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**Smoking Initiation in Primary School Students in Southeast of Turkey: the Roles of Sociodemographic Factors, Gender and Parental Characteristics**

**Güneydoğu Anadolu Bölgesinde İlköğretim Okullarında Okuyan Öğrencilerde Sigaraya Başlama: Sosyodemografik Faktörler, Cinsiyet ve Anne-Baba Özellikleri**

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**ABSTRACT**

**Aim:** The objective of this survey was to determine the socio-demographic and the parental features and the extent of active and passive smoking among primary school children in Diyarbakır Province in Southeast Anatolian Region of Turkey.

**Material and Methods:** This survey is an epidemiological study with cross-sectional design. According to the layered random sampling method, 15 schools were visited and taking into account the age and gender distribution a total number of 1124 students filled the questionnaire. The survey included questions about the parental and the socio-demographic features, the social and economic status of the family, number of brothers and sisters, the housing and living conditions, as well as the smoking status of students.

**Results:** 1124 students, consisting of 630 boys (%56.0) and 494 girls (%44.0) had an average age of 11.1±2.4 yr. A total of 771 (68.6%) students told that there were smoking family members living in their houses (p<0.0001). The number of students with smoking habit was 136 (92 male, 44 female) (%12.2). The number of family members and sleeping rooms were 7.5±2.8, 4.5±2.1 and 2.1±0.9, respectively. The reason behind smoking addiction was generally related with either peers (45 person, 52.3%) or relatives (10 person, %11.6). The rate of smokers among boys is 1.38 times (OR: 1.38, %95 CI: 1.070-1.778) greater than that of girls.

**Conclusions:** The survey results show that smoking among primary school students is becoming prevalent, the rate of passive smoking is increasing, and the number of family members living in the house is generally beyond the shelter capacity. Especially most of the mothers are found to be uneducated. Therefore, more effort should be directed to address the problems of smoking and lack of education which have the utmost importance among these related negative factors.

**Keywords:** primary schools, student, smoking habit, unhealthy shelter conditions

**ÖZET**

**Amaç:** Bu çalışmada, Güneydoğu Anadolu Bölgesinde, Diyarbakır şehrindeki ilköğretim okullarında okuyan öğrencilerde, aktif ve pasif sigara içiciliği, sosyodemografik özellikler ve anne-baba özelliklerinin belirlenmesi amaçlandı.

**Yöntem:** Araştırma, kesitsel tipte epidemiyolojik bir çalışmadır. "Tabakalı rasgele örnekleme yöntemi" kullanılarak belirlenen 15 okula gidildi, yaş ve cinsiyet dikkate alınarak 1124 olgunun anket formlarını doldurması sağlandı. Anket formu, anne – baba ve sosyodemografik özellikleri, ailenin ekonomik ve sosyal durumu, kardeş sayısı, konut-yaşam koşulları ve öğrencilerin sigara içiciliği ile ilgili sorular içermektedir.

**Bulgular:** Çalışmaya alınan 630 Erkek (%56.0), 494 Kız (%44.0) toplam 1124 öğrencinin yaş ortalaması 11.1±2.4 yıl idi. 771 (%68.6) öğrenci evlerinde sigara içildiğini bildirdi (p<0.0001). Sigara içen öğrenci sayısı ise 136 (92 erkek, 44 kız) (%12.2)'dir. Evlerde bulunan kişi ve çocuk sayısı ile uyumak için kullanılan oda sayısı ortalaması, sırasıyla 7.5±2.8, 4.5±2.1 ve 2.1±0.9'dur. Öğrencilerin sigaraya başlamasına genelde arkadaşları (45 kişi, %52.3) ve akrabaları (10 kişi, %11.6) neden olmuştu. Erkek çocuklarda sigara içiciliği kızlardan 1.38 kez (OR:1.38, %95 GA: 1.070-1.778) daha fazlaydı.

**Sonuç:** Bölgemizdeki ilkokullarda öğrenciler arasında sigara içiciliğinin yaygınlaştığı, yüksek oranda pasif sigara içiciliği ve evde aşırı sayıda bireyin barınmak zorunda olduğu saptanmıştır. Özellikle annelerin büyük kısmının eğitimsiz olduğu belirlenmiştir. Bu olumsuz faktörlerden en önemlileri olan sigara içimi ve eğitimsizliğin engellenebilmesi için daha fazla çaba harcanmalıdır.

**Anahtar kelimeler:** ilköğretim okulları, öğrenci, sigara içme alışkanlığı, sağlıklı ev içi koşullar.

## INTRODUCTION

In terms of its prevalence in the society, it can be said that smoking has the first place among different harmful habits. Smoking is the easiest and the most extensive addiction observed in the world. As a result of the level of nicotine they contain, tobacco and tobacco products create a level of addiction equal to the addiction caused by morphine and cocaine. Considering the fact that three fourth of the people that attempts to smoke once turn out to be regular smoking addicts, severity and danger of the situation can be better understood (1-3).

Tobacco is the only addiction creating and death causing substance that can be legally produced, sold, and freely used. Both in Turkey and in the world, smoking is the most important reason of deaths in early ages. According to World Health Organization's estimations, there are about 1.1 billion smokers worldwide, and by 2025, the number is expected to rise to more than 1.6 billion. Every year, 5 million people die as a result of smoking or tobacco addiction. If the trend is not reversed, this number is expected to increase twofold by the year 2030 (4,5).

Although there are hundreds of papers on the toxicological, clinical, and epidemiological effects of tobacco addiction, there is still an urgent need for new laws and policies in order to protect children from risking their life by using tobacco products. For that reason, on 7.11.1996 Turkey adopted the Law for Preventing the Damages Caused by Tobacco Products, numbered 4207 (6). As stated in the first article of the law, the objective of it is to protect people from the damages caused by tobacco products and to take the necessary protective measures to avoid the advertisement and promotion campaigns that create incentives for tobacco addiction. This legal act can be considered as an important progress in prohibiting the use of tobacco and tobacco products under certain conditions, and aligned itself with the related modern legislation in the world. However, given the implementation and the monitoring record of the law, it has been observed that the law is not effectively implemented; therefore the content of the law needs to be revised. This subject should be reconsidered in a legal context and easier ways for daily implementation should be invented (7,8).

Physician's responsibility in preventing the use of tobacco among children and adolescents has a particular importance. Most of the children and adolescents start smoking before the beginning of secondary education. It has been found that 25% of the 12-13 year old children have attempted to smoke, and that 4% of them smoke regularly (9,10).

However, the extent of active and passive smoking among the primary school students in our region has not been fully analyzed. In order to reflect the real situation in our region, in addition to the extent of active and passive smoking among primary school students in our region, the study also aimed to capture their socio-demographic and parental features.

## METHODOLOGY

This survey is epidemiological study with cross-sectional design. According to 2000 figures, the population in Diyarbakir City Center is 818.396 (Total Population = 1.364.209). 2000-2001 academic year statistics indicate that the number of primary schools is 85, while the number of students is 142.824. The study protocol was allowed by the Directorate of National Education in Diyarbakır. The investigation was conducted in accordance with the Declaration of Helsinki II and the Guidelines of Good Clinical Practice. Students, their parents and teachers were informed about the study. A detailed questionnaire form including personal data was completed by the parents

After the number of primary schools and the number of primary school students with ages between 7-15 is obtained from The Provincial Directorate of Ministry of Education, according to the layered random sampling method, it was decided that 15 schools would be visited and, taking into account the age and gender distribution, a total number of 1148 students would be surveyed. The survey was actually filled by 1124 children. The size of the sample was calculated by using a known formula of sampling. The primary schools included in the survey were selected by taking into account the socio-economic circumstances of students.

The survey was performed in April 2005 by two doctors from Dicle University School of Medicine, and three intern students. The survey which included questions on the name and surname, age, gender, education level and occupation of parents, education and social status of the family, number of people sharing the house, number of brothers and sisters, housing and living conditions, and smoking habits of students was implemented by the help of classroom teachers.

Statistical evaluation was made by using the SPSS 10.0 software program. For the analysis of categorical variables the Chi-square test, for correlation analysis the Spearman's Rho test, for the analysis of numeric variables the t test, and for the multiple group analysis the one way ANOVA test were used. The magnitude of risk was measured by odds ratio (OR) and Confidence Interval (CI) 95% was estimated. Logistic

regression analysis was also performed for smoking status of students with paternal and maternal education, number of smoking habitants in home (to be higher than 2 or not), number of person in home (to be higher than 7 or not), number of children in home (to be higher than 4 or not), socioeconomic status of family, age groups (to be higher than 12 years or not) and gender of students.

## RESULTS

1124 students, consisting of 630 boys (56.0%) and 494 girls (44.0%) had an average age of  $11.1 \pm 2.4$ . The number of students that revealed his/her smoking habit was 136 (92 male, 44 female) (12.2%) (Table 1). 771 (68.6%) of the students told that there existed smoking family members living in their houses ( $p < 0.0001$ ). The reason behind smoking addiction was generally related with either friends (45 person, 52.3%) or relatives (10 persons, 11.6%) (Table 2). The number of family members and the children, and the number of sleeping rooms were respectively  $7.5 \pm 2.8$ ,  $4.5 \pm 2.1$  and  $2.1 \pm 0.9$ . While the most of the mothers ( $n=616$ , %54.8) were found to be illiterate ( $p < 0.0001$ ), the fathers usually had primary or secondary school degrees ( $n=352$ , 31.3%) ( $p < 0.0001$ ). While most of the mothers consisted of housewives ( $n=843$ , 75.0%), father's occupation was generally stated as "worker" ( $n=273$ , 24.3%), whereas the rate of unemployment among fathers were found to be very high ( $n=294$ , 26.2%) (Table 3). The distribution of the factors related to smoking status of the students was showed in Table 4. Smokers were

older than 12 years old ( $p < 0.0001$ ), living overcrowded home ( $p=0.008$ ), number of total smoker in their home higher than 2 and much ( $p < 0.0001$ ) and their mothers were generally none educated ( $p=0.001$ ).

The rate of smokers among boys is 1.38 times greater than the one found for girls. In addition, rate of smoking is 1.34 greater among the children of extended families (4 or more children) than the children living in small families. The smoking rate is 3.71 times higher for children 12 years and older than the children younger than 12. Smoking rates are 1.57 times greater among the children of the uneducated mothers than the educated ones (minimum primary school degree). But this is not confirmed for the education level of the fathers. Logistic regression analysis showed that especially age groups (to be higher than 12 years or not) and number of smoking habitants in home (to be higher than 2 or not) were effected to the smoking status (to be smoker) (OR: 5.61; 95% CI: 0.141-0.293,  $p < 0.0001$  and OR: 2.52; 95% CI: 0.012-0.098,  $p=0.012$ , respectively).

In the presence of a smoker at home, significantly increases in smoking rates of the students are found ( $r=251$ ,  $p=0.021$ ) but there is no correlation between the number of smokers at home and number of smoker students ( $p=0.401$ ). The rate of smokers among students was increased with age (Figure 1). We determined also a correlation between the age and number of smoker students ( $r=0.255$ ,  $p=0.001$ ).

Age	Boys		Girls		Total
	Smoker	Non-smoker	Smoker	Non-smoker	
	n (%)				
7	1 (3.3)	29 (96.7)	1 (2.0)	49 (98.0)	80 (7.1)
8	3 (5.3)	54 (94.7)	3 (4.6)	62 (95.4)	122 (10.9)
9	4 (5.8)	65 (94.2)	2 (3.0)	65 (97.0)	136 (12.1)
10	4 (6.4)	59 (93.6)	1 (1.5)	66 (98.5)	130 (11.6)
11	11 (15.7)	59 (84.3)	4 (6.9)	54 (93.1)	128 (11.4)
12	13 (12.2)	94 (87.8)	5 (5.7)	83 (94.3)	195 (17.3)
13	16 (21.9)	57 (78.1)	8 (21.1)	30 (78.9)	111 (9.9)
14	18 (21.2)	67 (78.8)	15 (30.0)	35 (70.0)	135 (12.0)
15	22 (28.9)	54 (71.1)	5 (45.5)	6 (54.5)	87 (5.7)
	<b>92 (14.6)</b>	<b>538 (85.4)</b>	<b>44 (8.9)</b>	<b>450 (91.1)</b>	
<b>Total</b>	<b>630 (56.0)</b>		<b>494 (44.0)</b>		<b>1124 (100.0)</b>

**Table 1.** Distribution of the students according smoking status, age and gender.

Person who caused the student to begin smoking	Boys	Girls	Total
	n (%)	n (%)	n (%)
<i>Father</i>	5 (5.4)	0 (0)	5 (3.7)
<i>Mother</i>	2 (2.2)	1 (2.3)	3 (2.2)
<i>Friend</i>	31 (33.7)	14 (31.8)	45 (33.1)
<i>Relative</i>	9 (9.8)	1 (2.3)	10 (7.4)
<i>Other persons</i>	14 (15.2)	9 (20.4)	23 (16.9)
<i>No response</i>	31 (33.7)	19 (43.2)	50 (36.7)
<b>Total</b>	<b>92 (67.6)</b>	<b>44 (32.4)</b>	<b>136 (100.0)</b>

**Table 2.** Distribution of the persons who had influence on the choice of students for smoking.

	Boys	Girls	Total
	n (%)	n (%)	n (%)
<b>Number of smokers at home</b>			
<i>0</i>	211 (33.5)	142 (28.8)	353 (31.4)
<i>1</i>	240 (38.1)	220 (44.5)	460 (40.9)
<i>2</i>	112 (17.8)	98 (19.8)	210 (18.7)
<i>3</i>	24 (3.8)	14 (2.8)	38 (3.4)
<i>≥ 4</i>	43 (6.8)	20 (4.1)	63 (5.6)
<b>Total number of persons at home</b>			
<i>≤3</i>	10 (1.6)	7 (1.4)	17 (1.5)
<i>4-6</i>	241 (38.3)	179 (36.2)	420 (37.4)
<i>7-10</i>	273 (43.3)	214 (43.4)	487 (43.3)
<i>&gt;10</i>	106 (16.8)	94 (19.0)	200 (17.8)
<b>Number of sleeping rooms</b>			
<i>1</i>	140 (22.2)	115 (23.3)	255 (22.7)
<i>2</i>	314 (49.8)	243 (49.2)	557 (49.6)
<i>3</i>	132 (21.0)	95 (19.2)	227 (20.2)
<i>4</i>	30 (4.8)	21 (4.3)	51 (4.5)
<i>&gt;5</i>	14 (2.2)	20 (4.0)	34 (3.0)
<b>Mother's education</b>			
<i>Illiterate</i>	358 (56.8)	258 (52.2)	616 (54.8)
<i>Literate</i>	134 (21.3)	93 (18.8)	227 (20.2)
<i>Primary- or Middle-School</i>	102 (16.2)	103 (20.9)	205 (18.2)
<i>High School</i>	21 (3.3)	28 (5.7)	49 (4.4)
<i>University</i>	15 (2.4)	12 (2.4)	27 (2.4)
<b>Father's education</b>			
<i>Illiterate</i>	125 (19.8)	66 (13.4)	191 (17.0)
<i>Literate</i>	201 (31.9)	181 (36.6)	382 (34.0)
<i>Primary- or Middle-School</i>	197 (31.3)	155 (31.4)	352 (31.3)
<i>High School</i>	68 (10.8)	60 (12.1)	128 (11.4)
<i>University</i>	39 (6.2)	32 (6.5)	71 (6.3)
<b>Mother's occupation</b>			
<i>Housewife</i>	481 (76.3)	362 (73.3)	843 (75.0)
<i>Worker</i>	11 (1.8)	14 (2.9)	25 (2.2)
<i>Civil servant</i>	9 (1.4)	11 (2.2)	20 (1.8)
<i>Seasonal worker</i>	1 (0.2)	8 (1.6)	9 (0.8)
<i>Small-scale retailer</i>	2 (0.3)	4 (0.8)	6 (0.5)
<i>Retired</i>	5 (0.8)	2 (0.4)	7 (0.6)
<i>Physician, engineer, etc.</i>	2 (0.3)	1 (0.2)	3 (0.3)
<i>Other (farmer etc.)</i>	119 (18.9)	92 (18.6)	211 (18.8)
<b>Father's occupation</b>			
<i>Unemployed</i>	172 (27.3)	122 (24.7)	294 (26.2)
<i>Worker</i>	146 (23.2)	127 (25.7)	273 (24.3)
<i>Civil servant</i>	70 (11.1)	43 (8.7)	113 (10.0)
<i>Seasonal worker</i>	21 (3.3)	23 (4.7)	44 (3.9)
<i>Small-scale retailer</i>	62 (9.8)	63 (12.8)	125 (11.1)
<i>Retired</i>	15 (2.4)	14 (2.8)	29 (2.6)
<i>Physician, engineer, etc.</i>	6 (1.0)	4 (0.8)	10 (0.9)
<i>Other (farmer etc.)</i>	138 (21.9)	98 (19.8)	236 (21.0)
<b>Total</b>	<b>630 (56.0)</b>	<b>494 (44.0)</b>	<b>1124 (100.0)</b>

**Table 3.** The distribution of the socio-demographic characteristics of the students related to home and parents according to gender.

## DISCUSSION

Smoking and narcotic drug use becomes prevalent worldwide. Many international studies were conducted regarding this issue. According to Global Youth Tobacco Survey (GYTS) (5), global smoking rate among adolescents is about 9.8%. This rate shows clear differences between continents. The said rate is 18.4% for America, 4.1% for East Mediterranean, 16.2% for Europe, 4.5% for Southeast Asia, 11.8% for West Pacific Region. Another study called Australia 1996 NSW Drug Use of Elementary Students Survey (11) is a survey including 3,063 elementary students receiving education in 71 public or private schools. In this study, the boys reported more 'smoking at any time' than girls (14% and 24% respectively). The prevalence of smoking rises both with increasing school class and age.

In Philippines (12), smoking rate of the children with the age of 13-15 was decreased from 32.6% in 2003 to 21.8% in 2000 in boys and from 12.9% to 8.8% in girls. It is reported that this progression could be taking root on the public support against smoking. However, no change in the smoking habits of the parents of the children was reported for the same time interval (56% for 2000 and 2003).

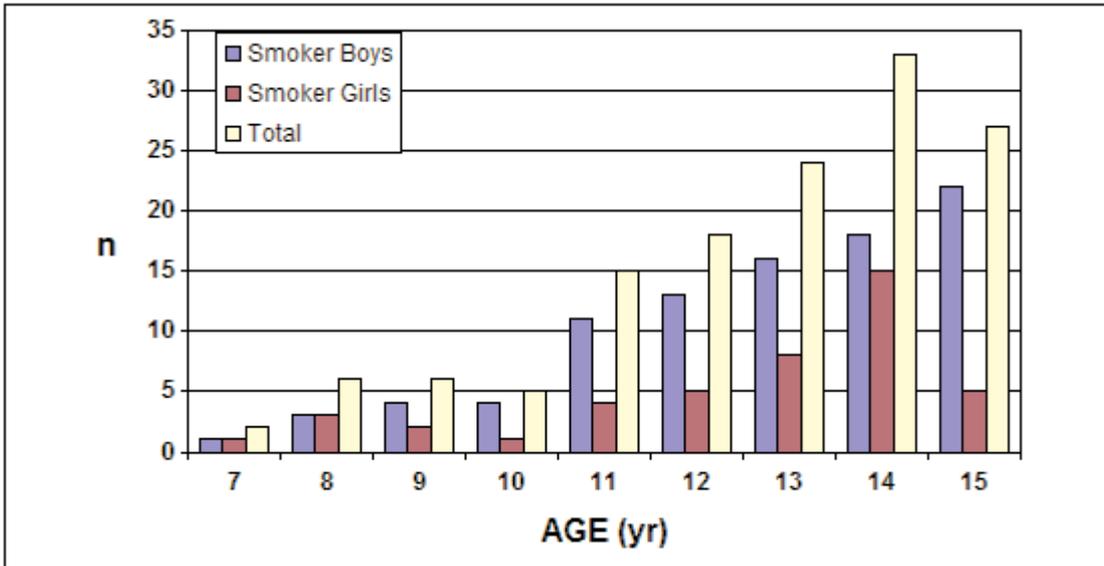
According to our study, smoking rate has also been rising with the increase in age and school class both in boys and girls. Especially, the smoking rate is 5.61 times higher for children 12 years and older than the children younger than 12 (OR: 5.61, %95 CI: 0.141-0.293,  $p < 0.0001$ ).

In a local study including the elementary students in Turkey, smoking rate for the elementary schools in Ankara was found as 11.7% (13.9% for boys and 9.1% for girls) (13). In Istanbul, the said rates are 10% for boys and 7% for girls, similar as reported by previous studies (14). Again, smoking rate within the house of elementary students were found 73.9% as of 1992 and 64% as of 1997 (15) in Ankara.

Largest study in Turkey including elementary students is Global Youth Tobacco Survey of Turkey (16) comprising total 15.957 students who are taking education in 202 schools (7. and 8. classes of primary schools and preparatory and first classes of high schools) of 61 cities as of 2003. According to this survey, 29.3% of the students attempted to smoke at least once (34.9% for boys and 21.5% for girls), 9.1% of the students are still smokers (11.9% of boys and 5.0% of girls) and 29.5% (33.1% for boys and 22.3 for girls) of the students who attempted to smoke start smoking before the age of 10. Of the students, 89.0% reported that their parents are smoking near them at home (68.8% of their fathers and 39.7% of their mothers). In another study from turkey, conducted in middle- and high-schools and high-schools equivalents in 1983, smoking rates was determined as 5.2% (9% if occasionally smokers included) and 24.1% (37.6% if occasionally smokers included) for the third class students of middle-schools and third class students of the high-school students, respectively (17).

	<b>Smoker</b>	<b>Nonsmoker</b>	
<b>Number of children at home</b>	N (%)	n (%)	<b>p</b>
< 3	59 (3.8)	593 (2.8)	=0.001
≥ 4	77 (6.8)	395 (4.1)	
<b>Age groups</b>			
< 12	34 (43.3)	562 (43.4)	<0.0001
≥ 12	102 (16.8)	426 (19.0)	
<b>Number of smoker at home</b>			
< 2	26 (43.3)	388 (43.4)	<0.0001
≥ 2	110 (16.8)	600 (19.0)	
<b>Number of person at home</b>			
< 7	45 (22.2)	301 (23.3)	=0.008
≥ 7	91 (49.8)	687 (49.2)	
<b>Mother's education</b>			
<i>Non educated</i>	103 (56.8)	740 (52.2)	=0.01
<i>Educated</i>	33 (21.3)	248 (18.8)	
<b>Father's education</b>			
<i>Non educated</i>	69 (56.8)	504 (52.2)	=0.197
<i>Educated</i>	65 (21.3)	484 (18.8)	
<i>Total</i>	<b>136</b>	<b>988</b>	1124 (100.0)

**Table 4.** The distribution of the factors related to smoking status of the students.



**Figure 1.** The total rate of smokers and gender distribution of smokers according to age

In a large-scale survey conducted by Bursa Health Authority Mental Health Department in Turkey (18), smoking rates for boys and girls are 27.4% and 14.3%, respectively. Risk of smoking in boy students is 2.3 times greater than the girls ( $p < 0.0001$ ). The smoking rate is 4.1% (10 of 242 students) for 6th class students of primary schools, rises with the increasing age and reaches to 13.7% (27 of 197 students) for 8th class students. The risk of smoking is 3.7 times greater for 6th class elementary students than 8th class elementary students ( $p < 0.0001$ ).

In our study, rate of smokers among boys is 1.38 times (OR: 1.38, %95 CI: 1.070-1.778) greater than the one found for girls. In addition, rate of smoking is 2.52 greater among the number of smoking habitants in home (to be higher than 2) than the number of smoking habitants in home  $< 2$  (OR: 2.52; 95% CI: 0.012-0.098,  $p = 0.012$ ).

The main reasons to begin smoking were listed as peer pressure (55.1%), curiosity and affectation (39.8%), problems with school and family (18.0% and 16.9%) (18). In our study, peer pressure was also reported as the utmost reason for smoking addiction (33.1%).

It is observed that the age, gender and social environment is important for getting smoking habits. Students living in rural areas and especially girl students are smoking less. Smoking habits begin in mean age 12.3 and establishes with the increasing age. Children in rural areas were more likely than urban children to start smoking after age 12 years. The presence of smokers within the family and smoking habits of peers and teachers are seen smoking-facilitating factors for children (19).

In our study, rate of smoking increases also beginning with the age of 11. The smoker rate is 15.7% for boys and 6.9% for girls in the age of 11, and reaches to 21.9% for boys and 21.1% for girls in the age of 13. However, the peak level is reached at 15 years for genders, 28.9% and 45.5%, consecutively. Smoking rates are 1.57 times (OR: 1.57, %95 CI: 1.056-2.326) greater in the children of the uneducated mothers than the educated ones (minimum primary school degree). But this is not confirmed for the education level of the fathers (OR: 1.094, %95 CI: 0.903-1.326). In the presence of a smoker at home, significantly increases in smoking rates of the students were determined ( $p = 0.021$ ) but there was no correlation between the number of smokers at home and number of smoker students ( $p = 0.401$ ).

According to survey conducted by Bursa Health Authority Mental Health Department (18), the rate of smokers in the same house is 70.9% (982 of 1385 individuals) Again, there was no difference in the smoking habits of the children according to the education level and occupation of the parents. However, when education levels and occupation statuses of the parents are evaluated, clear differences between Bursa sampling and our sampling are observed. In our sampling, the majority of the mothers are "illiterate" ( $n = 616$ , 54.8%;  $p < 0.0001$ ) and unemployment rate among fathers are too high ( $n = 294$ , 26.2%). In Bursa sampling, only 7.6% of the mothers are illiterate and only 3.2% of the fathers are unemployed.

The findings in this report are subject to at least two limitations. First, because the sample surveyed was limited to youths attending schools that included

study, it might not be representative of all adolescents aged 13–15 years in the Diyarbakir. Finally, data are based on the self reports of students, who might under- or over-report their use of tobacco.

In conclusion, present survey results show that smoking among primary school students is becoming prevalent, the rate of passive smoking is increasing, and the number of family members living in the house is generally beyond the shelter capacity. Especially most of the mothers are found to be uneducated. Therefore, especially in our region, more effort should be directed to address the problems of smoking and lack of education which have the utmost importance among these related negative factors.

For this article, the authors have no competing interests.

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