## SUICIDE ATTEMPTS AMONG CHILDREN AND ADOLESCENTS

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#### Summary

**Introduction:** Suicide is the second largest cause of mortality in the 10-24 age group. Investigation of suicide attempts among children and adolescents are rare in Serbia.

**Objective:** The aim of this study is to analyze suicide attempts of children and adolescents who were hospitalized during the twelve -year period (2003.-2014.) in the Clinic of Neurology and Psychiatry for Children and Youth in Belgrade.

**Method**: We retrospectively analyzed medical records of 130 patients. The diagnosis was made according to the ICD 10 criteria. Patients data (gender, age, number of attempts, suicide attempt method, time of year, prior psychiatric diagnosis, family characteristics) were analyzed using standard statistical methods ( Student's t-test and Chi Square test).

**Results:** Gender distribution showed 77.7 % female and 22.3 % male. The mean age was 15.28 years (SD - 1.834). The voungest child who attempted suicide was 9. The most common method of attempting suicide was intentional selfpoisoning by drugs (66.2 %), followed by wrist cutting (11.5 %) and hanging (10.8 %). In terms of the gender distribution, statistically significant difference was found in the method of attempting suicide (x2= 12.238; df=4; p=0.016) . The highest suicide rate was in 2013 with 18 attempts, and the lowest was in 2006 with 6 attempts. Most suicide attempts took place in the winter and also in June. 48 patients (36.9%) who attempted suicide had previous psychiatric diagnoses. 14 patients (10.8 %) have at least one member of immediate family who attempted or committed suicide.

**Conclusion**: We confirmed previous results from the literature about gender prevalence and gender differences in method of suicide attempts. Early identification of youth at high risk for suicide behavior is very important, as well as developing specific preventive programs.

Key words: suicide attempt, children, adolescent

## INTRODUCTION

Suicide is one of the most common causes of death among young people. Suicide attempts can be considered as a part of continuum of suicidal behavior that can be conceptualized as the one ranging from suicidal ideation, on one side, to suicide attempt, on the other, where attempts may possibly result in complete suicide [1,2]. Suicide attempt is "the potentially self-injurious behavior with non-fatal outcome, for which there is evidence (explicit or implicit) that the person intended at some level to kill himself/herself" [3]. According to World Health organization statistics, over 800,000 people die due to suicide every year and there are many more who attempt suicide [4]. The rates of suicide have greatly increased among youth, and youth are now the group at highest risk in one-third of the developed and developing countries [5].

Suicide is the second largest cause of mortality in the 10-24 age group [6]. Suicide rates vary significantly between countries. The highest rates are reported in Eastern European countries, and lowest in Latin America and in some Asian countries. Suicide death rate in Europe varied widely from 1 in Greece to 20.2 in Lithuania per 100.000 persons per year [6]. In Serbia, suicide rate is 6.9 among youth from 15-24 years, or 66 deaths per year [7]. The number of suicide attempts is much higher (some estimates suggest even hundred times higher than the number of committed suicides) [7]. However, the actual number of suicide attempts may be underestimated because many youth attempters don't seek treatment or are not accurately documented [8]. After suicide attempt, large number of patients are hospitalized at the pediatric department, without psychiatrist or psychologist assessment, so a small number of those are hospitalized in the department of child psychiatry. These are usually young people with co-morbidity (associated psychiatric disorders - depression, anxiety, behavioral disorders) who were previously treated or whom this is not the first suicide attempt.

Although suicide is one of the leading causes of death in almost all countries, little is known about the prevalence, prevention and treatment of children and adolescents with suicide behavior. There is no typical suicide profile. Great number of studies multi-factorial suggests causes (depression, impulsivity, conduct helplessness, disorder. sadness, addictions of psychoactive substances (PAS), family dysfunction, suicide in family history, school problem and bad peer relationships) [9,10]. One of the most important risk factor of suicidality is suicidal ideation [11], but they often remain unrecognized until the suicide attempt.

Every three seconds someone attempts suicide, usually by taking an overdose of drugs, poisoning or wrists cutting [6]. The difference between countries in methods employed for suicide may reflect differences in socioeconomic factors, availability of lethal means, and firearms legislation, rather than differences in the nature of the behavior, per se [5]. Common methods used in developed countries include firearms, hanging and self-poisoning, whereas in developing countries, pesticide poisoning and hanging lead the list [12]. There is still no register of suicide attempts in Serbia.

#### AIM

The aim of this study is to analyze suicide attempts of children and adolescents who were hospitalized during the twelve-year period at the Clinic of Neurology and Psychiatry for Children and Youth in Belgrade, Serbia.

Analysis of these attempts is important to determine and better understanding the factors that influence suicidality in this population. It will help us in taking measures aimed at early identification of potentially suicidal children and adolescents, as well as the prevention of suicide and suicidal behavior among young people.

#### **METHOD**

In this retrospective study we analyzed 130 children and adolescents who had partaken in suicide attempts aged up to 18 that were hospitalized at the Clinic of Neurology and Psychiatry for Children and Youth in Belgrade, during the period of twelve years, between 2003 and 2014. Data was obtained from the hospital medical records. The diagnosis was made according to the ICD 10 criteria, by which the deliberate self-harm, suicidal attempts and suicide were coded as "external causes of death and disease" X60-X 84 [12]. We also analyzed the frequency of the hospitalization of children and adolescents in the Clinic of Neurology and Psychiatry for Children and Youth. This analysis included information such as distribution of suicide attempts in relation to the demographic characteristics (gender and age), number of attempts, suicide attempt method, season, prior psychiatric diagnosis, family characteristics, and family history of suicide.

The data were analyzed using standard statistical methods (Student's t-test and Chi Square test).

#### RESULTS

The total number of hospitalized patients during twelve year period was 1 603 patients. In total of 1 603 patients, 130 children and adolescents were hospitalized because of suicide attempts. The highest rate was in 2013 with 18 attempts, and the lowest was in 2006 with 6 attempts. In the analyzed period, the frequency of suicide attempts highest was during December (12.3%) and lowest August (4.6%). In total, most suicide attempts were in the winter season.

From a total of 130 children and adolescents who attempted suicide, 77.7 % were female and 22.3% were male. The mean age was 15.28 (SD 1.834). The youngest child who attempted suicide was 9 years old.

The most common method of attempting suicide was intentional self-poisoning by drugs (66.2 %), followed by wrist cutting (11.5 %) and hanging (10.8 %). In terms of the gender distribution, statistically significant difference was found in the method of attempting suicide (x2= 12.238; df=4; p=0.016) - self poisoning by drugs was more common in girls (73.3%) than in boys (41.4%). Other suicide attempt was more frequent in boys (wrist cutting, jumping, and hanging) (table 1).

After first suicide attempt 96 patients were hospitalized (73.8%), after second 24 (18.5%) and 10 patients after third suicide attempt (7.7%), 48 patients (36.9%) who

attempted suicide had previous psychiatric diagnoses. The highest number of those children and adolescents were diagnosed with mixed disorders of conduct and emotions (17.7 %) and depressive episodes (16.9 %). There were no statistically significant differences between girls and boys in the previous morbidity structure (x2=7,186; df=4, p=0,126). 63 patients (48.5 %) live in two-parent families, while in single parent families there were 49 patients (37.7 % - divorced parents 36), 18 patients lived out of home with no parents - 12 in group home or foster family, and 6 with other family members (grandmother, grandfather or sibling), 14 patients (10.8 %) have members of immediate family who attempted or committed suicide.

Table 1. Method of suicide attempt in terms of gender distribution Tabela 1. Način pokušaja suicida u odnosu na pol							
		method of suicide attempt					total
		način pokušaja suicida					ukupno
		self- poisoning	wrist cutting	jumping	hanging	kombination	
		trovanje	venesekcija	skakanje	vešanje	kombinovano	
	female	74	9	3	8	7	101
sex	zenski	73.3%	8.9%	3.0%	7.9%	6.9%	100%
pol	male	12	6	3	6	2	29
	muški	41.4%	20.7%	10.3%	20.7%	6,9%	100%
total		86	15	6	14	9	130
ukupno		66.2%	11.5%	4.6%	10.8%	6.9%	100%

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#### DISCUSSION

The suicide attempts are actions with suicidal aim, not resulting in death [14]. In our study we've analyzed suicide attempts among inpatients at the Clinic of Neurology and Psychiatry for Children and Youth in Belgrade. We presumed that the estimated number we are dealing with is only one part of whole number of children and adolescents who attempted suicide. Some of them were hospitalized in other psychiatric institution in Belgrade, or treated at pediatric clinic or in private practice; some of them never search for psychiatric help avoiding social stigma.

Of the total number of 1 603 patients who were hospitalized at the Clinic during the twelve year period, 130 patients were hospitalized after suicide attempt, which is 8.1%. Despite the fact that this percentage is high, we noticed that a large number of total inpatients are under the age of ten years. If we take into consideration only patients over the age of nine, this percentage is higher (9.25%). Drug overdose was found to be the most common mode for suicide attempt (66.2%), followed by wrist cutting (11.5%), and hanging (10.8%). In the other studies, drug poisoning is also reported as the most common method of suicide attempt [14, 15]. Possibly, one of the reason is that drugs can be easily procured and available in home inventories.

Distribution of suicide attempts per year showed that the highest number of suicide attempt was 2013. with 18 attempts, and the lowest was in 2006., with 6 attempts. The increasing trend of hospitalizations after suicide attempts from 2010. was evident. Probably, the most important factors that influence the increase of the number of suicide attempts were existential difficulties during the past few years. The poor economic condition and existential problems affect the conditions under which children live and grow up. Poor parent-child communication, school difficulties and stressful life events are factors that have a significant effect on suicide attempt and suicide rates in children and adolescents [16]. The effects of exposure to social media, as new phenomenon which influences suicide related behavior, has also been considered as a risk factor for suicide [17]. In a study done by Schmidtke et al. in the United States, it was noted that the suicide rate increased by 175% before and after exposing young adults to television suicide [17,18]. In the analyzed period, the most suicide attempts were in winter months, and also in June. Cold and dark winter months, as well as semiannual and annual marks, may be the cause of high incidence of suicide attempts in these period [7]. Our findings indicate that the rate of suicide attempts are higher in the girls (ratio of 3, 48:1), which is consistent with the findings in literature that indicate the typical difference between sexes [19, 20].

History of a psychiatric illness was present in 36.9% of our patients. More than one third of them have emotional disorders, equally mixed disorders of conduct and emotions and depression. According to literature [21, 22] the most children with suicidal attempt have at least one psychiatric disorder (with mood disorders being the most common). Our findings suggest that approximately one third of patients who attempt suicide have previously psychiatric diagnosis, mixed disorders of conduct and emotions or depression in almost all of them. It is significantly less compared to data from the literature. On the other hand, almost two third of our patient have not previous psychiatric diagnoses, which shows that poor control of affect and impulsivity are one of the most important risk factor for suicidal behavior in adolescents [23]. From our study group, 10.8% patients have family member who attempted or committed suicide. This finding implicated biological influence and/or model behavior in dealing with the problem [8].

A large number of studies have reported that young people from families with history of parental separation or divorce have increased risks of suicide or suicide attempt [24]. Our study showed no significant difference between complete and incomplete family. Dysfunctional relationships, poor parent-child communication, family conflict, socioeconomic situation, lack of emotional closeness, incomplete family, have been identified as risk factor for suicide behavior in adolescents [25, 26].

## CONCLUSION

Suicide research in Serbia is limited by lack of systematic data collection. Our study suggests that suicide behavior is a significant problem among adolescents. By analyzing suicide attempts, we tried to identify the risk factors that lead to a higher frequency suicide attempt among children and adolescents. It is important to early identification of youth at high risk for suicide behavior, as well as developing specific preventive programs.

Limitation of our study

Because of the way these data are collected, we are not able to distinguish intentional suicide attempts from non-intentional self-harm behaviors. Also, these data are collected from only one Clinic dealing with youth in Serbia.

# POKUŠAJI SAMOUBISTVA DECE I ADOLESCENATA

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## Kratak sadržaj

**Uvod:** Suicid je na drugom mestu uzroka smrti dece i adolescenata uzrasta od 10 do 24 godine. Malo je radova koji se bave istraživanjem pokušaja suicida ove uzrasne grupe u Srbiji.

**Čilj:** Cilj našeg rada je analiza pokušaja suicida dece i adolescenata hospitalizovanih u Klinici za neurologiju i psihijatriju za decu i omladinu u Beogradu u periodu od 2003. do 2014. godine.

Metod: Restrospektivno je analizirana medicinska dokumentacija 130 pacijenata. Dijagnoza je postavljena prema MKB-10 kriterijumima. Analizirali smo pokušaje samoubistva u odnosu na pol, uzrast pacijenta, broj pokušaja samoubistva, način, doba godine kada je pokušano, postojanje prethodne psihijatrijske dijagnoze i porodičnih karakteristika ovih pacijenata. Podaci su obrađeni korišćenjem standardnih statističkih metoda (Studentov t test i hi-kvadrat test).

Rezultati: Utvrđena je predominacija ženskog pola (77,7%) u odnosu na muški pol (22,3%). Najmlađi pacijent je imao 9 godina. U odnosu na pol, statistički značajna razlika postoji u načinu pokušaja suicida (x2= 12.238; df=4; p=0.016). Najčešći način je namerno samotrovanje lekovima (66,2%), zatim presecanje vena (11,5%) i pokušaj samoubistva vešanjem (10,8%). Najviše pokušaja samoubistva je bilo 2013. godine - 18 pacijenata, a najmanje 2006. - 6 pacijenata. Prethodnu psihijatrijsku dijagnozu je imalo 48 pacijenata (36,9%). 14 pacijenata (10,8%) je imalo bar jednog člana primarne porodice koji je pokušao ili izvršio suicid.

**Zaključak:** Naše istraživanje je potvrdilo podatke iz literaturi o predominaciji ženskog pola i razlikama među polovima u odnosu na način na koji su pokušali suicid. Rana identifikacija mladih pod rizikom za samoubilačkim ponašanjem je veoma važna, kao i razvijanje specifičnih preventivnih programa.

Ključne reči: Pokušaj samoubistva, deca, adolescenti

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