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Original Article

The Frequency of Smoking Use and Factors Related to Alcohol and Substance Use Among High School Students in İzmir

İzmir İlinde Lise Öğrencilerinde Sigara Kullanım Sıklığı ve Alkol-Madde Kullanımı ile İlişkili Faktörler

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ABSTRACT

Objective: To determine the frequency of cigarette use and the sociodemographic and psychological factors that may be related to alcohol and substance use and in all public high schools in Karabağlar district of İzmir province of Turkey.

Method: Sociodemographic variables, the self-confidence scale (SCS) and Multidimensional Scale of Perceived Social Support (MSPSS) were applied to 1,697 high school students online and their results were analyzed.

Results: Of the students, 159 (9.4%) were using cigarettes. The mean score of SCS was found to be 3.85±0.63. The mean score of MSPSS was found to be 64.51±16.71. The total MSPSS score of the students who smoke (61.51±17.30) was found to be significantly lower than non-smokers (64.82±16.62). Absenteeism rate and disciplinary punishment were found to be higher in smoking students. There was no significant relationship between students' SCS scores and smoking. The MSPSS scores of students who had friends who use alcohol or substances were lower than those who did not.

Conclusion: We have found that presence of any type of whether alcohol, substance or cigarette user in family incresed the risk of cigarrette use in students. MSPSS scores of cigarette users and who had alcohol or substance user friend was found lower in our study. These findings shows us strong relationship with addictive behaviours and social support. It is important to know factors associated with alcohol-substance use disorder and related factors in order to prevent this psychosocial problem.

Keywords: Cigarette, alcohol, substance, adolescent

ÖZ

Amaç: Bu çalışmanın amacı, İzmir ili Karabağlar ilçesinde yer alan tüm devlet liselerinde sigara kullanım sıklığı ve alkol-madde kullanımı ile ilişkili olabilecek sosyodemografik ve psikolojik faktörleri belirlemektir.

Yöntem: Sosyodemografik veri formu, Özgüven Ölçeği (SCS) ve Çok Boyutlu Algılanan Sosyal Destek Ölçeği (MSPSS), 1.697 lise öğrencisine online olarak uygulanmış ve sonuçları analiz edilmiştir.

Bulgular: Öğrencilerin 159'u (%9,4) sigara kullanmaktaydı. SCS puan ortalaması 3,85±0,63 olarak bulundu. MSPSS puan ortalaması 64,51±16,71 olarak bulundu. Sigara içen öğrencilerin toplam MSPSS puanı (61,51±17,30), içmeyenlere (64,82±16,62) göre anlamlı derecede düşük bulundu. Sigara içen öğrencilerde devamsızlık oranı ve disiplin cezası daha yüksek bulundu. Öğrencilerin SCS puanları ile sigara içme arasında anlamlı bir ilişki yoktu. Alkol veya madde kullanan arkadaşları olan öğrencilerin MSPSS puanları kullanmayanlara göre daha düşüktü.

Sonuç: Ailede veya arkadaşlarda her türlü sigara alkol ya da madde kullanıcısının bulunmasının öğrencilerde sigara kullanım riskini artırdığını saptadık. Çalışmamızda sigara ve alkol ya da madde kullanan arkadaşları olan öğrencilerin MSPSS puanları daha düşük bulundu. Bu bulgular bize bağımlılık yapan davranışlar ve sosyal destek ile güçlü bir ilişki olduğunu göstermektedir. Alkol-madde kullanım bozukluğu ile ilişkili faktörlerin ve ilişkili faktörlerin bilinmesi bu psikososyal sorunu önlemek için önemlidir.

Anahtar kelimeler: Sigara, alkol, madde, adölesan

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INTRODUCTION

Adolescence is the transition period extending from childhood to adulthood. During this period when brain maturation takes place; functions of the brain such as impulse control, reasoning, and the ability to evaluate the consequences of behavior develop. Hence adolescence, when these functions are not fully mature, is a risky period for alcohol and substance use. Moreover, during this period, alcohol and substance use impairs cortical maturation, leading to deterioration in executive functions, the perpetuation of impulsive behaviors, and a further increase in the risk of addiction[1].

Cigarette, alcohol, and substance use is a growing global public health concern, especially in developing countries. According to the 2008 parliamentary research commission data, respective percentages of high school students use cigarettes and alcohol (19.2%), cigarettes and substances (5.7%), alcohol and substances (5.6%), and all three of them (4.9%) in Turkey[2]. European School Survey Project on Alcohol and Other Drugs (ESPAD) has been collecting data since 1995 and the latest update was provided in 2019 by 99,647 students from 35 European countries including Turkey which released the last data in 2003. The rates of daily cigarette smoking ranged from 1.9% in Iceland and Norway to 22% in Bulgaria. Over half of the students stated that they had used alcohol at least once in their life. The rates of cannabis climbed up to 16% whereas use of other illicit substances was reported by 3.4% of the study participants[3].

In our country, there are not enough studies on the frequency and related causative factors of cigarette, alcohol, and substance use. Systematic studies are even more difficult to perform, especially among high school students, due to the drawbacks of school administrators. In our study, we aimed to determine the frequency of cigarette, alcohol, and substance use and the possibly relevant sociodemographic and psychological factors prevalent in all public high schools in the Karabağlar district of İzmir province of Turkey.

MATERIALS and METHODS

Population and Sampling

The population of the research consisted of 17,689 students studying at state high schools in Karabağlar District of İzmir Province of Turkey where a total of 5 vocational technical high schools (including 1 multi-program high school), 6 religious vocational high schools, and 12 Anatolian high schools (1 multi-program high school) exist.

We established contact with the school principals and counselors where the students were educated through Karabağlar District National Education Directorate and Karabağlar Guidance Research Center Directorate, and an online meeting was held on Wednesday, March 24, 2021, with the participation of school principals and guidance teachers, and information was given about the purpose of the research and how to deliver the questionnaires to the students. The questionnaire, consisting of questions about sociodemographic variables (n=20), multidimensional perceived social support (n=12), and self-confidence (n=33) was prepared through the online survey portal SurveyMonkey® (www.tr.surveymonkey.com). The survey link was sent to the WhatsApp® accounts of the parents of a total of 1,697 students and the answers were collected after informed consent the of students, and their parents participating in the study were obtained digitally. The ethical approval was obtained from İzmir Democrasy University Non-invasive Clinical Research Ethics Committee (number: 2020/07, date: 27.02.2020).

Data Collection Tools

Sociodemographic Data Form

This questionnaire was prepared by the researchers and consisted of 20 questions inquiring the students' age, gender, and grade, the type of school they attended; whom they lived with; the monthly total income of the family; the employment status and the education level of the parents; whether they have received any psychiatric or psychological treatment and/or disciplinary punishment before; their rates of absenteeism; whether they have friends and/or family members who were / had been using alcohol, substance or cigarettes, and their opinions about the ease of access to substances. Due to the drawback of the school administrators, only responses to the questions related to smoking status were included in the data form, and frequencies of alcohol-substance use were not.

Self-Confidence Scale

The self-confidence scale (SCS) was developed by Akın[4]. The 33-item scale is a 5-point Likert-type scale with responses categorized as "1=never, 2=rarely, 3=often, 4=generally, and 5=always". Validity and reliability analyzes of the scale were performed and the Cronbach alpha value was calculated as 0.89. The highest score that can be obtained from the scale is 165 and the lowest score is 33 points. A high score on the scale indicates higher level of self-confidence. A person's self-

confidence level is calculated by dividing the total score obtained from the scale by the number of items on the scale. Very low (1.00-1.79), low (1.80-2.59), moderate (2.60-3.39), high (3.40-4.19), and very high (4.20-5.00) levels of self-confidence are categorized based on the scores obtained by the responders.

Multidimensional Scale of Perceived Social Support

The 12-question Multidimensional Scale of Perceived Social Support (MSPSS) which has been developed by Zimet et al.[5] in 1998 was used for the subjective assessment of social support. MSPSS is a 7-point Likert-type scale with answers graded between "1= absolutely no, and 7= absolutely yes". The validity and reliability analysis of the scale in Turkish was performed by Eker and Arkar[6] in 1995 and the reliability coefficient was calculated as 0.89. The scale has three subdimensions as family, friend, and special person support which represent the support sources and each subdimension has four items. The subdimension score is obtained by adding the scores of four items in each subdimension, and the total score of the scale is obtained by summing all subdimension scores. Higher total scores indicate higher perceived social support.

Statistical Analysis

Collected data was analyzed using the statistical package program (SPSS 20.0) and the results were interpreted. Descriptive statistics including arithmetic mean, standard deviation, frequency, and percentage distribution were presented. The data showed normal and parametric distribution. The chi-square test and the independent t-test were applied to compare variables between smokers and non-smokers. A p-value of below 0.05 was considered to be statistically significant.

RESULTS

Sociodemographic and Education-related Characteristics

A total of 1,697 students including 1,102 (65.3%) female, and 585 (34.7%) male participants were enrolled in our study. The students were living with their parents (n=1,464; 86.6%), their mothers (n=162; 9.6%), fathers (n=34; 2.0%), and a non-family person (n=30; 1.8%). A total of 142 (8.4%) students had previously received or were receiving psychiatric or psychological treatment. The rates of smoking, alcohol, and substance use in the parents of the students were 55.7% (n=940), 19.4% (n=329), and 1.1% (n=19), respectively. The total income of families were; below 2,500 (n=486; 29.2%), 2,500-5,000 TL (n=767; 46.1%), 5,000-10,000 TL (n=337; 20.3%) and over 10,000 TL (n=72; 4.3%).

The study participants were 9th (n=734; 43.5%), 10th (n=503; 29.8%) 11th (n=282; 16.6%) and 12th (n=170; 10.1%) grade. While, they were studying in Anatolian high school (n=1,255; 74.3%), vocational technical high school (n=332; 19.6%), and religious vocational high school (n=103; 6.1%). Only 95 (5.6%) students had received disciplinary punishment before. The students exceeded the maximum days of absence rights (n=17; 1.0%), or they were very often (n=33; 2.0%) or rarely (316; 18.7%) cut classes, and 1321 (78.3%) of them stated that they did not make absenteeism unless necessary.

Perceived Social Support and Self-confidence

The mean score of SCS was found to be 3.85±0.63 points. According to the scale estimation scores, students had very low (n=6; 0.4%), low (n=63; 3.7%), moderate (n=311; 18.3%), high (n=785; 46.3%), and very high (n=532; 31.3%) levels of self-confidence.

The mean score of MSPSS was found to be 64.51±16.71. The mean scores of "family", "friend" and "special person" subdimensions of the scale were found to be 23.08±6.09, 20.67±7.33, and 20.76±7.69 points, respectively.

Data on Smoking Status of the Students

A total of 159 (9.4%) students were using cigarettes. The mean age of the students who were smoking (16.55±1.38) was found to be significantly higher than those who were not (15.85±1.18). The rate of smokers in 12th grade (21.2%) was higher when compared with 9th (6.9%), 10th (7.0%) and 11th (11.0%) grade students (p=0.001). There was no significant difference between male (8.0%) and female (9.7%) students in terms of smoking (p=0.287). Students whose families were using cigarettes, alcohol, or substance had significantly higher rates of smoking (p=0.001). Neither monthly total income of the family (p=0.063) nor maternal or paternal education levels (p=0.462, p=0.216) were related to smoking status of the students (Table 1).

The total MSPSS score of the students who smoke (61.51±17.30) was found to be significantly lower than that of non-smokers (64.82±16.62) (p=0.015). There was no significant relationship between students' SCS scores and smoking (p=0.362) (Table 2).

The smoking rate of students studying at vocational technical high school (17.5%) was higher than students

studying at religious vocational high school (10.7%), which was the lowest among students studying at Anatolian high school (%6.9) (p=0.001). Absenteeism rate and disciplinary punishment were found to be higher in smokers (p=0.004, p≤0.001) (Table 3).

Data on Alcohol or Substance Use

The students stated that accessing illicit substances was very difficult (n=47; 2.8%), difficult (n=31; 1.8%), easy (n=228; 13.5%), and very easy (n=241; 14.3%), while 1,137 (67.5%) students indicated that they did not have information about easiness of procurement of illicit substances.

Students had 1-5 (n=54; 3.18%) and more than 5 (n=15; 0.9%) 5 friends who used substance. The mean age of the students who had substance user friends was higher than those who had not (p<0.001). The rate of having friends who used substances in the 9th grade (1.8%) was found to be lower compared to the other grades (5.2% in 10th, 5.7% in 11th and 5.9% in 12th grades) (p<0.001). No significant difference was found between the rates of substance use

Table 1. Relationship between smoking and sociodemographic factors

	Smoker (n=154; 9.1%)	Non-smoker (n=1,533; 90.9%)	p-value
Gender			
Male (n=585; 34.7%)	47 (8%)	538 (92%)	0.287
Female (n=1,102; 65.3%)	107 (9.7%)	995 (90.3%)	
Age (mean ± SD)	16.55±1.38	15.89±1.18	<0.001
Smoking status of parents			
Yes (n=940)	106	834	0.001
No (n=749)	50	699	
Alcohol use of parents			
Yes (n=329)	50	279	<0.001
No (n=1362)	106	1256	
Substance use of parents			
Yes (n=19)	6	13	0.001
No (n=1673)	150	1523	
Total monthly income			
0-2,500 TL	53 (35.8%)	433 (28.6%)	0.063
2,500-5,000 TL	66 (44.6%)	701 (46.3%)	
5,000-10,000 TL	20 (13.5%)	317 (20.9%)	
Above 10,000 TL	9 (6.1%)	63 (4.2%)	
Paternal education			
Illiterate	4 (2.6%)	18 (1.2%)	0.216
Literate	4 (2.6%)	26 (1.7%)	
Primary school	52 (33.5%)	459 (30.0%)	
Middle school	40 (25.8%)	352 (23.0%)	
High school	39 (25.2%)	432 (28.2%)	
University	16 (10.3%)	245 (16.0%)	
Maternal education			
Illiterate	10 (6.4%)	70 (4.6%)	0.462
Literate	9 (5.8%)	53 (3.5%)	
Primary school	56 (35.9%)	568 (37.0%)	
Middle school	24 (15.4%)	247 (16.1%)	
High school	42 (26.9%)	392 (25.5%)	
University	15 (9.6%)	206 (13.4%)	

SD: Standard deviation

and friendliness between female (3.7%) and male (4.1%) students (p=0.692). There was no difference between school types (p=0.187) and gender (p=0.692) in terms of having friends who were using illicit substances.

Students had 1-5 (n=305; 17.9%) and more than 5 friends (n=153; 9%) who had alcohol addiction. The mean age of those who had friends who were using alcohol was higher than those who were not (p<0.001). Higher number of friends in 12th (50%) and 11th (44.7%) grades were using alcohol when compared with 10th (29.8%) graders, whereas greater number of 10th graders were using alcoholic beverages relative to 9th (12.5%) graders (p<0.001). There was no significant difference between female (27.0%) and male (26.3%) students in terms of the number of friends using alcohol (p=0.817). Higher number of friends among Anatolian high school students (29.3%) were using alcohol when compared with vocational technical high school (21.4%) and religious vocational high school (14.6%) (p<0.001) students.

The MSPSS scores of students who had friends who were using alcohol were lower than those who did not (p=0.001). Similarly, the MSPSS scores of students who had friends who were using illicit substances were lower than those who were not (p=0.001). There was no significant relationship between students' SCS scores and having friends who were using illicit substances (p=0.142).

Table 2. The relationship between smoking and self-confidence and perceived social support

		Smoker (n=159; 9.4%)	Non-smoker (n=1,538; 90.6%)	p-value
SCS levels (Total mean: 3.85±0.63)	Very low (n=6; 0.4%) Low (n=63; 3.7%) Middle (n=311; 18.3%) High (n=785; 46.3%) Very high (n=532; 31.3%)	3.79±0.67	3.86±0.63	0.362
MSPSS levels (Total mean: 64.51±16.71)		61.51±17.30	64.82±16.62	0.015

SCS: Self-confidence scale, MSPSS: Multidimensional scale of perceived social support

Table 3. The relationship between smoking and school-related factors

	Smoker	Non-smoker	p-value
Grade			
9th grade	51 (6.9%)	683 (93.1%)	<0.001
10th grade	35 (7.0%)	468 (93.0%)	
11th grade	31 (11.0%)	251 (89.0%)	
12th grade	36 (21.2%)	134 (78.8%)	
School type			
Religious vocational high school	11 (10.7%)	92 (89.3%)	0.001
Vocational technical high school	58 (17.5%)	274 (82.5%)	
Anatolian high school	87 (6.9%)	1168 (93.1%)	
Disciplinary punishment			
Yes	28 (17.9%)	67 (4.4%)	<0.001
No	128 (82.1%)	1468 (95.6%)	
Absenteeism			
No unless necessary	105 (67.3%)	1,216 (79.4%)	0.004
Rarely	42 (26.9%)	274 (17.9%)	
Often	6 (3.8%)	27 (1.8%)	
Use all limit	3 (1.9%)	14 (0.9%)	

DISCUSSION

We have found lower perceived social support levels in smokers. The smoking risk was associated with having disciplinary punishment and higher absenteeism, presence of alcohol, cigarette, or substance user(s) in the family, higher age, 12th grade, and school type. There was no relationship between smoking status and self-confidence levels, gender, family income, or education level.

In the current study, the overall smoking rate was found as 9.4% which was reaching up to 21.2% among 12th graders. Aras et al.[7] performed a similar study in a different district of İzmir province and found that 24.3% of students were smokers, which is similar to our results concerning 12th graders. Consistent with our results they also stated that the frequency of smoking was significantly higher in students with higher absenteeism and higher rates of disciplinary punishment. Adolescents are susceptible to engaging in risky and impulsive behaviors, including substance use because the brain areas associated with executive functioning, judgment, and decision-making maturate after the areas associated with emotional responses and reward systems[8]. In a study, researchers suggested that adolescents were more vulnerable to the addictive properties of nicotine because the duration of smoking and the number of cigarettes required to establish nicotine addiction is lower compared to adults[9]. Also, the dramatic increase in smoking rates in the 12th grade may be related to the stress of the Higher Education Foundations Examination. It is known that increased stress levels can increase the rates of smoking, alcohol, and substance use[10]. Absenteeism may be the result of alcohol, substance, and cigarette use, or it may lead students to become acquainted with drugs.

The influences of family, peers and school interactions are the primary sources of both encouraging and discouraging messages for the habit of smoking in the lives of adolescents[11]. In accordance with this data we have found that the presence of any type of alcohol, substance, or cigarette user in the family increased the risk of cigarette use in students.

Kokkevi et al.[12] studied the ESPAD data for 6 European countries and concluded that the self-confidence levels were not correlated with substance use in line with our results. We did not find any relationship between students' SCS scores and cigarette use or having a friend who were using illicit substances. We think that high levels of self-confidence can increase risky behaviors such as smoking, alcohol and substance use, while low self-esteem levels can increase the rates of addiction for self-medication, which means misusing them as a partially successful attempt to soothe painful emotions[13].

MSPSS scores of cigarette users and those who had alcohol or substance user friend(s) were comparatively lower in our study. These findings show a strong relationship with addictive behaviors and social support. In a study, which supports our results, researchers have found that teenagers reporting poor perceived social support showed a significantly higher frequency of cigarette smoking[14]. Social support can decrease addiction risk in students by increasing their sense of well-being, protecting them from the negative effects of stress, and contributing to personal development[15,16].

Another remarkable finding of our study is that more than one-fourth of the students stated that accessing illicit drugs was easy or very easy. Similar results were found in a study in which most of the participants stated illicit drugs were available at low cost[17]. Despite stringent laws in our country prohibiting the sale of cigarettes and alcohol to people under 18 years old, adolescents have easy access to cigarettes and alcohol either by using adults or purchasing them themselves. On the other hand, this easy accessibility to illicit drugs, and alcoholic beverages may be due to their sales on online platforms, which are relatively more difficult to control and are used more frequently by adolescents compared to the general population. These results show us the inadequacy in the fight against their procurement, which is one of the most important pillars in the fight against use of addictive substances.

Socioeconomic status and male gender are known traditional risk factors for any substance-related disorders but we didn't find any relationship between gender, income or education level of the parents with smoking status or having substance-alcohol user friends. Recent studies have shown a narrowing gender gap in substance use disorders[18]. However, lower socioeconomic status still has been linked to increased rates of substance use among youngsters[3]. In our study, the fact that all of the students were studying in a public school and in the same district may explain our results.

Study Limitations

The cross-sectional design of our study and evaluation of students based on self-reported behavioral characteristics rather than direct observation constitutes

limitations of our study and prevents generalization of our data to the whole country and different age groups.

CONCLUSION

It is important to know the factors associated with alcohol-substance use disorder and related factors to prevent this psychosocial problem. Keeping track of cigarette use among adolescents is important because use of tobacco products is usually the first step before starting to use other illicit substances, which is termed the "gateway" phenomenon.

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Ethics

Ethics Committee Approval: The ethical approval was obtained from İzmir Democrasy University Non-invasive Clinical Research Ethics Committee (number: 2020/07, date: 27.02.2020).

Informed Consent: The survey link was sent to the WhatsApp® accounts of the parents of a total of 1,697 students and the answers were collected after informed consent the of students, and their parents participating in the study were obtained digitally.

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Author Contributions

Concept: O.H.T.K., A.S.Ç., B.D.M., Design: O.H.T.K., A.S.Ç., G.G., Data Collection or Processing: O.H.T.K., A.S.Ç., İ.Ç., Analysis or Interpretation: İ.A., G.G., İ.Ç., B.D.M., Literature Search: O.H.T.K., İ.A., G.G., İ.Ç., B.D.M., Writing: O.H.T.K., İ.A., A.S.Ç.

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