Factors Associated with Health Services Utilization by the General Population in the Center of Kayseri, Turkey

Kayseri Kent Merkezinde Genel Popülasyonda Sağlık Hizmetleri Kullanımı ile İlişkili Faktörler

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ABSTRACT Objective: Previous studies have revealed the social, economic, and psychological factors that influence consulting behaviour; however the health services utilization by the general population are seldomly studied. The aim of this study was to examine the level of health services utilization and the effects of predisposing, enabling, and need factors on Turkish general population. **Material and Methods:** This cross-sectional study was performed on seven public health centers (PHCs) which were selected among 21 PHCs in the center of Kayseri between 2005 and 2006. The study population was comprised of 1880 household members who were selected by a stratified random sampling method. Household members were interviewed with a face-to-face method in their homes by means of a questionnaire. Predictors of health services utilization included predisposing, enabling, and need factors. The quantitative variables were summarized as means ± standard deviations. Comparisons made among the groups were performed using independent samples t-test and one-way analysis of variance (ANOVA). Multiple linear regression analysis was used to model the effects of predictor-factors specified in the Andersen Model of health services utilization. **Results:** In the last year, rate of health services utilization was 79.6% and the mean visit number was 5.0 ± 5.4. The rate of applications to the state hospitals was higher (49.9%) than those of private medical institutions (13.2%). Predisposing factors: Being married 4.9 times, being male 1.9 times; enabling factors: Absence of social insurance coverage 2.2 times, sufficient monthly income 2.4 times and closeness (< 500 meters) 1.7 times; need factors: Poor perception health 1.7 times and presence of chronic disease 2.5 times, have a higher probability of using the health services. **Conclusion:** Being married, having a good family income and chronic disease were the most important predictors on utilization of health services. Having poor perceived health was also more closely associated with health services utilization.

Key Words: Health services misuse; causality; health status

ÖZET Amaç: Daha önce yapılan çalışmalarda başvuru davranışını sosyal, ekonomik ve psikososyal faktörlerin etkilediği gösterilmiş, ancak genel popülasyonda sağlık hizmeti kullanımı üzerinde nadiren durulmuştur. Bu çalışmanın amacı genel populasyonda sağlık hizmeti kullanım düzeyini, hazırlayıcı, kolaylaştırıcı ve gereksinim faktörlerinin etkilerini incelemektir. **Gereç ve Yöntemler:** Kesitsel nitelikli bu çalışma 2005-2006 yılları arasında Kayseri il merkezinde bulunan 21 sağlık ocağı arasından seçilen yedi Sağlık Ocağı Bölgesinde yapılmıştır. Araştırma grubunu tabakalı örneklem tekniği ile belirlenen 1880 kişi oluşturmuştur. Hane halkı üyelerine evlerinde yüz yüze görüşme tekniği ile anket uygulanmıştır. Sağlık hizmeti kullanımının belirleyicileri hazırlayıcı, kolaylaştırıcı ve gereksinim faktörlerinden oluşmaktadır. Niceliksel veriler aritmetik ortalama ± standart sapma şeklinde gösterilmiştir. Gruplar arası karşılaştırmalarda student t testi ve tek yönlü varyans analizi (ANOVA) kullanılmıştır. Andersen Sağlık Hizmetleri Kullanım Modelinde tanımlanan belirleyici değişkenlerin etkilerini modellemede çoklu regresyon analizi kullanılmıştır. **Bulgular:** Son bir yıl içinde sağlık hizmeti kullanım oranı %79.6 olup, başvuru ortalaması 5.0 ± 5.4'tür. Kamu hastanelerine başvuru oranı (%49.9) özel sağlık kuruluşu başvurularına göre (% 13.2) daha yüksektir. Sağlık hizmetleri kullanım olasılığını, hazırlayıcı faktörlerden evlilik 4.9 kat, erkek cinsiyette olmak 1.9 kat; kolaylaştırıcı faktörlerden sosyal güvence eksikliği 2.2 kat, iyi gelir düzeyi 2.4 kat, sağlık kuruluşuna yakınlık (<500 metre) 1.7 kat; gereksinim faktörlerinden: olumsuz sağlık algısı 1.7 kat, kronik hastalık varlığı 2.5 kat artırmıştır. **Sonuç:** Evlilik, iyi düzeyde aylık gelir ve kronik hastalık varlığı sağlık hizmetleri kullanımının en önemli belirleyicileridir. Olumsuz sağlık algısı da hizmet kullanımı ile oldukça yakından ilişkilidir.

Anahtar Kelimeler: Sağlık hizmeti kullanımı; etkileyen faktörler; sağlık statüsü

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Utilization is defined as obtaining the health care services in the form of health care contact.[1] Health-service-utilization is at the core of health system's function. Health services utilization can be applied as a measure of access, but use of services depends on other factors. The utilization of health services may depend on socio-demographic factors, social structures, level of education, gender discrimination, status of women, economical and political systems, environmental conditions, the disease type and health care system itself.[2,3]

From different perspectives (economic, psychosocial, behavioral, epidemiological etc.); various theoretical models of health care utilization have been formulated in an attempt to understand which variables are influencing health care utilization and to what degree.[4] According to the behavior model developed by Andersen in 1968 based on three components assumed to be related to health care utilization and that can be used as predictors of utilization.[5] These components are classified as follows: predisposing variables or sociodemographic characteristics that condition a higher probability of using the services; enabling variables (those that can hinder or enable the use of services); and need for care variables (understood as the perception of a change in one's health). Several studies have demonstrated that self-rated health is an important predictor of mortality, morbidity and usage of health services.[6] Perception of general health status is a predicting and guiding indicator for health care planning, health care demand and health care utilization.[7]

Health applications made by the factors described in behaviour model as well as by personal choices have never reached to the desired levels. In the studies conducted, also, rate of applications to health care institutions was found as 49% countrywide; on the other hand, it was between 57.8% and 77.5% in the region.[8] Similarly, mean application rates were low too. It was 2.4 per person countrywide and between 1.1 and 3.5 in the region.[8-11] However, mean application rate in European countries was between 3.0 and 11.5, and it was 6.2 in OECD countries.[12]

Today, such central improvements as increased globalization, developments in communication and intelligence technologies, increased expectation and human rights have converted societies to "intelligence society" from "industrial society". The fact that health care institutions have followed technological improvements and been structured with advanced diagnosis and treatment devices may increase the utilization of health institutions by users.[13]

Thus, the studies conducted in our country demonstrated that people did not utilize public health centers as a first phase health institution due to lack of physical conditions, technical equipments and qualified personnel. Instead, the number of those who preferred the technically advanced hospitals with qualified personnel was three times higher compared to the first phase public health centers. Therefore, second phase hospitals were substituted as first phase hospitals and 79% of the demands of the first phase hospitals were met by the second and third phase hospitals.[8,13,14]

The first step institutions -where 90-95% of the health problems were treated in developed countries- have been the one with which the people were not pleased in our country. Thus, administrators started to seek a permanent health model and with the legal regulations in health under "Transformation Project in Health"; they tried to correct the dysfunctional parts of the health system. Abolishing public health centers and state hospitals; "family physicians" and private hospitals were organizationally established -first in pilot 35 cities then in all cities- gradually; and financially, "general health insurance" as a general public insurance was accepted and "private insurance" and "payment per service system" was adopted.[9,15]

It is doubtful whether the adaptation of the new health model will be successful and be beneficial for the country and public health. It is feared that such health rights as protection and advance of health will be excluded from the responsibility of social state and be under the individual's own responsibility through the new regulations with

which health services will be privatized gradually and that health service will be the one purchased only by those who have money, thus deepening the inequality already present and affecting the sensitive groups in society.

Because the data about health care utilization in Kayseri were not consistent and there was no study on factors that influenced the utilization of health services, we investigated the patterns and the factors associated with health care utilization by the general populations. Furthermore, there was no study in this area that focused specifically on the effect of perceived health status on health care.

MATERIAL AND METHODS

This cross-sectional study was performed between March 2005 and 2006 on 1880 subjects living in 501 dwellings. The rate of application to health services in our country was accepted as 49%[8] the confidence interval as 95%, alpha as 0.05, beta as 0.80, effect size as 0.07, the number of the sample as 1676, houses as 558 through NCSS (Statistical and Power Analysis Software-PASS).

The sample of the research was composed of 648845 people who lived in 168064 households within the area of Public Health Centers of Kayseri Province Health Directorate. Since perceived health level was aimed, too, only those 15 and over were included in the research. The number of health centers in the center of the province (168064) was proportioned to the urban population (648845) to determine the number of people aged 15 years and over in each dwelling. It was decided that there could be 2.89 (≅3) persons on average aged 15 years and over in each dwelling. The provincial health directorate was consulted and a total of 21 urban health centers were stratified according to the socioeconomic levels of the people they served: welfare (three centers), middle (nine centers) and poor (nine centers). With simple random sampling technique, seven centers out of 11 and 34 village health houses were included in the sample, 1/3 from each stratum. From the area with bad and sufficient socio-economic levels, 12 public health centers were included in the research whereas from the area with good socio-economic levels 10 public health centers were included. Fifteen households were interviewed in each health area. Questionnaire forms of nine households were cancelled-due to memory factor- because they lacked complete data. Therefore the sample was made up 1880 subjects living in 576 households; 1304 of whom were over 15 and adult and 576 of whom belonged to 0-14 age group.

Household members were interviewed face-to-face at their home by means of a parent, child (0-14 age groups) and adult (15 age and above) questionnaires. One family questionnaire form was filled for each family whereas child and parent questionnaire forms were filled for all the members in the family. The parent and child questionnaires were applied to the person in the household most knowledgeable about the parent and child (90% of the time, the mother).

A parent questionnaire included the type of family, household size, family income, who decided to go to the health institutions, the distance to the nearest health institution, the public health institution to which the family belonged. An Adult Questionnaire included questions related to demographic and socioeconomic characteristics, presence of chronic disease diagnosed by a physician, application and admittance to hospital along previous year and perception of general health status. The child questionnaire forms included the questions on the adult questionnaire forms except for those related to general health perception.

Health services utilization was defined as the health care provided by the medical centers, state hospitals, private hospitals, university hospitals, policlinics, and the specialist physicians. Health services utilization was studied both in terms of the probability of utilization (i.e. the proportion of people that used at least once the health service during the past 12 months) and the volume of use (the average number of contacts with the health care provider during that period). For hospital admission only the probability of use was studied and the reference period was one year.

The conceptual basis for the inclusion of further independent variables for modeling health

care utilization was provided by the Behavioral Model of Health Services Use[5] and recent studies in which this model was used.[16,17] This resulted in the selection of age, sex, marital status, household size and educational level, occupational status as predisposing variables for our model.

Health status -as a proxy for need-/was measured by three indicators: Presence of chronic disease, the number of chronic diseases, and perceived health status. The instrument used to evaluate the number of chronic diseases was a list of ICD-10 chronic disorders, derived from the list of chronic disorders developed by World Health Organization.[18] For each condition, the subject was asked whether he or she had suffered from a chronic disorder during the past 12 months.

Self-rated health status was measured in terms of responses to the question that is a validated WHO-instrument for the measurement of perceived health status[19] "How is your health in general? (excellent, very good, good, fair, poor)". Responses were categorized into good (good to excellent) and poor (fair to poor). Approval for the study was obtained from The Erciyes University School of Medicine Ethics Committee and written consent was obtained from the patients prior to the study in accordance with the Declaration of Helsinki.

STATISTICAL ANALYSES

The quantitative variables were summarized as means ± standard deviations. Comparison between groups was performed using independent samples t-test, and one-way analysis of variance (ANOVA).

Multiple linear regression analysis was used to determine the explanatory levels of the factors that affected health services utilization. In the model, application status was accepted as a dependent variable whereas predisposing (the number of the family members, age, sex, marital status, educational status) and enabling [the status of social security insurance, level of monthly income (:3 categories; low: less than minimum wage (< 350 TL), middle: 350-1050 TL, and favorable: 1051-2500 TL)], distance to the nearest health institution (:3 categories: < 500 meters, 500-1000 meters, > 1000 meters) and need (presence of chronic illness, perception of general health status and the level of utilization of health care service) were taken as independent variables. Odds ratios and 95% confidence intervals were calculated using multiple logistic regression for each model.

All statistical analyses were performed using SPSS version 13.0 (Illinois, Chicago, USA). The reference category had the odds variables 1 and no confidence interval. Two-tailed P-values of <0.05 were considered as significant.

RESULTS

Fourty six point nine percent of the responders were men and 53.1% were women. Their mean ages were 27.4 ± 19.0 and 28.5 ± 18.7 years, respectively. Of the responders; 30.6% were at 0-14 and 69.4% were at 15 and above age groups. Seventy nine point six percent of the subjects visited a health institution in the previous year, and 12.1% were hospitalized. The rate of applications to the public hospitals was higher (49.9%) than those of private medical institutions (13.2%). The annual mean application to health institutions per person was 5.0 ± 5.4 and the median was 3.0 (1-46).

PREDISPOSING FACTORS

Influence of socio-demographic factors on the probability and the volume of health services utilization: Socio-demographic variables, such as age, sex, marital status, household size, educational status, and occupational status have a significant effect on the health services utilization (Table 1). In this study; it was demonstrated that people at the age 65 and above (89.5%) (7.4 ± 7.1), women (83.9%) (5.3 ± 5.5), the widows/divorced (95.9%) (7.2 ± 7.2), those without any education (80.4) (5.2 ± 5.8), and housewives (84.3%) (5.8 ± 6.2) had a significant rate and the highest number of application to the health institutions during last year compared to the other years (p< 0.01) (Table 1).

ENABLING FACTORS

Influence of enabling factors on the probability and the volume of health services utilization: Subjects who had social insurance coverage (82.4%), and had a good family income (86.7%), and lived in the

TABLE 1: The application status within the last year of the study population according to some socio-demographic features.

				The rate of application		The number of application
Socio-demographic variables			**N**	**Number**	**%**	**Mean ± SD**
Age groups	1880	1496				
0-6			247	228	92.3	5.2 ± 4.7
7-14			328	263	80.2	4.1 ± 4.7
15-24			328	235	71.6	4.4 ± 5.9
25-44			594	446	75.1	4.5± 5.4
45-64			288	239	83.0	6.1 ± 6.0
65,+			95	85	89.5	7.4 ± 7.1
P value					<0.001§	<0.001‡
Gender	188	1496				
Male			881	658	74.7	4.5 ± 5.1
Female			999	838	83.9	5.3 ± 5.5
P value					<0.001§	<0.01†
Marital status	1304	1005				
Single			303	216	71.3	3.9 ± 4.5
Married			904	696	77.0	5.2 ± 5.7
Widowed/divorced			97	93	95.9	7.2 ± 7.2
P value					<0.001§	<0.001‡
Educational level	1304	1005				
Illiterate			168	135	80.4	5.2 ± 5.8
Primary school			513	400	78.0	4.1 ± 5.6
Secondary school			156	117	75.0	4.2 ± 5.3
High school and above			467	353	75.6	4.8 ± 5.3
P value					>0.05§	<0.05‡
Occupational status	1304	1005				
Employed			222	151	68.0	3.4 ± 3.7
Clerk			93	77	82.8	5.9 ± 6.0
Retired			115	95	82.6	6.0 ± 6.0
Housewives			562	474	84.3	5.8 ± 6.2
Self-employed			106	69	65.1	2.9 ± 2.6
Student			160	113	70.6	4.5 ± 5.5
Unemployed			46	26	56.5	4.8 ± 7.0
P value					<0.001§	<0.001‡

† is the symbol of student t test p value.

‡ is the symbol of one-way analysis of variance (ANOVA) p value.

§ is the symbol of chi-square test p value.

vicinity of 500-1000 meters to the nearest health institutions (85.2%) applied more to the health institutions than the others (p< 0.001) (Table 2).

NEED FACTORS

Influence of perceived health status and other need factors on the probability and the volume of health services utilization: Subjects who had poor self-rated health had a higher rate of application (87.4%) and revealed a higher number (6.9 ± 6.6) of application to the health institutions than those with a good self-rated health. Similarly, people who had one or more chronic diseases had significantly higher rate (90.3%) and a higher number (6.1 ± 6.6) of application to the health institutions than their healthy peers (p< 0.001) (Table 3). Sim-

TABLE 2: The application state of the study population according to some socio-demographic features within the last year.

		The rate of application		The number of application
Enabling Factors	**N**	**Number**	**%**	**Mean±SD**
Social insurance coverage	1880	1496		
Present	1572	1296	82.4	5.1 ± 5.5
Absent	308	200	64.9	3.7± 4.2
P value			<0.001§	<0.001†
Monthly income (TL)	1865	1485		
Low (<350)	780	572	73.3	5.3 ± 6.0
Middle (350-1050)	942	789	83.8	4.8 ± 5.1
Favorable(1051-2500)	143	124	86.7	4.4 ± 4.0
P value			<0.001§	>0.05‡
Closeness	1880	1496		
<500 metres	483	381	78.9	5.4 ± 5.7
500-1000 metres	695	592	85.2	4.7 ± 5.1
>1000 metres	702	523	74.5	4.9 ± 5.4
P value			<0.001§	>0.05‡

†is the symbol of student t test p value.

‡is the symbol of one-way analysis of variance (ANOVA) p value.

§is the symbol of chi-square test p value.

TABLE 3: The application state of the study population according to the comment on their health status within the last year.

	The rate of application	The number of application		
Need Factors	**N**	**Number**	**%**	**Mean ± SD**
Perceived health status	1304	1005		
Excellent	28	18	64.3	3.8 ± 3.9
Very good	191	142	74.3	3.8 ± 3.7
Good	511	361	70.6	4.7 ± 5.8
Fair	455	380	83.5	5.6 ± 5.8
Poor	119	104	87.4	6.9 ± 6.6
P value			<0.001§	<0.001‡
Compared health status	1304	1005		
Far better	92	68	73.9	5.5 ± 6.6
Slightly better	151	120	79.5	4.7 ± 4.5
Almost the same	652	473	73.5	4.1 ± 4.3
Slightly worse	314	264	84.1	6.3 ± 6.7
Far worse	95	80	84.2	7.5 ± 8.0
P value			<0.001§	<0.001‡
Chronic disease	1304	1005		
Present	339	306	90.3	6.8 ± 6.6
Absent	965	699	72.3	3.1 ± 4.7
P value			<0.001§	<0.001†

† Is the symbol of Student t test p value.

‡ Is the symbol of one-way analysis of variance (ANOVA) p value.

§ Is the symbol of chi-square test p value.

ilarly, the rate of those who described their health status as "worse than last year" was significantly higher (84.2%) (7.5 ± 8.0) than that of the other individuals (p< 0.001) (Table 3).

Being a male has increased health services utilization 1.8 times; being married has increased health services utilization 4.9 times; having a poor perception health has increased health services utilization 1.7 times; having no insurance coverage has increased health services utilization 2.2 times; having chronic diseases has increased health services utilization 2.5 times; having a good family income has increased health services utilization 2.4 times and living nearer than 500 meters to the nearest health institution has increased health services utilization 1.7 times (Table 4).

DISCUSSION

To develop a rational policy to provide efficient, effective, acceptable, cost-effective, affordable and accessible services; we need to understand the motives of health seeking behaviour of the population in an increasingly pluralistic health care system. This relates both to public as well as private sectors.

The application rate and mean number of contact was high when compared to the results of other studies performed in Turkiye whereas it was very low when compared to the results of other studies made by some other EU members. The annual application rate was found as 79% in the present research; this rate ranges between 77.5% and

TABLE 4: Univariate and multiple logistic regression (Backward Wald Method) analysis for models predicting variables utilization of health services (n= 1304).

Predictor variables	Univariate Analysis		Multivariate Analysis	
	Odds Ratio (0R)	95% CI*	Odds Ratio (0R)	95% CI*
Gender				
Female	1		1	
Male	1.76	1.41-2.21	1.85	1.39-2.46
Marital status				
Single	1		1	
Married	1.35	1.00-1.81	4.86	1.67 -14.12
Social insurance coverage				
Present	1		1	
Absent	2.53	1.94-3.31	2.20	1.56-3.10
Monthly income (TL)				
Low (<350)	1		1	
Middle (350-1000)	1.57	1.23-2.00	1.64	1.21-2.20
Favorable (1001-2500)	1.88	1.05-3.37	2.41	1.20-4.83
Closeness				
>1000 metres	1		1	
<500 metres	1.54	1.34-2.08	1.71	1.18-2.47
500-1000 metres	0.78	0.59-1.03	0.80	0.57-1.13
Chronic disease				
Absent	1		1	
Present	3.56	2.42-6.23	2.53	1.67-3.84
Perceived health status				
Good perception health	1		1	
Poor perception health	2.16	1.64-2.84	1.74	1.27-2.37

CI: Confidence Interval

The independent variables were age, gender, household size, educational level, social insurance coverage, monthly income, occupational status, marital status, perceived health status, presence of chronic disease after multiple logistic regressions. Only the variables listed in table 4 were significantly associated with health services utilization.

48.7% in Turkey;[8] and between 66% and 77.5% in other countries.[20,21] Similarly; the annual application rate per person (5.0 ± 5.4) was low, too, compared to some EU members (3.0 vs. 11.5).[12] The problem was not the level of application but enabling the continuity of applications. In addition, the individuals obtained the behavior of seeing a doctor; however, it was not in a habitual (regular) way. Another problem discovered in the study was that most of the contacts (56.5%) were to the secondary and third step hospitals; therefore, the first step health services (30.2%) were utilized insufficiently.

In a study concerning the health services utilization in Turkey, the number of people using state hospitals amounted to as much as 57.6%.[8] On the other hand, different studies performed in other regions of Turkey proved that the percentage of people going directly to a hospital without using a health center was 35-65%.[14,22,23] According to health care regulations in Turkey; all patients should first be directed to health centers and then if necessary, there are various procedures which allow patient to be referred to a more appropriate level of health care. However, dissatisfaction with primary health care services in either sector leads many people to health care shop or to jump to higher level hospitals (second or third step health institutions) for primary health care, leading to considerable inefficiency and loss of control over efficacy and quality of services. Besides, applications made only due to serious health cases, inefficacy of the *first step* health institutions, lacking of technological equipment and knowledge, and some limitations created by social security system may be the cause.

A variety of factors have been identified as the increasing variables of health services utilization; including being male, being married, having a good family income and living in the vicinity to the health institutions, having a poor perception health, and presence of chronic disease. Surprisingly, lack of insurance system had also increased health services utilization.

The effects of some associated variables (age, educational level, professional status) on health services utilization could not be demonstrated with regression analysis for statistical evaluations.

The conclusive role of age, which was a significant determinant for the analysis of health service availability, could not be obtained. However; as in the literature survey,[8,24-26] the individuals at both sides of life (those 65 years old and above and children at the age 0-14) were the ones who utilized services the most (Table 1).

Contrary to the many literature surveys;[27-31] being male was observed as an important determinant for health services utilization and men applied to a health care institution two times more than women (Table 1). In a country as Turkey, men play a paramount role in determining the health needs of a woman. Since men are decision makers and in control of all the resources, they decide when and where women should seek health care. A woman suffering from an illness is reported less frequently seeking health care when compared to a man.[32]

The married individuals applied to a health institution more than the unmarried individuals with the exclusion of the widows and the divorced (Table 1). Marriage became the most important determinant of health service utilization according to regression analysis. Marriage increased applications as much as five times (Table 4). In the previous studies,[33,34] too; marriage was considered as a primary determinant of positive health and it was shown to be a significant variable for the increase in health services utilization. Marriage -causing some kind of changes in life style, health/illness awareness, pregnancy, birth and miscarriage problems; and also, facilitating postponed /hidden problems due to social stigmatization- may relatively increase the health services utilization.

Income level was a significant factor of health services utilization (Table 4). Therefore; those with a higher income applied to a health service 2.4 times more than those with a lower income (Table 4). Different results were obtained after the literature survey about this issue. In some researches;[8,17,25] application to a health care institution increased equally as income increased and families in upper classes with a higher income applied more to a health care institution both for their pre-school age children and themselves.[8,21] In other researches, those with a lower income utilized health service more.[27,35]

In our study, on the other hand, mean application –unlike application rates- decreased significantly as monthly income increased (Table 3). As known, income level is one of the important indicators for socioeconomic status and there was a positive correlation between a higher income level and well-being. The link between socio-economic status and health status has long been recognized, with lower income associated with poorer health status.[36] Therefore; this result might be due to the indirect correlation between a higher income and fewer applications in the highest income group.

Lack of social security insurance led to utilization two times more according to regression analysis in our study (Table 4); however, in the studies of the literature, availability of social security insurance was shown as a primary determinant for health services utilization.[22,37] Selden et al.[37] found that public and private social insurance were both associated with large increases in access and utilization of health services.

In our study, closeness to a health care institution was one of the primary determinants for health services utilization according to regression analysis (Table 4). The individuals who lived within a distance of 500 meters applied 1.7 times more than those living within a distance of 1 km ($p< 0.001$). In the literature it was shown that physical distance of the facility and time taken to reach the facility undoubtedly influenced the health seeking behaviour and health services utilization.[38,39] It was found out that application rates increased as much as 96% if the vicinity condition was provided in health services utilization survey in Turkey.[8]

Health need is one of the most important determinants in utilization. Increased health needs mediate more frequent utilization by general population. Needing factors include self-reported health status, presence of chronic disease and the number of diseases.

According to regression analysis, poor perceived health was one of determinants that affected negatively the health services utilization and increased applications 1.7 times more (Table 4). In the studies, it was found out that those with a poor perceived health saw the doctors more; had more medical consultations on the phone, were hospitalized more and were examined more by a private doctor.[34,40-44] In the literature, as a result, several studies demonstrated that self-rated health was an important predictor of health services utilization.[6,7,32,41,43]

In our research, the presence of chronic disease was the second determinant factor for health service utilization after marital status, and increased the applications 2.5 times more (Table 4). In the literature, it was shown that different diseases had a different mix of direct and indirect effects on physical health status, probability of utilization, and amount of utilization in a community-dwelling population.[37,41] Blaum et al.[41] reported that age and chronic morbidity were the most important determinants of long-term care need.

CONCLUSION

The rate of health services utilization in our study was consistent with the results of regional researches and reference values of the studies performed in other countries. Hospital services utilization was more than primary health services utilization. A multiple regression model revealed being married, having one or more chronic disease and a good monthly household income >TL 1050 (US dollar 840), being a male, having poor perception of health and closeness to the health institutions were the most important predictors for use of public and private health services. In contrast to literature; lack of social security coverage increased health services utilization twice. It is important to include the subjective health perceptions of the individuals in the future studies for the evaluation of health services utilization.

LIMITATIONS

Since the rate of utilization of health institutions covered a long time, true-real answers may not have reached depending on the illusive memory factors.

Some families did not accept the interviews although three subsequent visits had been made. Instead, those who accepted to interview were included in the study. This may have caused a compulsory bias.

During the research, those studying or being in the army out of city could not be questioned. The elders, the retarded and those with vision, hearing and speech impairments were excluded from the study.

Since the data were not normally distributed, median scores were calculated in addition to mean scores. However, comparisons were made based on mean scores in the discussion because reference sources of median scores were insufficient.

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