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The short term effect of the law prohibiting smoking in enclosed areas upon the smoking conditions of employees in Kayseri, Turkey

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Aim: A law prohibiting smoking in the enclosed areas of public and private workplaces was put into effect in Turkey on 19 May 2008. The objective of this study was to evaluate the effect of this law upon the smoking habits of the employees in this short period of 3 months.

Materials and methods: This study was performed in Kayseri, in 3 public and 3 private workplaces, comprising 868 employees. A questionnaire was filled out, face-to-face, in the second week of August.

Results: The ratio of the people supporting this smoke-free law was 68.7%. Among the employees who were smoking when the law was put into effect, 5 (1.5%) of them have stated that they quit smoking because of the law, within 3 months. Among employees still smoking, 54.1% stated that the number of cigarettes they smoked in the workplace had decreased following this law, and 43.4% stated that the number of cigarettes smoked during the entire day had decreased. The mean number of cigarettes smoked had decreased from 10.8 to 8.1 in the workplace and from 15.6 to 13.0 during the entire day.

Conclusion: It was revealed that this new smoke-free law has been effective in decreasing the number of cigarettes smoked, both in the workplace and during the day.

Key words: Smoking, workplace, employee, law

Kapalı alanlarda sigara içimini yasaklayan kanunun çalışanların sigara içme durumuna kısa dönemdeki etkisi

Amaç: Türkiye'de kamu ve özel sektöre ait işyerlerinin kapalı bölümlerinde sigara içmeyi yasaklayan bir kanun 19 Mayıs 2008'de yürürlüğe girmiştir. Bu çalışmanın amacı, kanunun 3 aylık kısa sürede, çalışanların sigara içme davranışlarına olan etkisini değerlendirmektir.

Yöntem ve gereç: Çalışma Kayseri'deki kamuya ait 3 ve özel sektöre ait 3 işyerindeki 868 kişide yapıldı. Ağustos ayının 2. haftasında çalışanlarla yüzyüze görüşülerek bir anket formu uygulandı.

Bulgular: Sigarasız ortamlar ilgili yeni kanunu destekleyenlerin oranı % 68.7'dir. Araştırmaya alınanların % 37.7'si halen sigara içmektedir, % 17.2'si ise daha önce içip bırakmıştır. Kanun çıktığında sigara içmekte olanlardan 5'i (% 1.5), aradan geçen 3 ay içinde yeni kanun nedeniyle sigarayı bıraktığını ifade etmiştir. Halen sigara içmekte olanların % 54.1'i, sigara içmenin yasaklanmasından sonra işyerinde içtikleri sigara sayısının azaldığını, % 38.2'si değişmediğini, % 7.7'si ise arttığını belirtmiştir. Sigara içmeye devam edenlerin işyerinde içmekte olduğu sigara sayısı ortalaması da 10.8'den 8.1'e düşmüştür. Kanunun yürürlüğe girmesinden sonra, halen sigara içmekte olanların % 43.4'ü gün boyunca içtikleri sigara sayısının azaldığını, % 47.7'si değişmediğini, % 8.9'u ise arttığını ifade etmiştir. Günde içilen sigara sayısı ortalama 15.6'dan 13.0'a düşmüştür.

Sonuç: Dumansız ortamlarla ilgili yeni kanunun, hem işyerlerinde hem de tüm gün boyunca tüketilen sigara miktarını azaltmada etkili olduğu tespit edilmiştir.

Anahtar sözcükler: Sigara içme, işyeri, çalışan, kanun

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Introduction

Smoking is the main underlying reason of death in 1 out of 10 adult deaths. According to the World Health Organization, 1 billion people will die in the 21st century due to smoking (1). Apart from being a cause of death, the lifelong disabilities, diseases, and the economic costs these bring, make action against smoking mandatory. In order to protect people from these harmful effects of smoking and tobacco products, methods such as restricting its use, encouraging quitting, and increasing its price are used. One of the most important is the legal regulation restricting smoking in enclosed areas. In Turkey, the first regulation prohibiting smoking in public health and educational establishments came into force in 1996. With the new law that was put into effect in 19 May 2009, smoking was banned in entirely enclosed areas of public and private workplaces, and employees who wanted to smoke had to go outside the building. With this regulation, the primary aim was to prevent passive smoking, but this can also be discouraging for smokers themselves. In fact, some studies have established that the number of cigarettes smoked by individuals have decreased both in the workplace and in general, even quitting was seen following prohibition (2,3). Most of the research done after these kinds of legal regulations, is mostly focused on the effect upon exposure, in other words, passive smoking. In this study, on the other hand, we aimed to investigate the effect of this law upon smoking habits of the employees.

Materials and methods

This study was performed in August 2008 with employees over 18 years of age, working in six different workplaces in Kayseri. Of them, 3 were chosen from the public sector (health, education, and municipality) and 3 from the private sector (communication, furniture, and shopping) by using non-probability sampling. The number of the employees (100 and over), accessibility of the workplaces, and the agreement of the managers to participate in the study were the main reasons for the selection.

Of the 1242 employees, a total of 868 (69.9%) completed the questionnaire. Two hundred ninety

employees were on vacation during the study and 84 employees refused to answer the questionnaire. Of the 374 employees who did not participate the study, 204 (54.5%) were male, and 242 (64.7%) were working in the public sector. There was no difference between the employees who did or did not participate.

A questionnaire form was completed by a face-to-face interviewing method with the 868 participants inquiring into their smoking status and their opinion about the new regulations; additionally, questions were directed to 327 of the participants whom stated that they still smoked, regarding their smoking habits before and after these regulations.

In determining the smoking status, the individuals' own statements were taken into account. The individuals who responded as at least one cigarette per day to the question "do you smoke" were accepted as "current smokers"; in contrast, the individuals who stated that they used to smoke but have quit before this research were placed in the category of "ex-smokers". In order to establish the approach of health workers, employees in public workplaces were grouped as "health" and "other civil employees".

During the study, posters about the smoking ban existed in all workplaces, and there was no employee violation of the law. It is assumed that all of the employees act in accordance with the law at all other times.

The study was performed according to the rules of the Declaration of Helsinki. The necessary permissions from the public and private workplaces were given, and verbal consent was received from the participants before filling out the questionnaire. The data obtained were evaluated by computer using SPSS 13.0. For statistical analysis chi-square and paired-samples t tests were used, and $P < 0.05$ was accepted as significant.

Results

Of the 868 employees, 56.5% were male and 43.5% female, 57.3% were graduates of high school or above, and the mean age was 33.5 ± 9.3 years (range: 18-64). The ratio of the participants who still smoked was 37.7%, those who had quit was 17.2%, and those who had never smoked was 45.1%.

Among participants, 68.7% supported the new law put into effect, 28.9% stated that they were against it or that softer precautions should be taken, and 2.4% had no idea. It was established that employees graduated from high schools or above, working in the public health sector and the ones that had quit smoking or had never smoked supported this law at a higher rate (Table 1). The rate of support was 76.8% in the group that had higher education, 80.2% in employees working in health related workplaces, and 89.9% in the group that had never smoked.

Within the 3 months period that passed following this law banning smoking in workplaces, 11 people stated that they had quit smoking, and 5 of them (1.5% of the people who used to smoke 3 months ago) stated that the new regulation was the reason. On the other hand, 54.1% of the individuals still smoking stated that the number of cigarettes they smoked in

the workplace had decreased after this regulation, and 43.4% stated that the number of cigarettes smoked during the whole day had decreased (Table 2).

Table 2. The change in the number of cigarettes in the smoking group following the banning law.

	n	%
Change in the cigarette number at work		
No change	125	38.2
Decrease	177	54.1
Increase	25	7.7
Change in cigarette number during the day		
No change	156	47.7
Decrease	142	43.4
Increase	29	8.9
Total	327	100.0

Table 1. The support state of the participants according to various characteristics.

Characteristic	N	Support for the new law		
		n	%	P*
	847**	596	70.4	
Gender				
Male	480	328	68.3	> 0.05
Female	367	268	73.0	
Age group				
18-25 years	196	132	67.3	> 0.05
26-40 years	453	324	71.5	
41 years and above	198	140	70.7	
Employee workplace				
Public health sector	329	264	80.2	< 0.001
Other public workplaces	170	108	63.5	
Private workplaces	348	224	64.4	
Education				
Primary school	71	46	64.8	< 0.001
Secondary school	288	175	60.8	
High school and above	488	375	76.8	
Smoking state				
Non-smokers	386	347	89.9	< 0.001
Ex-smokers	148	121	81.8	
Current smokers	313	128	40.9	

* Chi-square test

** 21 participants who stated they had no idea were not calculated.

There was no difference in the change of the number of cigarettes smoked according to gender, workplace, or educational status among the individuals still smoking (Table 3). However, the decrease in the number of cigarettes smoked during the day was lower (31.7%) in the 18-25 age group than in the older individuals, and within the “increase in the number of cigarettes” group, which was 8.9% of the whole group, this ratio was 17.1% in this group ($P < 0.05$).

The number of cigarettes smoked during work had decreased from 10.8 ± 6.8 to 8.1 ± 6.9 (-2.7 cigarettes) after the limitation of smoking due to the law, and this represents a 25% decrease ($t = 10.367$, $P < 0.001$). The number of cigarettes smoked during the entire day had decreased from 15.6 ± 8.5 to 13.0 ± 8.9 (-2.6 cigarettes), with a decrease of 16.7% and it was significant ($t = 8.476$, $P < 0.001$).

Discussion

In order to protect society, and most of all, individuals who do not smoke, from the harmful effects of smoking and the use of tobacco products, legal regulations have been established in recent years, in many countries. Starting from April 2009, 29 countries have brought to life 100% smoke-free air strategies at different levels (16 have included bars and restaurants) (4). In Turkey, which is amongst the top 10 countries with high smoking rates (1), smoking has been banned in all enclosed areas of public and private workplaces since May 2008 (with bars and restaurants to be included in July 2009). In order to be successful with these kinds of regulations, they have to be strongly supported by the whole of society. More than two-thirds (68.7%) of the participants in our study stated that they wholly supported these regulations. Similarly, the rate of support for smoke-

Table 3. The change in the number of cigarettes smoked according to various characteristics.

	N	Change status						P*
		No change		Decrease		Increase		
		n	%	n	%	n	%	
Total	327	156	47.7	142	43.4	29	8.9	
Gender								
Male	219	97	44.3	102	46.6	20	9.1	> 0.05
Female	108	59	54.6	40	37.0	9	8.3	
Employee workplace								
Public health sector	92	35	38.0	50	54.3	7	7.6	
Other public workplaces	70	40	57.1	26	37.1	4	5.7	> 0.05
Private workplaces	165	81	49.1	66	40.0	18	10.9	
Education								
Primary school	33	16	48.5	14	42.4	3	9.1	> 0.05
Secondary school	138	68	49.3	54	39.1	16	11.6	
High school and above	156	72	46.2	74	47.4	10	6.4	
Age group								
18-25 years	82	42	51.2	26	31.7	14	17.1	< 0.05
26-40 years	173	84	48.6	79	45.6	10	5.8	
41 years and above	72	30	41.7	37	51.4	5	6.9	

* Chi-square test

free legislation was found to be high in some local studies performed before this law was enforced. For example, a study conducted on 1331 people aged 15 years and older, in 16 provinces, shown that 85% of participants were supporting this legislation (5). Another study evaluated the attitudes of workers and patrons of cafes, restaurants, and coffeehouses about the smoking ban in their workplaces showed that the percentage of people who desire to work in a smoke-free workplace was 57.8% in the restaurants group, and 79.8% in the coffeehouses group (6).

In other countries, where legal regulations regarding smoke-free environment are put into effect, similar support rates were established. For example, in countries that started these bans, the support rates were 69% in New Zealand, 75% in California USA, and approximately 80% in China and Uruguay (1). In Ireland, which was the first country that banned smoking in bars and restaurants, in a study performed with individuals who still smoked, 83% of the participants stated that in general the regulations prohibiting smoking were “good” or “very good” (7). In our study, the ratio of smokers that supported the new law was 40.9%. Although this seems to be low, this support from the smoking group, considering the restriction and discomfort this law brings to them, is expected. The rate of support for such legislation is generally established to be lower among smokers (7-10). For example, in a study performed in China, support for a total smoking ban in restaurants or bars among smokers was only 21.3% (9). According to a study carried out in Turkey, 75.8% of non-smoking teachers supported the punitive procedures of smoking bans; however, this percentage decreased to 45.6% among teachers who smoke (10).

On the other hand, studies show that in time they get used to this situation and increase their support as well. For example, in Norway support of the law banning smoking in bars and restaurants was 54% before the ban started, and rose to 76% after 16 months of implementation (11). Again in Ireland, 45% of the individuals still smoking supported the ban in restaurants, and 13% supported the ban in bars and pubs before legal regulations, whereas this support rose to 67% for restaurants and to 46% for bars and pubs 12 months after the law was put into effect (7). Therefore, it can be said that the support for

the legal regulation in Turkey from all the employees, including those that still smoke, is promising for the time being. However, this study was performed before the law included restaurants or cafes; therefore, it is unclear how this support will change when the law includes bars and restaurants.

In our study, 1.5% of the smokers had quit smoking during the 3 months due to the ban, and it was established that 54.1% of the smokers had decreased the number of cigarettes they smoked in the workplace, and 43.4% of smokers decreased the number during the entire day. The fact that the person has to go outside the building for a cigarette, due to not being able to smoke in their rooms or enclosed areas due to the ban, can be uncomfortable, forceful, and even guilt provoking, and this can lead to less smoking or even quitting. This has been observed in countries that made similar regulations before Turkey. In Ireland, the fact that almost half of the smokers (46%) stated that their chance of quitting smoking had risen, following these regulations, is striking (7). In an analysis, performed between 1984 and 1993 evaluating 26 studies from different countries, it was found that the prevalence of smoking decreased by 3.8%, after a follow-up of 10 months following the prohibition of smoking in the workplace (2). In some studies, it was found that in Spain 5.1% of the hospital personnel quit smoking at the end of 12 months, following the ban (12); also, in the USA 9% of the smokers had quit smoking after 6 months (13), and in Australia, in a Telecom enterprise, the smoking prevalence had decreased by 5% in 2 years following prohibition (14). In our study, the contribution of the new regulation in Turkey upon quitting smoking was found to be quite low compared to other countries, but it can be expected to increase with time; for the reason that, at the beginning of such regulations people are reluctant in leaving their habits and can endure many a difficulty. But in time these regulations can be tiring, and feelings of guilt or shame from their surroundings can eventually lead to quitting. In fact, in a study conducted in Italy comprising 3 periods, following prohibition, the rate of quitting smoking increased as time went by (3).

On the other hand, the regulations prohibiting smoking in enclosed areas, apart from encouraging smokers to quit smoking, can be of help in reducing

the number of cigarettes smoked. In an analysis evaluating 26 studies from different countries, it was calculated that after approximately 10 months following prohibition, the number of cigarettes smoked decreased by 3.1 cigarettes (2). It was observed that the number of cigarettes smoked, also decreased as time elapsed following these regulations. For example, in Norway, the number of cigarettes smoked decreased by 1.55 cigarettes in the food sector workers in the following 4 months after putting into effect these regulations (15); in the USA in the hospital employees group, it decreased by 2.0 cigarettes after 6 months (13), and in Australia in Telecom employees it decreased by 3-4 cigarettes after 18 months (14). In a study performed in Spain with hospital personnel, it was established that the mean number of cigarettes consumed after 12 months of prohibition decreased from 17.9 to 16.3 (an 8.9% decrease) (12); in Italy similar regulations had resulted in an 8% decrease (16). In our study, a substantially important decrease was established in the number of cigarettes smoked, in spite of the very short period of 3 months (the number of cigarettes consumed at work decreased by 2.7 cigarettes or 25%, and the number of cigarettes consumed in the day by 2.6 or 16.7%). These data could be indicative of that this new law might be embraced, in a shorter amount of time in our country, and may give better results.

One result in our study that can be accepted as unfavorable is the fact that some employees, though a small number, stated that the number of cigarettes they consumed, both at work and throughout the day, had increased. It was more distinctive in the younger

groups. Some individuals like to protest, especially in the beginning, to legalize regulations they do not like. On the other hand, studies in other countries suggest that the effectiveness of such smoke-free policies grow over time (7-9,11). Taking this into account and understanding, educating people, while especially focusing on convincing young people, regarding the harmful effects of smoking and explaining the aim of this regulation is of utmost importance. Furthermore, this regulation should be supported with other policies aimed at quitting smoking (tobacco tax increase, advertisement bans, mass media campaigns, and so on).

It has been established that, in spite of a short period of 3 months, the regulation prohibiting smoking in enclosed areas in the workplace has been embraced by the majority of the employees, and has been effective in reducing the number of cigarettes smoked in the workplace; in our opinion, putting it into effect with meticulous pursuit and educational support can be beneficial. Also, further research should be conducted to evaluate whether the support for the ban in the Turkish population changes after the law includes bars and restaurants.

Study limitations

This study had several limitations. Firstly, this was a questionnaire based study where there was a potential for information bias to occur. Secondly, this study was conducted on 868 employees working at 6 workplaces, and the results may not be generalized for all employees in Kayseri.

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