

Study of Some Psychoactive Drugs and Their Role in Increasing the Risk of Suicide

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The study aims to evaluate some predictors in the statement of suicidal thoughts in the last year by students from Timisoara universities, Romania. The student population consisted of 2536 young people aged 18-29, with an average age of 21.06 years and a standard deviation of 1.529 years, 64.5% girls and 35.5% boys. It was conducted a transversal population survey. In the logarithmic model of predictors in the context of social and psychoactive drugs use in students regarding the likelihood of suicidal thoughts in the last year, we have identified predictors with OR between 1.5-2, poorly significant: dissatisfaction with the relationship with parents (OR = 1.782), drug use frequency (OR = 1.697), dissatisfaction with the relationship with current friends (OR = 1.531).

Keywords: students, suicidal thoughts, prediction model, psychoactive drugs

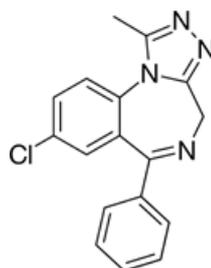
The heterogeneous period of the 18-25 year old adult is defined by the highest variability and amplitude of social roles in human life [1, 2]. A considerable number of young people have freedom without behavioral restrictions [3]. Research on risk behaviors among young people proves, in a correlated way, the association with the use of psychoactive drugs. Significant predictive factors have been identified: family history of addiction, temperament and personality (low behavioral control and negative affectivity), social factors (parental and group modeling), life stress and substance use exceeding expectations [4-6]. Early onset of consumption is a robust predictive factor for lifelong use and for consumer-related disorders, daily intake, and daily consumption [7].

Psychoactive drugs like benzodiazepines are widely used to treat anxiety and insomnia. They act as depressant of central nervous system.

The fully systematic (IUPAC) name for the nucleus of the benzodiazepine group (CAS 12794-10-4) is 2,3-diazabicyclo[5.4.0]undeca-3,5,7,9,11pentaene. The different drugs have varying substituents on this basic skeleton.

The most commonly used benzodiazepine is Alprazolam, sold under the trade name Xanax, a short-acting benzodiazepine (fig. 1).

Recent years studies show a high concern about violent behavior among young people. An explanation of hetero-aggression and self-aggression behavior should consider psychosocial and biological processes, with biological and social factors [8]. Since 1800 there has been a long tradition of sociological and epidemiological studies on suicidal behavior [9, 10]. Suicide is defined as *death due to an act committed on one's own body with the intention of committing suicide, while suicide attempt is defined as*



Chemical and physical data	
Formula	C ₁₇ H ₁₃ ClN ₄
Molar mass	308.77 g·mol ⁻¹

Fig. 1. Chemical formula of Alprazolam (IUPAC)

non-fatal outcome, for which there is evidence, either implicit or explicit, that the person intended to commit suicide. These definitions suggest that suicidal behavior involves a self-imposed act, carried out with the intention of dying [11, 12].

This research has been performed to evaluate predictors of suicidal thought reported during the last year among students in Timis County, Romania.

Experimental part

The study group consisted of 2536 students from universities in Timis County, Romania, 64.5% girls and 35.5% boys. The age of the students was between 18-29 years, with an average age of 21.06 years and a standard deviation of 1.529 years. A transversal population study was conducted using the Health Risks Questionnaire for Teenagers and Young People [13, 14]. The study was approved by the Ethics Commission of the Victor Babes University of Medicine and Pharmacy Timisoara, in accordance to the rules of the Helsinki Declaration and to some reported models [15-17]. The inclusion process of the studied population was carried out only based of the

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free consent expressed by each participant, respecting its individual rights.

The data were processed using the PASW 18 (SPSS18) 2010 program. The statistical significance threshold was set at $p < 0.05$, except where the Bonferroni correction was applied. For the ordinal data comparisons, we used the Mann-Whitney and Kruskal-Wallis test. The Chi-square test was used in ordinal/nominal data tables. The logarithmic regression test was also used to predict different patterns of association between risk behaviors.

Results and discussions

Predictive pattern of suicidal thought reporting

We have applied the multivariate logarithmic regression to evaluate the association of some variables of the social and psychoactive substance context with the likelihood that the investigated students will have suicidal thoughts during the last year.

The model contained 12 independent variables: gender, parental rules frequency, satisfaction with parents, satisfaction with brothers, frequency of parental compliance, satisfaction with the family financial situation, frequency of school absences due to illness, frequency of school absences due to truancy, school situation, frequency of binge-drinking, frequency of drug use.

The complete model containing all predictors was statistically significant, $\chi^2 (12, N = 2536) = 119.2, p < 0.001$, indicating that the model can distinguish between respondents who had suicidal thoughts and those who did not indicate this. The whole model explained between 5.7% and 13.5% of the variance of the presence or not of suicidal thoughts and correctly classified 92.2% of the cases. Predictors who contributed significantly to the pattern were: the high degree of dissatisfaction with parenting (OR = 1.782); the high degree of dissatisfaction with the relationship with colleagues (OR = 1.493); high degree of dissatisfaction with the relationship with current friends (OR = 1.531); each degree inferior to thankfulness; increased risk of reporting suicidal thoughts by 78%; increased frequency of drug use (OR = 1.697); female gender (OR = 1.406). Each category in addition to non-consumer status presents an additional risk of 69%. Each degree in minus than happy status increased the risk of reporting suicidal thoughts by 53%. Each degree inferior to the satisfied status increased the risk of reporting suicidal thoughts by 49% (table 1).

The degree of satisfaction with the relationship with parents

Dissatisfaction with parenting is present in increased frequencies, 15.2% of boys and 10.7% of girls who have had suicidal thoughts during the last year (fig. 2).

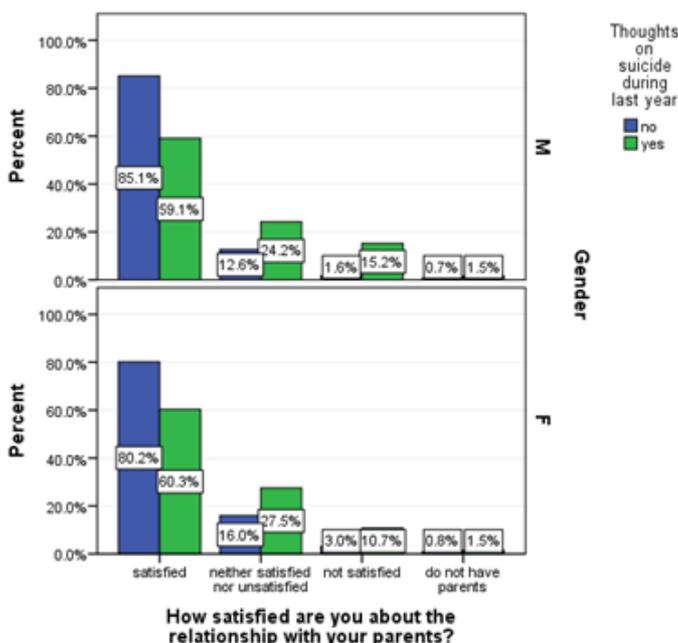


Fig. 2. Distribution of students, by gender, according to the degree of satisfaction with the relationship with the parents and the presence of suicidal thoughts

Boys who had suicidal thoughts during the last year were significantly more dissatisfied with the relationship with their parents, after excluding those without parents, $U = 19232, z = -5.74, p < 0.001$. Girls who had suicidal thoughts during the last year were significantly more dissatisfied with the relationship with their parents, after excluding those without parents, $U = 5405, z = -5.47, p < 0.001$.

The relationship with parents is crucial for the material and psychological support that they can give to the young adult, the dissatisfaction with the relationship with parents can be a major risk factor for addictive behaviors [18, 19,43]. If the young person has a family environment favorable to development, family harmony, well-defined parental models promoting positive social and educational standards where parents discuss the repercussions of risk behaviors (smoking, alcohol, drugs, sexual relations), then youngster has less chances of experiencing drugs, being aware of the associated risks [20].

In divided families or where one parent or even both parents are drug users, in families with abusive parents, young people tend to present various psychological and even sociological issues [21-23]. Those verbally and physically abused seek in drugs a refuge, a relief that allows them to be detached from these family problems. A proportion of 6.6% of young drug users admit that they have

Variables	OR model	C.I. 95% al OR	
		minimum	maximum
Gender (F)	1.406	0.943	2.096
The degree of dissatisfaction with parenting	1.782	1.392	2.283
The degree of dissatisfaction with brotherhood	1.102	0.962	1.263
Frequency of behavior children's rules	0.881	0.723	1.074
The degree of satisfaction with the family financial situation	1.339	1.134	1.582
The degree of dissatisfaction with the relationship with colleagues	1.493	1.133	1.967
The degree of dissatisfaction with the relationship with current friends	1.531	1.181	1.986
Frequency of school absences due to illness	1.147	0.966	1.362
Frequency of school absences due to truancy	1.135	0.978	1.316
School situation	1.120	0.908	1.381
Frequency of binge-drinking	0.925	0.763	1.121
Frequency of drug use	1.697	1.229	2.343

Legend: OR = odds ratio; CI = Confidence Interval

Table 1
PREDICTIVE MODEL VARIABLES FOR SUICIDAL THOUGHTS DURING THE LAST YEAR FOR STUDENTS

personal/family problems [24-27]. If one or both parents frequently use alcohol and drugs, young people often have easy access to them. However, some of them will do exactly the opposite and avoid all substances, wanting to avoid even the things that have destroyed the lives of their parents or have led to traumatic experiences for them, such as abuse or neglect.

Frequency of drug use throughout life

In male students with suicidal thoughts over the past year, drug use over the lifetime is reported by 32.8% of them: 18.8% have experimental consumption (1-2 times), 9.4% occasional consumption (1-3 times/month), 3.1% consume drugs more than once/day, and 1.6% have a daily consumption with one administration. Among female students with suicidal thoughts during the last year, drug use over the course of life is reported by 12% of them: 9% have experimental consumption (1-2 times), 2.3% occasional consumption (1-3 times/month), 0.8% have daily consumption (fig. 3).

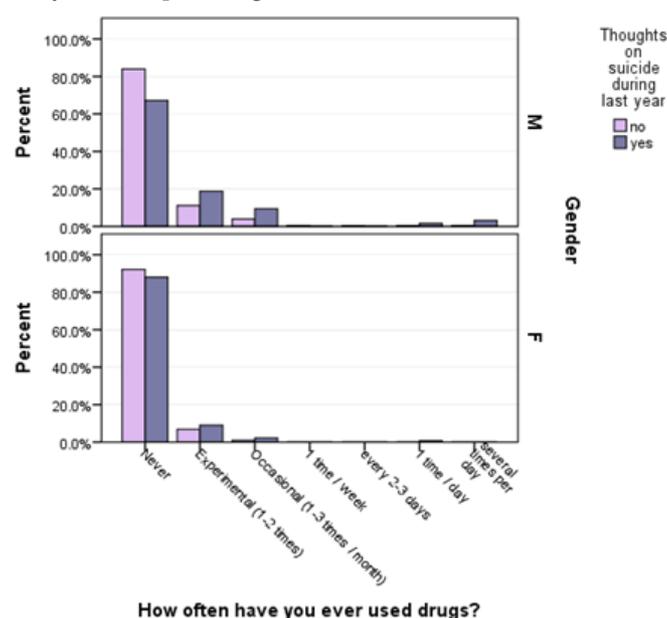


Fig. 3. Distribution of students, by gender, according to the frequency of lifetime drug use and the presence of suicidal thoughts

Among boys, the frequency of lifetime drug use was significantly higher in those who had suicidal thoughts during the last year, $U = 21706$, $z = -3.54$, $p < 0.001$. There is no relation between the frequency of drug use throughout life and the presence of suicidal thoughts during the past year, $p = 0.083$.

With the launch of the European Alcohol and Drug Study (ESPAD) project in 1995, Europe has created an instrument that allows comparisons between participating countries based on a common methodology. After six steps of data collection over the last 20 years and the enlargement of the European Union, the ESPAD survey allows the analysis of trends over time in more than 40 countries, including 24 EU Member States, among which Romania [24].

Cannabis is by far the most commonly used illicit drug used in developed countries, recently with widespread use in low and middle-income countries. The lifetime prevalence of cannabis use among young people in the ESPAD countries (16%), was considerably lower than in comparable US surveys (31%), or in Spain (27%) [28-30]. New psychoactive substances (NPS) are narcotics or psychotropic drugs that are not controlled by the United Nations Conventions on Drugs. On average, 4% of ESPAD

respondents have tried new psychoactive substances that mimic the effects of illicit drugs and 3% have used them over the past 12 months. On average, these substances appear to be more commonly used than amphetamines, ecstasy, cocaine or LSD, which have lower prevalence rates for lifetime consumption [24].

Psychoactive drugs act on the brain, producing a variety of effects on perception, mood, thought, and behavior. Harmful effects may occur especially in the context of acute intoxications, as drugs can make the user euphoric and can greatly affect his thinking and physical coordination [31-33]. People who suffer from depression, under the influence of drugs can act impulsively and may have suicide attempts. Drug addicts can engage in violence, often in a social context that facilitates such behavior.

Chronic and sustained drug use can lead to addiction syndrome. Consumers continue to use it despite the harm to personal health, welfare and health of family members and relationships with friends. Chronic consumption can produce or exacerbate mental symptoms and physical disorders, lead to failures in school and/or professional performance, and reducing social roles. In severe cases, increased and frequent use of drugs can undermine personal care and can often lead to loss of work and housing [34].

The degree of dissatisfaction with the relationship with current friends

The dissatisfaction with the relationship with current friends is indicated at a rate of 8.1% for boys and 6.1% for girls who have had suicidal thoughts during the last year (fig. 4).

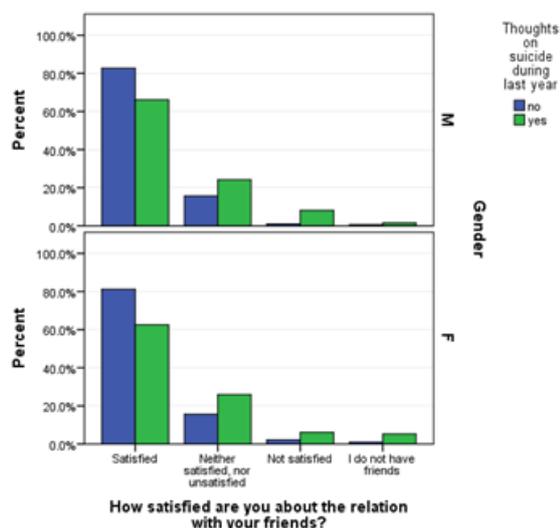


Fig. 4. Student distribution, by gender, according to the degree of satisfaction with the relationship with current friends and the presence of suicidal thoughts

The high degree of dissatisfaction with the relationship with current friends correlates with the presence of suicidal thoughts in both boys ($U = 20670$, $z = -3.44$, $p = 0.001$) and girls ($U = 77168$, $z = -5.34$, $p < 0.001$).

The pressure of entourage is a strong force at any stage of life and it is particularly influential in young people. In order for the young person to feel older, more mature, more sophisticated, alcohol consumption, smoking and drug use can stimulate this feeling. They overestimate maturity and underestimate their vulnerability. From the desire to be accepted and enjoyable, it is extremely difficult for a young person to refuse an experience, including that of using drugs. By refusing, young people fear negative

consequences for them, for example, fear of not being accepted by their friends, of being teased, humiliated, rejected, and even aggressed [35-38]. Young people using drugs are likely to interact primarily with drug-using colleagues, so relationships with friends, including relationships with the opposite sex, can be unhealthy, and the young person can develop a limited repertoire of social skills [39-42].

Conclusions

Suicidal thoughts were reported by 18-29-year-old Timisoara students in the context of a multivariate prediction model created with 12 independent variables. In the prediction model in the context of social and psychoactive drug use in students regarding the likelihood of suicidal thoughts during the last year, we have identified predictors with OR between 1.5-2, poorly significant: dissatisfaction with the relationship with parents (OR = 1.782), drug use frequency (OR = 1.697), dissatisfaction with the relationship with current friends (OR = 1.531).

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