Determinants of Self-Rated Health in General Population in Kayseri, Turkey

Kayseri İlinde Genel Popülasyonda Algılanan Sağlığın Belirleyicileri

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ABSTRACT Objective: This cross-sectional study was carried out in order to determine the self-rated health (SRH) status, and factors affecting the SRH of people aged 15 years and over in the city centre of Kayseri. **Material and Methods:** This study was performed on a stratified random sampling method selected population of 1304 people aged 15 years and over living in 501 dwellings. A questionnaire was applied to subjects including measurements of the presence of chronic diseases, health services utilization, and socio-demographic, economic and psychosocial factors. SRH was measured in terms of responses to the question: "How is your health in general?" Responses were categorised into two groups: good (positive) and poor (negative). **Results:** The overall prevalence of poor SRH was found to be 44% (CI 0.40-0.45, p<0.001) among the study group. The presence of chronic disease (OR 3.55, 2.65-4.76), health services utilization (OR 1.91, 1.41-2.59), living with in a large family (OR 1.49, 1.16-1.93), compared with single being married (OR 1.66, 1.20-2.30) and widowed/ divorced (OR 1.93, 1.10-3.30) were the most significant determinants that decreased SRH status. Education, family income and closeness to the nearest health institution were inversely related to poor SRH. Having primary school education and above (OR 0.66, 0.44-0.99), favorable income (OR 0.53, 0.32-0.88), in those living in places within 500-1000 metres from the nearest health institution (OR 0.72, 0.53-0.99) were the significant protective variables against poor SRH status. **Conclusion:** Presence of chronic disease, health services utilization, being married and widowed/divorced, and living in a large family were the main determinants of poor SRH among the general population aged 15 years and over.

Key Words: Health status; health services misuse; social medicine

ÖZET Amaç. Kesitsel nitelikteki bu çalışma Kayseri il merkezinde yaşayan 15 yaş ve üzeri bireylerin algılanan sağlık düzeyi ve etkileyen faktörleri belirlemek amacıyla yapılmıştır. **Gereç ve Yöntemler:** Bu çalışma 501 hanede yaşayan ve çok aşamalı olasılıklı örneklem yöntemi ile seçilen 1304 15 yaş ve üzeri birey üzerinde yapılmıştır. Bireylere sosyo-demografik, ekonomik, kronik hastalık varlığı ve psikososyal değişkenleri kapsayan bir anket uygulanmıştır. Subjektif sağlık algısı "genel olarak sağlığınız nasıldır?" sorusu ile ölçülmüş, yanıtlar iyi (olumlu) ve kötü (olumsuz) şeklinde iki kategoride toplanmıştır. **Bulgular:** Çalışma grubunda genel sağlık algısı kötü kişi oranı %44 (%95 güven aralığı 0.40-0.45, p<0.001) olarak bulunmuştur. Kronik hastalık varlığı (OR 3.55, 2.65-4.76), sağlık hizmeti kullanımı (OR 1.91, 1.41-2.59), geniş ailede yaşama (OR 1.49, 1.16-1.93), bekarlığa göre evli (OR 1.66, 1.20-2.30), dul ve boşanmış (OR 1.93, 1.10-3.30) olma bireysel sağlık algısını kötüleştiren en önemli faktörlerdi. Eğitim düzeyinin yüksek olması, ailenin gelir durumunun iyi olması ve sağlık kuruluşuna yakınlık olumsuz sağlık algısını azaltan faktörlerdi. İlkokul ve üzerinde eğitim alma (OR 0.66, 0.44-0.99), orta-iyi düzeyde gelire sahip olma (OR 0.53, 0.32-0.88), en yakın sağlık kuruluşuna 500-1000 metre uzaklıkta oturma olumsuz sağlık algısına karşı anlamlı düzeyde koruyucu değişkenlerdi. **Sonuç:** Kronik hastalık varlığı, sağlık hizmeti kullanımı, evli, dul ve boşanmış olma, geniş ailede yaşama 15 yaş ve üzeri genel populasyonda olumsuz sağlık algısının en önemli belirleyicileri idi.

Anahtar Kelimeler: Sağlık grubu; sağlık hizmetlerinin kullanımı; sosyal tıp

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Self-Rated Health (SRH) is an important outcome measure that has been found to accurately predict mortality, morbidity, function and psychologic well-being. [1-4] SRH has been widely used to research health inequalities in developed Western societies, but such studies performed in Turkey on the health status of its citizens, particularly in regard to SRH, are few.

SRH is a subjective assessment of the health status, but is strongly related to the objective health assessment. SRH is a complex variable that captures multiple dimensions of the relation between physical health and other demographic (age, sex, marital status) and socioeconomic (education, income, occupation) characteristics. It has also been strongly associated with successful aging [4] and evidence of biologic roots has been recently shown.[3, 5] In addition, self-rated health status is a predicting and guiding indicator for health care planning, demand and utilization.[6] For these reasons, it has been frequently used in studies investigating the health level and quality of life in communities.

SRH is very easy to determine through a single-item question and, consequently, is often included in health surveys and as an outcome in many studies, resulting in a large body of research. However, few studies have focused on the determinants of SRH in Turkey. This is the first population-based study carried out via home visits in the Kayseri region of Turkey.

This study aims to determine the SRH and its principal determinants among a representative sample in the general population of Kayseri, Turkey.

MATERIAL AND METHODS

In this study, planned basically to investigate the relationship between the utilization of health services and level of perceived health, the determinant factors in the population aged 15 years and above were investigated. Therefore the size of the sampling was based on the rate application for health services which is accepted to be 49%[7], and the number of the people to be included in the sampling was calculated to be 1676 and the number of dwellings to be 558 of the Interval of Confidence of 95%, α= 0.05, β= 0.20, effect size d= 0.07 and NCSS (Statistical and Power Analysis Software-PASS).

This cross-sectional study was performed between March 2005 and 2006 on 1304 subjects aged 15 years and over living in 501 dwellings. The number of health centers in the center of the province (168,064) was proportioned to the urban population (648,845) 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. In view of this figure, inclusion of 501 dwellings in the research was deemed sufficient to provide the sampling size of 1,304 individuals.

The provincial health directorate having been consulted, a total of 21 urban health centers was stratified according to the socioeconomic levels of the people they serve as: welfare (three centers), middle (nine centers) and poor (nine centers). By using a stratified sampling method, seven centers and 34 village health houses were included in the sample, 1/3 from each stratum.

Questionnaires were applied via face-to face interviews which included the type of family, household size, demographic and socioeconomic characteristics, the distance to the nearest health institution, presence of chronic disease diagnosed by a physician, application and admission to hospital, and perception of general health status.

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:[7] "How is your health in general? (excellent, very good, good, fair, poor)". For the analyses in this study, the responses were regrouped into two categories: good to excellent and poor to fair. [8] 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 Analysis

Chi-square tests were used to determine significant differences in proportions among categorical variables. Multiple Logistic Regression (Backward:Wald) analyses were performed to analyze the effects of the determinant factors of poor SRH including age, sex, marital status, educational level, monthly income, type of family, household size, presence of chronic disease, application for and provision of health services and admittance to hospital. 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 to be significant.

Dependent variables

Self-rated health: SRH was measured in terms of responses to the question: "How is your health in general? (excellent, very good, good, fair, poor)". Responses were categorised into good (good to excellent) and poor (fair to poor).

Independent variables

Type of family: Three categories; extended family, nuclear family, separated family

Household size: Two categories; small family: 1-5 persons, large family: 5+ persons.

Educational attainment: Four categories of the highest level of education attained by the respondent: illiterate; primary school; secondary school; high school and university.

Marital status: Three categories: single; married; widowed/divorced

Family income: (monthly) three categories; low: less than minimum wage (<350 TL), middle: 350-1050 TL, and favorable: 1051-2500 TL.

Distance to the nearest health institution: Three categories: <500 metres, 500-1000 metres, >1000 metres.

Chronic disease: The history of at least one chronic disease diagnosed by a physician in the previous 12 months.

Application for health services: The utilization of health care provided by health centers, state and university hospitals, private hospitals, polyclinics and specialist physicians was studied both in terms of the probability of use, the proportion of people who utilized the health service at least once, and the volume of use during the preceding 12 months.

Admission to hospital: Minimum hospital stay of one day, hospitalized in the 12 months previous to the interview.

RESULTS

Demographic and clinical characteristics of the people are summarized in Table 1. Of the 1304 subjets, 55% were men. The mean age was 37.0±15.4 years; 69.3% were married, and 7.5% were separated, or divorced/widowed. Forty-nine per cent of the subjects had at least primary school education. Of the women, 78.5% were housewives. Of the men, 35% were labourers, and 7.8% were unemployed.

In general, 56% of the people reported good SRH compared to 44% (CI 0.40-0.45, P<0.001) who reported poor SRH. People who were female, older, married, less educated, on a low income and unemployed reported poorer SRH than their counterparts. The prevalence of SRH showed that health problems increased with age from 30.6% in the 15-24 years age group to 66.3% in those 65 years and over. Being married and widowed/divorced were associated with higher prevalence of poor SRH. While the proportion of poor health perception was 27.4% in single people, this percentage was found to be 47.5% in those who were married. Of the widowed/divorced people, poor SRH was the most prevalent (66.3%). Low socioeconomic conditions (education less than primary school, lower than minimum wage income and being unemployed or a housewife) were associated with the high-rate perception of poor health. While in illiterate subjects, the rate of poor SRH was 67.9%, it was 51.1% and 30.6% in those who were primary school graduates and high school/university graduates, respectively (x^2=87.97, p<0.001) (Table 1).

TABLE 1: Perception of health status according to sociodemographic and clinic characteristics.

Socio-demographic characteristics	n	Self-rated health status: Good		Poor		Two tailed significance	
		Number	%	Number	%	x^2	P
Sex							
Male	588	379	64.4	209	35.6	31.20	<0.001
Female	716	365	51.0	351	49.0		
Age groups							
15-24	327	227	69.4	100	30.6	57.35	<0.001
25-44	594	341	57.4	253	42.6		
45-64	288	130	45.1	158	54.9		
65,+	95	32	33.7	63	66.3		
Marital status							
Single	303	220	72.6	83	27.4	53.90	<0.001
Married	904	475	52.5	429	47.5		
Widowed/divorced	97	35	36.1	62	63.9		
Educational level							
Illiteracy	168	54	32.1	114	67.9	87.97	<0.001
Primary school	513	251	48.9	262	51.1		
Secondary school	156	101	64.7	45	35.3		
High school/ University	467	324	69.4	143	30.6		
Chronic disease							
Present	340	97	28.3	243	71.7	142.25	<0.001
Absent	964	633	65.7	331	34.3		
Application to health services							
Present	1005	521	51.8	484	48.2	30.49	<0.001
Absent	299	209	69.9	90	30.1		
Admission to hospital							
Present	150	61	40.7	89	59.3	16.13	<0.001
Absent	1154	669	58.0	485	42.0		

Poor perception of health was 67.9% among those with no formal education, whereas this rate varied from 51.1% (in primary school graduates) to 30.6% (high school/university graduates). While in people with a monthly income under the minumum wage, the rate of poor SRH was 49.4%, in people with an income of minimum wage and above, it ranged from 38.6% to 29.2% (x^2=21.02, p<0.001). Occupation status was more closely associated with poor SRH. Of the unemployed people, poor SRH prevalency was 50%, while it ranged from 25.6-36% in those with jobs (x^2=79.74, p<0.001) (not shown in the table). On the other hand, the presence of chronic disease, health care utilization and hospitalization played a more crucial role when people judged their health status. The rate of poor SRH was 71.7% in those with one or more chronic diseases (x^2=142.25, p<0.001), 59.3% in those who had been in hospitalized one or more times (x^2=16.13, p<0.001), and 48.2% (x^2=30.49, p< 0.001) in those who had applied to hospital one or more times (Table 1).

In addition, logistic regression analyses showed that the presence of chronic disease (OR 3.55, 2.65-4.76), utilization of health services (OR 1.91, 1.41-2.59), hospitalization (0R 2.04, 1.42-2.85), being married (OR 1.66, 1.20-2.30) and widowed/divorced (OR 1.93, 1.10-3.39), advanced age (OR 1.03, 1.02-1.04), large family (OR 1.49, 1.16-1.93) were significant determinants of poor SRH. Conversely, having primary school (OR 0.66, 0.44-0.99) and above education (secondary school (OR 0.49, 0.29-0.82), high school/university (OR 0.43, 0.27-0.66), middle (OR 0.77, 0.59-1.01) and favorable (OR 0.53, 0.32-0.88) income, and distance to the nearest health institution (OR 072, 0.53-0.99) are protection against poor SRH (Table 2). The significant association between poor SRH and age, the type of nuclear family and hospitalization vanished

after multiple regression in the model, while other factors remained the same.

DISCUSSION

In the present study perception of general health was poor in aproximately in half of the sample group. This rate was found to vary between 8-46% in other studies with similar sampling groups. Our findings are consistent with some studies [9] while negated by others. [7]

Logistic regression analyses showed that the most important factors contributing to poor SRH were the presence of chronic disease, utilization of health services, hospitalization, advanced age, being married and divorced/widowed, and living in an large family. The factors reducing poor SRH were an education of primary school and above, monthly income higher than the minimum wage, and the optimum distance between the dwelling occupied and the nearest health institution. In univariate analyses, the association of poor SRH and advanced age, the type of the family, hospitalization disappeared after multiple regression.

In the study, although it was not shown in regression analyses, the rate of poor SRH was significantly higher in women than in men (Table 1). This finding is consistent with those from other studies on general health perception. [10-13] In Turkey, factors such as women's low educational level, being in peace with their societal roles, not being involved in intrafamilial decision-making mechanisms, extent of access to health services, their being in an unequal position with men in terms of nutrition and reproductivity, and vulnerability to diseases and invalidity increase negativity in their health perception.

In this study the rate of the people with negative health perception increased significantly in parallel with age (Table 1). While the rate of poor SRH was 30.6% in 15-24 age groups, this rate of increase of 66.3% in 65,+ age groups ($p< 0.001$). In previous studies which was conducted in Turkey, it was found that the rate of poor SRH ranged from 13:1% to 20.2 in 15-24 age groups, and from 45% to 47% in 65 and above age groups.[7,12,14] In univaritate analyses, this was also found to be a key factor contributing to poor SRH (Table 2). In previous studies, similarly a similar inverse relationship was found between self-rated health and age.[9, 11,15] Windi [9], however, detected that the individuals in the 45-64 age group compared to their counterparts in the 16-44 age group experienced poorer negative perception. Similarly, Lujan et al.[15] found that people above the age of 45 had a more negative perception. Thus, poor SRH is also strongly associated with successful ageing [5] and evidence of biologic roots has been recently shown.[1, 3]

In the present study, the rate of divorced/widowed people as well as the rate of married people with poor SRH was considerably higher than that of unmarried people (Table 1). Poor perception of health was 1.5 times higher in married people and twice as high in widowed or divorced people when compared with their unmarried counterparts. Although it was not determined in logistic regression, age had a significant effect on perceived health of the people that were unmarried; they had a more positive perception of health (72.6%, $p< 0.001$) than married (52.5%, $p< 0.001$) and widowed/divorced (36.1%, $p< 0.001$) counterparts. This may be due to younger age groups of the unmarried. However, the rates of people who have positive perception of health were as follows: ones unmarried in 15-24 (82.3%), married in 25-44 (58.1%) and widowed/divorced in 45-64 (39.2%) age goups were found to have significantly higher positive perpection of health ($p< 0.001$).

The rate of the widowed/divorced people with a poor perception of health (63.9%) was in accordance with the rate (27-81%) determined by other studies carried out in Turkey.[10, 12] In conclusion, the widowed/divorced, with their higher negative perception of health, differed from their married and unmarried counterparts, while those who had never married, with their more positive perception of health, differed from those who were married.

In conclusion the factors that may have decreased the perception of general health include those such as the absence of continuous meaningful support systems like partners and family in widowed or divorced persons on the one hand, and

TABLE 2: Univariate and multiple logistic regression (Backward Wald Method) analyses for models predicting poor self-rated health.

Predictor variables	Univaritate Analysis				Multiple Analysis			
	Wald	OR*	95% CI**	Sig	Wald	OR*	95% CI**	Sig
Chronic disease								
Absent		1				1		
Present	130.27	4.85	3.70-6.40	<0.001	72.16	3.55	2.65-4.76	<0.001
Health services utilization								
Absent		1				1		
Present	29.73	2.16	1.64-2.84	<0.001	17.54	1.91	1.41-2.59	<0.001
Hospitalization								
Absent		1						
Present	15.68	2.04	1.42-2.85	<0.001	—	—	—	—
Age groups								
15-24		1						
25-44	12.76	1.68	1.27-2.24	<0.001				
44-64	36.23	2.76	1.98-3.84	<0.001	—	—	—	—
65 and ↑	36.43	4.47	2.75-7.27	<0.001				
Marital status								
Single		1				1		
Married	36.23	2.39	1.80-3.18	<0.001	5.24	1.93	1.20-2.30	0.002
Widowed	39.02	4.69	2.90-7.62	<0.001	9.41	1.66	1.10-3.39	0.022
Educational level								
Illiteraty		1				1		
Primary school	14.13	0.49	0.34-0.71	<0.001	3.94	0.66	0.44-0.99	0.047
Secondary sch	33.15	0.26	0.16-0.41	<0.001	7.39	0.49	0.29-0.82	0.007
High school &↑	65.55	0.21	0.14-0.31	<0.001	14.85	0.43	0.27-0.66	<0.001
Closeness to health facility								
<500 metres		1			1	1		
500-1000metres	0.005	0.99	0.75-1.31	0.944	4.18	0.72	0.53-0.99	0.041
>1000 metres	8.32	0.69	0.53-0.89	0.004	0.43	1.11	0.82-1.51	0.513
Family income								
Low		1				1		
Middle	14.08	0.75	0.59-0.95	<0.001	3.58	0.77	0.59-1.01	0.058
Favorable	10.26	0.48	0.31-0.75	0.001	5.91	0.53	0.32-0.88	0.015
Household size								
Small/middle		1				1		
Large/very large	5.58	1.32	1.05-1.65	0.018	9.41	1.49	1.16-1.93	0.002

*OR: Odds Ratio, **CI: Confidence Interval. All independent variables were age, sex, type of family, household size, closeness to the nearest health institution, educational level, social insurance coverage, family income, occupation status, presence of chronic disease, health services utilization, and hospitalization. After multiple logistic regression, only the variables listed in table 2 were significantly associated with poor SRH.

the changes in lifestyle and in the awareness of health and illness, and health problems like pregnancy, childbirth, abortion concerns for new and which have been postponed or concealed because of social stigmatization but which have reappeared with marriage in married persons on the other hand.

In the study, the rate of the people with poor SRH was significantly higher among people with no formal education (Table 1). Educational level is one of the main determinants of perceived health and the general health perception of those with education of primary school or above is 1.5-2.3 times more positive. In other studies, also, which inves-

tigated the relationship between the perceived health and educational level, it was determined that a positive perception of health was correlated to higher educational status, whereas negative perception of health is positively correlated with a low educational level.[9, 16-20]

The relationship between low educational level and poorer SRH can be explained by the unfavorable living conditions of the low socio-economic level group[21], and low level of education. Income and professional status can not only negatively affect utilization of daily opportunities and facilities of any kind, but also create general socio-cultural circumstances that can negatively impact health.

In parallel with an increase in educational level, people's income level and professional status also change, as does behavior that promotes a healthy life style and a higher sense of self responsibility for health. Satisfaction from life is affected favorably by changes in life style, opportunities available and the way of thinking. As the most important determinants of perceived health satisfaction from life increases, poor perception of health decreases.

The rate of people with a poor perception of health was significantly higher among people on a monthly income below the minimum wage (Table 1). The level of monthly income equal to or more than the minimum wage was found to be a protective factor against poor perception of health, reducing it 1.5-1.9 fold. Literature, also, found a positive relationship between education, monthly income level, professional status and perceived health, and it has been demonstrated that as educational and income levels fall, a person's perception of general health deteriorates.[16, 17, 22, 23] Balabanova et al.[17] have ascertained that the level of perceived health was correlated particularly with financial hardships experience; Stronks et al[22] stated that perceived health had a stronger relationship with income level than with other socio-economic variables; and Bilkis et al[18] reported that as people's income level decreases, the perception of general health deteriorates: low income groups usually live in poor districts with inadequate infrastructure and adverse environmental conditions. Hostile living conditions of ecological and individual origin not only affect people's health unfavorably but also increase the impairment of both physical and mental health perception.

In the study, the rate of the participants with a negative perception of health was considerably higher among those with a chronic disease (Table 1). In regression analyses, the presence of chronic diseases was a major determinant of self-rated health, and in those with more than one chronic disease, a negative perception of health was 3.5 times higher than in their healthy peers (Table 2). These findings are consistent with the findings from other studies on the relationship between chronic diseases and perceived health.[2, 24] This result is in line with previous studies.[8, 25]

It has been shown in the literature that the level of perceived health was strongly correlated with physical health, and that the presence of a chronic disease was one of the most important determinants of the status of perceived health.[26] It can be expected that chronic disease is one of the main determinants of perceived health because of the fact that sufferers frequently make themselves felt either with patient complaints or disease symptoms, or due to their requiring treatment even in the absence of complaints and symptoms. The chronically-ill expect, if not a full recovery, maintaining their normal functions and personal capabilities. It is possible to prevent these people's diseases and/or to prolong life through appropriate care and treatment. However, a great majority of the therapeutic agents employed can exert their side effects, with serious consequences including fatigue and impairment of communicative and sexual performance. Thus, we can be faced with an inevitable situation in which patients who are already in a vicious circle under the influence of their illness and treatment, have highly negative perception of health.

In our study, the rate of the people with a poor self-rated health is significantly high in those who had applied to a health institution within the previous year (Table 1). In regression analyses, poor SRH was 1.9 times higher in those who made use of health services. In the literature, utilization of health services also has for the been designated as

the most important determinant of the utilization perceived level of health.[26-28] Al-windi et al[28] found that people with negative perception of health visited doctor more frequently than those whose perception of health was positive, Bowling reported that those who did not visit the doctor reported fewer complaints of physical and mental health than those who visited the doctor and that they had higher positivity in their perception of health.[29] Mc Farland et al stated that people who utilize health services with short intervals had more physical complaints and a negative perception of general health.[30]

In the study, the rate of negative health perception was higher in those with a history of hospitalization (Table 1). The perception of poor health was twice as high in such people, which is in accordance with findings of those from previous studies.[24]

As is known, people perceive hospitalization for treatment as an indication of the gravity of their health problems and that it should only occur with serious health problems. As a result of such a belief, or because of the psychological effects of hospitalization, people's perception of general health is affected negatively.

In summary, the presence of chronic diseases, health care utilization and being widowed and divorced are the main determinants for poor SRH. Having an education of primary school and above, a favorable income and the closeness to the nearest health institution are protection against poor SRH. These results may influence the medical profession's acceptance or consideration of SRH. By understanding affecting factors, SRH may contribute to the promotion of health-protective behavior and health intervention practices.

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