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Brief Report / Kısa Araştırma

Overview of Young People Attempting Suicide by Drug Overdose and Prevention and Protection Services

Cilem Bilginer[1], Esra Cop[2], Zeynep Goker[2], Ozlem Hekim[2], Ebru Sekmen[2], Ozden Uneri[2]

[1]Yildirim Beyazit University, Yenimahalle Training and Research Hospital, Department of Child and Adolescent Psychiatry, Ankara - Turkey
[2]Ankara Children's Health and Diseases, Hematology and Oncology Hospital, Department of Child and Adolescent Psychiatry, Ankara - Turkey

ABSTRACT

Overview of young people attempting suicide by drug overdose and prevention and protection services

Objective: Suicide is the second leading cause of death among 15-29 year-old-people in the world. The aim of this study is to present the characteristics of children and adolescents attempting suicide by drug overdose and to draw attention to preventive measures that can be taken in Turkey.

Method: Records of the patients who admitted to a training and research hospital in one year period due to a suicide attempt by drug overdose were reviewed retrospectively. Sociodemographic data and psychiatric evaluation records of attempters were documented.

Results: During the study period, 163 adolescents applied to the hospital with suicidal drug overdose. Child psychiatry consultation was ordered for 61.3% (n=100) of them. It was the first attempt of 90% of the cases. The frequency of having previous psychiatric diagnosis was significantly higher in patients with recurrent suicide attempts. In both impulsive and planned suicide attempts, the most preferred times were evening and night time. Women more often attempted suicide due to family conflict, while men attempted due to emotional relationship problems. All cases without psychiatric disorder or with externalizing problems attempted impulsive suicide. The most preferred drugs for suicide were, nonsteroidal anti-inflammatory drugs, antidepressants, paracetamol, antibiotics and antipsychotics. Of the all cases, 22.5% attempted suicide by self medications. It has not been possible to maintain pediatric psychiatric follow up of the 71% of the cases.

Conclusion: It is considered that public attention should be drawn to the increasing number of adolescent suicide attempts in order to prevent this issue. Family-oriented protective approaches, school-based preventive programs and new legal regulations on drug safety could help to reduce the frequency of suicide attempts..

Keywords: Emergency psychiatric services, prevention and control, suicide, youth

ÖZET

İlaç içerek intihar girişiminde bulunan gençler ve koruyucu-önleyici hizmetlere genel bakış

Amaç: Tamamlanmış intihar, tüm dünyada 15-29 yaş arası ölümlerin önde gelen ikinci nedenidir. Bu çalışmada, intihar amaçlı ilaç içen çocuk ve gençlere ilişkin karakteristik özellikler sunularak gençlik intiharlarına ve Türkiye'de bu konularda alınabilecek önlemlere dikkat çekmek amaçlanmıştır.

Yöntem: Çalışmada bir yıllık sürede intihar amaçlı ilaç içerek bir eğitim ve araştırma hastanesine başvuruda bulunan hastaların dosya kayıtları geriye dönük incelenmiştir. Gençlere ait sosyodemografik veri ve psikiyatrik değerlendirme kayıtlarına ilişkin veri kaydedilmiştir.

Bulgular: Çalışma tarihleri arasında 163 genç, intihar amaçlı ilaç içerek hastaneye başvurmuştur. Olguların %61.3'ünden (n=100) çocuk psikiyatrisi konsültasyonu istenmiştir. Olguların %90'ının ilk intihar girişimiydi. Tekrarlayan intihar girişiminde bulunan olgularda önceden psikiyatrik tanı bulunma sıklığı anlamlı olarak fazlaydı. Dürtüsel ve planlı intihar girişimlerin her ikisinde de en sık tercih edilen saatler akşam ve gece saatleriydi. Kadınlar en sık aile içi çatışmaya bağlı olarak, erkekler ise en sık duygusal ilişkisinde yaşanan sorunlara bağlı olarak intihar girişiminde bulunmuştu. Herhangi bir psikiyatrik tanı konmayan ve dışsallaştırma sorunları saptanan olguların tamamı dürtüsel intihar girişiminde bulunmuştu. İntihar amaçlı en sık tercih edilen ilaçlar nonsteroid antiinflamatuarlar, antidepresanlar, parasetamol, antibiyotikler ve antipsikotiklerdi. Olguların %22.5'i ise kendine ait ilaçları içerek intihar girişiminde bulunmuştu. Olguların %71'inde çocuk psikiyatrisi takibi sağlanamamıştır.

Sonuç: Sayısı giderek artan intihar girişimlerini önlemek amacıyla toplumun dikkatinin bu konuya çekilmesi gerektiği düşünülmüştür. Özellikle aile odaklı koruyucu yaklaşımlar, gençlere yönelik okul tabanlı önleme çalışmaları ve ilaç emniyeti ile ilgili yeni yasal düzenlemeler bu yöndeki intihar girişimlerinin sıklığının azaltılmasında yardımcı olabilir.

Anahtar kelimeler: Acil psikiyatrik hizmetler, önleme ve kontrol, intihar, gençlik

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Address reprint requests to / Yazışma adresi:
Cilem Bilginer,
Yildirim Beyazit University, Yenimahalle Training and Research Hospital, Department of Child and Adolescent Psychiatry,
Ankara, Turkey

Phone / Telefon: +90-312-587-2070

E-mail address / Elektronik posta adresi:
cilemcolak@yahoo.com

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INTRODUCTION

Suicidal behavior is classified as suicidal ideation, attempted suicide, and committed suicide. Individual's idea of self-killing is described as suicidal ideation. Unsuccessful actions executed with the intention of self-killing define suicide attempts, and actions that result in death are committed suicide (1). Suicide is the second leading cause of deaths in 15-29 years-old people worldwide (2). Suicidal ideation, which is very rare in childhood, increases by the age of 12-17 years. One third of the young people who have suicidal ideation, attempt suicide at least once in their life (3). Suicide attempts of young people are often impulsive (4). The impulsive behaviors which are associated with novelty seeking and the neurotic structures of young people are associated with both suicidal ideation and suicide attempts (5). Besides, it is reported that suicide attempts in young people are frequently by drug overdose and observed more frequently in women (6,7). It is also reported that 1-5% suicide attempts by drug overdose have resulted in death (8).

The statistics of attempted suicides in Izmir province since 2010 are publish by the Turkish Statistical Institute (TURKSTAT). However, except these records, there is no study on suicide attempts at regional or national level that gathered the data in a single source (9). Besides, committed suicide statistics are annually published by TURKSTAT. According to these data, 15.6% of the committed suicides in 2014 were among children and young people under 19 years old. In addition, age-specific suicide rates for this age group tend to increase (10). This fact depicts the need for prevention and protection services regarding suicide.

Descriptive studies on suicide attempts have a supportive role in the improvement of prevention and protection services. In this study, by presenting characteristics related to children and young people who have attempted suicide by drug overdose, it is aimed to draw attention to youth suicides, this suicide method which is frequently preferred in young people, and the countermeasures that can be taken in our country.

METHOD

The study was conducted by retrospectively reviewing the files of patients who admitted to the Ankara Children's Health and Diseases, Hematology-Oncology Hospital with suicide attempt by drug overdose between January 1, 2015 and January 1, 2016. Patients' age, gender, characteristics of suicide attempt (suicide plan, cause, time, previous suicide attempt, drugs used), previous psychiatric diagnosis, child psychiatry consultation, psychiatric evaluation and diagnosis, and follow-up visits were recorded. There have been 163 young people who admitted to the hospital in the study period with suicide attempt by drug overdose. All subjects were evaluated together in descriptive statistics on age, sex and time of suicide attempt. However, descriptive and comparative analyzes on the characteristics of the suicide attempt and the psychiatric evaluation of the cases were made only on 100 adolescents (61.3%) who have consulted the child psychiatry outpatient clinic. These cases have been evaluated by child psychiatrists. Psychiatric diagnoses were based on DSM-5 diagnostic criteria (11).

The diagnosis of depressive disorder, anxiety disorders, conversion disorder, adjustment disorder with depressed mood, obsessive compulsive disorder (OCD), posttraumatic stress disorder (PTSD), were considered as internalization problems; attention deficit hyperactivity disorder (ADHD), disruptive disorders, impulse control and behavioral disorders and substance use disorder diagnoses, were considered as externalization problems; if any two or three of these diagnoses were present, it was considered both as internalization and externalization problem.

Statistical Analysis

Necessary permissions for the study were obtained from Yenimahalle Training and Research Hospital Ethics Committee. The obtained data were processed in the SPSS 13.0 software package. In the analysis of the data, descriptive statistics including number, percentage, mean and standard deviation values; Fisher's exact chi square test for the comparison of

categorical variables and Mann Whitney U test, for the comparison of the groups with non-normal distribution in two independent groups, were used. Analyzes were bipolar and significance level was accepted as $p<0.05$.

RESULTS

Within the study period, 163 adolescents were admitted to the hospital with attempted suicide by drug overdose. Of these, 2.5% (n=4) ingested drugs at school. Of the cases, 86.5% (n=141) were women, 13.5% (n=22) were man and the mean age was 16.7±1.4 years. The mean age of the women was found to be significantly lower (16.6±1.5 years for women and 17.3±0.9 years for men, p=0.024 and Z=-2.252). Suicide attempts were most common at the age of 17 in both sexes. It has been determined that all cases below the age of 15 were women.

Emergency treatment of the patients were performed in emergency service for 53.9% of the cases (n=88); in pediatric services for 34.3% of the cases (n=56) and in intensive care unit for 11.6% of the cases (n=19). In addition, child psychiatry consultation was ordered for 50.0% (n=44) of the cases in the emergency service, for 71.4% (n=40) of the cases in the pediatric services and for 84.2% (n=16) of the cases in the intensive care unit. Of the all evaluated cases, 10.0% (n=10) were found not to be following formal education. Two of the four cases who attempted suicide at school had been previously evaluated by child psychiatrist, both have been diagnosed with depressive disorder, but have not received psychiatric treatment.

It was determined that 90% of suicide attempts were for the first time and 86% were impulsive. The most frequently selected hours for both impulsive and planned suicide attempts were evening and night time (n=62; 72.1% and n=11; 78.5%, respectively). In patients with recurrent suicide attempts (n=10; 10%), the rate of a history of psychiatric diagnosis (n=8; 80%) was significantly higher ($p<0.001$). There was no relationship between planned suicide attempt and positive history of psychiatric diagnosis (p=0.386).

The most frequent causes of suicide were family conflict (n=38; 38%), emotional intimacy problems (n=13; 13%), academic stress (n=11, 11%), and depressive symptoms (n=7; 7%). Family conflict was the most frequent cause of suicide in impulsive attempts, whereas emotional intimacy problems and academic stress were the most common causes of planned suicides. The causes of suicide in relation to the gender of the adolescents are summarized in Table 1.

Previous psychiatric follow up was not present in 69% of the cases (n=69). However, 82% (n=82) of the cases recieved at least one psychiatric diagnosis in the new psychiatric evaluation. Most frequent diagnoses were depressive disorder (37%; n=37), and depressive disorder associated with ADHD, disruptive disorders, impulse control and behavioral disorders, anxiety disorder, substance use disorder, conversion disorder,

Table 1: Reasons for suicide attempt by gender

Reason for suicide attempt	Women		Man	
	n=87	%	n=13	%
Family conflict	36	41.4	2	15.4
Academic stress	10	11.5	1	1.7
Problems or termination of emotional intimacy relation	9	10.3	4	30.8
Depressive symptoms	6	6.9	1	7.7
Peer victimization or peer conflict	5	5.7		
Chronic physical illness	2	2.3	2	15.4
Childhood abuse	2	2.3		
Grief	2	2.3		
Gender dysphoria	1	1.1	1	7.7
Close relation to a suicide attempt	1	1.1		
Without a definite reason	13	14.9	2	15.4

Table 2: Psychiatric problems of the adolescents by gender

Psychiatric problems	Women		Man	
	n=87	%	n=13	%
Internalizing problems	49	56.3	3	23.1
Externalizing problems	9	10.3	1	7.7
Both internalizing and externalizing problems	14	16.1	6	46.2
Without a psychiatric diagnosis	15	17.2	3	23.1

and gender dysphoria (25%; n=25). The remaining cases were diagnosed with ADHD, anxiety disorders, PTSD, behavioral disorders, OCD and adjustment disorder. Externalization problems in men were about twice as frequent as in women (Table 2). All of the adolescents who had no psychiatric diagnosis (n=18; 18%), but only had externalization problems (n=10; 10%), attempted impulsive suicide. Internalization problems were found in 71.4% and both internalization and externalization problems were found in 28.6% of the planned suicide attempts. However, 71% of the cases (n=71) were interviewed only on the occasion of the consultation requested due to suicide attempt, but they could not be followed up.

Most commonly chosen drugs for suicide were nonsteroidal anti-inflammatory drugs (n=37; 28.7%), antidepressants (n=33; 25.6%), paracetamol and other analgesics (n=30; 23.3%), antibiotics (n=18; 14%) and the antipsychotics (n=16; 12.4%). In addition to these medications, proton pump inhibitors, antihypertensive, antidiabetic and antiepileptic drugs, muscle relaxants, pseudoephedrine type drugs, various vitamins and antihistaminic drugs have been preferred. Of the adolescents, 44.2% (n=57) attempted suicide with a single drug and 55.8% (n=72) with multiple drugs. In addition, 22.5% (n=29) of adolescents used their own drugs, 74.4% (n=96) of them used existing drugs at home which are non-prescription or belonged to family members, 3.1% (n=4) of them used own drugs as well as other medications found at home.

DISCUSSION

"Chemical substance use" ranks fourth among the committed suicide methods in Turkey (9). On the other hand, drug use is the most common method of suicide attempt by adolescents (7). In this study, the characteristics of the young people who have attempted suicide by drug overdose and the committed acts are described in line with the measures to be taken in this topic.

In our study, it was shown that women had about seven times more suicide attempts and that the mean age of women was significantly lower. Women' being more likely to commit suicide in early adolescence is considered to be associated with, starting adolescence earlier than men, having greater self-harm tendency in response to stress, and perceiving suicide more acceptable (12). Besides, it was found that the majority of the cases in the study were at high school age and the suicide attempt was most frequent at the age of seventeen. This has brought to mind the importance of prevention and protection services in high school years, which can be considered as a critical period for adolescents.

In studies conducted in our country, it is emphasized that the frequency of suicide attempts among women and the rate of suicide related death among men is higher (13,14). However, it has been reported that in attempts by drug overdose, women more frequently use at lethal doses (15). Drug doses were not documented in our study. However, the most commonly preferred medications are analgesics that can be taken without a prescription. In addition, one quarter of all drugs were adolescents' own drugs. It has been found that, the suicide attempt and the ease of access to the material used in the suicide are closely related (16). Therefore, it has been thought that any non-prescription medications, and especially medications easily accessible at home, such as

antibiotics, analgesics, pose a risk in terms of suicide attempts. It is therefore thought that there is a need for new legal regulations on over-the-counter medicines. Besides, interventions to increase the awareness regarding the fact that the responsibility of medicines used by adolescents and keeping the medicines in safe places at home belongs to the caregivers may be helpful.

The causes of suicide attempts in this study are family conflict, emotional intimacy problems, academic stress and depressive symptoms. These data are consistent with the causes defined in our country (14,17). Differently, it has been shown that women' acts and impulsive acts are often the result of family conflict, while men' acts and planned acts are result of emotional intimacy problems. The cause of 65.8% of suicides under age 19 in Turkey in 2014, has not been determined. Besides, it has been shown that women most frequently committed suicide because of marital conflict and illnesses, while men committed suicide due to emotional intimacy relations and illnesses (9). The data obtained from our study were similar to these results. In addition, it draws attention to gender-specific problem areas to be focused in planning prevention and protection services, and to the importance of family relationships in adolescent suicides which are known to be mostly impulsive.

In this study, it has been shown that all adolescents who did not have any psychiatric diagnosis or only had externalization problems, committed impulsive actions. Impulsivity and aggression behaviors are defined as separate endophenotypes of suicide attempts and are associated with impulsive suicide attempts (18,19). In addition, it is reported that impulse control in children with suicidal and violent behavior is also impaired (20). Consequently, it can be said that not only the adolescents with internalization problems, but also the ones with impulse control problems or externalization problems are at risk for suicide attempts. In this study, it has been shown that both impulsive and planned attempts frequently occur during evening or night time. This may be related to the intense contact with family members at these times, or to the ambivalence of adolescents towards suicide, such as being rescued and life vs. death and extinction. Previously, it has been reported that these hours were preferred for impulsive actions, and it was suggested that inter-personal conflicts occurred more frequently at these hours (21). Our study suggests that close monitoring of all risky adolescents at these times will be a protective method.

At least one psychiatric disorder is reported in 70-91% of adolescents who have suicidal ideation or attempt (22). In this study, 82% of the cases received psychiatric diagnoses. Internalization problems in women and externalization problems in men were more frequent. These data are consistent with the literature (23). However, despite the high rates of psychiatric diagnoses, only one third of the cases could be followed up at psychiatry. The same problem was also emphasized in the study of Bilginer et al. (24). Although these results are not sufficient to make a general judgment, taking into consideration the fact that in our country there are still provinces without a child psychiatrist and even in provinces with child psychiatrists there is difficulty in follow-ups, it can be predicted that follow-ups of the adolescents who attempt suicide are inadequate. The finding supporting this judgment is that not all the adolescents in the study have been evaluated by the child psychiatrist. Child psychiatrist consultation has been mostly requested for adolescents admitted to ICU. This was interpreted as a direct proportion of suicide attempt severity and child psychiatrist consultation request. However, it is important for each case to be seen by the child psychiatrist. It is reported that once attempted suicide increases the risk of repetitive attempts by about three times (25). In addition, this study found a significant relationship between the presence of previous psychiatric diagnosis and the repetitive attempts. However, it is clear that the adolescents who are at risk–the majority of whom attempted suicide for the first time and received a psychiatric diagnosis–could not be followed up. All these results show that there is a need for arrangements such as "health measure" regarding psychiatric monitoring of adolescents involving follow-up by case managers.

Additionally, it may be advisable to avoid discharge of suicide attempters from the hospital without the psychiatric evaluation note; to increase the number of crisis rooms established in the scope of "Emergency Service Psychosocial Support for Suicide Attempts and Crisis Intervention Program" throughout the country; and to introduce new health regimens regarding the operation and supervision of these rooms.

Much of the daily life of the adolescents is spent at school. In addition, is considered a risk factor that facilitates suicidal behavior (26). In this study, it was determined that 10% of the cases did not follow formal education and 2.5% of the cases attempted suicide at school. School-based suicide prevention and education programs which allow reaching the majority of the adolescents are becoming increasingly widespread (27). However, along with the integration of such programs into the formal education, it is also important to ensure adolescents' continuousness to school. Programs include; Screening for adolescents at risk, awareness training for adolescents, skills training, supervisor training and peer leadership training. The goal is not directly the suicidal behavior itself, but rather, increasing the knowledge and improve the attitudes of students and school staff about depression and suicide (28).

In the screening of adolescents at risk, self-report scales are given to the adolescents after family consent is obtained. However, scales give information about the specific time they are answered, and can not identify young people who do not carry an active risk at that time. Moreover, the protective effect of this screening depends on the possibility to interview adolescents at risk on suicidal behavior. However, misconceptions such as having a talk about suicide will engrain in suicidal ideation, hampers this process (29,30). On the other hand, it has been shown that the results obtained from the scales in which the impulsivity, anger and problem solving adequacy are assessed instead of the scales consisting of direct death related questions predicts the likelihood of suicide (31,32). But, there is no available national survey on the screening and follow up of the probability of adolescent suicides in our country. Therefore, it is hard to comment on the difficulties that can be experienced and the benefits that adolescents will get. However, given the country's overall committed suicide rates, it may be considered an effective start to identify adolescents at risk.

Awareness training involves informing students about signs and symptoms of suicide, thus helping them to recognize and explain these symptoms in themselves and in peers (30). In this context, many evidence-based educational programs have been developed, including presentations, films, activities and discussions for high school students. The inclusion of such practices in high school curricula is thought to be protective. Suicide-prone adolescents fail to produce an alternative thought when they are under severe stress (33). Especially 14-24-year-old young people who are angry, impulsive and unconfident in self problem-solving skills are more likely to "think of suicide as the first option" (34). Skills training aims to provide young people with general life skills by developing coping skills, problem solving skills and decision making skills (29). Within the scope of preventive mental health studies for adolescent suicides, it can be said that such trainings need to be integrated into the National Education Curriculum. In addition, with the use of problem-solving therapies for adolescents at risk, they can be protected from suicide and related psychopathologies (35). It is possible to say that the development of infrastructure in this field is also necessary for a healthy society.

In supervisor training, signs and symptoms of suicide, and methods to reveal this information are taught to adults and peers who can help the adolescents (29). In our study, although the two students who attempted suicide at school had been diagnosed with depression, they have not been treated before. This has drawn attention to the importance of supervisor training in identifying adolescents at risk. Finally, peer leadership training aims adolescents from various social groups to change their self acceptance and behaviors with the training and under the supervision of an adult. These peers perform activities that involve social messages throughout the school, thus aiming adolescents to seek for help and to contact with adults; and also to strengthen their belief that adults can help

them. It has been shown that the connections established between adolescents and adults through these trainings reduce not only suicidal behavior, but also problems such as school dropouts, depression, and alcohol-substance use (28).

The data of this study is limited to adolescents admitted to a training and research hospital following suicide attempt. For this reason, the results cannot be generalized to public. However, the data show that adolescents, especially at the high school age, attempt suicide, in men the risk increases by age, and that young people frequently attempt suicide because of family conflicts and emotional intimacy problems. As a result, family-based protection approaches and school-based prevention interventions for adolescents, as well as for suicide attempts by drug-overdose new legal regulations on drug safety, are thought to help reduce suicide rates. On the other hand, the problems experienced in the psychiatric follow-up of suicide cases suggest that new solutions, such as, counseling or implementing health measure, are needed.

Contribution Categories	Name of Author
Development of study idea	E.C., O.U.
Methodological design of the study	E.C., Z.G.
Data acquisition and process	E.S. O.H., Z.G.
Data analysis and interpretation	C.B.,E.C.
Literature review	C.B.
Manuscript writing	C.B., E.C.
Manuscript review and revisation	E.C., O.U.

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