Clinical and Experimental Health Sciences

Determinants of Self-Rated Health for Adults in Türkiye

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ABSTRACT

Objective: Self-rated health as an important health outcome is affected by several factors. It is of great importance to investigate the determinants of self-rated health of individuals in order to obtain better results regarding public health. The purpose of this study was to determine the factors that affect the self-rated health of adults in Türkiye.

Methods: Logistic regression analysis was performed to analyze data from the TurkStat's 2014 Health Survey, with 19,129 people. The independent variables were related to socio-economic characteristics, health problems, lifestyle, and utilisation of healthcare services, while the dependent variable was self-rated health.

Results: It was found that younger people, men, and people with higher educational and income levels rated their health status better. The health status of individuals with chronic diseases, mental disorders, sleeping problems and those who did not have a normal range body mass index also rated their health status as poor. However, the self-rated health of people who had no inpatient treatment in the last 12 months and those who took no prescription medicine in the last two weeks was good.

Conclusion: This study provided the identification of the most advantaged and disadvantaged groups through determining the factors affecting the health status of adults in Türkiye. To improve the unfavourable condition of disadvantaged individuals, more specific interventions need to be designed and implemented.

Keywords: Self-rated health, health status, health inequalities, Türkiye

1. INTRODUCTION

The advances in technology and medicine occurring recently have led to considerable improvement in the quality of health of societies across the world. However, socio-economic inequalities in the field of healthcare still persist in some segments (1). Analysing socio-economic status and self-rated health (SRH) together is often a strategy used to evaluate these inequalities (2). Besides being a determinant of morbidity and mortality, the notion of SRH is also a subjective and single-item health assessment scale that is commonly utilised in epidemiological studies all over the world (1-8).

Scales including simple questions have been used since the 1950s in sociological studies to provide indications in assessing the health status of people. Researchers have observed that the scale of SRH has provided better indications than objective health indicators, such as diagnosis by a physician or a biological specimen analysis (9-11). Besides being a tool that makes it possible to collect data in a simple and cost-effective way, the SRH provides an inclusive picture of one's health condition and is acknowledged as an important indicator in itself (12). SRH has been integrated as an indicator into the programme 'Health for All' designed by the World Health Organization; it is also a part of the SF-36 survey used in studies on health (8).

SRH as an important health outcome that is affected by several factors (13). It is of great importance to investigate the determinants of SRH of individuals in order to obtain better results regarding the health status of people (14). International research has shown that self-rated health can vary depending on one's socio-demographic characteristics, health problems, lifestyle, and utilisation of healthcare services (5,13,15,16).

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While developed countries widely make use of SRH to research trends and inequalities in public health, limited research is undertaken on this subject in developing countries (1,17-19), such as Türkiye. Identifying disadvantaged groups through research on factors affecting the health status of the population can greatly improve the general health status of society in Türkiye. The purpose of this study was to determine the factors that affect the SRH of the adult population in Türkiye. In this context, the study aimed to provide insight into whether factors such as socio-demographic characteristics, health problems, lifestyle, and utilisation of healthcare services have an effect on the SRH of individuals.

2. METHODS

2.1. Study Design, Sources of Data and Participants

This study used the dataset of the 'Health Survey 2014' that has been regularly undertaken by the Turkish Statistical Institute (TurkStat) every two years since 2008 in order to paint a general health portrait of the population in the country. Micro datasets were obtained with official permission from TurkStat. These studies are cross-sectional and data are collected based on reporting. In health researches, a sample representing Türkiye is formed by cluster sampling in the first stage and systematic sampling in the second stage. In this survey, where researchers recruited 26.075 people representing the overall population in the country, different questionnaire forms specifically designed for households, adults, and children were used. In line with the purpose of this study, 19.129 adults over 15 years of age were included in the study. This study was carried out over existing data and it does not require any human/animal subjects to acquire an ethics approval.

2.2. Variables of the Study

2.2.1. Dependent Variable

The evaluation of SRH, which is the dependent variable of this study, is based on the responses to the question 'How would you describe your general health condition?' A 5-point Likert type scale with responses scored from 1=Very good to 5=Very poor was used to elicit the responses. The SRH variable was used to form two groups, in line with similar studies available in the literature (1,5), by combining the categories of 'very good', 'good', and 'moderate' into a group with the title 'good health status' and the categories of 'poor' and 'very poor' into another one entitled 'poor health status'.

2.2.2. Independent Variables

The variables of age (1,14,16,20), gender (1,14,16,20), educational level (14,16,20), and income level (1,14,16,20) were identified in the relevant literature as variables believed to affect the health status of people; these were integrated into the present study as socio-demographic variables. The variable of age was evaluated in seven categories, and variables of educational level and income level in four categories.

The variables evaluated in the category of health problems were chronic diseases (5,13,15-17,21) and mental disorders (1,5). Individuals who expressed having suffered from one of the 19 chronic diseases in the last 12 months were categorised as 'having' a chronic disease, and the individuals who expressed that they were low-spirited, depressed, and desperate, or felt themselves as worthless and bad were categorised as 'having' a mental disorder.

The category of lifestyle addressed the variables sleep problems (5,13) and body mass index (BMI) (1,2,5,17). The variable of sleep problem was evaluated on the basis of the question 'Did you have difficulties falling asleep or in sleeping/ the problem of excessive sleepiness in the last two weeks?'. BMI, on the other hand, was examined on the basis of the calculations of body height and weight of the participants in four categories as underweight (<18.49 kg/m), normal range (18.5-24.99 kg/m), overweight (25-29.99 kg/m), and obese (>30 kg/m).

Last, the variable of utilisation of health services included hospitalisation (5,21,22) and utilisation of a prescription drug (5). The response given to the questions 'Have you been hospitalised at least once in the last 12 months?' was used to analyse the variable of hospitalisation, and that given to the question 'Have you taken any drug prescribed to you in the last two weeks?' for the analysis of the variable of prescription drug utilisation.

2.3. Statistical Analysis

For the analysis of the study data, besides descriptive statistics, simple and multiple (backward stepwise) logistic regression analysis was used to examine the determinants of health status. Simple logistic regression analysis was used to determine the variables to be included in the multiple regression analysis. Before using logistic regression analysis, the goodness-of-fit test of Hosmer – Lemeshow was utilised. The package of SPSS 21.0 was used for the statistical analysis, with an alpha level of 0.05 for statistical tests.

3. RESULTS

Table 1 presents the descriptive statistics for the study participants, according to which 56.5% of the participants were under 45 years of age, 54.4% were women, 53.9% were primary or secondary school graduates, and 51% had an income between 0-1550 Turkish Lira (TL). Regarding health problems, 62.4% expressed having a chronic disease, 48.7% a mental disorder, and 36.4% a sleep problem. With respect to calculated body mass index, 39.9% of the participants were categorised in the group with normal range BMI. The evaluation with respect to the utilisation of health services showed that 12.2% of the participants had been hospitalised at least once in the last 12 months, and that 37.2% had taken a drug prescribed by a physician in the last two weeks. To the

question about their overall SRH, 58.3% reported having a good health status.

Table 1. *Descriptive Statistics*

Variables		*n*	%
Age	*15-24*	3388	17.7
	25-34	3661	19.1
	35-44	3768	19.7
	45-54	3332	17.4
	55-64	2555	13.4
	65-74	1498	7.8
	75+	927	4.8
Gender	*Women*	10408	54.4
	Men	8721	45.6
Educational Level	*No Education*	2849	14.9
	Primary School	10317	53.9
	High School and/ or Two-Year Degree	4247	22.2
	Undergraduate and/or Graduate Degree	1716	9.0
Income Level	*0-1550 TL**	9753	51.0
	1551-2170 TL	3115	16.3
	2171-3180 TL	3274	17.1
	≥ 3181 TL	2987	15.6
Chronic Disease	*Have*	11936	62.4
	Not Have	7193	37.6
Mental Disorder	*Have*	9307	48.7
	Not Have	9822	51.3
Sleep Problem	*Have*	6957	36.4
	Not Have	12172	63.6
Body Mass Index	*Underweight*	734	3.8
	Normal Range	7635	39.9
	Overweight	6632	34.7
	Obese	4128	21.6
Hospitalisation	*Yes*	2332	12.2
	No	16797	87.8
Utilisation of Prescription Drug	*Yes*	7125	37.2
	No	12004	62.8
Health Status	*Good*	11157	58.3
	Bad	7972	41.7
Total		**19129**	**100**

** TL= Turkish Lira*

Table 2 shows the results of the simple and multiple logistic regression analyses with the variables that affect the SRH of adults. The results of the simple logistic regression analysis demonstrated that there was a statistically significant relationship between all independent variables and SRH. The sufficiency and goodness-for-fit of the multiple logistic regression model created according to the results of the logistic regression analysis showed that the model has an explanatory power of 0.454 (Nagelkerke R^2). The Hosmer-Lemeshow statistics indicated that the model fits the data ($p \geq .05$), with a model classification accuracy percentage of 77.5%.

According to the results of the multiple logistic regression analysis, men, younger people, those with higher levels of education and income, people having no chronic diseases, mental disorders and sleep problems, those with normal range BMI, people who had not been hospitalised in the last 12 months, and those who had not taken a drug prescribed by a physician in the last two weeks rated their health status as good. The analysis shows that when compared with participants over 75 years of age, participants in the age group of 15-24 years had 6.89 times better health status. The same rate was found to be 3.68 in the age group of 25-34 years; 2.41 in the age group of 35-44 years; 1.69 in the age group of 45-54 years; and 1.45 in the age group of 55-64 years compared with those over 75 years. Women had 1.23 times better health status than men. Examining the results broken down by educational level, individuals with higher educational levels had better SRH (Table 2).

Similarly, when compared with participants who had received no education, primary or secondary school graduates, and high school graduates and/or two-year degree, participants who had under – or postgraduate degree were respectively found to have 3.03 times (1/0.33), 2.08 (1/0.48) times, and 1.43 times (1/0.70) better SRH. Examining the results regarding income levels, higher income was linked to better self-rated health. In this respect, the comparison between participants with an income over 3181 TL and those having a lower income level showed that the participants with an income over 3181 TL had respectively 1.52 (1/0.66) times, 1.25 (1/0.80) times, and 1.11 (1/0.90) times better SRH than the participants with an income lower than 1550 TL, an income between 1551 and 2170 TL, and an income between 2171 and 3180 TL (Table 2).

Table 2 also presents the results for the variables related to health problems, lifestyle, and utilisation of health services. The results show that participants who expressed having no chronic diseases had 4.06 times better health status than those who had one; those who have no mental disorder has 1.77 times better health status than those who suffered from mental disorders; and those who had no sleep problem, has 1.73 times better health status than those who suffer from such a problem. The results concerning BMI showed that participants had normal range BMI and overweight BMI had 1.31 times and 1.28 times better health status respectively, when compared to the group with obese BMI. Another result indicates that participants who were not hospitalised once in the last 12 months had 1.67 (1/0.60) times better health status than those who were, and those who did not take a prescription drug in the last two weeks had 2.13 (1/0.47) times better health status than the participants who took one.

Table 2. *Determinants of Self Rated Health: Results of Simple and Multiple Logistic Regression Analysis*

Variables		Model 1: Univariate Analysis			Model 2: Multivariate Analysis		
		β (SE)	OR	%95 CI	*β (SE)*	OR	%95 CI
Socio-Demographic Characteristic	**Age**						
	15-24	3.24 (0.10)	25.40*	21.02-30.69	1.93 (0.11)	6.89*	5.53-8.56
	25-34	2.52 (0.10)	12.39*	10.36-14.81	1.30 (0.11)	3.68*	3.00-4.52
	35-44	1.91 (0.09)	6.73*	5.65-8.02	0.88 (0.10)	2.41*	1.97-2.95
	45-54	1.32 (0.09)	3.75*	3.15-4.48	0.53 (0.10)	1.69*	1.38-2.07
	55-64	0.95 (0.09)	2.59*	2.16-3.10	0.38 (0.10)	1.45*	1.19-1.78
	65-74	0.42 (0.10)	1.52*	1.24-1.85	0.17 (0.11)	1.19	0.95-1.48
	75+	Reference	1.00			1.00	
	Gender						
	Men	0.63 (0.03)	1.87*	1.77-1.99	0.21 (0.04)	1.23*	1.14-1.33
	Women	Reference	1.00			1.00	
	Education						
	No Education	-2.39 (0.07)	0.09*	0.08-0.11	-1.10 (0.10)	0.33*	0.28-0.40
	Primary School	-1.22 (0.07)	0.29*	0.26-0.33	-0.74 (0.08)	0.48*	0.41-0.56
	High School and/or Two-Year Degree	-0.36 (0.07)	0.70*	0.61-0.80	-0.35 (0.08)	0.70*	0.60-0.83
	Undergraduate and/or Graduate Degree	Reference	1.00			1.00	
	Income						
	*0-1550 TL***	-0.92 (0.05)	0.40*	0.37-0.44	-0.41 (0.06)	0.66*	0.59-0.75
	1551-2170 TL	-0.52 (0.06)	0.60*	0.54-0.66	-0.23 (0.07)	0.80*	0.70-0.91
	2171-3180 TL	-0.27 (0.06)	0.76*	0.68-085	-0.11 (0.07)	0.90	0.78-1.03
	≥ 3181 TL	Reference	1.00			1.00	
Health Problem	**Chronic Disease**						
	Not Have	2.21 (0.04)	9.12*	8.44-9.85	1.40 (0.04)	4.06*	3.72-4.42
	Have	Reference	1.00			1.00	
	Mental Problem						
	Not Have	1.12 (0.03)	3.08*	2.90-3.27	0.57 (0.04)	1.77*	1.63-1.92
	Have	Reference	1.00			1.00	
Life Style	**Sleep Problem**						
	Not Have	1.26 (0.03)	3.52*	3.31-3.75	0.55 (0.04)	1.73*	1.59-1.88
	Have	Reference	1.00			1.00	
	BMI						
	Underweight	1.24 (0.09)	3.47*	2.93-4.12	-0.11 (0.11)	0.90	0.72-1.12
	Normal Range	1.11 (0.04)	3.04*	2.81-3.29	0.27 (0.05)	1.31*	1.19-1.45
	Overweight	0.65 (0.04)	1.92*	1.77-2.08	0.25 (0.05)	1.28*	1.17-1.41
	Obese	Reference	1.00			1.00	
Utilisation	**Hospitalisation**						
	Yes	-1.02 (0.05)	0.36*	0.33-0.40	-0.52 (0.06)	0.60*	0.53-0.67
	No	Reference	1.00			1.00	
	Prescription Drug						
	Yes	-1.50 (0. 03)	0.22*	0.21-0.24	-0.76 (0.04)	0.47*	0.44-0.51
	No	Reference	1.00			1.00	
					Nagelkerke R^2=0.454; **Hosmer and Lemeshow**: 6.955; ***p*** **=** 0.541; **Accurate Classification Percentage** = 77.5%		

**p < 0.05 ** TL= Turkish Lira*

4. DISCUSSION

This study was undertaken to determine the factors related to the categories of socio-demographic characteristics, health problems, lifestyle, and utilisation of health services, which affect the SRH of adult individuals. This study confirmed that age, gender, educational level, income level, chronic diseases, mental disorders, sleep problems, body mass

index, hospitalisation in the last 12 months, and utilisation of a prescription drug in the last two weeks are important determinants affecting one's SRH.

The results based on the variables in the category of socio-demographic characteristics indicated that younger individuals, men, and those with higher educational and income levels are associated with better health status ratings. This finding is consistent with those observed in studies available in the literature (1,14,16,20,23,24).

Looking at the findings from the present study and other similar studies in the literature with focus on similar reasons, we believe that older people have poorer health status due to their health condition being more vulnerable to diseases and decline in vigour with the passing of time. The findings in previous research indicating overall poorer SRH of women may be attributed to their unfavourable biological characteristics (higher vulnerability to diseases) and their social roles. As is the case all over the world including Türkiye, even though women participate in the labour market to an ever-increasing extent (25), the responsibility for domestic tasks and household chores still lies with women. The fact that women have to deal with more than one job at the same time causes them to be more stressed, tired, and therefore more ill. It is the conventional wisdom in medical sociology and social epidemiology that women live longer than men but experience more morbidity (26), thus poorer SRH. As a matter of fact, in a study conducted with the participation of 9668 people aged 18 and over in China, it was found that women were less likely to report good SRH (1).

Research shows that the higher the educational level, the better is the SRH. This may be explained by the fact that higher educational level leads to higher health literacy, which in turn, leads to more awareness of health in people. However, it is known that higher education level is also associated with factors that are associated with better health, such as higher income and better working conditions (27). It is also a known fact that individuals with a better education level have more skills to access better tools and information to improve their health (27,28) and exhibit healthier behaviors (29,30,31). The association of income level with a better health status, on the other hand, can be explained with the financial support which income provides with respect to having better access to healthcare services. Higher household income does not only facilitate access to healthcare services, but it also enables them to afford more expensive services.

The study found, based on the variables regarding the category of health problems, that people with chronic diseases and those suffering from mental disorders had poorer SRH. The findings of the study are consistent with those of previous research (1,5,13,15-17,21). That people with a chronic disease or a mental disorder tend to rate their health status as poorer as compared to others may be a natural result of the health problems they experience.

The findings concerning the variables in the lifestyle category showed that people with sleep problems and those not having normal range BMI (underweight or obese) had poorer SRH. Healthy sleep is critical for all individuals, as it supports the general health of the person by leading to excitement and joy, which provides high energy, a very good mood and the ability to do daily tasks during the day (32). It is also an important need in terms of meeting the physical and spiritual needs of people. Therefore, it is an expected finding that individuals with poor sleep quality or who have difficulty falling asleep evaluate their health status as poor. As a matter of fact, it was found that people with sleep problems in Spain rated their health status as poor (5), and in a study conducted in Greece, poor sleep quality was found to be associated with poor health status ratings (13). Underweight and overweight are also associated with poor SRH (1). In developing countries, overweight prevalence is increasing while underweight prevalence is also still high. Both underweight and overweight are related to increased risk of non-communicable diseases, reduced well-being and quality of life (33). Thus, it is also crucial to avoid underweight, not only overweight.

The results regarding the variables in the category of healthcare service utilisation showed that people who were not hospitalised in the last 12 months and those who did not take a prescription drug in the last two weeks rated their health status as good. This finding also matches those observed in previous research (5,21,22). Especially in certain age groups, as the utilization of health services increases, the anxiety about the future increases and this anxiety reflects negatively on the perceived health status of individuals (34,35).

5. CONCLUSION

The present study showed that the most disadvantaged group in terms of SRH included people of advanced age, women, those with lower educational and income levels, people with a chronic disease, mental disorders and sleeping problems, individuals who do not have normal range BMI, people who have received impatient treatment in the last 12 months, and those who have taken prescription medicine in the last two weeks. To improve the unfavourable condition of these people, some interventions can be recommended.

With a focus on the predisposition of elderly people to rate their health status as poor, it is recommended to extend the scope of services intended for these people, with the necessary precautions to ease access to these services. Besides, it is of particular importance, specifically due to the ever-increasing older population in Türkiye, to also give priority to planning programmes for the services aiming at the elderly population in the country. Further, given the vulnerability of women to diseases, their biological characteristics, their social role in the family, and their responsibilities in relation to the general health of their family, the study also recommends that healthcare services aimed at women should be expanded, with necessary measures taken to ease access to such services. Another way to improve the health status of women would be to improve the health literacy of women, with special focus on preventive health services. Women may

benefit from trainings, courses, and seminars to be organised to this end. Considering the finding indicating that people with lower education and income levels tend to rate their health status as poor, it becomes clear that there is a need to give priority to social and economic projects to address inequalities in education and distribution of income across the country.

In view of the association of chronic diseases with poor health ratings and the need of continuous treatment for such diseases, community-based projects aimed at improving the people's perception of health status and symptom management can be considered as another area of intervention. Because the biological reasons underlying mental disorders or sleep problems cannot yet be described in concrete terms, such disorders are not traditionally considered a health problem among people; despite this fact, these problems have been found to be important determinants with respect to health status ratings. The study recommends, in this respect, taking measures to change people's perceptions towards these problems by enhancing their knowledge. People not having normal range BMI constitute another disadvantaged group with respect to SRH. Improving easily accessible training and follow-up programmes relating to nutritional habits and encouraging physical activity is recommended for this group.

Factors affecting health status can vary from one group to another (residents in rural/urban areas, women/men, younger/older populations, etc.). Taking this fact as a starting point, the study further recommends that future research should be undertaken with the participation of samples representative of different groups.

As the limited number of studies undertaken in Türkiye has only investigated health status determinants with a focus on the population in certain areas, the strength of the present study is that it investigated the phenomenon with a sample that is representative of the whole population in the country. Besides, another strength of the study was that it was the first to investigate the community-based SRH in Türkiye in such a comprehensive manner. Besides its strengths, the findings of this study are also subject to some limitations, of which the most important is that the study variables are limited with those originating from the data source.

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