

Comparing the Smoking Status of Working Adolescents with Adolescents Enrolled in High School in Turkey

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Smoking is one of the most important public health problems. There is limited data about the smoking status of working adolescents. In this study we aimed to compare the smoking status of working adolescents with adolescents enrolled in high school in Turkey. Workers were recruited from a vocational training center, and control subjects were from a local high school. Questionnaires about socioeconomic status and smoking were applied. Eight hundred and two participants (436 workers) were included in the study. The mean age of the participants was 16.8 years. Smoking frequencies were 40% and 21% for the workers' group and the control group, respectively ($P < 0.001$). Adolescent workers were more frequently exposed to second-hand smoke at home. Working [odds ratio (OR): 2.49, 95% confidence interval (CI): 1.81–3.43], age over 17 (OR: 1.77, 95% CI: 1.28–2.44), and male sex (OR: 1.57, 95% CI: 1.00–2.44) were found to be significantly effective on smoking in the logistic regression analysis. Working adolescents had significantly higher smoking rates and exposed to second-hand smoke at home than high school students. Further studies are needed to explore the reasons of higher smoking rates in working adolescents than in high school students.

Introduction

IT IS ESTIMATED THAT ~350 million adolescents are working.¹ Smoking is one of the most important public health problems. Smoking addiction starts in childhood and adolescence.² In the studies that compare working versus non-working adolescents, the smoking frequency is found to be higher in the workers.^{3,4} Tobacco smoke includes many toxic components. Interaction of these components with toxic agents to which the workers are exposed during working might increase the risk of occupational lung diseases, asthma, chronic bronchitis, and lung cancer.⁵ Because adolescent workers start working at early ages and they are exposed to the toxic materials for a longer time, the harmful effects of smoking might emerge more seriously. Additionally, adolescent workers are exposed to coworkers who smoke. Thus, preventing smoking in adolescent workers is becoming more important. There is limited data about the smoking status of working adolescents. The aim of this study was to compare the smoking status of working adolescents with adolescents enrolled in high school in Turkey and to determine the risk factors associated with smoking.

Materials and Methods

The study was performed in Istanbul's Kartal County, an area populated with people from low to middle socioeconomic status. The workers' group was chosen from Kartal

Vocational Training Centre, which offers apprenticeship training. The apprentices go to school once a week, while they work during the rest of the week. Working adolescents are trained in hairdressing, lathe-finish, motor, and textile branches in the centre. Inclusion criteria were as follows: working for at least 1 year and starting to work before the age of 18. The high school students were chosen from Kartal High School, which is also located in the same district. This study was approved by the local ethics committee of Marmara University Medical Faculty (MAR-YÇ-0180). Required permissions were obtained from the County National Education Directorate, the school management, and also the parents. The participants were informed about the study and its objectives, and they signed consent forms. It was explained that the questionnaires and the results would not be submitted to the families and school management according to the confidentiality principle. A questionnaire including questions about the socioeconomic and smoking status was applied to the participants. All questionnaires were applied to the participants in a face-to-face manner by the same researcher. Those who smoked at least 1 or more cigarettes per day regularly were considered as current smokers.

Statistical evaluations

During the assessment of the study data, we described our numerical parameters with mean and standard deviation values, while we investigated the distributions of the

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TABLE 1. DEMOGRAPHIC CHARACTERISTICS AND THE SMOKING STATUS OF THE PARTICIPANTS

	Working adolescents (n=436)	High school students (n=366)	Test value, P
Sex, n (%)			
Female	67 (15.4)	70 (19.1)	0.159
Male	369 (84.6)	296 (80.9)	
Age (year), mean	16.86	16.66	0.06 ^b
Ever smoker, n (%)	337 (77.3)	199 (54.4)	<0.001 ^a
Current smoker, n (%)	175 (40.1)	76 (20.8)	<0.001 ^a
Total duration of smoking (year)			
Median (25%–75%)	3 (1–4)	3 (2–4)	0.496 ^c
Range	1–11	1–12	
The age they started smoking (year)			
Mean	14.1	14.09	0.864 ^b
Range	6–18	6–17	
Number of daily smoked cigarettes			
Median (25%–75%)	10 (4–15)	9 (4.25–15)	0.806 ^c
Range	1–40	1–40	
Smoking at home, n (%)	325 (74.5)	225 (61.5)	<0.001 ^a

^aChi-square test.^bIndependent samples *t*-test.^cMann–Whitney *U*-test.

categorical measurements by frequency and percentages. An independent samples *t*-test was used for the evaluation of numerical parameters with normal distribution and the Mann–Whitney *U*-test was used for the evaluation of parameters without normal distribution. A chi-square test was used in the univariate assessment of our parameters per-

formed by also classifying numerical parameters. Odds ratios were calculated with risk estimated measurements. The parameters found to be significant in the univariate analysis were evaluated with backward stepwise logistic regression analysis for the risk factors affecting smoking. Thereafter, the independent risk factors affecting smoking were determined. The results were evaluated at a 95% confidence interval and at a significance level of $P < 0.05$. The SPSS for Windows 13.0 program was used for the statistical analysis.

Results

Demographic characteristics and the smoking status of the participants are presented in Table 1. Four hundred and thirty-six working adolescents and 366 high school students were enrolled in the study. The mean age of the participants was 16.8 years, and 82.9% of them were male. The mean age at which the workers started to work for the first time was 13.9 years, and the median working period was 3 years (interquartile range 2–4 years).

Ever and current smoking in the workers' group were significantly more common than in the high school students' group, while there were no significant differences in terms of the age at which they started to smoke and the number of cigarettes smoked per day between the 2 groups. Sixteen percent of adolescents ($n=42$) started smoking between the ages of 6 and 12 years, while 56% ($n=141$) started between the ages of 13 and 15 and 27% ($n=68$) started when they were older than 16 years of age. Working adolescents were more exposed to second-hand smoke at home than high school students. Additionally, 86% of working adolescents were exposed to tobacco smoking at work. An age over 17, male sex, and working status were found to be significantly effective on smoking in the logistic regression analysis (Table 2).

TABLE 2. RISK FACTORS AFFECTING SMOKING

	Smoker, n (%)	Nonsmoker, n (%)	Univariate, OR (95% CI)	Multivariate, OR (95% CI)	P
Age					
≤ 16 ($n=348$)	83 (24)	265 (76)	1.00	1.77 (1.28–2.44)	<0.001
> 17 ($n=454$)	168 (37)	286 (63)	1.87 (1.37–2.56)		
Sex					
Female ($n=137$)	30 (22)	107 (88)	1.00	1.57 (1.00–2.47)	<0.001
Male ($n=665$)	221 (33)	444 (67)	1.77 (1.14–2.74)		
Working status					
High school students ($n=366$)	76 (21)	290 (79)	1.00	2.49 (1.81–3.43)	<0.001
Working ($n=436$)	175 (40)	261 (60)	2.55 (1.86–3.51)		
Fathers' education					
High school and above ($n=176$)	50 (28)	126 (72)	1.00		
Elementary school ($n=626$)	169 (27)	363 (73)	1.17 (0.80–1.70)		
Mothers' education					
High school and above ($n=103$)	32 (31)	71 (69)	1.00		
Elementary school ($n=699$)	199 (28)	426 (72)	1.03 (0.66–1.62)		
Smoking at home					
No ($n=252$)	71 (28)	181 (72)	1.00		
Yes ($n=550$)	180 (33)	370 (67)	1.24 (0.89–1.72)		
Living with family					
Yes ($n=39$)	15 (38)	24 (62)	1.00		
No ($n=763$)	236 (31)	527 (69)	1.39 (0.71–2.70)		

OR, odds ratio; CI, confidence interval.

Discussion

In this study, it is established that working adolescents had significantly higher smoking rates and exposed to second-hand smoke at home than high school students. Adolescent labor and smoking are important public health problems, particularly in underdeveloped countries. The frequency of smoking ranges between 13.8% and 28% for the high school students² in various locations in the world and around 28% for the adolescent workers in the United States.⁴ In Turkey, it ranges between 13.9% and 37% for students^{3,6} and between 21.7% and 43% for adolescent workers.³ The variability of the figures among different studies is due to the difference of the age and sex distributions in these studies. In the studies that compare working adolescents versus students, the smoking frequency is found to be higher in working adolescents.^{3,4} Similarly, the smoking frequency of the workers was significantly higher (40.1%) than that of the high school students (20.8%) in our study.

Many factors may affect adolescent smoking, such as age, sex, presence of smoking family members and friends, and socioeconomic levels.³ There are limited data on the smoking status in working adolescents. The correlation between age and smoking was examined in the adolescent workers in a study performed in Jordan, and no relationship between age and smoking was shown.⁷ Another study demonstrated that smoker friends do not affect adolescent workers' smoking.⁸ In our study, older age, male sex, and working were associated with smoking, while socioeconomic factors such as parents' education level, family's income, and the presence of smoking at home were not related to smoking.

Twenty-five percent of the adolescents in the world who are smokers start smoking at age below 10 years.^{1,4} The average age at which smoking is started was 12.4–13.2 years in Turkey.^{3,6} These ages are 14.1 for the adolescent workers and 14.09 for the students in our study. Considering the age at which the participants started smoking, 72.8% of them were between the ages of 6 and 15, which are normally primary school ages. According to these results, the fight against smoking should take place in all schools, starting from primary schools. Second-hand smoke for the children was reported to be 42.5% in the world (27.6%–77.8%).² It ranges between 60% and 70% in Turkey.⁹ In our study, adolescent workers were more frequently exposed to tobacco smoke at home than the high school students. Additionally, it was established that working adolescents were exposed to tobacco smoking at work at a rate of 86%. Public policies mandating smoke-free workplaces are important to reduce the exposure to second-hand smoke.

In conclusion, working is associated with smoking and also adolescent workers are more frequently exposed to second-hand smoke at home. Adolescent workers and their families should be made aware regularly about the hazardous effects of smoking. Increasing the number of adolescents attending schools may reduce the incidence of adolescent smoking. Because it has been observed that training programs and the programs for giving up smoking are successful in working places,¹⁰ the adolescents who have to

work should be regularly informed about the risks of smoking before and after employment.

Studies including a larger number of participants from different counties in Turkey should be performed to be representative for Turkey. These studies should be enlarged with more variables, including the cultural properties and psychosocial aspects of the participants, to explore the reasons of higher smoking rates in working adolescents than in high school students.

Author Disclosure Statement

All authors declare that no conflicts of interest exist.

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