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## Prevalence of self-injury, suicidal ideation, plans and attempts in adolescents aged 13 to 19 years of age

### Abstract

**Introduction.** Increased suicide rates, both among adults and adolescents, have been seen in Poland over recent years.

**Aim.** The aim of the study was to determine the prevalence of self-injury, suicide ideation, plans and attempts in adolescents aged 13 to 19 years.

**Material and methods.** The study encompassed the total number of 6883 individuals aged 13 to 19 years, 69% of them being girls and 31% – boys. All respondents lived in Lubelskie Province. The research was conducted using a questionnaire designed by the authors.

**Results.** In the group composed of 6883 adolescents living in Lublin Province, suicide ideation was reported by 47.65% of the respondents, suicide plans by 32.35%, suicide attempts were carried out by 10% of adolescents and self-injury by 24.91% of the respondents aged 13 to 19 years.

**Conclusions.** The greatest prevalence of suicide ideation, plans and attempts, as well as self-injuries, were recorded in the group of adolescents aged 17. The adolescents living in the urban areas are more likely to inflict self-injury than those living in rural areas. Furthermore, adolescents with suicidal tendencies, e.g. attempting suicide and self-injury, are more prone to alcohol and substance abuse. It needs emphasizing that many adolescents with suicidal tendencies, compared against those who did not carry them out, have past experience of psychological, physical and sexual violence in the family, have been raised by a single parent or in families, where one of the parents abused alcohol.

**Keywords:** suicide, self-injury, adolescents.

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### INTRODUCTION

Increased suicide rates, both among adults and adolescents, have been seen in Poland over recent years. Holyst [1] points out that suicide is one of the top five causes of death for adolescents aged 15 to 19 years worldwide. Napieralska [2] shows that the suicide rate is on the rise among children and adolescents of both sexes, aged 10 to 19.

According to Gmitrowicz [3], the studies of suicide ideation, plans and attempts in adolescents should be updated on a continuous basis due to a significant variability of epidemiological data resulting from cultural and social-economic transformations as well as due to including by researchers various factors modifying the suicide risk. According to the statistics of the General Police Headquarters in 2013 in Poland there were 418 suicide attempts among adolescents aged 14-19 years and in 2012 the total of 343 individuals attempted suicide, out of which 165 attempts were fatal [4]. Rosa and Gmitrowicz [5-7], on the basis of research carried out in 2004 involving adolescents aged 15-19 years living in Łódź region indicate that suicidal ideation occurs in 14.1%

of respondents, whereas 3.8% of them attempted to commit suicide. These authors [4] point out that the suicide rate in 2006 for individuals aged 15-19 was 9.4 per 100 thousand. The data presented by the General Office of Statistics (GUS) [8] indicate that 302 suicide deaths were reported in 2008 among adolescents aged 10-19 years. For the adolescents aged between 15 and 19, suicide death rate was 16.2 for boys and 4.1 for girls. The highest suicide death rate was reported in Podlaskie Province (13.3), Lubelskie Province (12.9) and Zachodniopomorskie Province (11.6) [8].

It is hard to estimate the prevalence of self-injury in adolescents from the non-clinical sample, i.e. those not undergoing psychiatric treatment, as there are no precise statistics available. Żechowski and Namysłowska [9] point out that the number of individuals inducing self-injuries on themselves has risen, both in the general and clinical population.

According to Klonsky [10], numerous behaviors like suicidal ideation, as well as alcohol consumption and taking illegal drugs, rarely coexist with self-injury. The results obtained by Pawłowska et al. [11] demonstrate that a huge number of adolescents inducing self-injury on themselves,

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also report other risky behaviors, like suicidal ideation and plans or even attempts to kill themselves, alcohol and substance abuse, playing truant and running away from home.

## AIM

The aim of the study was to determine the prevalence of self-injury, suicidal ideation and plans as well as suicide attempts among adolescents aged 13-19 years.

## MATERIAL AND METHODS

The research encompassed the total number of 6883 individuals aged 13-19 years, out of whom 69% were girls and 31% – boys. All respondents lived in Lubelskie Province, 45.46% in the urban areas and 54.54% in the rural areas.

The research was approved by the Bioethics Committee of the Medical University of Lublin, by the School Authorities, moreover, the parents' permission was obtained as well as of school principals and of students. The research was conducted

**TABLE 1. Comparison of the number of girls and boys reporting suicidal ideation, plans as well as attempting suicide and performing self-injury.**

Self-destructive behaviours	Girls		Boys		$\chi^2$
	N	%	N	%	
Suicidal ideation	1255	28.87	365	18.78	71.59***
Suicide intent	765	19.73	214	12.62	41.18***
Suicide attempts	260	5.97	78	4.03	9.93**
Self-injury	704	16.24	168	8.67	64.09***

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**TABLE 2. Age of adolescents reporting suicidal ideation and plans.**

Age	Suicidal ideation						Suicide plans					
	Entire group		Girls		Boys		Entire group		Girls		Boys	
	N	%	N	%	N	%	N	%	N	%	N	%
13	13	0.75	10	0.8	3	0.82	6	0.57	4	0.52	2	0.94
14	99	5.69	69	5.52	20	5.49	59	5.57	40	5.25	13	6.10
15	84	4.82	64	5.12	16	4.40	52	4.91	36	4.72	13	6.10
16	249	14.30	161	12.88	64	17.58	158	14.91	103	13.52	37	17.37
17	758	43.54	561	44.88	142	39.01	450	42.45	336	44.09	75	35.21
18	469	26.94	342	27.36	95	26.10	293	27.64	217	28.48	58	27.23
19	69	3.96	43	3.44	24	6.60	42	3.96	26	3.41	15	7.04

**TABLE 3. Age of adolescents performing suicide attempts and self-injury.**

Age	Suicide attempts						Self-injury					
	Entire group		Girls		Boys		Entire group		Girls		Boys	
	N	%	N	%	N	%	N	%	N	%	N	%
13	1	0.27	1	0.39	0	0.00	2	0.22	0	0.00	2	1.20
14	24	6.59	16	6.20	5	6.49	60	6.45	41	5.86	14	8.38
15	16	4.40	13	5.04	3	3.90	60	6.45	44	6.29	13	7.78
16	58	15.93	42	16.28	9	11.69	140	15.05	100	14.29	29	17.37
17	150	41.21	103	39.92	33	42.86	408	43.87	320	45.71	62	37.13
18	104	28.57	77	29.84	23	29.87	234	25.16	176	25.14	40	23.95
19	11	3.02	6	2.33	4	5.2	26	2.80	19	2.71	7	4.19

in all schools where the principals' consent was obtained and attempts were made to encompass by survey the largest possible group of students.

In the study a questionnaire designed by the authors was used, based on which the following data were determined: gender, age, place of residence, level of education, family structure of respondents (being raised in a two-parent (complete) family, reconstituted family, single parent family – by single fathers of single mothers), using psychoactive agents by adolescents, alcohol abuse by a family member, experience of emotional, physical and sexual violence from family members, performing self-harm by the respondents, reporting suicidal ideation, plans and making suicide attempts.

## RESULTS

The first stage of the analyses involved a comparison using a chi-square test, comparing the number of girls and boys who reported suicidal ideation, intents and performed self-injury or attempted suicide (Table 1).

In the entire group of teenage respondents, the suicidal ideation is reported by 47.65% of individuals, suicide plans by 32.35%, the total of 10% of the adolescents admit to suicide attempts and 24.91% of the respondents admit to self-injury. Girls are more likely than boys report suicidal ideation and plans or perform self-injury and attempt suicide. The tables below (Table 2 and 3) provide information on the age of adolescents reporting self-destructive behaviors analysed in the study.

It needs emphasizing that 17-year-olds are most likely to experience suicide-related behaviors, like suicidal ideation, plans, as well as performing suicide attempts or self-injury. The self-destructive behaviors described above are demonstrated by a few percent of adolescents aged 13-15, whilst

the ratio increases to 10% in sixteen-year-olds. There is a huge increase in seventeen-year-olds, as over 40% of them engage in some suicide-related behaviors. The ratio decreases in case of 18-year-olds (to 20-30%) to decrease even more a year later – only a small percentage of 19-year-olds is affected. The results show that girls aged 15 to 16 report more frequent suicide attempts than boys. Conversely, boys aged 7 to 19 are more likely to attempt suicide than girls that age. This means that about 29% of 18-year-olds of both sexes attempt suicide. Girls aged 17 and 18 are more likely to report self-injury than boys the same age. Yet, boys aged 13 to 16, as well as those aged 19 are more likely than girls to induce self-injury on themselves.

Table 4 provides data on the place of residence of the respondents.

**TABLE 4. Comparison of the place of residence of adolescents reporting suicidal ideation, plans as well as attempting suicide and performing self-injury.**

Self-destructive behaviours	N	Urban areas		Rural areas		$\chi^2$
		%	N	%	N	
Entire group	Suicidal ideation	800	26.53	891	25.13	1.99
	Suicide plans	470	17.22	555	17.77	0.52
	Suicide attempts	172	5.70	184	5.20	0.85
	Self-injury	475	15.81	432	12.23	17.57***
Girls	Suicidal ideation	567	29.69	657	28.06	1.35
	Suicide plans	330	19.26	413	19.90	0.24
	Suicide attempts	120	6.27	135	5.76	0.49
	Self-injury	354	18.56	334	14.31	13.97***
Boys	Suicidal ideation	170	19.25	186	18.56	0.38
	Suicide plans	99	12.45	107	12.63	0.16
	Suicide attempts	36	4.08	40	4.02	0.05
	Self-injury	84	9.56	79	7.91	1.70

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**TABLE 5. Use of psychoactive substances by adolescents reporting suicidal ideation and plans.**

Variables	Suicidal ideation			Suicide plans		
	YES %	NO %	$\chi^2$	NO %	YES %	$\chi^2$
Binge drinking	40.27	57.35	141.45***	40.69	59.96	121.20***
Illegal drugs	19.22	33.72	125.15***	18.08	36.95	150.56***

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**TABLE 6. Use of psychoactive agents by adolescents who perform suicide attempts and self-injuries.**

Variables	Suicide attempts			Self-injuries		
	NO %	YES %	$\chi^2$	NO %	YES %	$\chi^2$
Binge drinking	43.20	66.09	69.79***	41.21	66.71	190.83***
Illegal drugs	21.50	49.38	131.27***	19.88	41.87	182.97***

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Adolescents living in the urban areas are more likely to inflict self-injury than those living in rural areas. However, the prevalence of suicidal ideation, plans and attempts is equal for both the adolescents living in the urban and rural areas.

The data regarding the number of adolescents informing and non-informing about suicidal ideation, plans, attempts and self-injury who use psychoactive substances and abuse alcohol is presented in the tables below (Tables 5 and 6).

Significantly more adolescents informing about suicidal ideation and plans and performing suicide attempts and self-injury get drunk and use illegal drugs. In the tables below (Table 7 and 8) a comparison of the number of adolescents exhibiting self-destructive behaviours who experienced various forms of violence is included.

Significantly more adolescents reporting suicidal ideation and plans, as well as performing suicide attempts and self-injury, have an experience of psychological, physical and sexual violence in the family.

Afterwards, an analysis was made of the data concerning the family structure (Tables 9 and 10) and alcohol abuse among them (Tables 11 and 12), obtained for adolescents exhibiting and non exhibiting self-destructive behaviours.

**TABLE 7. Experience of violence by the adolescents reporting suicidal ideation and plans.**

Violence	Suicidal ideation				Suicide plans			
	NO %	YES %	$\chi^2$	p	NO %	YES %	$\chi^2$	p
Violence in total	38.88	70.40	238.22	0.001	42.22	74.74	194.44	0.001
Psychological	19.89	47.27	216.05	0.001	23.13	50.34	163.41	0.001
Physical	13.82	30.03	100.41	0.001	14.83	34.72	115.95	0.001
Sexual	0.99	3.61	22.49	0.001	0.99	4.98	40.02	0.001

**TABLE 8. Experience of violence by adolescents performing suicide attempts and self-injury.**

Violence	Suicide attempts				Self-injury			
	NO %	YES %	$\chi^2$	p	NO %	YES %	$\chi^2$	p
Violence in total	46.79	84.57	93.49	0.001	44.04	73.13	133.62	0.001
Psychological	26.73	60.69	90.80	0.001	24.48	48.74	112.29	0.001
Physical	17.40	43.35	70.62	0.001	16.48	31.72	58.52	0.001
Sexual	1.34	9.20	55.24	0.001	1.27	4.59	23.86	0.001

**TABLE 9. Family status in adolescents reporting and non-reporting suicidal ideation and plans.**

Family	Suicidal ideation			Suicide plans		
	NO %	YES %	$\chi^2$	NO %	YES %	$\chi^2$
Two-parent (complete)	88.33	80.40	60.85***	87.85	77.92	67.86***
Single-parent	11.24	18.73		11.70	21.03	
Reconstituted	0.43	0.87		0.44	1.05	

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

The results obtained indicate that significantly more adolescents reporting suicidal ideation and performing suicide attempts and self-injury, as compared to those non exhibiting self destructing behaviours, are raised in single-parent families or reconstituted families and significantly less in a two-parent (complete) family.

In Tables 11 and 12 a comparison was made of adolescents exhibiting and non exhibiting self-destructive behaviours whose parents abuse alcohol.

Significantly more adolescents reporting suicidal ideation and plans as well as performing self-injury and attempting suicide report alcohol abuse by a family member.

## DISCUSSION

The results obtained on the basis of statistical analyses indicate that in the entire group of examined adolescents the suicidal ideation was reported by 47.65% of the individuals, suicide plans by 32.35%, the total of 10% of adolescents admit to suicide attempts and 24.91% of respondents admit to performing self-injuries. It should be pointed out that the greatest prevalence of suicidal ideation, plans, attempts and self-injury occurs in 17-year-olds. Significantly more girls, as compared to boys, perform suicide attempts and self-injury and report suicidal ideation and plans. Similar results were obtained by Zoroglu et al. [12], who found that 13.2% of girls and 5.4% of boys attempt suicide. Lewinsohn et al. [13] claim that in a group of adolescents aged 12-18 suicide is attempted by significantly more girls than boys. Lewinsohn et al. [13] point out that in the group of girls above 13 years of age there is an increase in suicide attempts reaching its maximum value between 15 and 18 years of age and then it decreases. In the opinion of these researchers [13] the largest number of boys attempting suicide are at the age of 15.

The findings of this research suggests that one's place of residence (be it rural or urban areas) does not affect the prevalence of suicidal ideation, plans and attempts among adolescents. At the same time, adolescents living in urban areas are more likely to inflict self-injury than their peers from rural areas. These results are similar to the findings of Borges et al. [14]. This study suggests that the place of residence does not have any impact on the likelihood of suicide attempts. There is a lack of data regarding the prevalence of self-injuries performed by adolescents living in the urban and rural areas.

The results of the study show that the adolescents reporting suicidal ideation and plans, as well as attempting suicide and inflicting self-injury, are more prone to alcohol and substance abuse. Such thesis can be confirmed by a few researchers [15-19]. They point out to a number of factors affecting suicide attempts in adolescents, including alcohol abuse and using illegal drugs. According to Wu et al. [19] and Nock et al. [15] the adolescents admitting to suicidal ideation are much more likely to abuse alcohol and use psychoactive agents, as compared to the control group.

The results obtained in this study highlight the family factors which may be of crucial importance in the development of the discussed self-destructive behaviours in adolescents. Significantly more adolescents reporting suicidal ideation

**TABLE 10. Family status in adolescents performing suicide attempts and self-injuries.**

Family	Suicide attempts			Self-injuries		
	NO	YES	$\chi^2$	NO	YES	$\chi^2$
	%	%		%	%	
Two-parent (complete)	87.03	70.08	64.54***	87.70	77.45	71.60***
Single-parent	12.49	28.03		11.91	21.07	
Reconstituted	0.48	1.89		0.39	1.48	

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**TABLE 11. Alcohol abuse by a family member in adolescents reporting suicidal ideation and plans.**

Variables	Suicidal ideation				Suicide plans			
	NO	YES	$\chi^2$	p	NO	YES	$\chi^2$	p
	%	%			%	%		
Alcohol abuse by a family member	14.73	29.38	160.30	0.001	16.92	31.86	107.61	0.001

**TABLE 12. Alcohol abuse by a family member in adolescents performing suicide attempts and self-injury.**

Variables	Suicide attempts				Self-injury			
	NO	YES	$\chi^2$	p	NO	YES	$\chi^2$	p
	%	%			%	%		
Alcohol abuse by a family member	17.73	32.52	44.91	0.001	16.11	33.29	138.18	0.001

and plans and performing suicide attempts and self-injury experienced psychological, physical and sexual violence in the family, they inform about alcohol abuse by a family member and are raised in a single parent family or reconstituted family. Zoroglu et al. [12] found that significantly more adolescents performing suicide attempts experienced emotional violence (50.0% vs 11.8%), physical violence (42.0% vs 10.3%) and sexual violence (20.3% vs 6.1%) as compared to the individuals not prone to suicide attempts. According to Wichstrøm [17], being brought up in a single-parent family is another factor affecting suicide attempts in adolescents. Park et al. [2] list divorces and parents' alcohol addiction among the factors pushing boys to suicidal thoughts.

The study of the prevalence of the risk factors of suicide attempts and self-injury by adolescents conforms fully to the National Programme of Mental Health Protection. The results of this research can be used while designing preventive programmes focused on preventing suicide attempts by adolescents.

## CONCLUSIONS

1. The researchers looked at a group of 6 883 adolescents living in Lublin Province, aged between 13 and 19. These individuals reported suicide ideation at a rate of 47.65%, suicide plans at a rate of 32.35%, suicide attempts were made by 10% of adolescents and self-injury by 24.91% of the respondents aged 13 to 19 years.

2. The adolescents aged 17 are most prone to suicide ideation, plans and attempts as well as self-injuries.
3. Inflicting self-injury is much more common in adolescents living in the urban areas, as compared to those living in rural areas.
4. The individuals reporting suicidal tendencies, e.g. suicide attempts and self-injury, are much more likely to abuse alcohol and other psychoactive substances.
5. The adolescents reporting suicide attempts and self-injury, are more likely to have experienced psychological, physical and sexual violence in their families, have been raised by single parents or in families, where one of the parents abused alcohol.

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