated on psychotropic medication. Clinicians primarily opted to prescribe psychotropic drugs to patients who had attempted suicide using non-pharmacological and traumatic methods and those with existing psychopathology. The long-term effects of psychotropic medications on suicidal behavior remain uncertain; therefore, suicide treatment guidelines recommend that pharmacological interventions for acute suicidal crises be administered in short-term treatment packages [42]. In post-crisis follow-up, ensuring active involvement of family members in the treatment process, conducting regular phone check-ins, and scheduling planned appointments to monitor progress and potential medication side effects are strongly advised. Additionally, assessing the presence of a supportive social network and taking steps to strengthen this network is considered an essential aspect of care [43].

It was shown that the suicide rate within the first three months after discharge in patients who have attempted suicide is approximately 100 times higher than the global suicide rate [44]. This increased risk highlights the importance of treatment adherence following discharge. This study determined that only one-fourth of discharged patients attended their recommended outpatient child psychiatry follow-up appointments regularly. Previous studies have reported follow-up rates ranging from 30% to 77% [45–47]. Low psychiatric follow-up rates were attributed to the fact that not all patients undergo psychiatric evaluation with a child psychiatrist prior to discharge [45,46]. In our hospital, all patients presenting to the emergency department after a suicide attempt are evaluated by a child psychiatrist, and no patient is discharged without a psychiatric assessment and a treatment follow-up plan. However, despite this approach, the low follow-up rates may be due to the absence of crisis rooms in our emergency department, essential for conducting comprehensive psychosocial assessments and treatment planning. As a result, patients and their families evaluated under suboptimal conditions may not receive sufficient awareness and comprehensive early psychiatric support.

Limitations

This study has several limitations. First, as the findings are based on analyses from a single-center study conducted with a clinical sample, the generalizability of the results may be limited. Second, due to the retrospective nature of the study, certain variables that could serve as risk factors for suicidal behavior-such as school attendance, socioeconomic status, and a family history of psychiatric illness-were not recorded and, therefore, could not be evaluated, representing another limitation. However, including a large number of children and adolescents who presented to Ankara’s largest and most central hospital over one year provides a significant sample group that may be representative at a national level. Additionally, the inclusion of data on trauma-related suicide attempts, such as hanging, self-cutting, and jumping from heights, is considered valuable for understanding the risk factors associated with these methods in adolescents and the factors influencing their psychiatric treatment and follow-up in Turkey.

Conclusion

Suicide and suicide attempts are preventable with appropriate measures, and adolescence presents a critical window for intervention. To prevent suicidal behavior in adolescents, regular mental health screenings should be conducted in schools and primary care settings to identify at-risk individuals at an early stage. Family-based approaches and digital health tools should be utilized to enhance treatment adherence. At the same time, emergency department and primary care healthcare workers should receive training on recognizing signs of suicidal behavior and crisis intervention. Additionally, establishing crisis intervention units in hospitals and implementing public awareness campaigns to encourage help-seeking behaviors are essential. These measures are crucial in preventing the recurrence of suicide attempts and reducing suicide-related mortality.

Conflict of Interest: There is no conflict of interest in this study.

Author Contributions	**Author Initials**
SCD Study Conception and Design	MK, YSÇ
AD Acquisition of Data	DC, SNK, RN, ZBÖ
AID Analysis and Interpretation of Data	MK, YSÇ, DC, SNK, RN, ZBÖ
DM Drafting of Manuscript	MK, YSÇ, DC, SNK, RN, ZBÖ
CR Critical Revision	MK, YSÇ

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