

ORIGINAL RESEARCH

The Prevalence of Drug Use Among High School Students and Affecting Factors: A Community-Based Cross-Sectional Study

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Main Points

- Adolescents are thought to be the group most severely affected by drug use. Drug use can lead to substance use disorders and potentially severe and prolonged substance-related adverse consequences in adolescents.
- The present study aimed to determine the prevalence of addictive drug use and the affecting factors among high school students.
- The students tried tobacco (45.3%), alcohol (33.0%), and drugs (3.7%) at least once in their lifetime. Previous employment or current employment (OR: 2.11, CI: (1.221-3.672)), low income (OR: 2.545 CI: (1.338-4.843)), tobacco use (OR: 5.575 CI: (1.640-18.952)), alcohol use (OR: 14.905 CI: (5.140-43.229)), and drug user in the family (OR:10.242 CI: (3.281-31.975)) were identified as factors increasing the risk of drug use.
- The last period when the young in the risk group are accessible for rehabilitation is high school years. The education community, especially the counselors, has an inevitable role in combating addiction in this period.

Abstract

The present study aimed to determine the prevalence of drug use, sociodemographic characteristics, and risk factors among high school students and yield a grounding for further studies. The data of the present cross-sectional study were collected through the questionnaires filled out by the students under the supervision of the staff of a Public Health Directorate. Among a total of 12,935 high school students in Burdur city, 2,112 students were selected using the stratified random sampling method with the prevalence 50%, margin of error 2%, and type 1 error 5%. 2011 students responded to the survey questions. The data were analyzed using the SPSS 15.0 package program. The students tried tobacco (45.3%), alcohol (33.0%), and drugs (3.7%) at least once in their lifetime. Previous employment or current employment (OR: 14.905 CI: [5.140-43.229]), low income (OR: 2.545 CI: [1.338-4.843]), tobacco use (OR: 5.575 CI: [1.640-18.952]), alcohol use (OR: 14.905 CI: [5.140-43.229]), and drug user in the family (OR:10.242 CI: [3.281-31.975]) were identified as factors increasing the risk of drug use. The rate of drug use experience among high school students is similar to the related data of Turkey. Tobacco and alcohol use come before drug use.

Keywords: Affecting factors, Cross-Sectional, drug use, high school, students

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Introduction

Drugs are defined as substances that exert sedative and/or stimulant effects, are addictive, and cause withdrawal symptoms when not consumed. The production, consumption, and legal and illegal sale and use of such substances continue to increase annually, although they cause considerable damage

and result in irreparable consequences that create a substantial public health issue on a global scale. Adolescents are thought to constitute the group that is the most vulnerable and severely affected by drug use. Drug addiction can lead to substance use disorders and result in potentially severe and prolonged substance-related adverse consequences in adolescents.

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Prevalence studies are deemed critical for understanding the extent of the problem in combating psychoactive substance use.

Therefore, the United States through Monitoring the Future (MTF) and the European countries through European School Survey Project on Alcohol and Other Drugs (ESPAD) mandate regular screening tests for students. According to the World Drug Report (WDR) (2018), 13.8 million (5.6%) individuals aged 15-16 years have reported the use of marijuana at least once in the last 12 months. The number of drug addicts, which was 29.5 million in 2016, increased to 31 million (WDR, 2018) in 2018. There are relatively few prevalence studies available in the Turkish context, or the ones available in the literature are cross-sectional. In a study conducted by the Turkish unit of the UN office on Drugs and Crime in 2003, the trial rate of different substances was estimated to range from 2.8%-5.4% (Çiftçi, 2019).

A study on the prevalence of drug use among high school students in Burdur revealed that the rate of students who used drugs at least once was 1.5% (Sütlü et al., 2012). In this context, a peer education program was launched in a high-risk school in the city to prevent initial drug use. The provincial commission for combating addiction decided to repeat the study in 2014 to disseminate the implementation and to provide a foundation for other interventional studies.

In this study, we aimed to determine the prevalence of addictive drug use and the affecting factors among high-school students.

Methods

Study Design

This was a cross-sectional study.

Population

The data of the provincial directorate of national education were used to identify the population. Accordingly, there were 12,935 high-school students in the 2013-2014 academic year.

Sample

The ultimate goal was to determine the levels or extent of tobacco, alcohol, and drug use. Therefore, the prevalence of drug use among high-school students in the city was considered as 50%. Accordingly, the epi-info program was used to extract data on the required sample size representing the population as 1,931 students considering a prevalence of 50%, margin of error 2%, and type 1 error 5%.

Sample Selection: The number of high school classes (9, 10, 11, and 12th grades) is 649. First, the approximate number of students per class was found by proportioning the total number of students to the total number of classes ($12935/649=20$). Later, the number of students included in the sample was divided by the average number of students per class, and the number of classes to be included in the study was determined ($1931/20=97$). Considering the absenteeism, it was decided to include a total of 100 classes in the sample. Finally, the classes to be sampled were determined by randomization from among 649 classes. Accordingly, 2,011 students answered the questionnaire among 2,112 students in 100 classes.

Variables: The dependent variable of the study was the students' drug use, and the independent variables were socio-demographic, bio-demographic, and drug use characteristics of the participants.

Data Collection Tool

The questionnaire used in this study was developed based on the questions generated by the Turkish Monitoring Center for Drugs and Drug Addiction (TUBIM) (2012) to determine drug use among high-school students. The pilot study of the tool was conducted in 2 non-sampled schools in the city, and the detected defects were subjected to correction before execution of the main study.

Data Collection Procedure

To conduct the study, ethics committee approval within the Combating Substance Addiction and Rehabilitation Program was obtained from Mehmet Akif Ersoy University Non-Interventional Clinical Research Ethics Committee (GO2020/243) and the study permit was obtained from Burdur Governor's Office and Burdur Public Health Directorate. Psychologists, midwives, and nurses working in the Public Health Directorate (PHD) helped collect the data. To ensure standardization in data collection, nurses and midwives were recruited for 3-hour training by psychologists prior to data collection on the purpose of the study and what the questions target. While collecting data, students were informed about the research, and their verbal consent was obtained. At the end of the process, 101 students did not respond to the questionnaire. This procedure was realized between May 01-15, 2014.

Statistical Analysis

The data were analyzed using the SPSS program version 15.0. (IBM SPSS Corp., NY, USA). The chi-squared test was used for demonstrating the relationship between socio-demographic characteristics of the participants and their drug use. Logistic regression was performed to determine risk factors.

Results

The mean age of the participants was 16.5 years. Among them, 37.4% were urban residents, and 50.1% were boys. The participants reported the use of tobacco (45.3%), alcohol (33.0%), and drugs (3.7%) at least once (Table 1) in their lifetime. Of them, 52.8% of those who reported the use of tobacco, 36.8% of those who reported the use of alcohol, and 39.4% of those who reported the use of drugs stated that they continued to use them. Annual, monthly, and weekly use frequencies of those presenting with a continuation of substance use are shown in Table 2. It was found that 59.9% of the boys and 30.4% of the girls used tobacco, 46.3% of the boys and 19.5% of the girls consumed alcohol, and 5.7% of the boys and 1.4% of the girls reported the use of drugs.

Of the 75 (3.7%) students who reported the use of a drug at least once, 39.4% reported using the drug currently, whereas 74.0% reported usage of drugs in the past year, 57.5% reported usage in the past month, and 40.3% reported usage in the past week (Table 2). It was discovered that 54.5% of the students presenting with drug use first used the drug at the age of 16 years.

The effect of the students' socio-demographic characteristics on drug use has been summarized in Table 3. There was statistically no significant difference between drug use and the grade level of

Table 1.
Distribution of Substance Use Experiences of High-School Students

Substance use	n	%
Tobacco	950	45.3
Alcohol	678	33.0
Drug	75	3.7

Table 2.
Distribution of Substance Use Duration of Those with Substance Use Experience

Substance Use Duration	Substance Use		
	Tobacco n (%)	Alcohol n (%)	Drug n (%)
Continued usage	498 (52.8)	245 (36.8)	28 (39.4)
Last 12 months	740 (78.1)	524 (77.7)	54 (74.0)
Last three months	635 (67.3)	359 (53.6)	42 (57.5)
Last 30 days	553 (58.6)	239 (35.8)	29 (40.3)

Table 3.
Effect of Students' Socio-demographic Characteristics on Drug Use

Independent variables	Drug use	Yes n (%) *	No n (%) *	Total n (%) **	p
Socio-demographic characteristics					
Grade	9/10	36 (3.2)	1,090 (96.8)	1,126 (100)	0.080
	11/12	39 (4.4)	846 (95.6)	885 (100)	
Sex	Male	61 (6.0)	952 (94.0)	1,013 (100)	0.000
	Female	14 (1.4)	984 (98.6)	998 (100)	
Missing academic year	Yes	58 (3.2)	1,743 (96.8)	1,801 (100)	0.000
	No	17 (8.1)	192 (91.9)	209 (100)	
Employment	Employed before/Currently employed	36 (10.7)	299 (89.3)	335 (100)	0.000
***36 missing data	No	39 (2.7)	1,601 (97.3)	1,640 (100)	
Income level	Low	19 (8.2)	212 (91.8)	231 (100)	0.000
	Middle	49 (2.9)	1614 (97.1)	1663 (100)	
	High	7 (6.0)	110 (94.0)	117 (100)	
Parental information					
Mother	Biological	71 (3.6)	1,925 (96.4)	1,996 (100)	0.002
	Stepmother	4 (26.7)	11 (73.3)	15 (100)	
	Alive	72 (3.6)	1,928 (96.4)	2,000 (100)	0.007
	Deceased	3 (27.3)	8 (72.7)	11 (100)	
Father	Biological	73 (3.7)	1,920 (96.3)	1,993 (100)	0.143
	Stepfather	2 (11.1)	16 (88.9)	18 (100)	
	Alive	68 (3.5)	1,879 (96.5)	1,947 (100)	0.009
	Deceased	7 (10.9)	57 (89.1)	64 (100)	
Paternal education	Lower than high school	49 (4.0)	1,176 (96.0)	1,225 (100)	0.214
	High school and further	26 (3.3)	760 (96.7)	786 (100)	
Maternal education	Lower than high school	58 (3.6)	1,552 (96.4)	1,610 (100)	0.993
	High school and further	17 (3.6)	459 (96.4)	476 (100)	
Drug users in the family	Yes	11 (40.7)	16 (59.3)	27 (100)	0.000
	No	64 (3.2)	1,920 (96.8)	1,984 (100)	
Tobacco use	Yes	72 (7.9)	843 (92.1)	915 (100)	0.000
	No	3 (0.3)	1,093 (99.7)	1,096 (100)	
Alcohol use	Yes	71 (10.9)	578 (89.1)	649 (100)	0.000
	No	4 (0.3)	1,358 (99.7)	1,362 (100)	

the student (p=0.080), and the educational status of the father and mother (p=0.214, p=0.993).

However, there was a statistically significant difference between drug use and sex (p=0.000), students missing an academic year (p=0.000), students' working status (p=0.000), low income (p=0.000), presence of a biological mother/stepmother (p=0.002), presence of the mother or death of the mother (p=0.007), father's survival (p=0.009), history of drug users in the family (p=0.000), and students' tobacco (p=0.000) and alcohol use (p=0.000).

Independent variables responsible for statistically significant differences were included in the logistic regression analysis. Previous employment or current employment history (odds ratio [OR] 2.11, confidence interval [CI] 1.221-3.672), low income (OR 2.545, CI 1.338-4.843), tobacco use (OR 5.575, CI 1.640-18.952), alcohol use (OR 14.905, CI 5.140-43.229), and a history of drug users in the family (OR 10.242, CI 3.281-31.975) were identified as factors responsible for an increased risk of drug use (Table 4).

Table 4.
Results of the Logistic Regression Analysis

Independent variables		B	S.E.	Wald	Odds ratio	95% CI	p
Employment	Employed before/Currently employed	0.750	0.281	7.131	2.11	1.221-3.672	0.008
	No	Reference					
Income level	Low	0.934	0.328	8.101	2.545	1.338-4.843	0.004
	Middle/high	Reference					
Tobacco use	Yes	1.718	0.624	7.575	5.575	1.640-18.952	0.006
	No	Reference					
Alcohol use	Yes	2.702	0.543	24.732	14.905	5.140-43.229	0.000
	No	Reference					
Drug users in the family	Yes	2.327	0.581	16.044	10.242	3.281-31.975	0.000
	No	Reference					

Discussion

Ensuring the well-being of the youth is essential, and relevant regulatory bodies engage relentless efforts to reduce the development and establishment of any risky behavior among them. Risky behaviors include the use of tobacco, alcohol, and different types of illicit drugs, as well as online and other gaming addictions that can cause adverse consequences. All countries enforce laws restricting the availability of psychoactive substances, and despite varying legal frameworks established by countries, mandate relevant restrictions aimed specifically at protecting the young. Despite all efforts, the results of ESPAD (2020) show that one in six young individuals aged 15-16 years in Europe presented with the use of illegal drugs at least once in their lifetime.

In this study, the prevalence of drug use among high-school students was found to be 3.7%. Additionally, low-income level, employment, a history of drug users in the family, and tobacco and alcohol use increased the risk of drug use among students. In the study conducted by the ESPAD in 2016 with 96,046 students from 35 European countries, 24 of which were EU countries, the mean drug use at least once was found to be 18%. The highest rate was found in the Czech Republic at 37%. Students in Bulgaria, France, Liechtenstein, and Monaco also presented with a high level of drug use (30%-32%). This level was 10% or lower in Albania, Cyprus, the Faroes, Finland, the former Yugoslav Republic of Macedonia, Iceland, Moldova, Montenegro, Norway, Sweden, and Ukraine. It was concluded that 21% of boys and 15% of girls reported the use of illicit drugs at least once in their lifetime. In most ESPAD countries, drug use rates were higher among boys than those in girls. The study conducted in the USA in the scope of MTF (2016) revealed that the drug trial rate among 8th, 10th, and 12th grade students was 34.9%.

The drug use rates obtained in studies conducted on drug use among adolescents in Turkey are markedly below those reported abroad. In a field survey conducted in Izmir in 2009, the lifetime experience with drugs among high-school students was found to be 3.2%. Although sedative pills (1.5%) and marijuana (1.3%) were the most consumed drugs, tobacco and alcohol use was found to be 29.7% and 33.9%, respectively. In a study conducted by TUBIM in 2011, alcohol use was 5.7%, and tobacco use was 5.1% among 11,812 high school students in cities. The rate of using any illegal addictive drug at least once was found to be 1.5%. This rate was estimated to be 2.3% for boys and

0.7% for girls, and marijuana (1.2%) and volatile substances (0.5%) were found to be the most consumed drugs. In the "Adolescent Profile" study (ASAGEM, 2010) conducted in 65 cities in 2008, the rate of using marijuana at least once in a lifetime was estimated to be 1.9% in the 13-18 years age group (Aldemir, 2019). A study conducted in Burdur in 2012 revealed this rate to be 1.5% among high-school students (Sütlü et al., 2012). Although the drug use rate in Burdur is similar to that reported in studies conducted in Turkey and low compared to that reported in international studies, the results suggest that the rate of drug usage among young people continues to witness an increase as stated in regular data collection studies such as ESPAD and MTF.

Similar to the findings reported in the present study, multiple studies in the literature have highlighted a history of drug users in the family as a risk factor for drug use (Görgün, 2010; Kilpatrick et al., 2000; Tamar & Ögel, 1997). Family is of considerable importance for human life and development. Therefore, the socioeconomic status of the family or the presence of family members with drug addiction are factors that increase the risk of addiction. The young consider their family members as role models and notice the patterns of drug usage within the family; thus, the availability of such drugs is realized at an early age owing to a history of drug abuse in their families (Kahyaoğlu, 2019).

Low income and paid employment were identified as factors that increased the risk of drug use among the participants. Attaining maturity in a family with a low socioeconomic level causes adverse consequences in childhood and adulthood. Employment while studying in high school is considered a situation attributable to the family's economic instability. Poverty increases the risk of drug use and exposure to related risk factors (Öztürk et al., 2016). A study conducted among students of Dicle University found that the risk of drug use increased in students who were employed (Yalçın et al., 2009). The literature covers several studies showing that the low-income level poses a risk for drug use (Hanson & Chen, 2007). It is stated that socioeconomic inadequacies pose a risk, especially for multiple substance use (Cambron et al., 2019). There are also studies that suggest that the prevalence of drug use does not significantly differ by socioeconomic status, but differs by the type of substance used (Ulukoca et al., 2013). In the MFT 2016 report, it was stated that the effect of socioeconomic level almost disappeared in the 1980s, but it has changed

in low-income level groups with the rapid decrease in the rate of drug use in high-income level groups in recent years.

In parallel with the literature, the present research concluded that the risk of drug use among students with tobacco and alcohol use was higher than those who did not (Görgün et al., 2010; Hanson & Chen, 2007; Hawkins et al., 1992; Johnson et al., 1990; Ulukoca et al., 2013; Yalçın et al., 2009). The young usually try tobacco and alcohol first, which is followed by drug use in the later period. It is thought that early protection and rehabilitation programs against tobacco and alcohol addiction will prevent transition to drug use.

The period when the young in the risk group are accessible for rehabilitation includes the period of high-school years. The education community, especially the counselors, plays a vital role in combating addiction during this period. There is a need for the conduction of preventive activities by school counselors to provide appropriate support and to prevent tobacco/alcohol abuse among high-school students who live with drug users and experience financial difficulties. Another important task burdens the family physicians who provide the first level of preventive healthcare services. Preventive healthcare services that should be provided during school age are determined based on the “child-adolescent monitoring protocols (2018).” The home-education/employment-eating-activities-drugs-sexuality-suicide/depression-safety (HEEADSSS) form included in these protocols aid the detection of drug use. Conduction of adolescent follow-up studies in an appropriate format is critical in the fight against drug addiction. Family physicians also have a considerable responsibility to detect drug use early and to refer relevant treatments to those presenting with drug use.

Limitations and Directions/Suggestions for Future Research

Collection of data in a school environment may result in the obtainment of incorrect responses from students regarding questions on addiction. The teachers were prevented from being in the classroom when the students answered the questionnaire, thereby facilitating the establishment of trust. To prevent student responses from being affected by each other, an individual response was sought with supervision. Methods that can help provide one-to-one data collection outside the school environment should be studied and used.

Ethics Committee Approval: Ethics committee approval was received for this study from the Non-Interventional Clinical Research Ethics Committee of Mehmet Akif Ersoy University (GO2020/243).

Informed Consent: Verbal informed consent was obtained from students who participated in this study.

Peer-review: Externally peer-reviewed.

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