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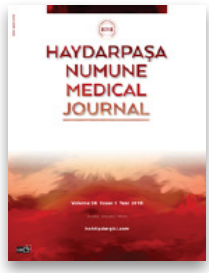

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ORIGINAL ARTICLE

Psychoactive Substance Use and Related Factors Among High Schools

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Abstract

Introduction: Adolescence is considered to be the most risky period for experimenting with harmful substances. This study aims to determine the psychoactive substance consumption rates among all of the high school students in city center of Edirne, Turkey.

Methods: This cross-sectional study was conducted with 8.483 high school students. The survey form used in the present study was compiled from questionnaires used in "The European School Survey Project on Alcohol and Other Drugs" study. Overall lifetime substance use, gender differences in substance preferences, students' problematic behaviors and their effects on the substance use ratios, reasons for substance usage, locations where the students use the substances and sources where the substances were obtained, how the substance use ratios were affected by user friends and relatives were the covered objects.

Results: A total of 8402 school students aged 15-19 years completed the questionnaire, 53.0 % of which were females. Alcohol was the most common substance used (24.6%), followed by tobacco (21.5%) and cannabis (1%). Frequency of other substances remained under 1%. Tobacco, alcohol, cannabis, ecstasy, inhalants, and cocaine usage were significantly higher in males. Having problematic behaviours were associated with the rise in substances usage. User friends were both the main reason of usage and the supplier of the substances. The main location where the students use substances were the streets.

Discussion and Conclusion: Although frequencies of psychoactive substance usage among high school students of Edirne were found to be lower than most of the other locations all around the world, students' problematic behaviours and risk factors were similar.

Keywords: Alcohol; cannabis; tobacco.

Tobacco, alcohol, and other psychoactive substances are commonly used among adolescents and these substances induce a very important public health issue[1-4]. Among addicted people, 90% of adults reported that they started using substances during their teenage years[5,6]. The biological sensitivity of addiction for psychoactive substances is highest in the teenage period[7,8].

The difference between experimentation and addiction often occurs in adolescence period. Adolescents that will have problems because of these substances begin with experimentation and then advance to become regular users. Their preferences about substances, and their use subsequently change as they develop. New users mostly tend to try the popular substances, then will progress to use other

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substances[9]. Substance use prevalence studies in youth are generally conducted with high school students. These studies report that usage prevalence increases, although it may vary depending on the region and the substance type[2,10-15].

Risks for substance usage include personal, inter-personal, and public risk factors[16,17]. Sex and age are both important personal factors. In most of the studies, substance use is reported to be higher in males. Also, usage tends to start earlier in the male gender and continues to become a more serious problem compared to females[18,19]. One of the most important social risk factors is substance usage by a friend[20,21]. Both behavioral problems and antisocial behaviors accompany substance use. The adolescents who use substances are more eager to commit violence and crime[22]. They find substances in their living environment, in other words they mostly have easy access to the aforementioned harmful substances[23,24].

Studies for identifying the prevalence of substance usage and the preference of substances are important in order to set plans for prevention programs. This study is part of a comprehensive research for identifying substance use rates, substance preferences, and risks leading to substance use among high school students in Edirne, Turkey[25]. Our study aims to identify specifications such as overall lifetime substance use, students' problematic behaviors, family, friends, school, and the environment which may be evaluated as risk factors.

Materials and Methods

In this cross-sectional study, all of the high school students from 9th to the 12th grade, aged 15-19 years were included. The study was conducted in the city center of Edirne. To secure trustworthiness of the questionnaires, students were asked to fill questionnaires anonymously. 8483 students participated in the study. Among the surveys which were handed in, 81 questionnaires were excluded from the study, and we evaluated the results of 8402 students' questionnaires. The present study was conducted with the support of Edirne Governorship, Edirne Directorate of Education and Edirne Drug Enforcement Board. Before the study, the approval was obtained from the Ethics Committee of Trakya University School of Medicine (2009/105).

The survey form used in the study was compiled from questionnaires used for "The European School Survey Project on Alcohol and Other Drugs (ESPAD)" study[26]. There were questions about the demographic information, substance use, problematic behaviors, reasons and locations of the substance use, ways of supplying the substances, substance usage ratios according to having user friends and/or relatives in the survey. In the questionnaire there was a poser question regarding the substance zopinol. Students who declared that they are using this substance were excluded from the study. The overall lifetime use of tobacco, alcohol, cannabis, ecstasy, inhalants, cocaine, heroin, amphetamines and sedatives-hypnotics-anxiolytics were evaluated.

All statistical analyses were conducted with SPSS, version 20.0 for Windows (SPSS, Chicago, IL, USA). Associations between substance use and sociodemographic variables were assessed using the chi-square test. P values of less than 0.05 were considered to be statistically significant.

Results

All high school students in Edirne populated our study sample. Out of 8483 students who participated in the study, 8402 completed the questionnaires (at a response rate of 99%). More females (53%) than males (47%) participated in the study, and the average age was 16.12±0.99 years. Our results cover overall lifetime substance use, gender differences in substance preferences, students' problematic behaviors, substance use reasons, locations they use the substances and where they get them from, how their usage percentage is affected by friends and relatives using substances.

The overall lifetime substance use prevalences were: alcohol 24.6%, tobacco 21.5%, cannabis 1%, inhalants 0.5%, ecstasy 0.4%, sedatives-hypnotics-anxiolytics 0.3%, heroin 0.2%, cocaine 0.2%, amphetamines 0.1%. Smoking, and the use of alcohol, cannabis, ecstasy, inhalants, and cocaine were significantly higher in males (Table 1).

The overall lifetime substance use ratios were evaluated in students with problematic behaviors. 10.7% of students had discipline fines, 8% students had ran away from home, 7.8% had carried weapons, 4.1% stated having illegal experiences, and 3.9% of students stated being gang members. In students who stated being gang members and/or carrying weapons all of the substances had increased in usage (Tables 2, 3). In students who had discipline fines and/or had ran away from home and/or stated having illegal experiences, use of all substances except for amphetamines were increased (Tables 4-6).

Among the substance using students 33.5% stated that the reason why they are using substances are because their friends do so. The remaining ratios of the answers were: 22.1% for fun, 22% seeking to evade the problems, 8.7% under the influence of their partners, 7.3% to get rid of the

Table 1. Overall lifetime substance use ratios with regard to the genders

Substance	Gender			
	Female n (%)	Male n (%)	Total n (%)	p
Alcohol	774 (17.4)	1291 (32.7)	2065 (26.4)	<0.001
Tobacco	761 (17.1)	1041 (26.4)	1802 (21.4)	<0.001
Cannabis	19 (0.4)	68 (1.7)	87 (1.0)	<0.001
Inhalants	11 (0.2)	31 (0.8)	42 (0.5)	<0.001
Ecstasy	8 (0.2)	24 (0.6)	32 (0.4)	0.001
Sedatives-hypnotics-anxiolytics	16 (0.4)	12 (0.3)	28 (0.3)	0.662
Heroin	7 (0.2)	8 (0.2)	15 (0.2)	0.622
Cocaine	2 (0.0)	12 (0.3)	14 (0.2)	0.004
Amphetamines	1 (0.0)	4 (0.1)	5 (0.1)	0.139

Table 2. Overall lifetime substance use ratios in students being gang members

Substance	Being a gang member			
	Yes n (%)	No n (%)	Total n (%)	p
Alcohol	161 (50.0)	1891 (23.5)	2052 (24.5)	<0.001
Tobacco	141 (43.8)	1650 (20.5)	1791 (21.4)	<0.001
Cannabis	29 (9.0)	57(0.7)	86 (1.0)	<0.001
Inhalants	11 (3.4)	31(0.4)	42 (0.5)	<0.001
Ecstasy	22 (6.8)	11(0.1)	33 (0.4)	<0.001
Sedatives-hypnotics-anxiolytics	5 (1.6)	23 (0.3)	28 (0.3)	<0.001
Heroin	11 (3.4)	5 (0.1)	16 (0.2)	<0.001
Cocaine	8 (2.5)	6 (0.1)	14 (0.2)	<0.001
Amphetamines	3 (0.9)	3 (0.0)	6 (0.1)	<0.001

Table 3. Overall lifetime substance use ratios in students carrying weapons

Substance	Carrying weapons			
	Yes n (%)	No n (%)	Total n (%)	p
Alcohol	376 (57.4)	1677 (21.8)	2053 (24.6)	<0.001
Tobacco	377 (57.6)	1416 (18.4)	1793 (21.4)	<0.001
Cannabis	46 (7.0)	42 (0.5)	88 (1.1)	<0.001
Inhalants	25 (3.0)	18 (0.2)	43 (0.5)	<0.001
Ecstasy	26 (4.0)	8 (0.1)	34 (0.4)	<0.001
Sedatives-hypnotics-anxiolytics	9 (1.4)	19 (0.2)	28 (0.3)	<0.001
Heroin	13 (2.0)	3 (0.0)	16 (0.2)	<0.001
Cocaine	11 (1.7)	4 (0.1)	15 (0.2)	<0.001
Amphetamines	3 (0.5)	3 (0.0)	6 (0.1)	<0.001

Table 4. Overall lifetime substance use ratios in students having disipline fines

Substance	Having disipline fines			
	Yes n (%)	No n (%)	Total n (%)	p
Alcohol	426 (47.8)	1634 (21.9)	2060 (24.6)	<0.001
Tobacco	434 (48.7)	1367 (18.3)	1801 (21.5)	<0.001
Cannabis	35 (3.9)	52 (0.7)	87 (1.0)	<0.001
Inhalants	18 (2.0)	25 (0.3)	43 (0.5)	<0.001
Ecstasy	15 1.7)	19 (0.3)	34 (0.4)	<0.001
Sedatives-hypnotics-anxiolytics	9 (1.0)	19 (0.3)	28 (0.3)	<0.001
Heroin	8 (0.9)	8 (0.1)	16 (0.2)	<0.001
Cocaine	8 (0.9)	7 (0.1)	15 (0.2)	<0.001
Amphetamines	2 (0.2)	4 (0.1)	6 (0.1)	0.072

boredom, 6.1% to relieve anger and 0.1% under the influence of the internet. Substance use locations and ratios were as follows: 25.4% street, 17.7% places of entertainment, 12.9% home, 7.5% abandoned places, 6.4% friends' residence, 2.4% school, and 27.7% reported usage in more than one place.

How the substances were obtained and ratios were as follows: 45.9% friends, 24.1% drug dealer, 9% relatives, 8.4% partners, and 12.3% reported obtaining the substance from more than one place. 78.9% of students indicated having no troubles obtaining the desired substance.

We also evaluated overall lifetime substance use ratios according to friends' substance use ratios. In students who had friends that use substances; tobacco, alcohol, cannabis and inhalants usage were statistically significant compared to students who do not have substance using friends (Table 7). Also in students who had relatives that use substances, we identified lifetime tobacco and alcohol use increase in a statistically significant manner (Table 8).

Discussion

We got data from 99% of high school students from Edirne city center by using a survey based on the ESPAD study. Our results cover lifelong substance use, gender differences in substance preferences, students' problematic behaviors, substance use reasons, locations they use the substances and sources where they got them, how their

Table 5. Overall lifetime substance use ratios in students who had run away from home

Substance	Run away from home			
	Yes n (%)	No n (%)	Total n (%)	p
Alcohol	349 (51.9)	1716 (22.3)	2065 (24.7)	<0.001
Tobacco	360 (53.6)	1441 (18.7)	1801 (21.5)	<0.001
Cannabis	45 (6.7)	43 (0.6)	88 (1.1)	<0.001
Inhalants	21 (3.1)	22 (0.3)	43 (0.5)	<0.001
Ecstasy	19 (2.8)	15 (0.2)	34 (0.4)	<0.001
Sedatives-hypnotics-anxiolytics	14 (2.1)	14 (0.2)	28 (0.3)	<0.001
Heroin	10 (1.5)	6 (0.1)	16 (0.2)	<0.001
Cocaine	11 (1.6)	4 (0.1)	15 (0.2)	<0.001
Amphetamines	0 (0.0)	6 (0.1)	6 (0.1)	0.469

Table 6. Overall lifetime substance use ratios in students having illegal experiences

Substance	Having illegal experiences			
	Yes n (%)	No n (%)	Total n (%)	p
Alcohol	191 (55.7)	1861 (23.3)	2052 (24.5)	<0.001
Tobacco	205 (59.8)	1579 (19.8)	1784 (21.4)	<0.001
Cannabis	31 (9.0)	55 (0.7)	86 (1.0)	<0.001
Inhalants	14 (4.1)	28 (0.4)	42 (0.5)	<0.001
Ecstasy	17 (5.0)	16 (0.2)	33 (0.4)	<0.001
Sedatives-hypnotics-anxiolytics	5 (1.5)	23 (0.3)	28 (0.3)	<0.001
Heroin	7 (2.0)	9 (0.1)	16 (0.2)	<0.001
Cocaine	8 (2.3)	6 (0.1)	14 (0.2)	<0.001
Amphetamines	0 (0.0)	6 (0.1)	6 (0.1)	0.612

Table 7. Overall lifetime substance use ratios with regard to substance use among friends

Substance	Substance use among friends			
	Yes n (%)	No n (%)	Total n (%)	p
Alcohol	1998 (31.1)	62 (3.6)	2060 (25.3)	<0.001
Tobacco	1738 (27)	61 (3.6)	1799 (22.1)	<0.001
Cannabis	86 (1.3)	2 (0.1)	88 (1.1)	<0.001
Inhalants	42 (0.7)	1 (0.1)	43 (0.5)	0.028
Ecstasy	33 (0.5)	1 (0.1)	34 (0.4)	0.081
Sedatives-hypnotics-anxiolytics	27 (0.4)	1 (0.1)	28 (0.3)	0.161
Heroin	15 (0.2)	1 (0.1)	16 (0.2)	0.550
Cocaine	14 (0.2)	1 (0.1)	15 (0.2)	0.600
Amphetamines	6 (0.1)	0 (0.0)	6 (0.1)	0.660

Table 8. Overall lifetime substance use ratios with regard to substance use among relatives

Substance	Substance use among relatives			
	Yes n (%)	No n (%)	Total n (%)	p
Alcohol	1872 (27.7)	184 (14.0)	2056 (25.4)	<0.001
Tobacco	1613 (23.8)	18 (13.9)	1795 (22.2)	<0.001
Cannabis	70 (1.0)	17 (1.3)	87 (1.1)	0.853
Inhalants	37 (0.5)	6 (0.5)	43 (0.5)	0.976
Ecstasy	28 (0.4)	6 (0.5)	34 (0.4)	0.994
Sedatives-hypnotics-anxiolytics	25 (0.4)	3 (0.2)	28 (0.3)	0.882
Heroin	12 (0.2)	4 (0.3)	16 (0.2)	0.821
Cocaine	14 (0.2)	1 (0.1)	15 (0.2)	0.794
Amphetamines	4 (0.1)	2 (0.2)	6 (0.1)	0.731

usage percentage is affected by friends and relatives using substances. Edirne is located at the northern west border of Turkey. The city represents an average city of Turkey in variables such as number of inhabitants, socioeconomic and cultural properties.

The ESPAD study including 15-16 year old students was conducted across 48 European countries between 1995 and 2015. Turkey was not one of those countries. At least once in a lifetime use of alcohol among high school students in the ESPAD countries was 80% and once in a lifetime smoking was 46%. Lifetime use of any illicit drug varied across countries with the average of 18%. Cannabis had the highest usage percentage among the illicit substances with 16%. The study reported that there is no clear geographical pattern of substance usages between countries[26].

The National Comorbidity Survey–Adolescent Supplement (NCS-A) study included 13-18 years old adolescents from all around the United States and it is reported that 59.8% of adolescents had used alcohol and 60.2% of adolescents used an illicit drug at least once. Our results show that nearly one out of four or five students have used alcohol and/or tobacco at least once in their lifetime. Tobacco, alcohol, and illicit substance use ratios were much lower compared to these previously mentioned studies. Similarly the most commonly used illicit substance was cannabis[27].

In 2011, the Turkish Monitoring Centre for Drugs and Drug Addiction (TUBIM) conducted a research study among high school students (between 14-19 years) to detect substance use ratios in Turkey. 26.7% of students reported at least once in a lifetime tobacco use, 19.4% of students reported at least once in a lifetime alcohol use, and 1.5% of students reported at least once in a life time illicit substance use. In the study, students had a tendency to hide the names of the substances they use. Most answers given to the open ended questions were that of cannabis (0.3%) [28]. In our study, lifetime cigarette use was found to be less (21.%), but alcohol (24.6%) and illicit substance use ratios were higher (2.7%) compared to this previous study conducted on Turkish populace. Edirne is a border city neighbouring Greece and Bulgaria which makes it one of the passage points of illegal substances[29]. This may be the cause of higher illicit drug use ratios than the rest of the country.

An Adolescent Profile in Turkey study was conducted by the Prime Ministry Directorate General of Family and Social Research in 2008 in 65 cities that included students aged between 13 and 18. The research sample included not only school students, but teenagers who are not recorded in a school as well. In this study, lifetime substance use ratios were: 24.7% for tobacco, 13.9% for alcohol, 1.9% for cannabis, 0.6% for inhalants and 0.5% for ecstasy[30]. In our results lifetime tobacco and cannabis use ratios are lower, while alcohol use ratio is higher, and inhalants and ecstasy ratios are similar.

In our results; tobacco, alcohol, cannabis, ecstasy, inhalants and cocaine use ratios were significantly higher in males when compared to their female counterparts. According to ESPAD; tobacco, alcohol, and inhalants use ratios were similar in males and females. Tranquilizer or sedative usage was higher in females and all other substance usage was higher in males[26]. In the NCS-A study, alcohol use ratios were similar in males and females, compatible with other studies mentioned. Prescription medication usage was higher in females and all other substance uses were higher in males, however the ratios were close[28].

In an Istanbul sample composed of 15-17 years of old adolescents, lifetime smoking ratio was 37%, alcohol use was 51.2%. Inhalants, cannabis, ecstasy, heroin and sedatives-hypnotics-anxiolytics had much greater use ratios than our study (5.9%, 5.8%, 3.1%, 1.6% and 3.7% respectively). When substance usages were compared according to gender in the same study, males had a higher risk in all substances except sedatives-hypnotics-anxiolytics when compared to females[31]. Alcohol use ratio passed smoking ratio similar to our study, but ratios found in this Istanbul based study are greater than ours.

Carrying a weapon, committing a crime, being involved in a fight, self-injurious behaviour, running away from home, and sexual intercourse at an early age were found to be correlated with substance usage[32]. In our study, gang membership, carrying weapons, having discipline fines, running away from home, and/or having illegal experiences were associated with the increase in substances used.

In the ESPAD study, the most common reasons for substance usage were fun (64%), and overcoming problems (48%). However the most common answers in our study included friends' usage (33.5%), fun (22.1%), and overcoming problems (22%). Again according to that study in countries with higher tobacco, alcohol, and substance use ratios, access to these substances are easier[26]. In the NCS-A study 60.2% of teenagers reported easy availability of illicit substances[28]. In our study, 78.9% of students reported easy access to the substances.

Peer effect is an important risk factor for substance use[20,21]. In adolescents who spend time with their alcohol consuming friends, perception of detrimental effects of alcohol decrease, and ultimately risky behaviors and alcohol use are increased[33]. Peer effect and peer substance use are both significantly relevant with substance use and are more powerful in females compared to males[34,35]. In our study, tobacco, alcohol, cannabis and inhalants usage ratios were higher in adolescents who have a substance using peer. We also evaluated lifetime tobacco and alcohol use ratios were higher in students who had relatives that use substances.

Limitations of the study can be summarized as follows: Our study is not a monitoring study. The study has a cross sectional study design and a self-reported questionnaire is used. Only adolescents who go to school have been covered.

Ethics Committee Approval: Study was approved by the Local Ethics Committee of Trakya University Faculty of Medicine (11/06/2009 decision number 2009/105).

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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