THE INCIDENCE OF ACCIDENTS IN TWO DIFFERENT REGIONS OF ANKARA PROVINCE
Ankara' nın iki farklı bölgesindeki kaza insidansları

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Abstract

Purpose: *Accidents and related injuries are very important public health problems in developing countries. Previous studies have shown that over 19 million people became disabled due to traffic, occupational and domestic accidents. It is important to know the causes and types of accidents for development and implementation of intervention programs. In this study, we aimed to determine the incidence and types of accidents within the previous two weeks and to evaluate some socio-demographic variables and home accidents in two different regions of Ankara.*

Materials and Methods*: The studies were designed as cross-sectional epidemiological studies in which the "30 Cluster Sampling Method" was used.*

Results: *The incidences of having any accidents within the past two weeks were 5.1 % in Region I and 8.9 % in Region II. In both Region I and Region II, "domestic accidents" were the leading cause of all accidents.*

Conclusion: *Intervention studies should be structured according to the types of accidents.*

Key Words: *Accident, Accident prevention, Epidemiology, Injuries*

Özet

Amaç: *Kazalar ve yaralanmalar gelişmekte olan ülkelerde önemli halk sağlığı sorunları arasında yer almaktadır. Geçmişte yapılmış çalışmalara göre, yaklaşık 19 milyon kişi trafik, iş ve ev kazalarına bağlı olarak yeti yetersizliği ile karşı karşıya kalmaktadırlar. Müdahale programlarının geliştirilebilmesi ve uygulanabilmesi için kaza nedenleri ve tiplerinin bilinmesi önemlidir. Bu çalışmada, Ankara ilinin farklı iki bölgesinde araştırma tarihinden iki hafta öncesinden itibaren meydana gelmiş olan kaza sıklığının ve tiplerinin belirlenmesi; sosyo-demografik bazı özellikler ve ev kazalarının değerlendirilmesi amaçlanmıştır.*

Gereç ve Yöntem: *Araştırmalar kesitsel tipte olup "30 Küme Örnekleme" yöntemi kullanılmıştır.*

Bulgular: *Son iki hafta içinde herhangi bir kaza geçirme insidansı Bölge I'de % 5.1 iken Bölge II'de % 8.9 olarak hesaplanmıştır. Her iki bölgede de "ev kazaları" tüm kaza nedenleri arasında ilk sırada yer almıştır.*

Sonuç: *Müdahale programları kaza tiplerine göre yapılandırılmalıdır.*

Anahtar Kelimeler: *Epidemiyoloji, Kaza, Kazalardan korunma, Yaralanma*

Accidents and related injuries have become a serious public health problem in developing countries. In general, "accident" and "injury" concepts are confused. "Accident" defined as an unplanned and unexpected event may be resulted in an injury (1). Injury is thought to be the result of acute exposition of human body to mechanical, thermal, electrical and chemical energy or removing vital components such as oxygen and heat intentionally or unintentionally (2). Injuries, intentional and unintentional, are a large and neglected health problem in all regions, accounting for 16 % of the global burden of disease in 1998 (1). In the United States, over 400 people continue to die of injuries every day-at least 57 of these deaths occur among children (3). Previous studies have shown that over 19 million people became disabled due to traffic, occupational and domestic accidents. In Turkey, 5.1 % of all reported deaths in provincial centers are caused by accidents (4).

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Accidents are classified as "domestic accidents", "occupational accidents", "traffic accidents", "sports accidents", "school accidents" and "agricultural accidents" of which "domestic accidents are the most frequent. Some risk groups were identified for all types of accidents. For adult men aged 15-44, traffic accidents are the most common cause of ill-health and premature death worldwide (1). For domestic accidents, children, housewives and elderly people are high-risk groups. Unintentional injuries occurring in the home environment disproportionately affect the health of children especially under the age of one year. Although traffic and occupational accidents have higher mortality and disability rates, domestic accidents should be given priority because of their high frequency.

There are more accidents in the home environment than many other environments, yet there is no responsibility on local authorities to promote domestic safety (5). In 1990, 37.5 % of all admissions to the emergency unit of an important university hospital due to injuries because of home accidents were 0-6 year old children (4). The mortality rate due to accidents in the elderly age group is 3 times greater than it is in total population. "Falling at home" is the mortality cause of every 6 of 10 accidents. (6).

Reducing the incidence and severity of injuries is recognised as a public health priority. It is important to know the causes and types of accidents for development and implementation of intervention programs.

In Turkey, there are several studies about accidents. However, they generally focus on one accident type. For instance, data from the Turkish Statistical Institute (one of the most important institutions in Turkey) focus primarily on traffic accidents. On the other hand, "domestic accidents" are like an iceberg in our country. Nationwide data is not available for determining the risk factors and prevalence of the problem.

The goal of this study was to determine the incidence and type of accidents within the previous two weeks and to evaluate the socio-demographic variables and home accidents in two different socio-economical regions of Ankara.

MATERIALS AND METHOD

a. Setting and study population
This study was carried out in Region I and Region II districts, two health centre regions of Ankara. The socioeconomic status of these two districts was quite different. Region I is a well-developed region of Ankara with apartments and houses as for Region II is a transition zone from ghettos to city district. Migration is a fact in both of the regions, but incomes of people living in Region I are better that the ones in Region II. People living in Region II have poorer conditions. The houses in Region I are more qualified in architecture so that they have less risk for having an accident.

b. Study type, sampling procedure
The studies were cross-sectional epidemiological studies in which the "30 Cluster Sampling Method" was used. "Household" was used as the sampling unit. In Region I, there were 11 792 households and in Region II there were 6 733 households. The selected sample was 390 households in Region I and 303 households in Region II. Sample sizes were calculated by using the formula, which the total population and the accident prevalence were known.

c. Data collection and analysis
Sixth grade students of the Medical Faculty doing their internship in public health department collected data of the two studies by using "face to face questionnaire" method in January 2001. There were two main parts in the questionnaire form. The first part consisted of some socio-demographic characters and the second part was composed of some characteristics of accidents, which had happened in the previous two weeks. The EPI INFO 5.0 statistics program was used for analysis. Chi square test was used in statistical analysis.

RESULTS

In this part, the characteristics and the incidence of accidents within the previous two weeks for the two different regions were presented.

Over 60.0 % of the people were between 15-49 years old in both Region I and Region II. Approximately 50 % of the population was female. Although 66.4 % of the participants were more educated in Region I, only 34.1 % of them were of a similar position in Region II. In Region I, 94.6 % of the people stated that they had social insurance however, in Region II, only 78.3 % of the participants gave a positive answer for the same question (Table I). There are statistically significant differences of "educational status" and "social insurance" between these two regions (p=0.000)

The incidence of accidents within the past two weeks was 5.1 % in Region I. In the same period, participants declared that 8.9 % of them had an accident in Region II. Both in Region I and Region II, "domestic accidents" were the leading cause of all accidents. The frequency of domestic accidents was higher in Region I (65.6 %) than in Region II (86.6 %). Furthermore, sports accidents were stated as a common type of accidents (17.3 %) in the "other" category. However, nobody declared "sports accidents" in Region II. There was a higher rate of attendance to a health institution in Region II (13.4 %) than in Region I (12.5 %) (Table II).

In Region I, 80.3 % of the houses had slippery floors whereas in Region II only 46.5 % of the houses had slippery floors. There is a statistically significant difference between two regions in respect to those being a "slippery floor"(p=0.00000). Doorsteps within the houses were more prevalent in Region II (50.8 %) than they were in Region I (44.5 %). The number of the houses with "uncovered sockets" was less in Region I (76.6 %) compared to Region II (81.5 %). Nevertheless, this relation was not significantly different (p=0.10362).

In 0-14 age group, 3.7 % reported that they had an accident in Region I whereas this percentage was 8.9 for the same age group in Region II. In the other two age groups shown in Table III, the proportions in Region I were also higher. The incidence of accidents by 0-14 and 15-49 age groups in both Region I and II is statistically different (p for 0-14 age group: 0.032, chi square test: 4.59; p for 15-49 age group: 0.008, chi square test: 6.85) (Table III).

"Uncovered cable" in households was significantly different in the two regions (p=0.00001). In Region I, there were "uncovered cables" in 16.2 % of the houses even though this number was 31.2 % in Region II. There were firearms in 7.9 % (n=31) of Region I and 8.6 % (26) of Region II households and this was not statistically different (p=0.76383) (Table IV).

Table I. *Some socio-demographic characteristics of the study population (Region I-Region II, January 2001)*

Characteristics	*Region I*		*Region II*		
	Number	*%*	*Number*	*%*	*P*
Age groups*					
0-4	*42*	*3.3*	*47*	*4.3*	*0.21*
5-14	*149*	*12.0*	*154*	*14.1*	
15-49	*833*	*66.7*	*686*	*62.8*	
50-64	*179*	*14.4*	*158*	*14.5*	
65+	*45*	*3.6*	*48*	*4.4*	
Sex	*620*	*49.7*	*531*	*48.6*	*0.59*
Male	*628*	*50.3*	*562*	*51.4*	
Female					
Education status					
Illiterate	*94*	*7.5*	*207*	*18.9*	
Literate	*7*	*0.5*	*20*	*1.8*	*0.00*
Elementary education	*318*	*25.5*	*494*	*45.2*	
Higher education and above	*829*	*66.4*	*372*	*34.1*	
Social insurance					
Yes	*1184*	*94.9*	*855*	*78.3*	
No	*64*	*5.1*	*238*	*21.7*	*0.00*
Total	*1248*	*100.0*	*1093*	*100.0*	

Mean: 31.5, median: 28.0, min: 1, max: 99 (Region II)

Table II. *The incidence of accidents in the previous two weeks (Region I-Region II, January 2001)*

Characteristics	**Region I**		**Region II**		
	Number	**%**	**Number**	**%**	**P**
Accident					
Yes	*64*	*5.1*	*97*	*8.9*	*0.000*
No	*1184*	*98.6*	*996*	*91.1*	
Accident type					
Domestic	*42*	*65.6*	*84*	*86.6*	
Traffic	*1*	*1.0*	*6*	*6.2*	*0.000***
Occupational	*4*	*6.3*	*5*	*5.2*	
Other	*17*	*26.5**	*2*	*2.1*	
Health service utilisation					
Yes	*8*	*12.5*	*13*	*13.4*	*0.810*
No	*58*	*87.5*	*84*	*86.6*	

**Sports accidents included (17.3 %)*
***P value calculated for domestic and other types of accidents*

Table III. *The incidence of accidents by age groups in the previous two weeks (Region I-Region II, January 2001)*

Age group	Region I				Region II				p
	Accident +		Accident -		Accident +		Accident -		
	n	%*	n	%*	n	%*	n	%*	
0-14	7	3.7	184	96.3	18	8.9	183	97.1	0.032
15-49	6	0.7	827	99.3	16	2.4	670	97.6	0.008
50+	5	2.2	219	97.8	11	5.3	195	94.7	0.089
Total	18		1 230		45		1 048		

**Calculated for row*

Table IV. *Some risk factors for accidents in households (Region I-Region II, January 2001)*

Risk Factor	Region I (n=390)		Region II (n=303)		
	Number	%	Number	%	P
Slippery floor	313	80.3	141	46.5	0.000
Doorstep	175	44.9	154	50.8	0.119
Uncovered socket	298	76.6	247	81.5	0.103
Uncovered cable	62	16.2	95	31.4	0.000
Firearm	31	7.9	26	8.6	0.763

DISCUSSION

In Region I, education level of 66.4 % of the participants were at high school level or more but this frequency was only 34 % in Region II. Although both of the regions had high migration rates, people migrating to Region I were more qualified than people migrating to Region II. In Region II, the majority of the people migrated from rural parts of closer provinces to Ankara.

The incidence of accidents within the past two weeks was 5.1 % in Region I whereas it was 8.9 % in Region II. People living in Region II are more likely to lead a traditional life style than the people living in Region I. In Region II, most of the women were housewives and hence seemed to spend the majority of their time within the house. This puts them under the risk of having a domestic accident.

Socio-economic status affects injury rates. People living in lower socio-economic status face accidents more frequently than people living in higher socio-economic conditions. In a study carried out by Faelker et al (7), it was shown that socioeconomic differences might be important in adult populations parallel to mortality and morbidity gradients in childhood injuries. This study confirms that this health gradient is observable in a population of

children using emergency department data. Factors like educational status, income and social insurance increase the accident incidence rates. In addition to this, accidents are reported more systematically in higher income levels. In this study, the accident incidence rate in Region II was higher than it was in Region I. People living in Region I reported accidents with more care and also they reported, "sports accidents". In contrast, no "sports accidents" were reported in Region II. In a study reported by Laflamme (8), it was found that families at the highest income level reported more bicycle and sports injuries than those with lower incomes.

Accident history was collected by face-to-face interviewing method from only one member of the family. The contact person might not have been fully aware of the accident experiences of the others, especially working or playing, etc. outside. This may cause underestimation of the incidence of total accidents. Furthermore, the data was collected for the previous two weeks prior to the study. People might have forgotten "trivial" accidents because of the "recall factor" which may be another reason of underestimation.

There were considerable differences in housing conditions between these two regions. In Region I, the majority of the houses were flats or apartments whereas in Region II there were prevalently squatter's houses with worse conditions. We also realised a great difference about the risk factors facilitating accidents within the houses between the regions. For example, in Region I, no house without stair rails was determined however, there were many in Region II. Moreover, some other risk conditions such as doorsteps were more frequent in Region II (50.8 %) than in Region I (44.5 %). Generally, esthetical and hygienical floor materials are used in domestic settings in the higher socio-economical provinces. These materials directly or indirectly, by setting foot on a carpet may cause sliding. In Turkey placing a socket cover and positioning sockets at a higher level is not in common use in architecture. However, this is one of the major important prevention methods in childhood accidents related to electric shock. In this study, "uncovered cables" were more common in Region II compared to Region I. Most of the buildings were old fashioned and majority of the people spent money to repair the electrical wiring. These differences might have been a cause of the higher incidence rates in Region II compared to Region I (Table II, IV). Even though some interventions against planned urbanisation were performed in Region I, there was not sufficient support for creating a safe domestic setting. More interventions are required to prevent accidents at every step of administrative levels. In a study carried out by Stewart (5), it was found that there were more accidents in the home than many other environments, yet there was no responsibility on local authorities to promote domestic safety.

Although there was a statistically significant difference of the incidence of accident between the regions, utilisation of health services did not differ. This might be a reflection of the general attitude of the population towards health. In general, Turkish people do not attain health services for their health problems unless they are very serious. This fatalistic approach is a culturally accepted behaviour within the country. In recent years, some interventions for improving individuals' responsibilities towards his health status have been established.

Given the extremely limited economic resources and other factors causing accidents, developing countries face even greater challenges in controlling the ever-rising accident rates (9). It is the wish of the authors that this paper will serve as a primer for more detailed and comprehensive studies to determine the rates of accidents. Intervention studies in this area should be structured urgently after the real number of accidents has been brought to light.

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