

## Prevalence of Smoking, Alcohol and Substance Use Between High School Students in Yeşilyurt and Battalgazi District of Malatya Province and Influencing Factors

### Malatya İli Yeşilyurt ve Battalgazi İlçelerinde Lise Öğrencileri Arasında Sigara, Alkol ve Madde Kullanımı Sıklığı ve Etkileyen Faktörler

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#### ABSTRACT

**Objective:** This study aimed to examine the prevalence of smoking, alcohol, and substance use among high school students and the factors that cause them to use them.

**Materials and Methods:** 42629 high school students are included in this descriptive study. Considering the smoking prevalence is 25.0%, the sample size is 846. A questionnaire was conducted with 975 persons in nine high schools, which had been selected through a stratified sampling method. The chi-square test and the logistical regression analysis are used to assess the statistical analysis.

**Results:** It was found that the smoking prevalence of the students who participated in this study was 34.0%, while drinking alcohol rate was 14.3%, and use of substances was 4.2%. The smoking rate of male students was 2.2 times more than that of the female students, while use of alcohol by the male students was 7.6 times higher if they smoked. Drinking alcohol rises by 9.6 times compared with those who smoke, while it increases to 26.8 times if the family members drink it ( $p<0.05$ ).

**Conclusions:** The rate of smoking, drinking alcohol, and substance use among high school students is relatively high. For this reason, students should be informed about harmful habits.

**Keywords:** Adolescent alcohol use, cigarette smoking, students, substance abuse

#### ÖZ

**Amaç:** Bu çalışmada lise öğrencileri arasında sigara, alkol ve madde kullanımı sıklığı ve etkileyen faktörleri incelemek amaçlanmıştır.

**Materyal ve Metot:** Kesitsel tipte yapılan bu çalışmaya, 42629 lise öğrencisi dahil edilmiştir. Sigara içme prevalansı %25,0 olarak kabul edildiğinde; örneklem büyüklüğü 846 olarak hesaplanmıştır. Tabakalı örnekleme yöntemi ile seçilen 9 ayrı lisede toplam 975 kişi üzerinde anket yapılmıştır. İstatistiksel analizlerde Ki-kare testi ve Lojistik Regresyon analiz testleri kullanılmıştır.

**Bulgular:** Araştırmaya katılan öğrencilerin sigara kullanma prevalansı %34,0, alkol kullanma prevalansı %14,3 ve madde kullanma prevalansı %4,2 bulunmuştur. Sigara kullanımı; erkek öğrencilerde 2,2 kat, alkol kullananlarda 7,6 kat daha yüksektir ( $p<0,05$ ). Alkol kullanımı; sigara kullananlarda 9,6 kat, ailede alkol kullanımı var ise 26,8 kat artmaktadır ( $p<0,05$ ).

**Sonuç:** Sigara, alkol ve madde kullanımı lise öğrencilerinde oldukça yüksektir. Bu nedenle öğrencilere zararlı alışkanlıklar hakkında bilgilendirilmelidir.

**Anahtar Kelimeler:** Alkol içme, madde kullanımı, öğrenciler, sigara içmek

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## INTRODUCTION

Tobacco and tobacco products are the primary cause of preventable diseases, disabilities, and death. Therefore, Centres for Disease Control and Prevention (CDC) encourages interference to prevent the youth from using tobacco products during their adolescence or to help those who already use it to quit smoking.<sup>1</sup> According to the National Youth Tobacco survey conducted by the CDC among secondary and high school students, smoking and use of tobacco products rose in 2018 though this figure decreased in the last 30 days in 2011 and 2017.<sup>3</sup> The use of tobacco among the high school students declined by 19.6% from 24.2% in 2017. However, it rose by 27.1% in 2018 and 31.2% in 2019.<sup>2,3</sup> In Türkiye, the use of any tobacco product is 47% per cent among all the population groups during their lifetime. In the last month, this rate has been 31%.<sup>4</sup> Using alcohol has harmful effects such as damaging the brain, causing some physical diseases, and causing social problems that may arise due to use of it, not attending the courses at school, or getting poor marks and achievement results in their courses.<sup>5,6</sup> Alcohol is widely used though it creates some risks for young individuals. According to the Youth Risk Behaviour Survey conducted by the CDC in 2019, it is concluded that 29% of high school students drank alcohol, while 14% of them drank it heavily in recent 30 days.<sup>7</sup> In Türkiye, the rate of alcohol use during one's lifetime is 22%. This rate is found to be 8.6% in the last month.<sup>4</sup>

Related to adolescent substance abuse may suffer from some physical disorders or psychological problems that may result in depression or even suicidal attempts, and social problems such as dropping out the school or communication disorders.<sup>8</sup> When the substance abuse of the general population in Türkiye during their lifetime is examined, it is concluded that 3,1% of the participants used a substance at least once. 35.4% of the substance users used it when they were between 15 and 24 years old.<sup>4</sup>

This study aims to determine the prevalence of smoking cigarettes, alcohol, and substance use among the high school students studying at the high schools located in the Yesilyurt and Battalgazi districts of the Malatya province as well as examine the relations between the influencing factors.

## MATERIALS AND METHODS

**Ethical Statement:** To execute this research, written permission was obtained from the Scientific Research and Publication Ethics Board of Inonu University (dated 21.02.2017, decision no: 2017/4-2). The consent was obtained from the Non-Invasive Ethics Committee of the Medical Faculty of Inonu University. Furthermore, written permission was

received from the Malatya National Directorate of Education, as well as the approvals of the individuals by international declarations, guidelines, and similar applications.

**Participant, Design and Setting:** This cross-sectional research population consists of 42629 students studying at 68 high schools in the Battalgazi and Yeşilyurt districts of Malatya. The types of these high schools where this study has been conducted are Anadolu, Vocational, and ImamHatip High Schools. The number of students at Anadolu High School is 17866, the number of students at Vocational High Schools is 14381 while this figure ImamHatip High School. First, as a sampling method, the stratified sampling method has been selected according to the types of high schools. For lower stratigraphy, three schools were selected by applying the simple random sampling method. In total, nine schools were selected. Thus, the random sampling method chose the students of four different grades. The minimum sampling size formula ( $n = Nt^2pq / d^2(N-1) + t^2pq$ ) is applied in the case of the number of individuals among the population to determine the sampling size. When smoking prevalence is supposed to be 25%, the total figure was 846.

**Instruments:** The questionnaire form used to gather data consists of two sub-sections. The first section of the questionnaire includes questions relating to the students' socio-demographic characteristics. At the same time, the second section has questions about smoking, use of alcohol, and substance use.

**Statistical Analysis:** The independent variables of this study are age, sex, educational level of parents, and other socio-demographic factors while the dependent variables are smoking, use of alcohol, and substance use. The SPSS package program was used for statistical analysis. The complementary data is shown by n %. The chi-square test and the Binominal Logistical Regression analysis were used to assess the statistical analysis. For all the assessments, the value  $p < 0.05$  are accepted to be significant.

## RESULTS

The socio-demographic characteristics of the students who participated in this study were given in Table 1. 51.2% are male; 28.5% are 17 years old. 92.2% of the students who participated in this study stated that they lived with their families. 39.6% of the fathers graduated from primary school or were illiterate, while 47.4% of the mothers graduated from primary school.

It was found that 34% of the students who participated in this study cigarette smoking, 14.3% of them used alcohol, and 4.2% of them used the substance. The comparison of participants in terms of their cigarette smoke according to the different variations is

**Table 1.** Sociodemographic distribution of students participating in the study.

Sociodemographic Characteristics		n (%)
<b>Gender</b>	Male	496 (51.2)
	Female	472 (48.8)
<b>Age</b>	≤15	185 (19.1)
	16	266 (27.5)
	17	276 (28.5)
	≥18	241 (24.9)
<b>Type of School</b>	Anatolian High School	358 (37.8)
	Vocational High School	294 (31.0)
	Imam Hatip High School	295 (31.2)
<b>Whom do you live with?</b>	With my family	886 (92.2)
	Other	82 (7.8)
<b>Educational status of Father</b>	Illiterate	17 (1.8)
	Primary school graduate	358 (37.8)
	Secondary school graduate	239 (25.2)
	High school graduate	236 (24.9)
	University – postgraduate degree	98 (10.4)
<b>Educational status of Mother</b>	Illiterate	152 (15.9)
	Primary school graduate	452 (47.4)
	Secondary school graduate	180 (18.9)
	High school graduate	138 (14.5)
<b>Total</b>	University – postgraduate degree	32 (3.3)
		<b>968 (100)</b>

shown in Table 2. Male cigarette smokes significantly more than females ( $p < 0.001$ ). 32.8% of those who live with their families' smoke, while 48.0% of those who live in a place other than their family household smoke ( $p = 0.008$ ). The smoking rate of the students whose fathers' education level is prima-

ry school or less is 27.9%, meaning they smoke significantly less than the other groups ( $p = 0.009$ ). The males have alcohol significantly more ( $p = 0.001$ ). It is concluded that in the student groups whose parents have a higher education level, they use alcohol significantly more ( $p < 0.05$ ) (Table 3).

**Table 2.** The comparison of participants in terms of their cigarette use according to the different variations.

		Cigarette Smoking		p
		Yes n (%)	No n (%)	
<b>Gender</b>	Male	217 (43.8)	279 (56.39)	0.001
	Female	111 (23.7)	358 (76.39)	
<b>Type of School</b>	Anatolian High School	114 (31.8)	244 (68.2)	0.476
	Vocational High School	102 (34.7)	192 (65.39)	
	Imam Hatip High School	106 (36.3)	186 (63.7)	
	Illiterate	45 (29.8)	106 (70.2)	
<b>Educational status of mother</b>	Primary school graduate	149 (33.0)	302 (67)	0.596
	Secondary school graduate	64 (35.8)	115 (64.2)	
	High school graduate	51 (37)	87 (63)	
	University–postgraduate degree	13 (40.6)	19 (59.4)	
<b>Educational status of father</b>	Illiterate	104 (27.9)	269 (72.1)	0.009
	Primary school graduate	81 (33.9)	158 (66.1)	
	Secondary school graduate	94 (40)	141 (60)	
	High school graduate	39 (39.8)	59 (60.2)	
<b>Whom do you live with?</b>	With my family	290 (32.8)	593 (67.2)	0.008
	Other	36 (48.0)	39 (52)	

**Table 3.** The comparison of participants in terms of their use of alcohol according to the different variations.

		Alcohol use		p
		Yes n (%)	No n (%)	
<b>Gender</b>	Male	87 (17.9)	398 (82.1)	0.001
	Female	48 (10.4)	414 (89.6)	
<b>Type of School</b>	Anatolian High School	78 (22.2)	273 (77.8)	0.001
	Vocational High School	37 (12.8)	252 (87.2)	
	Imam Hatip High School	17 (5.9)	269 (94.1)	

Table 3. Continue.

<b>Educational status of mother</b>	Illiterate	13 (8.8)	134 (91.2)	0.001
	Primary school graduate	52 (11.7)	392 (88.3)	
	Secondary school graduate	27 (15.3)	150 (84.7)	
	High school graduate	33 (24.3)	103 (75.7)	
	University–postgraduate degree	8 (26.7)	22 (73.3)	
<b>Father educational status</b>	Illiterate	37 (10.1)	328 (89.9)	0.001
	Primary school graduate	25 (10.7)	209 (89.3)	
	Secondary school graduate	45 (19.3)	188 (80.7)	
	High school graduate	24 (25.0)	72 (75.0)	
<b>Whom do you live with?</b>	With my family	123 (14.2)	742 (85.8)	0.833
	Other	10 (13.3)	65 (86.7)	

When the substance use of the students involved in this study is examined, it is found that 6.4% of the males and 1.9% of the females stated that they use substances, which means that the difference between them is significant ( $p=0.001$ ). The substance use of those who live with their families is significantly lower (3.7%) than that of the students who do not live with their families (10.8%) (Table 4).

The Binominal Logistic Regression Analysis is given in Table 5. The cigarette smoking ratio is 2.2 times higher for male and female students. This ratio is 7.6 higher for the students who use alcohol than those who do not ( $p<0.001$ ). The students whose fathers' education level is primary school or higher smoke 1.4 times

more than those the education level of fathers is primary school or illiterate, while those who do not live with their families use it 1.742 times more than those who live with their families do ( $p=0.026$ ). The alcohol use of smokers is 9.6 higher than those who do not smoke. This figure increases 26.8 times more if the family members use alcohol ( $p<0.001$ ). The students have alcohol 1.7 times more when the parents are literate or have a higher level of education by comparison with the parents of the students who are illiterate ( $p<0.001$ ). The rate of substance use for the drinkers is 12.2 higher as compared with those who do not drink, 2.4 higher as compared with the smokers, and 5.6 higher as

Table 4. The comparison of participants in terms of their use of alcohol according to the different variations.

		Substance Use		p
		Yes n (%)	No n (%)	
<b>Gender</b>	Male	31 (6.4)	450 (93.6)	0.001
	Female	9 (1.9)	459 (98.1)	
<b>Type of School</b>	Anatolian High School	19 (5.5)	329 (94.5)	0.076
	Vocational High School	15 (5.1)	277 (94.9)	
	Imam Hatip High School	6 (2.1)	284 (97.9)	
	Illiterate	3 (2.0)	144 (98.0)	
<b>Mother educational status</b>	Primary school graduate	16 (3.6)	428 (96.4)	0.071
	Secondary school graduate	9 (5.0)	170 (95.0)	
	High school graduate	7 (5.2)	128 (94.8)	
	University-postgraduate degree	4 (12.9)	27 (87.1)	
<b>Father educational status</b>	Illiterate	9 (2.5)	357 (97.5)	0.280
	Primary school graduate	12 (5.0)	227 (95.0)	
	Secondary school graduate	12 (5.2)	218 (94.8)	
	High school graduate	4 (4.2)	91 (95.8)	
<b>Whom do you live with?</b>	With my family	32 (3.7)	836 (96.3)	0.004
	Other	8 (10.8)	66 (89.2)	

**Table 5.** Binomial logistic regression analysis of independent variables associated with cigarette, alcohol, and substance use.

	Smoking			
	B	OR	p	CI %95
Gender (Female)	0.817	2.263	0.001	1.661-3.073
Father education (primary school and less)	0.356	1.428	0.026	1.044-1.951
Whom do you live with (family)	0.555	1.742	0.039	1.029-2.946
Alcohol use (No)	2.032	7.630	0.001	4.919-11.834
	Drinking Alcohol			
	B	OR	p	CI %95
Gender (Female)	0.490	1.633	0.052	0.996-2.677
Educational status of the father (primary school and less)	0.131	1.140	0.645	0.652-1.993
Educational status of mother (illiterate)	0.567	1.763	0.032	1.030-2.960
Smoking (No)	2.265	9.635	0.001	5.712-16.250
Family alcohol use (No)	3.290	26.84	0.001	12.489-57.711
	Substance Use			
	B	OR	p	CI %95
Gender (Female)	0.589	1.801	0.196	0.738-4.395
Whom do you live with (family)	0.954	2.597	0.109	0.808-8.353
Alcohol use (No)	2.505	12.23	0.001	4.900-30.566
Smoking (No)	0.886	2.425	0.073	0.922-6.378
Family substance use (No)	1.725	5.613	0.017	1.366-23.068

compared with the family members who use substances (p<0.05) (Table 5).

**DISCUSSION AND CONCLUSION**

According to the data given by the European School Survey Project on Alcohol and Other Drugs (ESPAD) 2019, which surveyed smoking, drinking, and drug use among high school students, the minimum average smoking rate during the lifetime is % 41 while the current smoking rate is 27%. 3% of the students aged 13 or younger stated that they smoke every day.<sup>9</sup>

According to the alcohol use of the students examined by the ESPAD survey 79% of them use at least once during their lifetime, 47% of them said that they consumed it in recent thirty days while 13% of them suffered from intoxication due to alcohol consumption. When substance use was asked, 20% of the students said that they tried it at least once during their lifetime<sup>9</sup>. The prevalence of cigarette smoking is 34%, using alcohol is 14.3%, and using substances is 4.2% among the students who were involved in this study. In similar research conducted among adolescents, it was found that 15.8% of them smoke, and the rate of substance use is 5%.<sup>10</sup> According to the data given by the Global Tobacco Research conducted in Türkiye, the rate for those who tried tobacco products at least once during their lifetime is 38.6% while those who tried cigarettes are 27.9%.<sup>11</sup> Why the rate of cigarette smoking among the population in our study is remarkably high may relate to the number of the students who participated in it is 18 or above 18 years old. The smoking rate of male students is 2.2 times higher than that of female students. Likewise, the studies

conducted in other cities of Türkiye state that men's smoking prevalence is significantly higher than women's.<sup>10,12-14</sup> The ESPAD 2019 survey demonstrates that cigarette smoking is significantly higher among men than women.<sup>9</sup> A study conducted in Russia found that the smoking prevalence is lower as compared with the figures in Türkiye. 15% of males and 8.3% of females' smoke cigarette.<sup>15</sup>

In the study group, it was found that the students who do not live with their families' smoke 1.7 times more than those who live with their families do. In the research made to determine the factors that affect cigarette smoking among university students, it was found that the most crucial factor influencing the student to smoke is that other people smoke where the student resides. This research concluded that the student is likely to smoke 9.4 times more if other people smoke where he or she resides.<sup>16</sup> Therefore, the existence of individuals smoking in places such as lodging, dormitory, pension, and guesthouse may have increased the prevalence of smoking among the students because of the peer effect.

When the relations between the parent's education level and smoking habit are examined, it is concluded that the students whose father's education is primary school or above smoke 1.4 more than those whose father's education level is lower than primary school or illiterate. Likewise, a study conducted among university students found that the higher the father's education level, the more the student smokes.<sup>17</sup> But our study did not find a significant difference between the mother's education level and smoking cigarettes. Likewise, a survey conducted for secondary and high school students demonstrated a significant difference between the mother's educa-

tion level and cigarette smoking.<sup>18</sup>

A study examining the alcohol use ratio according to gender found that men use alcohol significantly more than women do. Our study found the equivalent results.<sup>19,20</sup> On the other hand, a study that examined not only the alcohol use itself, but the amount of alcohol consumed found that women use it more, but the amount they have is 11.5% less than men.<sup>21</sup>

Our study revealed that the use of alcohol rises in parallel with the parent's education level. Still, there is no significant difference in the student's location. When the relationship between alcohol use and various variables was examined, it was seen that the use of alcohol relates to the education level of the mother, socioeconomic status, and chronic stress. Because of the probable effect of this stress, the students who do not live with their parents may be exposed to more risk of drinking alcohol.<sup>22,23</sup> Furthermore, our study shows that the rate of alcohol use increases if the family members use it. Whether the use of alcohol by the family members relates to affecting its use by the relevant person, it is determined that the rate of the disorders resulting from alcohol use is higher among alcohol addicts.<sup>24</sup>

The men who participated in this study stated that they use substances significantly more. A study that surveyed the use of cigarettes and substance among high school students demonstrates that male students use the substance remarkably.<sup>10</sup> In a study examining the determinants for substance use among high school students, it is seen that adolescents whose stress level is high or whose capacity is poor to cope with stress may face the risk of substance use more. Besides, it was found that the quality of the social support taken from the family members is related to substance use.<sup>25</sup> Likewise, our study found that the rate of substance use of those who live with their families is significantly lower than those who do not live with their families. In addition, our study demonstrates that the existence of a family member using substances increases the student's substance use rate. A study that conforms to our findings showed that the rate of substance use in the families of individuals who also use it is significantly higher.<sup>24</sup> When the relations between smoking cigarettes, using alcohol, and substance use with one another, it is concluded that out of the students who smoked at least once during their lifetime, 93% of them had alcohol, 32% of them smoked hashish and 10% of them got a sedative tablet.<sup>10</sup> Our study shows that the use of either cigarettes or alcohol increases the prevalence of the use of the other one. It was found that substance use increases the use of smoking and use alcohol, too. Similarly, the literature demonstrates that the interaction of nicotine inside cigarettes and

ethanol alcohol increases the severity of addiction levels, and those who smoke or use illegal drugs have alcohol in remarkably high amounts.<sup>26,27</sup> A survey examining how smoking affects the treatment of alcohol addiction revealed that those who smoke during the treatment process are less likely to benefit from the treatment.<sup>28</sup>

In conclusion, smoking cigarette, drinking alcohol and substance use is important as there are risks when only one of them is used or the risks of using one of them increases to using another one. The students should be taught about the harmful effects of smoking as they mainly start to use it in these age groups. Students should be informed about the harmful effects of smoking, drinking, and substance use by implementing activities such as peer education and theatre plays. Furthermore, the concerned authorities must supervise the enforcement of the prohibition measures to sell cigarettes and drinks to those younger than eighteen. Particularly, the local authorities must abolish the derelict houses, where drugs are sold and used, close to the schools.

**Ethics Committee Approval:** To execute this research, written permission was obtained from the Scientific Research and Publication Ethics Board of Inonu University (dated 21.02.2017, decision no: 2017/4-2).

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