

Dear Readers...

In this issue of the Journal, you will find three original articles, and two reviews.

The first article is about the knowledge that mothers with children aged 0-6 years have about body temperature, and about the mothers' relevant behaviour. In this study Ozer et al., report that most of the mothers have no knowledge about the normal value of body temperature and have no thermometer available at their homes.

The second article is about the accuracy of the lung cancer registry in Izmir. In this study, Eser et al. suggested that KIDEM had lung cancer data with a high level accuracy.

The third article is a short report based on a qualitative study which aimed to understand the motivations of non-smokers for not starting to smoke or for not continuing to smoke after they had started. In their report Orten and Kaplan suggest that health related warning messages on cigarette packages should include problems faced more generally by addressing smokers' daily lives, by considering their ages as well, and by including difficulties in breathing, running or doing sports activities.

One of the two reviews is on tobacco use and control in Turkey. In their review, Bilir et al. report that tobacco control activities in Turkey were fortunately promising at the moment.

The last article is a review on hantavirus infections. Kirecci and Ozer, provide comprehensive information about the basic characteristics of hantavirus infections and control strategies.

Dear authors and readers...

We announced some targets for our Journal in the previous issue: to publish the issues on time starting from the beginning of 2010; to reduce the time of the reviewing process, and thirdly, to join the scientific indexes in the near future.

We believe that we have made an important progress especially for the first and the second targets. The number of submissions to the Journal is increasing, and time of the reviewing process is decreasing. We would like to thank all of you for your supports.

Now, it is time to join the scientific indexes. This was the third target mentioned in the previous issue. We hope that we will achieve this target in 2010.

We hope you enjoy this issue of the Turkish Journal of Public Health. We would like to thank all the authors and reviewers. Best Regards... 16.04.2010

Sibel Kalaca
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Editörlerden...

Sevgili okuyucular ve yazarlar,

Türkiye Halk Sağlığı Dergisi'nin (THSD) bu sayısında 3 orijinal çalışma ve iki derleme yazısı bulunmaktadır.

İlk çalışma 0-6 yaş çocuğu olan annelerin vücut sıcaklığı ve ölçümü konusundaki bilgi ve davranışları hakkındadır. Bu çalışmada Özer ve arkadaşları annelerin çoğunun vücut sıcaklığının normal değeri hakkında bilgi sahibi olmadıklarını ve evlerinde termometre bulundurmadıkları bildirilmiştir.

Bu sayıdaki ikinci çalışmada Eser ve arkadaşları, İzmir'de akciğer kanseri kayıtlarının doğruluğunu değerlendirmektedir. Bu çalışmada yazarlar, KIDEM akciğer kanseri kayıtlarının yüksek güvenilirliğe sahip olduğunu bildirmişlerdir.

Üçüncü çalışma kalitatif bir çalışmanın sonuçlarına dayanan kısa rapor olup sigaraya başlamama veya sigarayı bırakma nedenlerini sorgulamaktadır. Örtten ve Kaplan çalışma sonuçlarına göre sigara paketleri üzerinde yer alan mesajlarda sigara içenlerin nefes alma zorluğu, koşma veya spor yapma sırasında zorlanmaları gibi günlük yaşamda karşılaştıkları sorunlara yer verilmesi önerisinde bulunmaktadır. Bu sayıdaki iki derlemeden ilki Türkiye'de tütün kullanımı ve kontrolüne ilişkindir. Bu çalışmada Bilir ve arkadaşları Türkiye'de tütün kontrolü çalışmaları umut verici şekilde ilerlemekte olduğunu bildirmektedirler.

Bu sayının son çalışması Hantavirus enfeksiyonları üzerinedir. Bu derleme yazısında Kireççi ve Özer, hantavirus enfeksiyonlarının temel özellikleri ve kontrol önlemleri konusunda kapsamlı bilgi sunmaktadır.

Değerli yazarlar ve okuyucular...

Bir önceki sayımızda Türkiye Halk Sağlığı Dergisi ile ilgili 3 hedef bildirmiştik: 2010 yılından itibaren sayıları gecikme olmaksızın zamanında çıkartmak, makale değerlendirme sürecini hızlandırmak ve üçüncü olarak bilimsel indekslere girmek.

Birinci ve ikinci hedefle ilgili önemli gelişmeler sağladığımızı düşünüyoruz. Dergimize yapılan başvurular artmakta, değerlendirme süreci kısalmaktadır. Desteğinizden dolayı hepimize teşekkür ediyoruz.

Şimdi önümüzdeki hedef bir önceki sayımızda belirttiğimiz gibi bilimsel indekslere girmektir. Bizler, tüm editörler, sizlerin desteği ile 2010 yılında bu hedefi gerçekleştireceğimizden eminiz.

Dergimizin bu sayısını beğenerek okuyacağınızı umuyor, editörler olarak tüm yazar ve hakemlere teşekkür ediyoruz. Saygılarımızla... 16.04.2010

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Knowledge and behavior of mothers about body temperatures of their children and associated factors

Ali Ozer^a, Rusen Darendeli^b, Hasan Cetin Ekerbicer^c

Abstract

Objective: The present study was carried out to determine the knowledge and the behavior of mothers regarding body temperature and measurement methods as well as associated factors. **Materials and Methods:** This descriptive study was conducted between June 2007 – June 2009 in the Kahramanmaraş Gynecology- Obstetrics, and Pediatrics Hospital. The study included patients who had received treatment for more than 2 days during their hospitalization, who lived in the central district of the province, and were mothers with a child between 0-6 years of age. Mothers who had a history of a special training about health or those working in a healthcare institution, were excluded from the study. Out of 1874 mothers, 1555 (82.9%) were accessed and included in the current study. **Results:** Of the mothers in the study, 47.3% knew the normal value of body temperature, 40.7% kept a thermometer at home. The rate of thermometer availability was positively related to the level of education ($p<0.05$). Mothers 25-29 years of age had a higher rate for thermometer availability at home compared with all the other age groups. Mothers ≤ 24 years of age demonstrated a significantly higher rate of thermometer availability at home than those ≥ 30 years ($p<0.05$). 42.5% of the mothers included in the study knew how to use a thermometer. The number of mothers who had a knowledge of thermometer usage was positively related to their level of education ($p<0.05$). **Conclusion:** Most of the mothers were found to have no knowledge about the normal body temperature, have no thermometer available in the home and no knowledge of thermometer usage.

Key Words: body temperature, mother, child, Turkey

Annelerin çocuklarının vücut ısısı hakkındaki bilgi ve davranışları ile ilişkili faktörler

Özet

Amaç: Bu çalışma, 0-6 yaş grubu çocuğu olan annelerin vücut ısısı ve ölçüm yolları konusundaki bilgi ve davranışları ile bunları etkileyen faktörleri belirlemek amacıyla yapılmıştır. **Gereç ve Yöntem:** Tanımlayıcı tipteki bu araştırma, Haziran 2007- 2009 tarihleri arasında Kahramanmaraş Kadın Doğum ve Çocuk Hastalıkları Hastanesinde yapıldı. Çalışmaya Kahramanmaraş Kadın Doğum ve Çocuk Hastalıkları Hastanesinde iki günden fazla yatarak tedavi gören, il merkezinde yaşayan ve 0-6 yaş grubu çocuğu olan anneler alındı. Sağlıkla ilgili özel bir eğitim almış anneler, sağlık hizmeti verilen bir kuruluştaki görevli veya daha önceden görev almış anneler çalışmaya dahil edilmedi. Böylece toplam 1874 anneden çalışmaya katılmayı kabul eden 1555 (% 82.9) anneye ulaşıldı. **Bulgular:** Çalışma grubundaki annelerin % 47.3'ü vücut ısısının normal değerini bilmiş, % 40.7'side evinde termometre olduğunu ifade etmiştir. Evde termometre bulundurma, eğitim düzeyi arttıkça artmaktadır ($p<0.05$). 25-29 yaş grubunda olanlar diğer yaş gruplarından, 24 ve altı yaş grubundaki anneler de 30 ve üstü yaş grubunda olanlardan anlamlı olarak daha fazla oranda evlerinde termometre bulundurduğunu belirtmiştir ($p<0.05$). Çalışmaya katılan annelerin % 42.5'i termometre kullanmayı bildiğini söylemiştir. Termometre kullanmayı bilme durumu annelerin eğitim düzeyi arttıkça artmaktadır ($p<0.05$). **Sonuç:** Annelerin büyük bir kısmının vücut ısısının normal değerini bilmediği, evinde termometre olmadığı ve termometre kullanmayı bilmediği tespit edilmiştir.

Anahtar Kelimeler: vücut ısısı, anne, çocuk, Türkiye

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Introduction

Fever is one of the most important problems concerning public health which is encountered frequently during the childhood period and makes parents anxious about the health of their children. Every child suffers from high body temperature at least once in a lifetime¹⁻³. Normal body temperature is 37 °C. However, the body temperature of healthy children may vary by 1.5 °C within a day. A body temperature higher than rectal 38 °C, oral 37.8 °C, and axillary 37.2 °C, is defined as a high temperature by many sources⁴⁻⁶. Parents feel anxious when their children get sick and mostly have difficulty to evaluate the severity of the disease⁷. Fever, one of the fundamental indicators of disease, is considered as harmful by a majority of parents⁸.

Fever is often experienced during childhood and is of considerable importance with regard to the complications and that

vary with the age of the child. Moreover, fever is a condition that should be treated immediately. While it can easily be treated, interventions that are performed without proper knowledge and with inappropriate timing, may lead to negative results⁹⁻¹¹.

Sequelae associated with high temperatures can be prevented by raising awareness of the necessity of an early intervention and by providing health education to the families. Health personnel have a key responsibility in the education of families, particularly mothers, on the proper measurement of the temperature of their children⁹⁻¹².

The present study was carried out to determine the knowledge of the mothers about body temperature and its measurement, and to study the behavior of the mothers in relation to temperature measurements.

Materials and Methods

The present descriptive study was conducted between June 2007 – June 2009 in the Kahramanmaraş Gynecology- Obstetrics, and Pediatrics Hospital. The hospital has a capacity of 200 beds (65 in the Gynecology and Obstetrics Department) and is comprised of 5 Pediatrics, 5 Gynecology, and 1 Pediatric Surgery Polyclinic, in which an average of 900 patients are treated daily. The hospital is generally used by people at a high socioeconomic level. The study included patients who had received treatment for more than 2 days during their hospitalization, who lived in the central district of the province, and were mothers with a child between 0-6 years of age. Mothers who had a history of special training about health or were working in a healthcare institution, were excluded from the study. Thus, among a total of 1874 mothers, 1555

(82.9%) were accessed and included in the current study. A survey form, made up of 46 questions and prepared in the light of data in the literature, was filled out by the members of the study team according to the responses of the mothers. Axillary temperature, often used by mothers, was taken to represent body temperature was asked and a temperature above 37.2 °C was recognized as high⁴⁻⁶. The mother's age and educational level were employed as independent variables; knowledge of normothermal value, thermometer availability at home, and knowledge of thermometer usage were taken as dependent variables. The data were entered into the SPSS 15.0 computer program. The Chi-square test was used in the statistical analysis. $P < 0.05$ was recognized as statistically significant.

Results

The mean age of the study group was 27.1±5.7. Sociodemographic characteristics of the mothers are shown in Table 1.

Of the mothers in the study, 94.7% were housewives. SSK (Workers' Insurance Institution) was the social security of 39.8%, whereas it was greencard (a healthcare card

in Turkey for the underprivileged) for 37.2%. When the educational level was evaluated, 74.3% of mothers were either primary school graduates or illiterate. 30.3% of mothers had one child, 31.1% had 2 children, 21.5% had 3 children, and 17.1% had 4 or more children.

Table 1: Sociodemographic Characteristics of Mothers (Kahramanmaraş, 2007-2009)

Sociodemographic Characteristics	n	%
Age		
≤24 age	571	36.7
25-29	493	31.7
≥30	491	31.6
Profession		
Housewife	1472	94.7
Other	83	5.3
Social Security		
*SSK	619	39.8
Greencard	579	37.2
**Emekli Sandigi	124	8.0
Self-Charged	115	7.4
***Bagkur	113	7.2
Free of charge	6	0.4
Education Level		
Illiterate	207	13.3
Primary school graduate	948	61.0
Junior high school graduate	163	10.3
High school graduate	175	11.3
University	65	4.1
Number of Children		
1	472	30.3
2	483	31.1
3	334	21.5
4	167	10.7
≥ 5	99	6.4
Total	1555	100.0

* Workers' Insurance Institution,

**General Directorate of Retirement Fund,

***Social Insurance Institution for the Craftsmen and Artisans and Other Self Employed

The distribution of knowledge of normothermal value, thermometer availability at home, and knowledge of thermometer usage relative to the educational level and age groups of the study group, are shown in Tables 2, 3 and 4.

As seen in Table 2, 47.3% of mothers knew the normal value of body temperature.

Normal body temperature was found to be known by a significantly higher number of people who were below 30 years of age compared with the ones ≥30, and the rate of mothers knowing the normal body temperature was significantly higher among those with a University level than those with a lower education level (p<0.05).

Table 2. Normal body temperature knowledge of mothers, according to their age and education (Kahramanmaras, 2007-2009)

	Normal Body Temperature						χ^2	p
	Know		Do not know		Total			
	n	%	n	%	n	%		
*Education								
Illiterate	39	18.8	168	81.2	207	100.0	215.9	0.00
Primary school graduate	400	42.2	548	57.8	948	100.0		
Junior high school graduate	96	60.0	64	40.0	160	100.0		
High school graduate	144	82.3	31	17.7	175	100.0		
University	57	87.7	8	12.3	65	100.0		
**Age								
≤24 age	271	47.5	300	52.5	571	100.0	8.65	0.01
25-29	256	51.9	237	48.1	493	100.0		
≥30	209	42.6	282	57.9	491	100.0		
Total	736	47.3	819	52.7	1555	100.0		

**Each group is significantly different from the others.

**The difference arises from the ≥30 age group.

Table 3 shows that 40.7% of the study group kept a thermometer at home. The rate of thermometer availability at home displays significant rise as the level of education increases ($p < 0.05$). Mothers 25-29 years of age had a higher rate for thermometer availability at home compared

with the other age groups and mothers ≤24 years of age demonstrated a significantly higher rate of thermometer availability at home than those ≥30 ($p < 0.05$).

Table 3. Availability of thermometer at home, according to age and education of mothers (Kahramanmaras, 2007-2009)

	Thermometer at home						χ^2	p
	Available		Unavailable		Total			
	n	%	n	%	n	%		
*Education level								
Illiterate	32	15.5	175	84.5	207	100.0	188.4	0.00
Primary school graduate	342	36.1	606	63.9	948	100.0		
Junior high school graduate	79	49.4	81	50.6	160	100.0		
High school graduate	125	71.4	50	28.6	175	100.0		
University	55	84.6	10	15.4	65	100.0		
*Age								
≤24 age	222	38.9	349	61.1	571	100.0	12.7	0.00
25-29	232	47.1	261	52.9	493	100.0		
≥30	179	36.5	312	63.5	491	100.0		
Total	633	40.7	922	59.3	1555	100.0		

*Each group is significantly different from the others.

As shown in Table 4, 42.5% of mothers included in the study knew how to use the thermometer. The number of mothers who had a knowledge of thermometer usage showed a significant increase parallel to the increase in educational level of mothers

($p < 0.05$). The number of mothers knowing how to use a thermometer was significantly higher in the 25-29 years of age group than in the others; it was also more elevated in the ≤ 24 years of age group than in the group ≥ 30 ($p < 0.05$).

Table 4. Knowledge of mothers in using a thermometer, according to their age and education (Kahramanmaras, 2007-2009)

	Knowledge in using a thermometer						χ^2	p
	Know		Don't know		Total			
	N	%	n	%	n	%		
*Education level								
Illiterate	27	13.0	180	87.0	207	100.0	243,9	0.00
Primary school graduate	352	37.1	596	62.9	948	100.0		
Junior high school graduate	86	53.8	74	46.3	160	100.0		
High school graduate	141	80.6	34	19.4	175	100.0		
University	55	84.6	10	15.4	65	100.0		
*Age								
≤ 24 age	233	40.8	338	59.2	571	100.0	17.6	0.00
25-29	246	49.9	247	50.1	493	100.0		
≥ 30	182	37.1	309	62.9	491	100.0		
Total	661	42.5	894	57.5	1555	100.0		

*Each group is significantly different from the others.

Temperature assessment methods used by the mothers and the interventions

applied when faced with high temperature, are shown in Table 5.

Table 5. Practices for measuring the body temperature and for the management of fever (Kahramanmaras, 2007-2009)

	n*	%
* Practices for measuring the body temperature		
Forehead assessment by hand	850	37.7
Measurement by a thermometer	661	29.3
Body assessment by hand	591	26.2
Forehead assessment by lips	155	6.8
Total	2257	100.0
* Modern fever reduction methods		
Compresses with a tissue soaked in lukewarm water	730	29.4
Undressing the child and ventilating the room	526	21.2
Antipyretics	508	20.4
Sponging the child with cold water	471	18.9
Visiting a physician	250	10.1
Total	2485	100.0
* Traditional fever reduction methods		
Bundling up the child with a blanket to make it sweat	29	8.2
Wiping the child with vinegar-water mixture	309	87.9
Not letting the child drink water	14	3.9
Total	352	100.0

*Number of answers.

When the mothers were asked about the method of measuring the temperature 37.7% of mothers checked their children's temperature by touching the forehead, whereas 29.3% assessed fever with a thermometer. In case of a fever, 29.4% of mothers reported the use of a compress with

a tissue soaked in lukewarm water, while 18.9% were found to prefer wiping the child with cold water. The most common traditional method when faced with fever was to sponge the child with a mixture of vinegar and water.

Discussion

An axillary temperature higher than 37.2 °C is defined as a high fever in the literature⁴⁻⁶. Knowing normothermia is a prerequisite for detecting a high temperature. In the current study, 47.3% of the mothers knew the normal value of body temperature. This rate is low, therefore healthcare personnel and all educators should provide more education on this subject. Various studies have indicated that the knowledge of mothers about the temperature of their children rises as their educational level increases¹³. In the present study, similarly, the number of mothers with a University education demonstrated a higher rate of normothermia knowledge compared with those having a lower educational level ($p < 0.05$). On the other hand, relatively more of the mothers below 30 years of age knew the value of normal body temperature than did the mothers ≥ 35 ($p < 0.05$). This result displays the higher awareness of young mothers ~~on~~ about body temperature.

In a study conducted by Bestepe et al. a significant correlation was found between the educational level of the mother and proper thermometer usage and assessment¹⁴. In the current study, 40.7% of the mothers questioned had a thermometer at home and 42.5% knew how to use the thermometer. The rates of thermometer availability at home and knowledge of thermometer usage were higher in mothers of 25-29 years of age than in other age groups, whereas same rates were also higher in mothers ≤ 24 years compared with the ones ≥ 30 . Moreover, mothers with a University education again exhibited higher rates for the same criteria compared with the ones with lower levels of education ($p < 0.05$) (Table 3,4). In a study performed on mothers having children aged 0-6 years, 56.7% of the mothers were found to have a thermometer

at home and 50.8% were found to know how to use a thermometer, and both rates were observed to rise as the education level increased¹⁵.

As seen in Table 5, while 37.7% of mothers were found to apply forehead temperature measurement, 29.3% measured by thermometer and 26.2% by touching the body of the child. According to various studies, 43-82.2% of mothers assess their children's temperature by touching the skin, whereas 8.7-26.4% by overall appearance, and 20.1-50.8% with a thermometer¹⁵⁻¹⁸. Those results are consistent with our results and temperature measurement by thermometer is low. Temperature measurement by touching a child's skin is regarded as an unreliable method because it can lead to misperceptions and does not reflect an objective result¹⁹.

Previous studies show that the most common treatment used by mothers for their child with fever is the application of compresses with a tissue soaked in lukewarm water and antipyretics²⁰⁻²⁴. In the present study, while 29.4% of mothers applied compresses with a tissue soaked in lukewarm water to their children with fever, 21.2% undressed their children and ventilated the room, 20.4% gave antipyretic medication, 18.9% wiped/sponged the child with cold water. The most common traditional method for temperature reduction used by mothers is sponging the child with a tissue soaked in vinegar and water mixture. In a similar study conducted by Celasin et al., while 56.7% of mothers were found to use lukewarm compresses, 61.2% undressing their children and ventilating the room, but the most common traditional method for temperature reduction in that study was also found to be

sponging the body of the child with a mixture of vinegar and water¹⁵.

In another study, while 54.7% of the mothers were reported to give antipyretics based on the recommendation of a physician, 20.5%, 2.4%, 1.3% were found to undress their children, ventilate the room, make their children drink large amounts of fluid, respectively. 34.8% of the mothers in that study were found to use antipyretics without the recommendation of a physician, 3.8%, 1.7%, 4.8%, and 0.6% used cough syrup, antibiotics, sponging with alcohol, eau de cologne or-vinegar or dressing their children heavily in order to make them sweat, respectively¹⁶. Another study similar to ours found that while 73% of mothers used compresses with lukewarm water for temperature reduction, 2/3 of them resorted to wrong methods such as compresses with alcohol and cold water or frequent usage of antipyretics at high doses⁸. Our results are consistent with the results of these previous similar studies.

In conclusion, most of the mothers were found to have no knowledge about the normal body temperature, have no thermometer available in the home and no knowledge of thermometer usage. Increased educational levels related to increased knowledge of normal body temperature, thermometer availability at home, and knowledge of thermometer usage. The mothers mostly apply non-objective methods (Forehead assessment by hand, Body assessment by hand, Forehead assessment by lips) to determine the body temperature of their children. Physicians, nurses and midwives working on mother and child health, should inform mothers about the importance of body temperature. Furthermore, the importance and consequences of high fever in childhood, the management strategies in case of high fever, and the impact of an early application to a health facility should be emphasized in all educational institutions as well as by means of mass media.

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Orijinal Çalışma

İzmir’de akciğer kanseri hızı gerçekten yüksek mi? Kalite kontrolü olarak bir adres kaydı doğrulama çalışması

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Abstract

Objective: We aimed to find the accuracy levels of the recorded addresses at the Izmir Cancer Registry (KIDEM) database with respect to help the evaluation of the accuracy of KIDEM data.

Method: This study is a descriptive data confirmation study. We matched two databases at the study. A. All lung cancer cases of 2004 - 2006 incidence years at KIDEM database (n = 9063); B. Lung cancer cases with an Izmir address or were notified by the facilities in Izmir at the database of Turkish Thorax Society Study (TTDÇ) (n= 2056). We looked for the accuracy of addresses recorded as resident or non-resident for the cases which have an Izmir address among 2005 incident cases at KIDEM database (n = 1987) by matching the database with TTDÇ and available confirmation sources. **Results:** We found that 95,5% of the lung cancer cases which have Izmir address at the data base are actual Izmir residents; 4,3% of these cases were actually non-residents. **Conclusion:** This study supports our previous findings on the high levels of data accuracy of KIDEM.

Key words: data validity, accuracy, cancer registry, hospital records, record confirmation

Is pulmonary cancer rate really high in Izmir? A confirmation study of address records

Özet

Amaç: Bu çalışma, nüfus tabanlı bir kanser kayıt merkezi olan İzmir Kanser Kayıt Merkezi (KIDEM) verilerinin doğruluk düzeyini ortaya koyabilmek üzere adres kayıtlarının doğruluk oranlarını ortaya koymayı amaçlamaktadır. **Gereç-Yöntem:** Bu araştırma bir tanımlayıcı veri doğrulama çalışmasıdır. Çalışmada iki veri seti çaprazlandı: A. KIDEM veritabanındaki tanı yılı 2004-2006 olan primer kanseri “akciğer kanseri” olarak kaydedilmiş bütün olgular (n = 9063); B. Türk Toraks Derneği Çalışması (TTDÇ) (çalışmanın ayrıntısı aşağıda verilmiştir) kapsamında oluşturulan TTDÇ veritabanındaki primer kanseri “akciğer kanseri” olarak kaydedilmiş veya İzmir’den bildiri yapılmış bütün olgular (n = 2056). KIDEM veritabanında İzmir adresli olarak kaydedilmiş adreslerin (n = 1987) ne kadarının gerçekte İzmir ikametli oldukları, Türk Toraks Derneği Çalışması (TTDÇ) veritabanı ve mevcut doğrulama kaynakları kullanılarak araştırıldı.

Bulgular: İzmir adresli olarak kaydedilmiş olguların adreslerinin % 95,5 oranında doğru olarak kaydedildiği, veritabanında İzmir olarak kaydedilmiş olguların gerçekte İzmir dışı ikametli olma oranının ise % 4,3 olduğu saptandı. **Sonuç:** Adres başlığında saptanan bu yüksek doğruluk oranı, KIDEM verilerinin doğruluk düzeyinin yüksekliğini desteklemektedir.

Anahtar sözcükler: veri geçerliliği, doğruluk, kanser kayıt merkezi, hastane kayıtları, kayıt doğrulama

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Giriş

İzmir Kanser Kayıt Merkezi ya da resmi adıyla "İzmir Kanser İzlem ve Denetim Merkezi (KİDEM)", Türkiye'de, iyi tanımlanmış bir coğrafi alanda (İzmir ili) tanı almış bütün kanser hastalarının verilerine ulaşmayı hedefleyen nüfus tabanlı ilk kanser kayıt merkezidir (www.ism.gov.tr/kidem)¹.

1991 yılında T.C. Sağlık Bakanlığı, Türk - Amerikan Sağlık Araştırma Merkezi ve Ege Üniversitesi arasında imzalanan bir protokol ile başlatılan İzmir Kanser İnsidansı ve Veri Toplama Projesi veriyi daha etkin biçimde toplamak ve uluslararası bilim çevrelerinde kabul edilebilir olmaya izin verecek bir tamlık ve kalite düzeyine ulaştırmak doğrultusunda yeniden yapılandırıldı ve 1998 yılında nüfus tabanlı bir kanser kayıt merkezine dönüşüm tamamlandı. Geriye dönük tamamlama çalışmaları da yapan İzmir Kanser Kayıt Merkezi, 1993 yılından itibaren İzmir ili kanser insidans hızlarını sunabilmektedir².

İzmir Kanser Kayıt Merkezi (KİDEM), çalışmasının her aşamasında uluslararası kanser kayıtçılığı kurallarını uygular. Sürecin her aşamasında verinin tamlığı (completeness) ve geçerliliği (validity), yani verinin doğruluğu (accuracy) çeşitli yöntemlerle kontrol edilerek, rutin çalışmaların ve kontrollerin dışında farklı çalışmalar (yeniden olgu bulma, yeniden özetleme, yakalama - yeniden yakalama çalışmaları) yürütülerek, mümkün olan en yüksek kalitede bilgiyi üretmek hedeflenir^{3,4}. Ancak, İzmir Kanser Kayıt Merkezinin ürettiği bilginin kalitesi, merkez çalışmalarının ötesinde, özellikle veri sağlayıcı kurumlardaki kayıtların kalitesiyle de yakından ilgilidir. Son yıllara kadar veri sağlayıcı kurum kayıtlarından alınan sosyodemografik bilgileri doğrulama olanağı olmamakla birlikte, TC kimlik numarasının kullanımının yaygınlaştırılması ve adrese dayalı nüfus kaydı sistemine geçiş ile birlikte, bundan böyle sosyodemografik verilerin, özellikle adres bilgisinin çok daha doğru kaydedilebileceği öngörülebilir.

İzmir, kanser tanı ve tedavi olanaklarının gelişmiş olduğu bir ildir. Bu da İzmir'i bu konuda bir "çekim merkezi" haline getirmekte, özellikle çevre illerden pek çok hasta kanser tanısı ve tedavisi için İzmir'e gelmektedir. Bazı hastaların kurum kayıtları sırasında kendilerine ulaşımın kolay olmasını amaçlayarak gerçek ikametleri yerine İzmir'deki yakınlarının adreslerini verdikleri de gözlenmektedir. Bilindiği gibi insidans hızlarının hesaplamaları yapılırken, payda ilgili coğrafi bölgede, yani İzmir ilinde ikamet eden kişilerde ortaya çıkan yeni kanser olguları yer almaktadır. Bu durumda kurumlarda adresi yanlışlıkla İzmir dışı yerine İzmir olarak kaydedilmiş olgular da insidans hızı hesaplamalarına alınacaktır. Merkez çalışmalarında mümkün olduğu kadar gerçek adrese ulaşmaya çalışılmakla birlikte (örneğin çift kayıtlarda çelişkili adresler söz konusu olduğunda telefon vs. gibi yöntemlerle gerçek adres araştırılmaktadır) bazı olgular için bunu yakalama şansı bulunmamaktadır.

İzmir KİDEM kanser insidans hızları batı toplumlarında görülen insidans hızlarına yakın düzeydedir⁵. Ancak İzmir'deki kanser insidans hızlarının, özellikle de erkeklerde akciğer kanseri insidans hızının benzer toplumlara göre⁶, yüksekliği (2003-2005 yılları arasında YSH* 81,8) dikkat çekicidir.

Biz bu insidans hızının İzmir ilinin gerçek akciğer kanseri insidansını yansıttığına inansak da, bu durum, bazı İzmir dışı ikametli olguların, kaynak kurumlardaki yanlış kayıtlar nedeniyle, İzmir adresli olarak kaydedildiği tartışmasını gündeme getirmektedir.

Bu çalışmanın amacı İzmir Kanser Kayıt Merkezi veritabanında İzmir adresli olarak kaydedilmiş olguların, gerçekte ne kadarının İzmir adresli olgular olduğunu saptayarak İzmir ilindeki görece yüksek kanser insidans hızlarının ne kadar gerçeği yansıttığını ortaya koymaktır.

Gereç ve Yöntem

Bu çalışma, tanımlayıcı nitelikte bir veri doğrulama çalışmasıdır. Çalışmada iki veri seti çaprazlandı: A. KİDEM veritabanındaki tanı yılı 2004 - 2006 olan primer kanseri "akciğer kanseri" olarak kaydedilmiş bütün olgular (n = 9063); B. Türk Toraks Derneği Çalışması (TTDÇ) (çalışmanın ayrıntısı aşağıda verilmiştir) kapsamında oluşturulan TTDÇ veritabanındaki primer kanseri "akciğer kanseri" olarak kaydedilmiş İzmir adresli veya İzmir'den bildirim yapılmış bütün olgular (n = 2056). Bu veritabanları olası veri kaçağını önlemek üzere geniş olarak çaprazlandı. Tabii ki temelde karşılaştırılması hedeflenen iki grup: A. KİDEM veritabanındaki tanı yılı 2005 olup, İzmir adresli ve primer kanseri "akciğer kanseri" olarak kaydedilmiş olgular (n = 1987); B. Türk Toraks Derneği Çalışması (TTDÇ) (çalışmanın ayrıntısı aşağıda verilmiştir) kapsamında oluşturulan TTDÇ veritabanındaki tanı yılı 2005 olup, İzmir adresli ve primer kanseri "akciğer kanseri" olarak kaydedilmiş olgular (n = 1201).

Diğer kanserler için de soru geçerli olmakla birlikte, İzmir Göğüs Hastalıkları Hastanesinin bölge için özel bir çekim merkezi olduğu ve İzmir ilinde erkeklerde saptanan yüksek akciğer kanseri hızları göz önüne alındığında, yanlış adres kaydına bağlı olarak "aşırı kayıt" ve sonucunda "insidans hızlarının yüksek tahmini" olasılığı özellikle akciğer kanseri için

ifade edilmekteydi. Ancak kuşkusuz ki örneğe akciğer kanserleri alınarak yapılan bir adres doğrulama çalışması KİDEM veri tabanının genelini de çok iyi yansıtabilecektir. Bu çalışmadan çıkan sonuçlar, KİDEM veri tabanında kayıtlı adreslerin doğruluk oranları için en düşük tahminler olarak kabul edilebilir. Bunların yanı sıra, elimizde TTDÇ tarafından sağlanan ikinci bir veritabanı olması nedeniyle 2005 tanılı, İzmir adresli bütün akciğer kanseri olguları örneğe alındı ve adreslerinin doğrulanması çalışması yapıldı. Bunun için KİDEM veritabanını (A) ve Türk Toraks Derneğinin 2005-2006 yıllarında Merkezimizle işbirliği içinde yürüttüğü "Türkiye'nin Akciğer

Kanseri Haritası" çalışmasının veritabanı (B) kullanıldı. Bu veri tabanlarındaki 2005 tanılı olgu sayıları ve olguların ikamet durumları Tablo 1'de sunulmuştur.

Tablo 1: KİDEM ve TTDÇ* veri tabanlarındaki 2005 tanılı akciğer kanseri olgularının ikamete göre dağılımı

İkamet yeri	KİDEM veri tabanı		*TTDÇ veri tabanı	
	Sayı	%	Sayı	%
İzmir	1987	66	1201	58,4
İzmir dışı	1017	33,5	837	40,8
Bilinmeyen	18	0,5	18	0,8
Toplam	3022	100,0	2056	100,0

*Türk Toraks Derneği Çalışması

Türk Toraks Derneği Çalışması (TTDÇ): İzmir'in de içlerinde olduğu yedi ilde 1 Ocak 2005 - 31 Aralık 2005 tarihlerinde tanı alan bütün akciğer kanserlerine hekimler aracılığıyla ulaşıldı ve yine hekimler tarafından 2005 yılında tanı alan her akciğer kanseri olgusu için çalışma için hazırlanmış anketler dolduruldu. Bu çalışmanın birincil hedefi bölgeler için seçilmiş illerde akciğer kanseri hızlarını hesaplamak ve bundan yola çıkarak bir Türkiye tahmini oluşturmaktır. Çalışma sürecinde her il için bir çalışma koordinatörü atandığı gibi, birer de özel olarak eğitilmiş "proje çalışanı" görevlendirildi. Çalışma öncesinde bölgesel hekim toplantıları yapılarak akciğer kanseri tanısı koyup tedavisi yapan hekimler, çalışma ve anket konusunda bilgilendirildi. Çalışma sırasında da bilgilendirme toplantıları ve sorunlara yönelik geri dönüşlerle süreç izlendi. Bu toplantılar ve geri dönüşlerde üzerinde dikkatle durulan bir konu da "hastanın ikamet adresi" başlığı idi. Hastanın yaşadığı yer bilgisinin ne kadar önemli olduğu ve doğru olarak kaydedilmesinin önemi vurgulandı. Hekimler hasta veya hasta yakını ile doğrudan görüştüğü için de bu bilgiyi doğru olarak alma şansı yüksekti.

Böylece tamamen iki ayrı yöntemle toplanan iki ayrı veri setini karşılaştırarak

tamlık tahmini yapma şansımız oldu. İzmir'de ve hem nüfus tabanlı kanser kayıt merkezi bulunan hem de TTDÇ'nin sürdürüldüğü diğer dört il (Antalya, Trabzon, Bursa, Erzurum) için veri tabanları yakalama / yeniden yakalama (capture / recapture) yöntemi ile değerlendirildi. Bu çalışmanın sonuçları henüz çözümleme aşamasındadır.

KİDEM veri tabanındaki İzmir ikametli 2005 yılı tanıli 1987 akciğer kanseri olgusu ile TTDÇ veri tabanındaki İzmir ikametli 2005 yılı tanıli 1201 akciğer kanseri olgusu kağıt-kalem yöntemiyle tek tek karşılaştırıldı. 1090 olgu her iki veritabanında da yer almaktayken, KİDEM veri tabanında olup TTDÇ veritabanında olmayan 897 olgu, TTDÇ veritabanında olup KİDEM veritabanında olmayan 49 olgu saptandı. KİDEM ve TTDÇ veritabanlarında ortak olguların adresleri her iki veritabanında da "İzmir" olarak kaydedilmiş olduğu için 1090 olgunun adresi doğrulanmış olarak kabul edildi. KİDEM veri tabanında olup TTDÇ veritabanında olmayan 897 olgu adres doğrulama çalışmasına alındı. 897 olgunun 516'sının TC kimlik numarası, TC kimlik numarası olmayan 135 olgunun telefon numarası mevcuttu. TC kimlik numarası olan 516 olgunun KPS (Kimlik Paylaşım Sistemi) ve AHBS (Aile Hekimliği Bilgi Sistemi) kullanılarak adres doğrulamaları yapıldı. TC

kimlik numarası olmayıp telefon numarası olan 135 olgu telefonla aranarak adres doğrulaması yapıldı. TC Kimlik numarası ya da geçerli bir telefonu kayıtlı olmayan 246 olgunun ise adı, soyadı, doğum tarihi gibi sosyodemografik bilgileri kullanılarak mevcut kayıtlarına ulaşılmaya çalışıldı.

Olguların adreslerinin doğrulanması için kullanılan diğer veri kaynakları İzmir İl Sağlık Müdürlüğü Elektronik Hasta Takip Sistemi (SALUS), İzmir Büyükşehir Belediyesi Mezarlık Bilgi Sistemi, SSK, BAĞ-KUR ve Yeşil Kart gibi sosyal güvenlik kurumları, 2005 yılı ölüm istatistikleri, Yüksek Seçim Kurulu Sandık Sorgulama Sistemi (www.yzk.gov.tr/ysk/secmenBilgi), İzmir İl Sağlık Müdürlüğü Aile Hekimi Sorgulama Sistemi (www.ism.gov.tr/ailehekimimkim.aspx) idi.

İzmir adresli olarak kaydedilmiş ama ikinci bir kaynaktan adresi doğrulanmamış olgular, veritabanındaki İzmir kayıtlı olguların İzmir veya İzmir dışı adreslerinin doğrulama oranlarına göre ağırlıklandırılarak ikameti İzmir veya İzmir dışı olarak doğrulanmış gruplara dağıtıldı.

Bu araştırmada tanımlayıcı göstergeler olarak yüzde dağılımları kullanılmış, veri değerlendirmelerinde ve temizlemesinde (çift kayıt ayıklaması vb.) CanReg4, Excel ve SPSS paket programları kullanılmıştır.

Bulgular

KİDEM veritabanında kayıtlı olup da TTDÇ veritabanında bulunmayan İzmir ikametli 2005 tanılı 897 akciğer kanseri olgusunun 749'unun adreslerinin İzmir olduğu doğrulandı. 86 olgunun İzmir

dışında ikamet ettikleri saptandı, TC kimlik numarası ya da telefon numarası olmayan 62 olgunun ise eldeki verilerle adres doğrulaması yapılamadı (Tablo 2).

Tablo 2: KİDEM veritabanında olup TTDÇ veritabanında bulunmayan 897 olgunun ikamet adresi dağılımı

İkamet yeri	Sayı	%
İzmir ikameti doğrulanan	749	83,5
İzmir dışı ikameti doğrulanan	86	9,6
İkameti hakkında mevcut kayıt dışında bilgi bulunmayan	62	6,9
Toplam	897	100.0

Buna göre ikamet yeri İzmir olarak kaydedilmiş 1987 olgunun 1839'unun (% 92,6) İzmir ikametli, 86' sının (% 4,3) İzmir

dışı ikametli olduğu saptanırken 62 olgunun (% 3,1) adres bilgisi ikinci bir kaynaktan saptanamadı (Tablo 3).

Tablo 3: KİDEM veritabanındaki 2005 tanılı İzmir adresli akciğer kanseri olgularının adres doğrulama sonucu ikamet yerine dağılımı

İkamet yeri	Sayı	%
İzmir ikameti doğrulanan	1839 (749 + 1090)	92,6
İzmir dışı ikameti doğrulanan	86	4,3
İkameti hakkında mevcut kayıt dışında bilgi bulunamayan	62	3,1
İzmir ikameti kayıtlı	1987 (897 + 1090)	100.0

Bilgi eksikliği nedeniyle adres doğrulaması yapılamadığı ve aksi bir bilgiye ulaşılmadığı da göz önüne alınarak, bu 62 olgunun İzmir

ikametli olma açısından üç olası dağılımı varsayıldı: 1- Bu 62 olgunun hiçbiri İzmir adresli değildir; 2- Bu 62 olgunun tümü

İzmir adreslidir ve 3- Bu 62 olgu, veritabanındaki İzmir kayıtlı olguların İzmir veya İzmir dışı adreslerinin doğrulama oranlarına göre ağırlıklandırılabilir. Bu durumda İzmir adresli olma oranları, birinci olasılık için % 92,6 (1839 / 1987); ikinci

olasılık için % 95,7 (1901 / 1987); üçüncü olasılık için ise (ikameti İzmir veya İzmir dışı olarak doğrulanmış gruplara sırasıyla 59 ve 3 olgu olarak dağıtıldığında) % 95,5 olarak hesaplanmıştır (Tablo 4).

Tablo 4: Adresi ikinci bir kaynaktan doğrulanamayan 62 olgunun olası dağılımına göre gerçek İzmir ikametli olgu oranları

Adres doğrulanamayan olguların...	%*	Olgu oranları
Hiçbiri İzmir ikametli değildir	92,6	1839 / 1987
Hepsi İzmir ikametlidir	95,7	1901 / 1987
İzmir ikametline göre dağılımı diğer olguların dağılımına uygunsa	95,5	1898 / 1987

* Tüm KİDEM olgularının İzmir ikametli olma olasılığı

En akla yakın olan üçüncü olasılığa göre veritabanında İzmir ikametli olarak kaydedilmiş toplam 1987 olgunun 1898' i (% 95,5) İzmir ikametli, 86' sı (% 4,3) İzmir dışı ikametli olarak değerlendirildi. Sonuç

olarak KİDEM veritabanında İzmir adresli olguların adreslerinin doğru olarak kaydedilme oranı % 95,5 olarak bulundu (Tablo 5).

Tablo 5: Adresi ikinci bir kaynaktan doğrulanmayan olguların olasılığa göre dağıtımını ile elde edilen sonuçlar

	Sayı	%
İzmir ikameti kayıtlı	1987	100,0
İzmir ikameti doğrulanan	1898	95,5
İzmir dışı ikameti doğrulanan (1839 + 59)	86	4,3

Tartışma ve Sonuç

KİDEM tarafından açıklanan İzmir ili kanser insidans hızları, İzmir ilinin sosyodemografik kültürel yapısı ve ildeki risk faktörleri (örn. erkeklerde yüksek sigara içme prevalansı) ile de uyumlu ve tutarlıdır. Örneğin İzmir'in Konak İlçesi'nde yapılan bir araştırmada 20 yaş ve üzerindeki yetişkinlerde sigara içme sıklığının erkeklerde % 77, kadınlarda % 39 olduğu saptanmıştır⁷.

Verilerin incelenmesiyle ortaya konan diğer bulgular, örneğin İzmir'deki mide kanseri insidans hızlarının (YSH erkeklerde 12,8, kadınlarda 6,7) Erzurum ve Trabzon'dakinden (sırasıyla YSH erkeklerde 30,5 ve 22,0; kadınlarda 18,0 ve 13,9)^{8,9}; prostat kanseri insidans hızının ise Antalya'dakinden daha düşük olması (YSH Antalya'da 19,1, İzmir'de 13,7)^{5,10} akciğer kanseri hızının kadınlarda düşük (YSH 8,4) olması⁹, hızlardaki yüksekliğin gerçek olmayıp, hatalı adres kaydına bağlı olabileceği kuşkusunu desteklemektedir. Diğer bir ifade ile bu veriler, İzmir erkek akciğer kanseri insidans hızlarının geçerliliğinin yüksekliğinin bir başka göstergesi olarak kabul edilmelidir. Öte yandan kalite kontrolü için yapılan yeniden olgu bulma ve yeniden özetleme çalışmalarında da yüksek oranlarda tamlık

ve düzeyleri saptanmıştır. Yayınlanmamış bu çalışmanın sonuçlarına göre İzmir Kanser Kayıt Merkezinin tamlığı % 96,1 olarak tespit edilmiş, incelenen kriterlere göre topografi tutarlılığı % 98,4, histoloji tutarlılığı % 96,2, tanı tarihi tutarlılığı % 96,7, davranış tutarlılığı % 99,7, düzeyinde belirlenmiştir.

Ayrıca akciğer kanseri olgularının beş il kanser kayıt merkezi ve toraks derneği veri tabanları kullanılarak yakalama-yeniden yakalama yöntemi ile değerlendirildiği çalışmanın sonuçlarına göre tamlık düzeyi en yüksek olan merkez, % 95' lik bir düzey ile İzmir Kanser Kayıt Merkezidir.

Bu çalışmamızda elde ettiğimiz % 4,3' lük hatalı adres (İzmir dışı yerine İzmir adresi) kaydı da, KİDEM verilerinin yüksek geçerliliğini desteklemekte ve hesaplanan hızların gerçeğe çok yakın olduğunu ortaya koymaktadır. Erkeklerde saptanan yüksek akciğer kanseri insidans hızının büyük bir bölümü sigaraya atfedilebilir^{11, 12}, ancak bununla birlikte İzmir'de akciğer kanseri riskini artıran, özellikle sigara maruziyeti ile sinerjistik etki yapan bir risk faktörünün bulunup bulunmadığını ortaya koymak için daha ileri çalışmalar düzenlenebilir.

Teşekkür

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Şenay Mete, Tülay Yüksel, Emel Dalmızrak ve Tuğba Tıraş'a teşekkür ederiz.

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Tobacco use and control in Turkey

Nazmi Bilir^a, Hilal Özcebe^a, Dilek Aslan^b

Abstract

Turkey is among the top 10 tobacco consuming countries in the world. According to the results of Global Adult Tobacco survey (GATS), smoking prevalence (regular smokers; daily smokers and less than daily smokers for those over 15 is 31.3% (male: 47.9%, female 15.2%). The Global Youth Tobacco Survey found that 22.3% of girls and 33.1% of boys had smoked at some time in their lives. Passive exposure to tobacco smoke is common in Turkey as well and in 60 to 80% of the houses at least one family member is smoking, mostly as paternal smoking. The leading causes of death in Turkey are cardiovascular diseases, cancers, pulmonary diseases and cerebrovascular diseases, and tobacco smoking is a major risk factor for these diseases. Tobacco control activities are relatively recent in Turkey and the country has made substantial progress in tobacco control during the last 10-12 years, particularly following the amendment of the anti-tobacco law in 2008. The official milestone was the anti-tobacco law (No. 4207) which came into force in 1996. After Turkey became a partner country of the Framework Convention on Tobacco Control in 2004, the national work on tobacco control moved forward. In Turkey, it was January 2008 when the revised form of the anti-tobacco law (No. 5727) was passed. The new law (No. 4207) basically aims to protect people from exposure to tobacco smoke indoors. Since July 2009, national and local authorities are working on implementation of the law throughout the country. Tobacco control activities in Turkey are fortunately promising at the moment. For solving the tobacco threat in our country completely, we need to continue our collaboration.

Key words: Tobacco control, Turkey, national tobacco control activity

Türkiye’de tütün kullanımı ve kontrolü

Özet

Türkiye dünyada en çok sigaranın tüketildiği ilk 10 ülke arasındadır. Küresel Yetişkin Tütün Araştırması (GATS) sonuçlarına göre 15 ve üzeri yaş grubunda sigara kullanım sıklığı düzenli sigara içenler (regular smokers), he gün sigara içenler (daily smokers) ve her günden daha az sigara içenler (less than daily smokers) yüzde 31.3’dir (erkeklerde 47.9 kadınlarda %15.2). Küresel Gençlik Tütün Araştırmasında da (GYTS) erkeklerin %33.1’inin, kızların ise %22.3’ünün yaşamlarının herhangi döneminde sigara içmiş oldukları saptanmıştır. Türkiye’de sigara dumanından pasif etkilenim de oldukça sıktır, evlerin %60-80’inde, çoğunlukla baba olmak üzere sigara içen en az bir kişi vardır. Türkiye’de ölüm nedenleri arasında en başta gelenler, kalp-damar hastalıkları, kanserler, akciğer hastalıkları ve serebro vasküler hastalıklardır. Bu hastalıkların hepsi de sigara ile ilişki olan sağlık sorunlarıdır. Türkiye’de tütün kontrolü çalışmaları oldukça yeni olmakla birlikte geçtiğimiz 10-12 yıl içinde bu alanda önemli ilerleme kaydedilmiştir. Tütün kontrolü bakımından 1996 yılında çıkarılan yasa bu alanda dönüm noktası olmakla birlikte, 2008 yılında tütün kontrolü yasasında yapılan değişiklik önemli yer almaktadır. Türkiye 2004 yılında Tütün Kontrolü Çerçeve Sözleşmesi’ne taraf olduktan sonra bu alandaki çalışmalar hız kazanmıştır. Tütün kontrolü yasasında 2008 yılında yapılan değişikliğin emeli, bütün kapalı alanlarda tütün dumanından etkilenimin önlenmesidir; 2009 yılı Temmuz ayından itibaren de ilgililer bu konuda yoğun çaba göstermektedir. Türkiye’de tütün kontrolü çalışmaları umut verici şekilde ilerlemektedir. Ülkede tütünden gelecek zararın tamamen önüne geçilebilmesi için bilimsel dayanakları kullanarak güçlerimizi birleştirmemiz gerekmektedir.

Anahtar sözcükler: Tütün kontrolü, Türkiye, ulusal tütün kontrolü çalışması

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I - Introduction

Turkey is a tobacco producing country, providing 1.7% of total world production; this has been decreased from 4% earlier during the 1990's. Until the 1980's, tobacco farming, production of tobacco and its products, pricing and selling of tobacco products were under the control of the State. The State owned Tobacco Monopoly (Tekel) has a long history since Ottoman times, but since its privatization during 1980's, multinational tobacco

companies entered into Turkey, and tobacco use increased rapidly. The increase in tobacco use was about 80% between 1983 and 1999 (Fig. 1). Tobacco control activities are relatively recent in Turkey. Nevertheless, Turkey has made substantial progress in tobacco control during the last 10-12 years, particularly following the amendment of the anti-tobacco law in 2008.¹

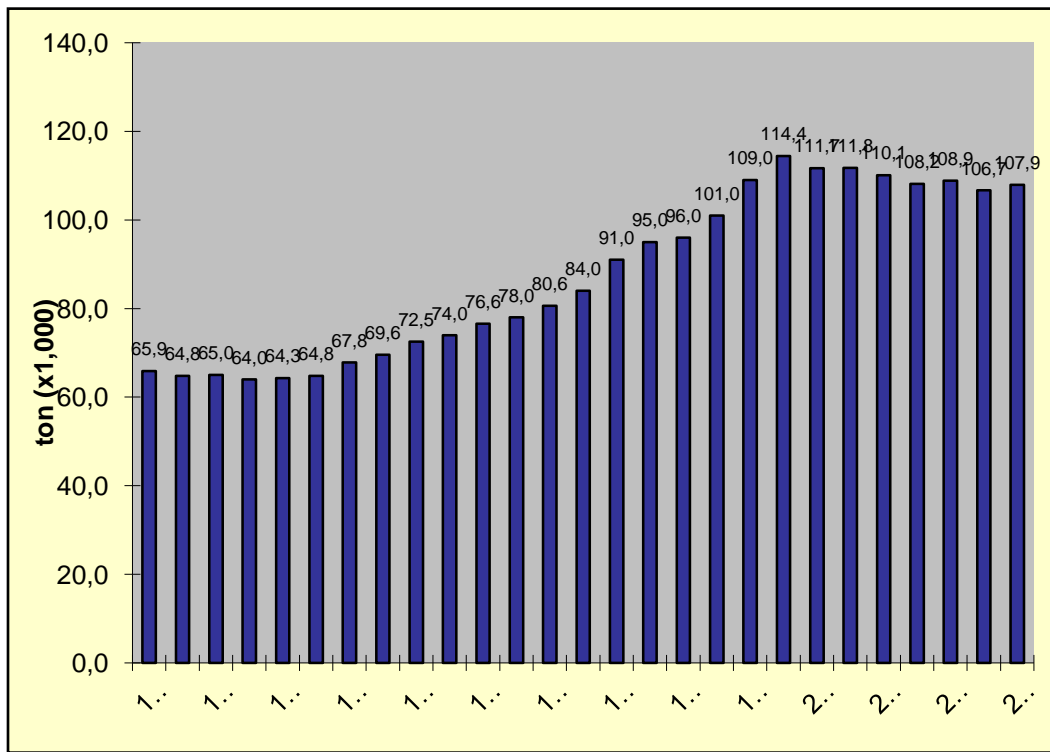


Figure 1. Tobacco Consumption in Turkey (tons), 1980-2006

II - Tobacco use in Turkey

Tobacco use is quite common in Turkey, mostly in the form of cigarettes. Very few people use hand-rolled cigarettes or other forms of tobacco products. Recently, narghile use is being promoted, particularly towards youth, and its use among young people is increasing.

High rates of tobacco production in Turkey have gone hand in hand with higher consumption rates. Turkey is among the top 10 tobacco consuming countries in the world (Fig. 2). In 2001, Turkey consumed 2% of tobacco worldwide and 14% in the WHO European Region.¹

NEARLY TWO THIRDS OF THE WORLD'S SMOKERS LIVE IN 10 COUNTRIES

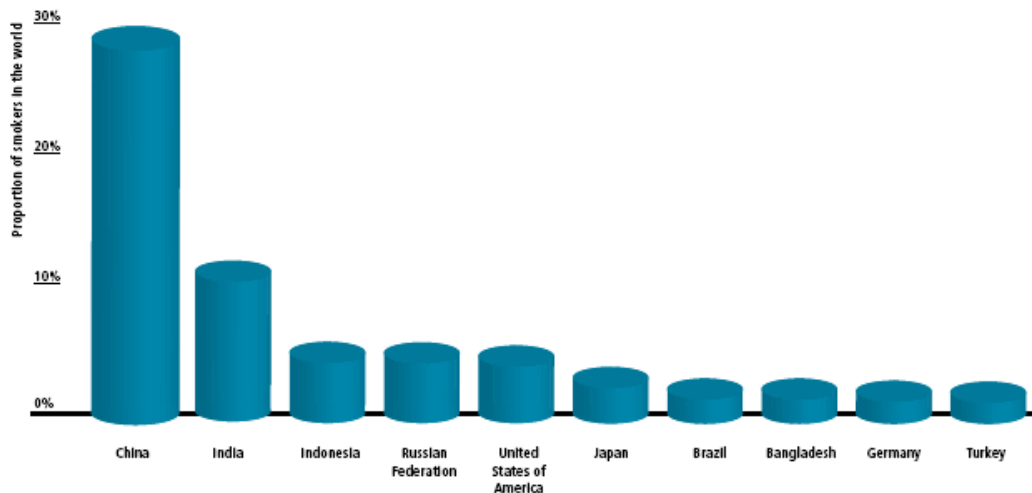


Figure 2. Top Ten Tobacco Consuming-Countries

(a) Adult smoking

One of the first nation-wide figures, based on a representative sample of adults aged 15 years or more, is dated 1988. This study revealed that adult smoking prevalence was 44% (63% in males and 24% in females).²

Following this survey, several studies were performed on various interest groups. In 1995, a survey conducted in Ankara targeting some specific role-model groups found that

50.8% of teachers, 46.2% of artists, 43.9% of physicians, 34.9% of sportsmen and 27.1% of members of parliament were smoking.³

In 1998 and 1999, two country-wide surveys were done covering a total of 12,500 people from various occupational groups. These studies showed that smoking prevalence ranged between 24.8% and 74.3% in different occupational groups. The

lowest figures belonged to the religious leaders (imams) and the highest to drivers. The prevalence

was higher among males, where gender breakdown was possible⁴ (Table 1).

Table 1. Adult Smoking Prevalence among Selected Groups (1996-1999)

Participants Age (years) / Gender (M: males, F: females)	Year	Number of participants	Prevalence (%)
Teachers (M+F) 35.1 ± 7.9	1999	1039	48.6
Policemen (M) 31.2 ± 7.3	1999	716	64.7
Drivers (M) 36.9 ± 9.1	1999	338	74.3
Religious leaders (M) 38.6 ± 10.0	1999	279	24.8
Physicians (M+F) 39.0 ± 7.8	1999	1127	43.1
Journalists (M) 30.9 ± 7.6	1996	108	63.9
Artists (M+F) 37.7 ± 10.5	1996	130	46.2
Parliamentarians (M) 47.2 ± 8.5	1996	59	27.1
Sportsmen (M) 23.7 ± 5.4	1996	146	34.9

The most recent data on tobacco use among adults is based on the Global Adult Tobacco Survey (GATS), which was conducted in 2008. According to the results of GATS, smoking prevalence (regular smokers; daily smokers and less than daily smokers) among those over 15

years is 31.3% (male: 47.9%, female 15.2%). The prevalence in urban areas is relatively higher than in rural areas: 33.0% and 27.2%, respectively. Thirty percent of males and 74.2% of females have never smoked any kind of tobacco product in their life⁵ (Table 2).

Table 2. Smoking Prevalence in Turkey, GATS, 2008 (percent)

Smoking status	Urban places			Rural places			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Current smokers	47.9	18.7	33.0	48.0	7.2	27.2	47.9	15.2	31.3
Non-smokers	52.1	81.3	67.0	52.0	92.8	72.8	52.1	84.8	68.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Ref. TÜİK, GATS, 2008

(b) Smoking among health professionals

Since health professionals are role models for the other people, their smoking behaviour is very important. Therefore, a number of studies were done on these groups. These studies showed that smoking prevalence among medical professionals is quite similar to the general population. A relatively pioneer study in this field (1998) showed that almost half of the physicians (41 to 50%) and nurses/midwives (50.8%), and more than half of the health technicians (54.2%) and dentists (68.2%) were smoking. Female professionals are smoking (34.4%) slightly less than

their male counterparts (47.8%) in all health professionals (Table 3).⁴

In 2008, a collaborative study with World Health Organization (WHO), Center for Disease Control (CDC), Ministry of Health of Turkey and Turkish Society of Public Health Specialists (HASUDER), examined the frequency of smoking among health professionals working at health care institutions of the Turkish MoH. Based on a representative sample of 4,761 health professionals, current smoking prevalence was found to be 39.4% in general practitioners, 30.9% in specialists, 40.7% in nurses and midwives and 43.4% in health technicians.⁶

Table 3. Smoking Prevalence among Health Personnel (Turkey)

Year	Place	Occupation. Gender and Age	Number of participants	Prevalence (%)
1993	Elazığ	Nurse and midwife F	656	50.8 (8.1% smoke 20+ cigarettes a day)
1995	Ankara	Physicians M+F 36.3+/-9.1 yrs.	237	43.9
1997	Elazığ	Health Professionals	392	Physician 50.0 Nurse 47.0 Technician 54.2
1988	Elazığ	Physician + Dentist M+F	Phys 209 Dentist 44	Physician 49.3 Dentist 68.2
1998	Turkey. 17 provinces	Physicians M+F 36.1+/-7.8 yrs.	985	41.1
1999	Turkey. 17 provinces	Physicians M+F 36.0+/-7.8 yrs.	1127	43.1
2000	Sivas	Physicians	845	M: 47.4 F: 33.3
2008	Turkey	Health professionals	4761 (total)	Physicians: 31 (GP) 22 (Spec.) Nurses & midwives: 30 Dentists & pharmacists: 25 Technicians: 34

(c) Tobacco smoking among children and adolescents

Adolescence is a vulnerable period for initiation of smoking and, thus, adolescents are a major target group for the tobacco industry. A number of studies have been done on smoking behavior of adolescents. Most of the studies have been done at schools, among students of 7th (13 to 15 years of age) and 10th grade classes (15 to 19 years of age). Smoking prevalence was found to be 0.9-9.1% for the 7th class students and 15.9-41.2% for the 10th class students.^{3,4,7}

Two nationwide studies were conducted in adolescents in Turkey in 2003 and 2004. One of these studies included 6,012 school children aged 13 to 17 in 15 cities throughout the country and found smoking prevalence to be 13.3%. The other one, the Global Youth Tobacco Survey, GYTS, reached about 16,000 students aged 13-15 years, and found that 19.7% of girls and 31.7% of boys (both sexes 26.3%) had smoked at some time in their lives, with 3.5% and 9.4%, (both sexes 6.9%) respectively, being current smokers at the time of the interview. Various small-scale cross-sectional studies conducted among youngsters of different ages and regions have indicated that the smoking prevalence rates including all those who had ever smoked ranged from 0.7% to 21.1% among girls and from 1.1% to 52.4% among boys.⁸

Recently, "nargiles" (water pipes), have been marketed to youth and women. The prevalence of nargile use is not known exactly, observations imply its increasing use, among adolescents and young adults, in particular. More importantly, most nargile users are not aware of the health hazards of nargile use.⁹

(d) Smoking during pregnancy

A number of studies have been conducted in Turkey on the smoking behaviors of pregnant women. These studies have revealed that 2.5-17% of women smoke at any time during pregnancy. In one study, it was found that 2.5% of pregnant women smoke during the whole pregnancy period. It is a positive finding that most of the women who smoke change their smoking habits as pregnancy develops: more than half (47-66%) of them quit smoking, and the rest reduce the number of cigarettes they smoke.¹⁰⁻¹²

(e) Passive smoking

Passive exposure to tobacco smoke is common in Turkey. In 60 to 80 percent of houses at least one family member smokes, mostly the father. People usually are not sufficiently aware of the health hazards of passive exposure to tobacco smoke. In GYTS 81.6% of the children reported that they were exposed to tobacco smoke at home, and 85.9% at public places.^{8,13-15}

III – Tobacco related health problems

(a) Morbidity studies

There are no nationwide morbidity figures attributed to tobacco smoking specifically. Nevertheless, the disability-adjusted life year (DALY) was calculated in Turkey in 2000 for some diseases and some risk factors. Perinatal conditions take the first place with 8.9%, Ischaemic Heart Disease takes the second place with 8.0% and Cerebrovascular Disease is the third cause with 5.9% in all age groups. As seen in Table 4, ischaemic heart disease (8,9%) is the first reason for males and perinatal conditions (8,9%) is the first one for females. The second reason for males is perinatal conditions with 8,8% and for females it is ischaemic heart disease with 6,9%. The third reason for both genders is cerebrovascular disease with 6,3% for males and 5,5% for females.^{16,17}

Table 4. Percentage Distribution of the First 20 Diseases Causing DALY by Gender at National Level in Turkey, (NBD-CE Project, 2000,Turkey)

Males		%	Females		%
1	Ischaemic Heart Disease	8,9	Perinatal conditions	8,9	
2	Perinatal conditions	8,8	Ischaemic Heart Disease	6,9	
3	Cerebrovascular Disease	6,3	Cerebrovascular Disease	5,5	
4	Lower Respiratory Infections	3,8	Unipolar Depressive Disorders	5,4	
5	Road Traffic Accidents	3,3	Iron Deficiency Anemia	3,8	
6	Congenital Anomalies	3,1	Lower Respiratory Infections	3,7	
7	COPD	3,0	Osteoarthritis	2,9	
8	Osteoarthritis	2,9	Congenital Anomalies	2,8	
9	Unipolar Depressive Disorder	2,6	COPD	2,6	
10	Diarrhoeal Diseases	2,1	Maternal Conditions	2,5	
11	Trachea, Bronchus and Lung Cancer	1,9	Diabetes Mellitus	2,1	
12	Alcohol Use Disorder	1,8	Diarrhoeal Diseases	2,0	
13	Hearing Loss, Adult Onset	1,7	Hearing loss, adult onset	1,7	
14	Diabetes Mellitus	1,6	Road Traffic Accidents	1,5	
15	Violence	1,4	Breast Cancer	1,3	
16	Inflammatory Heart Disease	1,3	Rheumatoid Arthritis	1,3	
17	Asthma	1,3	Hypertensive Heart Disease	1,2	
18	Tuberculosis	1,2	Rheumatic Heart Diseases	1,2	
19	Leukemia	1,1	Asthma	1,2	
20	Schizophrenia	1,0	Migraine	1,2	

In addition to knowing the diseases causing death, risk factors that have an impact on the burden of diseases

must also be known in order to determine strategies for the improving health levels in society.

As seen in Table 5, prevention of smoking will prevent 54,699 deaths, 52,905 of these are in males and 1794 in females. The main result of this study is

that smoking is the most important risk factor for preventable deaths, YLLs and DALYs in Turkey.

Table 5. Prevention of Deaths, YLLs and DALYs through the prevention of Selected Risk Factors for Turkey Overall (NBD-CE Project, 2000, Turkey)

<i>Prevented Deaths</i>			
<i>Risk factor</i>	<i>Male</i>	<i>Female</i>	<i>Both</i>
High blood pressure	47.643	60.825	108.468
High BMI(>30)	26.006	31.136	57.143
Smoking	52.905	1.794	54.699
High cholesterol	26.487	22.542	49.029
Physical inactivity	22.515	22.605	45.120
Low fruit and vegetable intake	21.668	17.066	38.734
Alcohol use	10.850	2.585	13.435
Water and sanitation	2.807	2.812	5.619
<i>Prevented YLLs</i>			
<i>Risk factor</i>	<i>Male</i>	<i>Female</i>	<i>Both</i>
High blood pressure	384.659	413.694	798.353
High BMI(>30)	278.008	281.024	559.032
Smoking	573.573	23.110	596.684
High cholesterol	306.362	186.079	492.441
Physical inactivity	212.190	172.633	384.823
Low fruit and vegetable intake	223.356	141.241	364.597
Alcohol use	165.550	38.231	203.781
Water and sanitation	84.668	79.016	163.683
<i>Prevented DALYs</i>			
<i>Risk factor</i>	<i>Male</i>	<i>Female</i>	<i>Both</i>
High blood pressure	443.788	485.162	928.950
High BMI(>30)	379.980	407.203	787.183
Smoking	870.603	61.306	931.909
High cholesterol	345.993	220.688	566.681
Physical inactivity	254.555	210.072	464.627
Low fruit and vegetable intake	250.660	166.216	416.876
Alcohol use	388.526	73.492	462.018
Water and sanitation	94.401	88.381	182.781

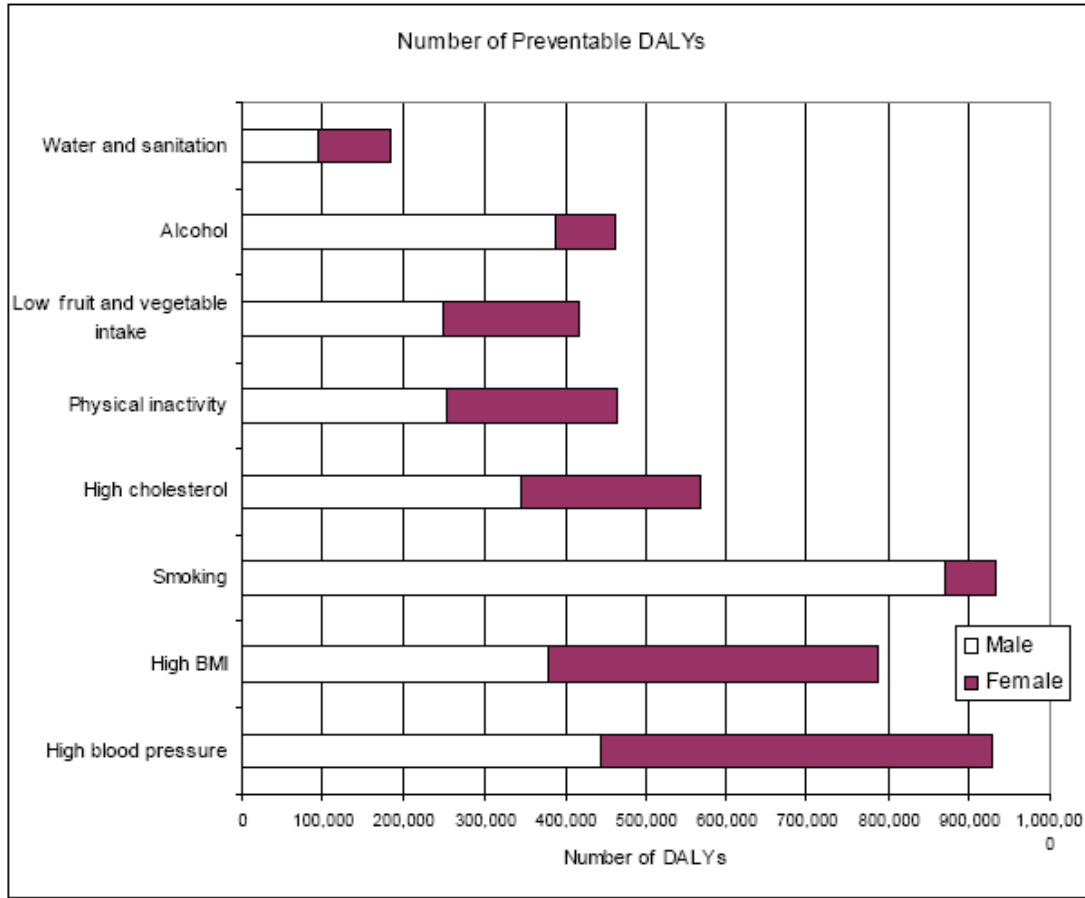


Figure 3. The Distribution of Preventable DALYs When Selected Risk Factors in Overall Turkey are Eliminated (NBD-CE Project, 2000, Turkey)

Approximately 928.950 DALYs can be prevented through prevention of high systolic blood pressure, these ratios are respectively 931.909 DALYs for smoking, 787.183 DALYs for obesity, 566.681 DALYs for high cholesterol,

464.627 DALYs for physical activity habits, 462.018 DALYs for alcohol consumption, 416.876 DALYs for fruit and vegetable consumption, and 182.781 DALYs for setting of water and sanitation conditions.

Nevertheless, the National Burden of Disease study in 2003 revealed that, 8.6 percent of total DALY's is attributed to smoking. The attributable fraction is 15.4 percent for males and 1.2 percent for the

females. Cardiovascular diseases, chronic obstructive pulmonary diseases (COPD) and lung cancer constitute the major part of the attributable proportion (Table 6).

Table 6. Burden of Diseases Attributed to Tobacco Smoking

Disease	Attributed deaths	Attributable YLL	Attributable DALYs	Proportion of Attributable DALYs
Cardiovascular diseases	21 317	274 770	321 237	3.0
COPD	12 902	72 689	150 406	1.4
Lung cancer	10 510	107 075	112 634	1.0
Other cancers	4 681	58 756	62 302	0.6
Other respiratory diseases	2 105	33 387	58 377	0.5
Other "selected" diseases	3 185	50 006	226 953	2.1
All "selected" diseases	54 699	596 684	931 909	8.6

Another important datum about tobacco-related morbidity is the considerable increase in hospital admissions for some selected diseases. Among them, lung cancer shows the most rapidly increasing trend during the last 40 years. Between 1964 and 2004, the number of hospital admissions due to lung cancer increased 45 times, from little more than 1200 cases in 1964, to more than 50 thousand in 2004 (Figure 4). The

population increase during the same period was only 2.5 times. Although repeated hospitalizations of the same patients are included in the figures, the increase is quite considerable, and the increase is more prominent during the last 10 year period, but not as much as lung cancer. Similar increases are seen in COPD and cardio vascular diseases during the same period.¹⁸

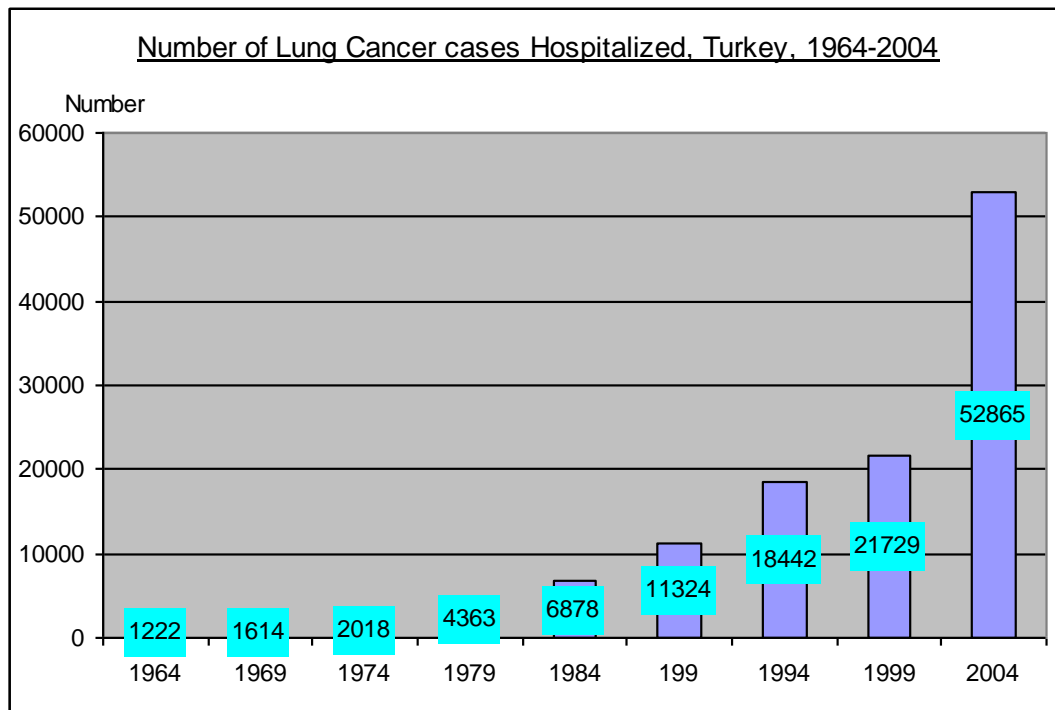


Figure 4. Number of Hospital Admissions due to Lung Cancer, Turkey, 1964-2004

(b) Mortality studies

The current available data do not allow an accurate estimate of tobacco related mortality in Turkey. Nevertheless, the leading causes of death in Turkey are cardiovascular diseases, cancers, pulmonary diseases and cerebrovascular diseases, and tobacco smoking is a major risk factor for these diseases. More than half of all deaths are caused by these diseases.¹⁸ In the province and district centers more than 90 thousand people died due to cardiovascular diseases and nearly 30 thousand died due to malignant diseases in 2005. Only these two causes of death killed about 120 thousand people, and 50 thousand of these deaths can be attributed to tobacco smoking. When other tobacco related health problems are considered, the total number killed by tobacco smoking can be estimated as roughly 100 thousand.

(c) Economic burden of tobacco-related health problems

There is no source of data on this issue, but a survey done in 2003 can be used to develop an idea on the economic burden due to tobacco related health problems. The study includes 84 lung cancer patients followed from their first admission to a university hospital until their death. The total amount spent only by the hospital is 10 thousand US dollars per patient on average. The estimated annual number of new lung cancer cases in Turkey is around 40,000. Therefore, the total burden of lung cancer for Turkey could be roughly estimated to be about 400 million US dollars annually. This figure will be much higher when other expenses (such as amount spent by the patient, loss of productivity, losses due to premature death) are added.¹⁹

IV – Tobacco control activities

Although the history of tobacco control in Turkey is long, the official milestone was the anti-tobacco law (The Prevention of the Harms of Tobacco Products Law---

Date: 26.11.1996 and No. 4207) which was put in force in 1996.²⁰ With this law, many achievements have been gained:

- a. Ban on selling tobacco to children under the age of 18.
- b. Ban on all kinds of promotion and advertisements such as TV, newspaper advertisements, movies, billboards, etc.
- c. Vending machines which were very popular abroad could not be imported into our country.
- d. Informing the consumers by statements on cigarette packets compulsory for the producer industry that: “cigarettes are dangerous for health”.
- e. Public education via TV was another requirement of the law.
- f. Ban on smoking in public transportation was one of the major success stories of the law. Before 1996 smoking was allowed on public transport like bus, train, etc, and it was not after the law. This last point had a great contribution to internalize a “non-smoking”, “smoke-free” norm among the community in our country. Today, almost everybody who does not know the past experience (the younger generations) cannot imagine smoking in public transportation.

Concurrently, the requirement for an international strategy against smoking was growing due to the global influence of the tobacco industry. The fact that the negative health influences of tobacco use have been very prevalent globally has pushed the World Health Organization (WHO) to shape a new and a global method for prioritizing tobacco use as the most threatening public health problem in the world. This movement ended with the adoption of the Framework Convention on Tobacco Control (FCTC) by the World Health Assembly in May 2003. It was the first globally binding public health treaty, and as such has a crucial

importance for international action against the tobacco epidemic and for global public health in general.^{21,22} In its 3rd article, the objective was declared to be: to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke by providing a framework for tobacco control measures to be implemented by the Parties at the national, regional and international levels in order to reduce continually and substantially the prevalence of tobacco use and exposure to tobacco smoke. It was signed by the Minister of Health of Turkey on the 28th of April 2004 and adopted on 25 November 2004. The FCTC was put into force in Turkey on 27 February 2005. FCTC stressed the major points listed below:

1. The definition of "child" as adopted in the Convention on the Rights of the Child was taken as a basis and minors under 18 were included in this term.
2. Smoking and problems developing as a result of smoking were considered as "public health problems".
3. Special emphasis was laid upon the poor and on the heavier health, economic and social burden smoking places on the poor.
4. The number of women who are smokers is increasing and gender-specific control mechanisms are necessary.
5. Cigarettes and other tobacco products cause dependence and this is classified as a separate disease on international platforms.
6. People exposed to tobacco smoke and tobacco products should be protected in addition to tobacco consumers under tobacco control.
7. A major and comprehensive struggle against the tobacco industry is needed. The attitude towards the Convention and endeavors for

implementation will empower this struggle.

8. Tobacco sponsorship must be prevented.
9. Local cultural, social, economic, political and legal factors need to be taken into account for effective tobacco control.
10. Intersectoral collaboration is needed in the fight against tobacco.

After Turkey became a partner country in 2004, the national work on tobacco control moved forward. A National Tobacco Control Program and Action Plan (2008-2012) was a well-written guide produced by over 100 professionals from governmental and non-governmental organizations, organized by Ministry of Health. Almost all of the topics on tobacco control were covered in the plan. Essential elements of the document are listed below²³:

1. Measures to reduce the demand for tobacco products
 1. Public information-education
 2. Smoking cessation
 3. Pricing and taxation
 4. Environmental tobacco smoke
 5. Advertising, promotion and sponsorship
 6. Product control and informing consumers
2. Measures to reduce the supply of tobacco products
 1. Illicit trade
 2. Accessibility to young people
 3. Tobacco production and alternative policies
3. Monitoring, evaluation and reporting tobacco use and the national tobacco control program

Among those listed above, a major aim was the revision of the anti-tobacco law aiming mainly at the prevention of youth smoking and exposure to environmental tobacco smoke. Smoke-free environments are accepted as a very effective tobacco control policy because they make it easier for smokers to cut down (or quit) and to

reduce their initiation to smoke. Smoke-free laws aiming to create smoke-free environments are highly supported by the public with compliance when properly implemented. In Turkey, it was January 2008 when the revised form of the anti-tobacco law (nb. 5727) was enacted as a two-step law.²⁴ The first part started in May 2008 and the major exclusions have been bars, restaurants, cafes and traditional coffee houses. Finally, on July 2009, Turkey became a totally smoke-free country, including previous exceptions. The law basically aims to protect the public from exposure to tobacco smoke in the places listed below:

1. Indoor public workplaces,
2. Indoor education, health, marketing, social, cultural, sports, entertainment sector buildings,
3. Public transport including commercial taxis,
4. Indoor and outdoor public and private education buildings,
5. Restaurants, bars, cafes, traditional coffee houses.

With this legislation, Turkey has been among the first six countries in the world (UK, Ireland, New Zealand, Uruguay, Bermuda, and Turkey) which have such a powerful anti-tobacco law. Since July 2009, national and local authorities are working on implementation of the law within the country. Early results of scientific studies are very promising in many respects. The indoor air quality has started to improve, compliance to the law has been increasing day by day, and there is a strong public support to the law at the moment. These achievements were the result of the good and strong collaboration of governmental bodies and non-governmental organization (NGO)s. The National Coalition on Tobacco Health (NCoToH; SSUK) with its more than 40 member organizations (www.ssuk.org.tr) has been very active since its establishment in 1995. Although grassroots movements

are at the local level, as many volunteer members in the NCoToH they worked both at the local, national and international levels. For almost 15 years, NCoToH with its members has been organizing seminars, regular meetings, public announcements, visits to official bodies, congresses, conferences, press conferences, etc. Lobbying is a major mission for the NCoToH and in fact they have been very successful in this task since now. Many scientists take active roles in these activities with their evidence-based background and they continuously produce scientific data to go further.

At the local (provincial) levels, Provincial Tobacco Control Board (PTCB) s lead the anti-tobacco activities. The anti-tobacco law orders the establishment of PTCBs in which the Governor leads the group with the Health Directorate's organizational and secretarial responsibility. PTCBs are expected to check and organize the adaptation of the anti-tobacco law at the provincial level. In each province, the PTCB has an executive board representing the other member organizations. It has an official directive, which guides their work plans, and the directive has to be approved by the Province Health Protection Board. As a sub-unit of PTCBs, Province Control Teams (PCT)s were established as well. PCTs are the field workers who are responsible for the inspectorships of the law in the province. PTCs regularly take standardized training courses in each province. The Ministry of Health also supports PTCBs and PCTs via various training activities and regular meetings for solving common problems which present obstacles to the implementation of law. Recently, in March 2009, the Ministry of Health published a guideline for the routine inspector process and program of the PTCs.

Tobacco control activities in Turkey are fortunately promising at the

moment. For solving the tobacco threat in our country completely, we need to

V – Conclusion

The first anti-tobacco law came into force in 1996 and was amended substantially in 2008, covering all the indoor places, including hospitality workplaces. The implementation of this Law was in two phases, by July 19th. 2009, all the indoor areas, including hospitality workplaces, such as restaurants, cafes, bars and

continue our collaboration.

traditional Turkish coffee houses became smoke-free. The early positive effects of the implementation of the Law were documented by a survey, indicating a substantial decline in PM^{2.5} level at various workplaces, and positive health effects are expected in the following months.

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Hantavirus Infections

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Abstract

Hantaviruses, which are viruses with RNA and belong to the Bunyaviridae family, transmitted to humans by rodents and lead to important zoonotic diseases such as hemorrhagic fever with renal syndromes and with the hantavirus pulmonary syndrome. Hantaviruses infect people through bites from infected rodents or inhalation of materials and air contaminated by excreta such as urine and feces. The essence of protection from hantavirus infections depends on the control of the rodent reservoir. The most important method of protection from hantaviruses, especially in endemic regions, is to control the rodents in areas such as houses and other residences.

Key Words: Hantaviruses, rodents, prevention

Hantavirus enfeksiyonları

Özet

Hantavirüsler, Bunyaviridae ailesinde yer alan RNA'lı virüslerden olup, rodentler ile insanlara bulaşarak böbrek yetmezliği ile seyreden kanamalı ateş ve kalp-akciğer sendromu gibi önemli zoonotik hastalıklara neden olurlar. Hanta virüsler insanlara, enfekte farelerin ısırması ya da bu hayvanların idrar, dışkı gibi ekskretleriyle kontamine materyalin ve havanın solunması ile bulaşmaktadır. Hanta virüs enfeksiyonlarından korunmanın temeli, rezervuar olan rodentler ile mücadeleye dayanmaktadır. Bu nedenle, özellikle endemik bölgelerde hanta virüslerden korunmada en önemli unsur, ev ve çeşitli meskenler gibi yaşam alanlarında rodent kontrolünün sağlanmasıdır.

Anahtar Kelimeler: Hanta virüs; rodent; mücadele

Introduction

Although studies of infectious diseases have developed in all parts of the world, there has been an increase in unknown or unidentified pathogenic organisms in recent years which have threatened public health.¹ Hantaviruses are one of 7 virus species that belong to the Bunyaviridae family and have many types in nature. They infect people

especially through rodents (e.g. mouse and rat) and, depending on the type of the virus, cause clinical conditions such as "hemorrhagic fever with a renal syndrome (HFRS)" or "Hantavirus pulmonary syndrome (HPS)". The latter has a more severe course and has a higher fatality rate.²

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The renal syndrome caused by hanta viruses were seen in over 2000 soldiers in the Korean War between 1950-1953 and the fatality rate became rose to 5-10 %. Although the diseases caused by these viruses have been known for more than 80 years, the virus was first isolated from rodents named *Apodemus agrarius* living around the Hantan River in South Korea in 1978. Serum samples of soldiers infected in the Korean War were investigated and a positive result was found so the Hantavirus, previously known as 'Korean hemorrhagic fever disease-virus', took its name from the river where the disease was endemic and this was later changed to HFRS.^{1,3,4}

Hantaviruses infect people through bites from infected mice (spit, saliva) or by inhalation of materials or air contaminated with excreta such as urine and feces. The disease passes into people often in badly ventilated conditions where infected animals are present, especially through aerosol from contaminated air.^{2,5,6}

In 2004 a joint report from the World Health Organization (WHO), International Food and Agriculture Organization (FAO) and Office International Des Epizooties (OIE), hantaviruses were placed among the zoonoses the incidence of which was increasing in Europe.⁷

Hanta viruses have affected more than 100.000 people each year in the world. The fatality rates vary between 3-10 %. The disease has become an important public health issue because it has been diagnosed recently in 2009 for the first time in our country, its prevalence is not known, and a differential diagnosis has not been available on the basis of a regular examination. This review aims to provide information about Hantaviruses.

General characteristics of hantaviruses

Hantaviruses are a virus group belonging to the Bunyaviridae family and have numerous types causing diseases in humans. While hantaviruses such as Hantaan (HTN), Puumala (PUU), Dobrava (DOB) and Seoul (SEO) cause HFRS, hantaviruses such as Sin Nombre (SN) and Andes lead to an infection with a pulmonary syndrome.^{8,9} Hantaviruses have a genome with RNA that

has membrane, with negative polarity and one thread. These cytoplasmic viruses are 80-100 nm in diameter and have an icosahedral structure. They have three important RNA segments, S (small), M (medium) and L (large) and have a nucleocapsid (N) protein and two membrane glycoproteins (G1, G2).^{1,10}

Since hantaviruses have membranes, they are sensitive to 70% ethyl alcohol, ether and chloroform. The virus loses its infectivity in Ph 5 and at 37°C. Nevertheless virus isolation from disease samples of infected people is difficult; a vero E-6 cell can be produced in some cell cultures.^{11,12}

Reservoir, contagion and geographical distribution of hantaviruses

Hantaviruses have no arthropod (arachnoid) vectors and their essential reservoirs in nature are various rodents (e.g. Murinae, Arvicolinae, Sigmodontinae).¹³ Each stereotype has a specific rodent reservoir/vector responsible for the spread of the hantavirus to people. Mouse populations increase in proportion to nutrient sources; especially in the months when rain is on the increase a spread of the disease is seen.¹⁴

In rodents, in areas where hantaviruses have been investigated, seroprevalance was found to be 50%⁵. In 1978, Ho Wang, a Korean scientist, was able to isolate this virus from the lung tissue of the rat *Apodemus agrarius* which he had infected with hantavirus experimentally⁴. Among hantavirus vectors the most widespread rodent species are *Apodemus agrarius* in Asia, *Clethrionomys glareolus* in Northern Europe and *Apodemus flavicollis* in Western Europe. Commonly isolated hantavirus species and reservoirs are the following: Hantaan virus-*Apodemus agrarius* (striped field mouse); Puumala virus-*Clethrionomys glareolus* (bank vole); Seoul virus-*Rattus norvegicus* (Norway rat); Dobrava virus-*Apodemus flavicollis faresi* (yellow-necked mouse). Essential reservoirs of other virus species are the following: Tula virus, *Microtus arvalis* (the most widespread vole in Europe); Khabarovsk virus, *Microtus fortis* (a rat living in reedy;

Sin Nombre virus, *Peromyscus maniculatus* (deer mouse); Andes virus, *Oligoryzomys longicaudatus* (long-tailed rice rat); Thailand virus, *Bandicota indica*; Thottapalayam virus, *Suncus murinus*; Black Creek Canal virus, *Sigmodon hispidus* (cotton rat), Bayou virus-*Oryzomys palustris* (rice rat).¹⁵⁻¹⁷ Syndromes formed by well known hantavirus species and the geographical regions to which they have spread are summarized in Table 1.

Horizontal and vertical spread are seen in rodents and it has been stated that contagion between animals is due to bite injuries occurring often in combat.¹⁸ These viruses do not form any clinical symptoms in rodents.¹⁹ Hantaviruses develop viremia in the mice they infect and so spread to all organs, and cause persistent infection for the whole life of the animal. Although there are neutralizing antibodies in serums of these animals, the virus is dispersed to the environment through excreta such as feces, urine and saliva.^{5,11} It is accepted that the essential and most important reservoir/vector of hantaviruses are rodents. IgG (2.8% cat, 3.5% dog, 3.5% wild rabbit, 14.1% deer) has been detected in the serums of tame and wild mammals. In mammals any asymptomatic finding or persistent infection could not be determined.²⁰⁻²² However in a study made in England 9.6% hantavirus antibodies in healthy cats and 23% in chronically infected cats have been detected and it has been stated that the risk of contagion from mice to cats and from cats to humans is possible.²³

Since mammals and rodents mostly have a common habitat [This does not make sense. Rodents are mammals, and they share their habitat with some but surely not all mammals] the virus can pass from rodents to other mammals when the access,

dose and cell receptor are suitable. In vitro studies have shown that the virus can replicate in beef endothelium and positive serologic findings in other animals show that contagion from rodents to other mammals can occur.^{24,25}

Transmission of hantavirus infections from rodents to humans generally occurs by inhalation of aerosolized excreta (urine, faeces, saliva).^{26,27} In hantavirus infections, the contagion is generally not passed between humans. However as an exception, in Argentina in 1995 in an epidemic occurring with the Andes virus, one of hantavirus species, contagion from human to human was detected.²⁸ Farmers, soldiers, port workers who live in endemic regions and people routinely taking part in group activities (trekking, camping, hunting) form the risk group since they have a high probability of contacting with rodents.²⁹

Hantavirus infections in the world and our country

Hantavirus infections are seen all around the world, affect more than 100.000 people every year and go on in ratios changing according to species and syndrome and with high fatality rates (0.2-50%) (K32, K3). HFRS is generally seen in Asia and Europe and HPS mostly in the American continent. Syndromes formed by hantavirus species are as follows: SEO virus, all around the world with medium severity HFRS: HTN virus, in Asia with severe HFRS; DOB virus, in the Balkans the cause of a more severe type of HFRS in more severe type; SN, in Bayou and Andes, leading to a pulmonary syndrome mostly on the American continent (Table 1).^{17,30,31}

Table 1. Diseases caused by species pertaining to the hantavirus genus and their geographical distribution¹⁷.

Viruses	Geographical distribution	Infection
Hantaan	Asia	HFRS ¹
Dobrava	Europe	HFRS
Puumala	Asia, Europe	HFRS
Seoul	Asia	HFRS
Bayou	North America	HPS ²
Black Creek	North America	HPS
Sin Nombre	North America	HPS
Andes	South America	HPS
Araraquara	South America	HPS
Choclo	South America	HPS
Juquitiba	South America	HPS
Laguna nigra	South America	HPS

HFRS¹: hemorrhagic fever with renal syndrome

HPS²: Hantavirus pulmonary syndrome

HPS cases caused by hantaviruses are seen every year in Southern American countries like Argentina, Uruguay, Paraguay, Brazil, Bolivia, Panama and Chili and fatality rates reach 50%.³² Hantavirus infections were seen in over 2000 soldiers in the Korean War between 1950-1953 and fatality rates were between 5% and 10%. From 1955-2006, in Mongolia, HFRS was detected in 8309 people and 261 of these patients died.^{4,33} In 30 cases studied in Greece, in which HFRS occurred, genetic identification showed the Dobrova virus and this was comparable with studies in other Balkan countries.³⁴ Infections that depended on hantaviruses were first identified in 25 doubtful cases in which HFRS findings, such as high fever, thrombocytopenia and acute renal failure, were seen between January and May of 2009 year in the cities of Zonguldak and Bartın. Two of these patients died and hantavirus was detected in 12 (52.2%) blood samples taken from 23 people. A hantavirus surveillance of the risk groups, including the villagers and people in the forests, mines and hunting areas of these regions was made and seroprevalance was found to be 5.2%.^{13,35}

Control of hanta viruses and mice

Since the natural reservoirs of hantaviruses are rodents, all people are always at risk of

these infections. There is no certain treatment or effective vaccine for preventing the disease yet. However, tissue culture vaccines produced in China and applied to 100.000 people voluntarily attending the research program became protective to a level above 90%. In addition, vaccines against HFRS caused by SEO and HTN viruses, produced from rodent brains and inactivated with formalin are commonly used in South Korea and have provided successful results. Today vaccines in which recombinant DNA technology is used have been produced.^{36,37}

The control of the (rodent) reservoir lies at the base of protection from hantavirus infections. Especially in endemic regions, the most important issue for protection from hantaviruses is to the control of rodents in living areas and business places.^{37,38}

To achieve this aim:

1- We certainly should not try to catch mice alive. We should not contact the killed mice with the naked hand and should use disinfectant and bury dead mice in a deep hole.

2- We should not enter unused places such as warehouses, stores or houses where mouse infestations may have occurred. If there is an obligation for this, then masks and protective clothes should be worn.

3- The access of mice to food sources for human or animal use should be prevented, foods should be stored in closed places and food warehouses and containers should be covered tightly.

4- We should avoid the areas where the mouse population is high and be careful in areas especially when trekking or camping.

5- In situations where the mouse population is increasing, we should benefit from animals such as sparrow hawk, grass snake and owl and these natural predators should be protected.

6- We should keep the environment clean where rubbish and food wastes are available and so eliminate the mouse nests, and should destroy mice by catching them with suitable methods.

7- Hantaviruses are not resistant to detergents and disinfectants so the contaminated areas should be cleaned with hypochlorite (e.g. bleach; 100 ml bleach 900 ml water) and similar disinfectants³⁷⁻³⁹.

8- Rodenticides are poisons that kill rodents. Most of these poisons cause death only after they are eaten for a number of days. However, the use of poison is not a permanent solution. Moreover, the use of these poisons can lead to death in the predators of the mice.³⁷⁻³⁹

There are numerous vital rodent-borne diseases in our country relevant for public health. Therefore, the rodents should be controlled as a first preventive measure to be applied against infections. For preventing the contagion in health personnel, the systems including N-100 HEPA filters should be used in ventilation systems and laboratory conditions having 2-3 level biosafety should be provided.⁴⁰

Hantavirus infections are an important public health problem for our country and whole world. There is no effective vaccine in use for them. At the root of protection from the hantavirus infections lies the control of the reservoir and vectors.

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Preventing smoking initiation and motivating to quit smoking: insights gained from nonsmokers

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Abstract

This study aimed to understand the motivations of current nonsmokers for not starting to smoke or for not continuing to smoke after they had started. Therefore, an exploratory study was conducted with ten voluntary participants. Based on the key research findings, suggestions are presented for encouraging smokers to stop smoking and for preventing nonsmokers from starting.

Key words: Smoking, adults, exploratory study, Turkey

Sigaraya başlamanın önlenmesi ve sigara bırakma motivasyonu: Sigara içmeyenlerden elde edilen düşünceler

Özet

Bu çalışma, şu anda sigara içmeyenlerin sigaraya başlamama veya sigara kullanmaya başladıktan sonra devam etmeme motivasyonlarını anlamayı hedeflemiştir. Bu sebeple on gönüllü katılımcı ile keşfedici bir araştırma yapılmıştır. Araştırmanın ana bulgularına dayanarak, sigara içenleri sigarayı bırakmaya teşvik etmek ve sigara içmeyenlerin de sigaraya başlamalarını engellemek için öneriler sunulmaktadır.

Anahtar kelimeler: Sigara, erişkinler, inceleme çalışması, Türkiye

Introduction

Smoking is one of the prevailing causes of many health problems all over the world and thus has been the primary concern of many studies.¹ However, it is obvious that public health researchers should do more than try to convince people not to smoke only by indicating the long term costs of smoking on their health.² It is a well known fact that smoking is not only a problem for people who smoke but also for those who are exposed to passive smoking.^{3,4} The majority of previous studies on nonsmokers either concentrated on the prevalence of passive smoking and the health risks associated with it or compared nonsmokers with smokers in researches primarily focused on smokers.⁵⁻⁸ However, in-depth

understanding of nonsmokers who have never smoked or smoked previously may provide valuable insights into motivations, feelings, thoughts and experiences associated with being, becoming or sustaining as a nonsmoker. Therefore, this paper aims to understand motivations of nonsmokers for not starting to smoke or for not continuing to smoke. Based on these deeper understandings, this paper also tries to provide guidance to policy-makers for preventing people from starting to smoke and motivating them to stop. Since the aim of this study is to provide a better understanding of the issues under concern, an exploratory study was conducted with ten voluntary nonsmoker participants.

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Relevant Literature

Active and passive smoke is known to be chemically similar although the concentrations of the smoke of others are lower than the ones inhaled by active smokers⁸. Since being exposed to passive smoking may cause many serious tobacco-related health problems⁹, a great number of previous studies on nonsmokers have examined the effects of passive smoking on physical health. A longitudinal study from the European Community Respiratory Health Survey, including 14 countries, reported that nonsmokers' exposure to passive smoking decreased by 18.4% and the prevalence of active smoking declined only 5.9% per 10 years of a follow-up study.⁴ The remarkable change in passive smoking was thought to be the nonsmokers' awareness of the dangerous effects of environmental tobacco smoke and also some legislative actions to restrict smoking. The rate of active smoking, which is still high, has continued to attract the interest of many antismoking centered studies. One of these studies, conducted by Albaum et al. (2002), contributed to the formation of the present study with their modified four-stage smoking behavior process model¹⁰. Their research on 214 teenagers showed that 42 percent did not consider smoking, therefore did not try it or had never smoked in their lives. On the other hand, 81 percent of the ones who considered smoking also tried at least one cigarette; in other words, consideration was highly followed by trial and smoking behavior. This study stressed the importance of understanding why some people do not consider smoking even when other factors that affect smoking behavior are present (e.g., peer pressure to smoke or cigarette advertising) and also raised the question of why some experiential or regular smokers decide to stop smoking. Another study that had an impact on the approach of understanding nonsmokers was conducted by Kelley et al. (2003).⁷ They illustrated that concerns for physical health, the death of a loved one related to cigarette consumption, the monetary costs of

smoking and parental influence were the reasons for young female nonsmokers to not smoke. However, since that research was limited to young females and did not stress the differences among nonsmokers based on their smoking history, the present study aims to provide further and more detailed information that may extend those research findings.

Considering smoking behavior as a decision process may be useful in designing different antismoking policies and ads designed to fit the smoking status of targeted audiences. For example, many reasons for young women to continue to smoke are different than those for their initial smoking experimentation and subsequent smoking habit during adolescence¹¹. Likewise, a recent study from Turkey revealed that factors affecting the smoking behaviors of Turkish youth also varied according to the stage of their smoking habit¹². For instance, although family influence and exposure to antismoking messages were not significant predictors for daily smokers, parental advice was an influential factor at earlier stages. Examining adult and adolescent nonsmokers based on their smoking history as well as their past smoking levels may provide valuable information for preventing smoking initiation in early stages and building strategies for the cessation of smoking for those in advanced stages. Smith and Stutts (1999) illustrated that adolescent nonsmokers (have never smoked or smoked but quit) were separated from smokers not by their exposure or by paying attention to cigarette ads or antismoking information but by feeling pressure from their family members or friends.¹³ For example, smokers were more likely to have siblings who smoke within the family than were nonsmokers. Basically, antismoking ads or information should be revised based on the different factors that are most likely to affect smokers and nonsmokers on the basis of their smoking history.¹⁴

Methods

Siegel and Lotenberg (2007) emphasized the importance of understanding why individuals behave in unhealthy ways or why they do not change their unhealthy behaviors². They also advise to conduct qualitative studies that enable public health researchers to pay attention to the members of their targeted audience and to learn why they behave as they do. Since qualitative methods are ways to develop a subtle understanding of motivations and behaviors¹¹, especially in health-oriented studies¹⁵, this study employed an exploratory approach to understand nonsmokers for the benefits of smokers in terms of preventing a start of smoking and motivating quitting.

Face-to-face, in-depth, interviews lasted from 30 minutes to 45 minutes and were carried out by a female interviewer who interviewed ten voluntary participants residing in Izmir, Turkey. According to World Health Organization statistics, the prevalence of smoking in Turkey is nearly 35.5% among adults and 8.4% among adolescents¹⁶. Therefore, Turkey seems to offer an appropriate sample for exploring adult nonsmokers who have previously smoked or who have never smoked for the benefit of potential and current smokers. The ages of participants ranged from 23 to 57 years. All of the informants had at least a graduate degree and half of them were female. The verbatim transcribed interviews were systematically analyzed and interpreted as qualitative research methods suggest.¹⁷

Findings and Discussion

Four of the respondents who had never smoked, stated the reasons why they did not even try smoking as cigarette-related health diseases, smell of the cigarettes and having parents who were heavy smokers. This finding supports the argument of Albaum et al. which was that those who do not consider smoking also do not try it¹⁰ Unlike previous studies that claimed the initiation to smoking is related to having friends who

smoke and also to the number of friends smoking^{12, 18}, all of the nonsmoker respondents who had never smoked indicated that although they had many friends who smoked, they did not feel any pressure or encouragement that made them smoke. Either their friends were trying not to smoke near them or they were leaving the place where their friends smoked. Similarly, although the parents of two of the nonsmokers who never smoked were smoking heavily especially at home, the smoke they were exposed to made them feel disgust and hate towards smoking.

Three nonsmoker respondents expressed that they had experience with a cigarette at least once. The ones who offered the cigarettes were their close friends. They also explained why they tried smoking was that they were affected by the atmosphere they shared with their friends and were curious about smoking. They never became occasional or regular smokers because, as they stated, of the disgusting smell of the cigarettes.

Prohibition of smoking because of health problems and difficulties in breathing were the reasons for stopping smoking for three of the respondents who had been regular smokers previously. One of our informants declared that she had an open heart surgery and after that she had to quit smoking but she still desired to smoke. The other two ex-smoker nonsmokers taking part in the interviews stated that they had become a nonsmoker by their own decisions. Having difficulties in breathing and running, and coughing regularly were their main reasons of deciding to quit smoking.

Understanding why and how some people succeed in preventing smoking initiation and quitting smoking while the others could not do so may provide guidance to public health policy-makers by showing the ways to encourage smokers to stop smoking and to prevent nonsmokers from smoking initiation. In this context,

these research findings show that antismoking messages should emphasize the smell of the cigarette and the feelings that the smell evokes in the loved ones of smokers such as their parents, siblings, close friends, boyfriends or girl friends. Health related warning messages on cigarette packages should also include problems faced more generally by addressing smokers' daily lives, by considering their ages as well, and including difficulties in breathing, running or doing sports activities. The European Union

suggests many text-only and text-graphic warning labels to be placed on cigarette packages to discourage smoking. For example, "protect children: don't make them inhale your smoke" is one of those warning labels. However, rather than just emphasizing the effects of smoke on children's' health to discourage parents smoking, the inner feelings of children about the smell of the smoke or the true life examples of how their children will be affected by that smoke in the future is likely to be more effective.

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