

# The Influence of the Turkish Anti-Tobacco Law on Primary School Children in Edirne

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## ABSTRACT

**Objective:** The Turkish anti-tobacco law was accepted and effectuated in 1996. All forms of cigarette advertising, the sale of tobacco products to persons under the age of 18 and smoking in public institutions were all restricted. In this paper, we aimed to evaluate the influence of the Turkish anti-tobacco law on children for the periods before the law, after three years and after 10 years.

**Material and Methods:** A self-completed questionnaire was distributed among primary school children. This included questions about the children's smoking habits, their opinions of parents' and teachers' smoking habits, tobacco use in public places and the recognition rate of 16 food, drink, cigarette and toothpaste logos and brand names. The first, second and third applications of the questionnaire were performed with students who attended the same classes in the same primary schools, accounting for 772 children in June 1996, 1,157 children in February 1999 and 719 children in June 2006.

**Results:** When these three periods were evaluated, it could be seen that the prevalence of having smoked significantly decreased (13.9%, 4%, 2.2%, p<0.001), as did the rate of purchasing cigarettes within the past week (36.6%, 29.1%, 15.8%, p<0.001). The disagreement with parents' and teachers' smoking habits and tobacco usage in public places increased significantly (p<0.001), while the recognition rates of some cigarette brand names and logos significantly decreased, specifically with regards to Marlboro, Camel and Samsun (p<0.001).

**Conclusion:** The Turkish anti-tobacco law has had a positive effect on primary school children in Edirne, and therefore could be a model for other countries.

**Key Words:** Anti-tobacco law, cigarette brand names and logos, smoking

Received: 23.07.2010

Accepted: 10.12.2010

## Introduction

Consumption of tobacco and tobacco products is one of the most serious preventable public health problems in Turkey and around the world. In 2007, approximately five million people died worldwide due to illnesses caused by smoking cigarettes; 100,000 of these deaths occurred in Turkey. If no action is taken, it is estimated that the worldwide figure will reach 10 million by 2020 (1).

Before privatisation, the production and distribution of tobacco products in Turkey were under government control. Privatisation began in 1986, and intensive advertising campaigns by foreign companies saw the consumption of tobacco products increase significantly (2). In order to decrease the rate of consumption and the adverse effects of smoking, Law 4207, seen as the most important step in "preventing the hazards of tobacco products", was accepted on November 26, 1996 (3).

The provisions of the law are as follows:

- Any kind of cigarette advertising is restricted.
- The sale of cigarettes to people younger than 18 is restricted.

- Smoking is restricted in health institutions, indoor sports halls, all educational institutions, public transport vehicles, waiting rooms and public institutions where five or more people work.
- The statement "Warning: Harmful for Health" must be displayed on cigarette packages.
- TV channels must broadcast 90 minutes of educational warnings on the hazards of smoking each month.

Our aim was to evaluate the smoking habits in Edirne, the change in these habits in response to anti-smoking activities and the change in the effect of cigarette advertisements on primary school children for the periods 1993-1996 and 1996-2006.

## Material and Method

This study was conducted in four different elementary schools located within Edirne city centre,-home to people with a wide range of income levels,-in June 1996, February 1999 and June 2006.

**Smoker:** Even those who once smoked cigarettes were considered as smokers.

**Nonsmoker:** Those who never smoked cigarettes were considered as nonsmokers.

Students in grades two to five were required to complete the two-page questionnaire by themselves, under the supervision of the researchers; they were asked not to include their names so as to preserve anonymity.

The questionnaire included questions that elicited the following information from respondents:

- School, class, age, sex, whether their parents worked and how many siblings they had.
- Whether their parents smoked; if yes, whether they smoked a Turkish or foreign brand.
- Whether they smoked or not; if so, they were asked how often and whether they had bought any cigarettes in the past week.
- Their attitudes toward their parents smoking, teachers smoking and smoking in confined public areas.

The children were also asked whether they recognised the brand names and logos of 16 foods, drinks, cigarettes and toothpastes (Figure 1).

### Statistical analysis

The numeric results were expressed as mean $\pm$ sd, while the categorical results were expressed as a number (percentage). The normality distribution of the variables was tested using the Kolmogorov Smirnov one-sample test. The differences between the groups were assessed using the Student's t-test for normal distributed data, while the chi-square test was used to compare the differences of categorical variables between the groups. Differences among groups were compared using a one-way ANOVA test, and categorical variables were compared by the chi-square test. Logistic regression analysis was used to identify the potential risk factors of smoking behaviour. A p value <0.05

Please indicate to which products the brands and logos below correspond (put an X in the box below the appropriate product)					
	Food	Cigarette	Drink	Other	Not known
1. MILKA	<input type="checkbox"/>				
2. SAMSUN	<input type="checkbox"/>				
3. CHEE.TOS	<input type="checkbox"/>				
4. CAMEL	<input type="checkbox"/>				
5. COLGATE	<input type="checkbox"/>				
6. TUBORG	<input type="checkbox"/>				
7. MARLBORO	<input type="checkbox"/>				
8. 	<input type="checkbox"/>				
9. 	<input type="checkbox"/>				
10. 	<input type="checkbox"/>				
11. 	<input type="checkbox"/>				
12. 	<input type="checkbox"/>				
13. 	<input type="checkbox"/>				
14. 	<input type="checkbox"/>				
15. 	<input type="checkbox"/>				
16. 	<input type="checkbox"/>				

Figure 1. Brands and logos

was considered statistically significant. We employed SPSS 9.0 statistical software in the statistical analyses.

## Results

### Demographic features

The questionnaire was distributed to 772 students in 1996, 1,157 students in 1999 and 719 students in 2006. The changes in the sex, age, employment situation of parents and number of siblings are presented in Table 1.

### Smoking behaviour

**Gender and smoking behaviour:** This difference was not meaningful between the genders for the years 1996 and 2006, whereas the number of boys smoking cigarettes in 1999 was found to be high and meaningful (Table 2).

**Age and smoking behaviour:** There was no meaningful difference in terms of smoking cigarettes and average age in the three periods.

### View of smoking behaviour

**How do you view the smoking activity of your father and mother?** The percentage of respondents disapproving of the smoking activity of their parents increased significantly over time ( $p<0.001$ ) (Table 3).

### How do you view the smoking activity of your teacher?

The percentage of respondents disapproving of the smoking activity of their teachers increased significantly over time ( $p<0.001$ ) (Table 3).

**How do you view smoking activity taking place in enclosed public areas?** The percentage of respondents disapproving of smoking in enclosed areas increased significantly in 1999, whereas there was a slight decrease in 2006 compared to previous results (Table 3).

### Smoking activity of parents

**Do your parents smoke?** When the smoking habits of parents were evaluated, it was observed that the percentage of mothers smoking cigarettes increased significantly over time ( $p<0.001$ ) (Table 4).

Table 1. Demographic features

	1996	1999	2006	p value
Sex (boy, n,%)	393 (51.2)	573 (53.2)	357 (50.4)	0.477
Age (mean)	10.0 $\pm$ 1.3	9.7 $\pm$ 1.2	10.0 $\pm$ 1.3	<0.001
Parents working (n, %)	711 (93.6)	1013 (91.8)	614 (87.3)	<0.001
Number of siblings (three or more)	101 (13.2)	124 (10.9)	175 (24.6)	<0.001

Table 2. Cigarette-smoking behavior according to gender

	Boys	Girls	p
1996	58 (15.2%)	45 (12.5%)	0.291
1999	30 (5.4%)	11 (2.2%)	0.008
2006	8 (2.3%)	8 (2.3%)	0.977

**What cigarette brands do your parents smoke?** When the brands smoked by parents were compared, it was determined that the smoking of foreign cigarettes increased over time (Table 4).

#### Buying, smoking and recognising brands of cigarettes statues of children

#### Have you bought any cigarettes within the past week?

The rate of purchasing cigarettes within the past week decreased significantly over time (36.6%, 29.1%, 15.8%, p<0.001).

**Do you smoke?** When the number of respondents were compared in terms of whether or not they smoked, and if so, how often they smoked, it was observed that the number of respondents who had never smoked, or who had tried smoking only once in their lives, increased remarkably over time (p<0.001) (Table 4).

**Recognition of brands:** When recognition was evaluated, it was determined that cigarette brands and logos were known by fewer individuals over time (Table 5).

**Factors that affect smoking:** The ten risk factors examined using logistic regression analysis were: age, sex, school grade, employment status of father and mother, number of siblings, smoking activity of father and mother, brand of cigarettes, buying cigarettes, attitudes toward smoking activity and recognition of brands. The meaningful risk factors determined in 1996 were: fathers' unemployment (p=0.003); being told to buy cigarettes (p=0.012); reaction to the teachers' smoking habits (p=0.001); and the Camel image (p=0.008). The values identified were: fathers' unemployment, (odds ratio) OR=4.4 (95% CI: 1.7-11.7); being told to buy cigarettes, OR=2.0 (95% CI: 1.2-3.5); reaction to teachers' smoking habits (normal OR=4.7 [95% CI: 1.8-12.3]; no idea OR=3.2 [95% CI: 1.6-6.4]); and the picture of Camel OR=3.3 (95% CI: 1.4-7.8). The overall accuracy was 83.5%.

Male gender (p=0.023), class (p=0.023) and foreign brand cigarettes (p=0.049) were found to be the risk factors in 1999, that is, being male OR=4.1 (95% CI: 1.2-13.9); class OR=0.41 (95% CI: 0.19-0.88) (Age increase, cigarette smoking rate was

Table 3. How do you view the smoking activity of parents, teachers, and other people?

		Normal %	No idea %	Wrong %	p
<b>How do you see the smoking activity of your father and mother?</b>	1996	9.9	15.7	74.4	p<0.001
	1999	7.2	12.7	80	
	2006	4	11	85	
<b>How do you see the smoking activity of your teacher?</b>	1996	10.4	22	67.6	p<0.001
	1999	6.8	9.6	73.6	
	2006	4.7	13.8	81.5	
<b>How do you see the smoking activity in closed areas where people exist?</b>	1996	9.9	16.4	73.7	p<0.001
	1999	2.9	11.7	85.5	
	2006	4.3	11.1	84.6	

\*There was a meaningful difference between years 1996-1999 and 1999-2006 (p<0.05)

Table 4. Smoking activity of parents and children

	1996	1999	2006	p
<b>Do your parents smoke?</b>				
No	196 (25.5)	331 (29.3)	218 (30.7)	<0.001
My father smokes	317 (41.3)	356 (31.5)	216 (30.5)	
My mother smokes	62 (8.1)	131 (11.6)	86 (12.1)	
Both of them smoke	193 (25.1)	313 (27.7)	189 (26.7)	
<b>What brand of cigarettes do your parents use?</b>				
Foreign	105 (19.9)	170 (23.6)	125 (30.0)	0.001
Turkish	423 (80.1)	549 (76.4)	292 (70.0)	
<b>Do you smoke?</b>				
No	642 (86.1)	1079 (96.0)	693 (97.7)	<0.001
I tried once or a few times	62 (8.3)	34 (3.0)	6 (0.8)	
Sometimes but less than one per week	16 (2.1)	8 (0.7)	5 (0.7)	
More than 6 cigarettes per week	26 (3.5)	5 (0.7)	5 (0.7)	

Results are expressed as n (%)

\*There was a meaningful difference between years 1996-1999 and 1999-2006 (p<0.05) meaningful

**Table 5. Recognition of brands**

	1996 %	1999 %	2006 %	p
Coke <sup>+</sup>	76.9	56.1	27.9	<0.001
Tuborg*	65.6	44.4	47.9	<0.001
Tuborg <sup>+</sup>	64.7	45.8	43.7	<0.001
Colgate*	63.1	57.5	58.3	<0.001
Colgate <sup>+</sup>	74.6	63.3	69.7	<0.001
Cheetos*	55.4	78.2	56.3	<0.001
Uzay <sup>+</sup>	80.9	71	4	<0.001
Milka*	87.1	94.4	62.4	<0.001
Ciko <sup>+</sup>	46.8	38.9	15	<0.001
McDonald's <sup>+</sup>	72.4	66.6	57.9	<0.001
Camel*	81.6	64.9	34.2	<0.001
Camel <sup>+</sup>	91.7 <sup>#</sup>	87.8 <sup>#</sup>	47.1	<0.001
Marlboro*	90.6 <sup>#</sup>	89.4 <sup>#</sup>	74.7	<0.001
Marlboro <sup>+</sup>	63.6 <sup>#</sup>	61.8 <sup>#</sup>	23.1	<0.001
Samsun*	93.8	89.8	76.3	<0.001
Samsun <sup>+</sup>	85.2	88.6	53.6	<0.001

\*: Name, +: Picture

There was a meaningful difference between years 1996-1999, 1999-2006 and 1996-2006 p&lt;0.05) Only between 1996-1999 years pointed with \*p&gt;0.05

higher.); and smoking foreign brand cigarettes OR=3.7(95% CI: 1.0-13.9) increased the risk of smoking. The overall accuracy was 95.8%.

No effective risk factors for smokers' behaviour were found in 2006.

## Discussion

Tobacco control is a multi-sectorial effort. The major tobacco control policies involve restrictions on smoking in public places and workplaces, with comprehensive bans on advertising and promotions to prevent children from using tobacco. It is easier to prevent people from starting to smoke rather than trying to convince them to stop smoking. It is also necessary to implement measures against smoking cigarettes at an early age, namely during childhood, which is when many people start smoking cigarettes worldwide.

The Turkish anti-tobacco law can be seen as the turning point in controlling tobacco consumption in the country, while the number of legal arrangements started to increase following acceptance of the 2004 framework convention on tobacco control (FCTC) (4).

Smoking among children in Edirne significantly decreased after the law was passed. The rate fell from 13.9% in 1996 to 2.2% in 2006. According to a study conducted in 2004-2005, 19.1% of primary school students had attempted to smoke cigarettes (5).

Smoking in parents decreased overall, but the number of smoking mothers increased. On a positive note, it is good to see a slight decrease in the amount of male smokers. It is important that parents and teachers stop smoking in order to

be role models for future generations. The study identified an increase in negative attitudes towards smoking parents and teachers, and smoking in crowded areas. Smoking activity perceived as a normal attitude of society on this issue can be considered an expression of ignorance. An increase in negative attitudes about smoking is promising for tobacco control.

The obligation to broadcast warnings on TV highlighting the hazards of smoking is arguably the most important part of the law. On seeing these warnings, children are likely to realise that smoking is bad for them.

The consumption of foreign cigarettes increased during the period studied. The privatisation of the industry allowed for multinational tobacco companies to trade in Turkey, subsequently increasing the use of imported cigarettes. Although the cigarettes brands were well known, there was a significant decrease in brand and logo recognition. However, indirect methods of advertising were still used, as tobacco companies sponsored sports events on television and foreign movies. According to the findings of a study conducted among primary school students in Brazil, the logos of cigarette companies caused children to smoke 3.29 times more than usual (6). The decrease in recognition rates for drink and food products can be explained by brands changing names and reduced availability in Edirne.

The limiting side of our study is lack of validated questionnaires and children who had ever smoked were considered as smokers.

The Turkish anti-tobacco law has undoubtedly had a beneficial effect on decreasing smoking in the country. A Turkish cabinet decree issued on July 19, 2009, broadened the scope and specificity of Law 4207, and smoking cigarettes was forbidden in all enclosed areas (7). It is hoped that the next generation in Turkey will be a healthier generation, and the country will no longer be among the top 10 countries in terms of cigarettes smoked.

This study provides a comparison of data collected before and after the 1996 tobacco control law was implemented, and it may provide a database to research the effects of the 2009 law and the FCTC.

## Acknowledgements

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## Conflict of Interest

No conflict of interest was declared by the authors.

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