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Original Article

Effects of Sociodemographic Characteristics, Chronic Disease, and Surgery Frequency: Konya Sample

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ABSTRACT

Objective: The aim of this study was to determine the frequency of chronic illness and the surgical history of a Konya population and to define the relationship of that data to sociodemographic characteristics.

Methods: In order to accurately represent the population of Konya province, 49 residential areas were chosen from the city center, districts, and villages using a systematic, stratified, population-based sampling method. A total of 2015 residents were surveyed. Age, gender, height, weight, occupation, address, habits, present illnesses, and past surgical history of the participants were recorded. The sociodemographic characteristics, chronic disease, and surgical history data of the population were analyzed.

Results: The mean age of the participants was 46±15.64 years (2015). The percentage with a chronic illness was 14.6%. Chronic diseases were more frequently observed in women (p=0.007), those over 40 years of age (p=0.001), those who were overweight or obese (p=0.001), and those who were non-working or a housewife (p=0.000). Among the study group, 39.4% had a surgical history. Rural area residents had a higher rate of surgery (p=0.000). The percentage of smokers was 28.1%. Smoking was more common in those without a chronic disease (p=0.000) or surgical history (p=0.000).

Conclusion: Chronic diseases were more common in women, the overweight or obese, and those of older age. Surgical history was significantly higher among those living in rural areas, women, and those who were non-working or a housewife.

INTRODUCTION

Chronic disease has been defined by The Commission on Chronic Illness as disease arising from personal, genetic, and socioeconomic factors that develops slowly and continuously, for which full recovery is not possible, which generally cause permanent disability, and which is usually noninfectious.[1] Over time, as a result of important developments in diagnosis and treatment, the reduction of infectious diseases, the correction of environmental conditions, the prolongation of human life, increased industrialization, and easier access to healthcare, the relative importance of chronic diseases in society has increased.[2] Of all deaths worldwide, 63% (57 million people) are due to chronic disease, according to data of the World Health Organization (WHO). An estimated 36 million people die as a result of diabetes, cardiovascular diseases, cancer, and chronic respiratory diseases. Approximately 60% to 80% of all health expenditures are used for the treatment of chronic disease.[3]

The information obtained from epidemiological studies makes possible the determination and examination of the causes and distribution of health-related situations and

events in society, as well as the prevention and control of health problems. A survey is one such method of study.

The objective of this study was to ascertain the frequency of chronic disease and operations performed in Konya province, and to examine and describe the relationship to sociodemographic features of the society.

MATERIAL AND METHODS

The research was designed to be a descriptive cross-sectional study. A total of 49 residential areas including the city center, districts, and villages, were selected to represent the population of Konya province using a systematic, stratified, population-based sampling method. The sample size was created in proportion to the population in each residential area, and individual participants were selected randomly. The goal was to evaluate a total of 4900 people to represent the province.

The study was performed in cooperation with the Konya Training and Research Hospital, Konya Metropolitan Municipality, and the Konya Directorate of Health. The research was conducted in 49 residential areas in the province of Konya between April 2011 and April 2012, subsequent to receipt of permission and approval from the ethics committee. Each participant provided informed consent, and was surveyed in a face-to-face interview. Name, age, gender, height, weight, occupation, place of residence, habits, history of chronic illness, and surgical history of the participants was recorded. Body mass index (BMI) was calculated as weight (kg)/height^2 (m^2). BMI values were evaluated according to the WHO definition of 1999. Less than 18.5 kg/m^2 is classified as underweight, 18.5 to 24.9 kg/m^2 is normal weight, 25.0 to 29.9 kg/m^2 is class I overweight, 30.0 to 39.9 kg/m^2 is class II obese, and ≥40 kg/m^2 is class III morbidly obese.[4] Data cleansing was performed after all of the surveys were collected and respondents with significant deficiencies were excluded from the study. Though the sample size for the study was to be 4900, the total number of people reached was 2015, which was a rate of access of 41%. The frequency of chronic disease and surgery, as well as the relationship between sociodemographic characteristics, chronic disease, and surgical history were determined using statistical software.

The IBM SPSS Statistics for Windows, Version 21.0 (IBM Corp., Armonk, NY, USA) package program was utilized for the statistical analysis of the data. The level of significance was set at $p<0.05$. Descriptive statistics (arithmetic mean, standard error, minimum, maximum, frequency, quartile) and two ratios test were calculated.

RESULTS

The mean age of the respondents was 46±15.6 years (range: 18–94 years). The distribution of participants by age groups is shown in Table 3. Of those, 1075 (53.4%) were female and 940 (46.6%) were male. In all, 1100 (49.8%) lived in the city center, 804 (39.8%) in the surrounding districts, and 211 (10.4%) participants lived in nearby villages. There were 340 (16.9%) retirees, 421 (20.9%) farmers or laborers, 232 (11.5%) white-collar employees, and 1022 (50.7%) of the participants were housewives or not working. In addition, 566 (28.1%) were cigarette smokers and 20 (1%) respondents were alcoholics.

Mean BMI was determined to be 27.7±5.0 kg/m^2 (range: 16.1–54.1 kg/m^2). The BMI of 23 (1.2%) individuals was classified as underweight, 586 (29.1%) were of normal weight, 808 (40.1%) were class I overweight, 567 (28.1%) were class II obese, and 31(1.6%) participants were class III morbidly obese.

At the time of the survey, 1934 (96%) of all participants had no health complaints. A majority, 1722 (85.5%), of the participants had no diagnosed chronic disease; however, 293 (14.5%) did have a chronic disease history: 65 (3.2%) had heart disease, 65 (3.20%) had respiratory system disease, 53 (2.6%) had diabetes mellitus, 21 (1%) had a thyroid disorder, and 90 (4.5%) participants had been diagnosed with another chronic disease (Table 1).

Of those surveyed, 1221 (60.6%) had no history of surgery, while 794 (39.40%) had undergone an operation. In all, 144 (7.2%) had an appendectomy, 121 (6%) had a cholecystectomy, 109 (5.4%) had a herniorrhaphy and 27 (1.3%) had heart surgery. Furthermore, 57 (2.80%) of the males had a prostate operation and 121 of all the women (11.2%) had a history of cesarean section (Table 2).

Chronic disease was more common in women than men ($p=0.007$). Chronic disease was more frequent in those over the age of 40 ($p=0.001$) and in those with BMI above normal ($p=0.001$). The incidence of chronic disease was also greater in housewives and those who were not working ($p<0.001$). Cigarette smoking was seen more often in those with no chronic disease compared with respondents who did have a chronic disease ($p<0.001$). No significant relationship was seen between place of residence (urban, rural) and chronic disease frequency ($p=0.736$) (Table 1).

Examination of surgical history and sociodemographic characteristics revealed that women had undergone an operation more often than men ($p<0.001$). Housewives and the non-working had undergone surgery more than those working in any job ($p<0.001$); no significant relationship was detected between age and operation frequency ($p=0.075$). Those who were overweight or obese had a greater number of surgeries than those of normal weight or those who were underweight ($p=0.001$). Smokers also had a greater number of surgeries compared to those who did not use tobacco ($p<0.001$). Finally, those living in rural areas were found to have a greater frequency of surgery compared with those who lived in the city ($p<0.001$) (Table 2).

Table 1. Relationship between disease history and sociodemographic characteristics

Sociodemographic characteristics	Chronic disease								p
	Heart disease (Ischemic)		Respiratory system disease		Diabetes mellitus		Thyroid disease		
	n	%	n	%	n	%	n	%	
	65	3.20	65	3.20	53	2.60	21	1.10	
Gender									
Female	38	58.50	37	56.90	40	75.50	17	81.00	0.070
Male	27	41.50	28	43.10	25	24.50	4	19.00	
Age (years)									
18–40	9	13.80	15	23.00	3	5.70	13	61.90	
41–60	31	47.70	25	38.50	30	52.80	8	38.10	0.001
61–90	25	38.50	25	38.50	22	41.50	–	–	
Body mass index (kg /m²)									
18.5–24.9	13	20.00	18	27.70	5	9.40	7	33.30	
25–29.9	30	46.20	25	38.50	23	43.40	11	52.40	0.001
30 and over	22	33.80	22	33.80	25	47.20	3	14.30	
Profession									
Housewife	34	52.30	33	50.80	37	69.80	14	66.70	
Retired	23	35.40	21	32.30	10	18.90	2	9.50	<0.001
Employed	8	12.30	11	16.90	6	11.30	5	23.80	
Residence									
Rural	7	10.80	5	7.70	5	9.40	3	14.30	0.736
City center	58	89.20	60	92.30	48	90.60	18	85.70	
Habits									
Cigarette use	10	15.40	16	24.60	4	7.50	4	19.00	
Alcohol use	1	1.50	1	1.50	1	1.90	1	4.80	<0.001
Neither	54	83.10	48	73.90	48	90.60	16	76.20	

DISCUSSION

Life expectancy has increased in our country in recent years.[5] Accordingly, early diagnosis, treatment, and improved follow-up of chronic diseases have become more important. In addition, developments in surgical techniques, as well as a reduction in complications related to anesthesia and surgical procedures, have, over time, increased the rate of surgeries performed.

According to a survey conducted by the Turkish Ministry of Health of 12,000 households between 2002 and 2004, the incidence of ischemic heart disease, diabetes mellitus, and chronic obstructive pulmonary disease was 1.5%, 2.3%, and between 3.1% and 3.7%, respectively.[6] Physical examinations were not performed. A similar method was utilized in this study.

The Turkish Ministry of Health also assessed the frequency of chronic disease and risk factors in Turkey in 2011, and 8% of the participants reported that they were diabetic. The rate was 9% in females and 7% in men. However, the diabetes frequency determined by fasting plasma glucose measurement was 11%. The rate of awareness of diabetes was 74%, and when examined by gender, it was determined to be 69% in men and 78% in women.[7] Fasting plasma glucose values of the participants included in the study were examined after completing the questionnaire.

In Sivas province, only 14.4% reported a chronic disease in a study that included 750 people older than 65 years of age; however, 78% of the participants were found to have at least 1 chronic disease as a result of physical examinations and study research.[8] The low awareness may have been due to the subtle onset of chronic disease, generally at middle age and in later years. ISBN chronic diseases has also advanced age is a frequent chronic disease incidence

Table 2. Relationship between operation history and sociodemographic characteristics

Sociodemographic characteristics	Operation								p
	Appendectomy		Cholecystectomy		Herniorrhaphy		Cesarean section		
	n	%	n	%	n	%	n	%	
	144	7.20	121	6.00	109	5.40	121	11.20	
Gender									
Female	105	72.90	102	84.30	17	15.60	121	100	<0.001
Male	39	27.10	19	15.70	92	84.40	–	–	
Age (years)									
18–40	68	47.20	13	10.70	34	31.20	69	57.00	0.075
41–60	56	38.90	53	43.80	35	32.10	52	43.00	
61v90	20	13.90	55	45.50	40	36.70	–	–	
Body mass index (kg/m²)									
18.5–24.9	42	29.20	18	14.90	38	34.90	26	21.50	0.001
25–29.9	46	31.90	36	29.80	49	44.90	42	34.70	
30 and over	56	38.90	67	55.30	22	20.20	53	43.80	
Profession									
Housewife	96	66.70	102	84.30	16	14.70	111	91.70	<0.001
Retired	26	18.10	14	11.60	43	39.40	3	2.50	
Employed	22	15.20	5	4.10	60	45.90	7	5.80	
Residence									
Rural	18	12.50	23	19.00	21	19.30	22	18.20	<0.001
City center	126	87.50	98	81.00	88	80.70	99	81.80	
Habits									
Cigarette use	33	22.90	9	7.40	32	38.50	10	8.30	<0.001
Alcohol use	–	–	–	–	2	1.90	–	–	
Neither	111	77.10	112	92.60	65	59.60	111	91.70	

Table 3. Distribution by age group

Age Groups (years)		Male	Female	Total
18-30	n	198	187	385
	%	21.30	17.40	19.20
31-40	n	195	237	432
	%	20.70	22.00	21.40
41-50	n	188	267	455
	%	20.00	24.90	22.60
51-60	n	148	194	342
	%	15.60	18.00	16.90
61-70	n	115	119	234
	%	12.20	11.10	11.60
71 and over	n	97	70	167
	%	10.30	6.50	8.30

was detected over 40 is higher than under 40 years of age (p=0.001). Therefore, health education, periodic examinations, and follow-up are very important for this age group. Early diagnosis of chronic disease not only leads to effective use of health expenditures, but also decreases the mortality and morbidity associated with these diseases.

The present study found that 2.63% of respondents reported a chronic disease diagnosis. Our result was higher than that found in burden of disease research conducted by the Turkish Ministry of Health in 2004 (2.3%) (p<0.001); however, it was lower when compared with research conducted in 2011 (11%) (p<0.001). In our study, we did not measure fasting plasma glucose; results were obtained strictly through the survey method. Given that the awareness of chronic illness is low in our society, our results likely do not represent the true incidence of diabetes. The difference between the 2 studies performed by the ministry conducted at an interval of 7 years is probably due

to the fact that physical examinations were performed in addition to a survey in the second study.

According to a survey performed by the ministry in 2004, the incidence of ischemic heart disease was 1.5%. Their research in 2011 reported an incidence of ischemic heart disease in the population over 15 years of age of 3.8% in males and 2.3% in females.[7] In males, the incidence of ischemic heart disease increases with age, reaching 20% in people over 75 years of age.[7] According to our study of 2015 individuals, the incidence of ischemic heart disease was 3.5% in females and 2.8% in males. The incidence of ischemic heart disease found in Konya was similar to the 2011 research results of the Turkish Ministry of Health (p=0.373).

The rate of cigarette smoking in Turkey has decreased in recent years. It was reported to be 32.1% in 2003, 27.4% in 2008, 25.4% in 2010, and 23.8% in 2012.[5] The frequency of smoking varies according to age group.[7] It is most common in the group that is 25 to 44 years of age. Men over 55 years of age and women over 45 years of age had the greatest rate of smoking cessation.[7] Our study found that 564 (28.1%) participants were smoking cigarettes regularly, a figure that was similar to the 2011 study of chronic disease and risk factors in Turkey (p=0.302). Our survey also found that the rate of cigarette smoking was higher in patients without chronic illness than in those with any chronic illness (p<0.001) (Table 1). Similarly, the rate of smoking was lower in those who had undergone any operation than in those who had not (p<0.001) (Table 2). This may be because many with a chronic illness or those who have undergone an operation stopped smoking.

Obesity is one of the most important public health problems in the world, and the prevalence is increasing with every day.[9] When the National Health and Nutrition Examination Survey (NHANES) results of 1999–2000 are compared with the results of NHANES 1988–1994, the incidence of obesity increased from 23.4% to 33.4% in women within 6 years in the United States.[10]

According to the Turkish Ministry of Health study conducted in 2011, 15.3% of males and 29.2% of females were obese (BMI ≥30 kg/m²) in the age group of those over 15 years of age.[7] Among men over age 15, 37.4% were class I overweight, and 28.8% of women were class I overweight (BMI 25.0–29.9 kg/m²). In both genders, obesity is most frequently observed in the 55-64 age group (female: 57%; male: 26%). In the same study, the incidence of a risky waist circumference in women was approximately twice that of men (male: 21.3%; female: 44%). While a greater number of men with a risky BMI, and dangerous waist circumference and waist-hip ratio live in urban areas, women living in rural areas have more risky values compared with women living in urban areas.[7]

In a cross-sectional Konya study of 676 women between 15 and 49 years of age selected using cluster sampling, the women's mean BMI was 28.0±5.4 kg/m². The obesity prevalence in women was determined to be 33.9%.[11]

The mean BMI in our study was 27.7±5.0 kg/m² (range: 16.1–54.1 kg/m²). The proportion of those with a BMI of 30 kg/m² or more was 29.7%, which was similar to the results of the 2011 ministry study conducted with 18,477 individuals (p=0.478). The proportion of those with a BMI of 25 to 29.9 kg/m² (class I overweight) was 40%, similar to the national mean (p=0.261).

The mean BMI was 26.7±5.5 kg/m² in a study of 1363 people who presented to a family physician in Elazığ province during 1 month (March 15-April 15, 2015).[12] A significant relationship was not found between BMI (p<0.001), waist circumference (p<0.001), waist-hip ratio (p=0.001), waist-height ratio (p<0.001), or chronic disease among the participants of the study.[12] In our study conducted in Konya province, the frequency of chronic illness was higher in those who were overweight or obese than in those of normal weight (p=0.001). Furthermore, chronic disease was observed more often in women than in men (p=0.007). The incidence of chronic illness was also greater in those who were not working or were a housewife compared with those who were employed (p<0.001). There was no significant relationship between the frequency of chronic illness and the location of residence (urban, rural) (p=0.736) (Table 1).

Among frequently performed surgical procedures, the literature cites a rate of frequency of 7% appendectomy,[13,14] 3.2% herniorrhaphy,[15,16] 11.3% cholecystectomy,[17,18] and 18% to 33% cesarean section.[19,20] The respective rate found in our research was 7.2%, 6%, 5.4%, and 11.2% (Table 2).

Appendectomy surgery is performed more frequently in women, in part due to the high rate of false positive diagnosis. It is performed most often between the ages of 20 and 40 years in both genders. Appendectomy history is more frequent in those who are obese compared with those who are not.[13,14] Our research found 144 (7.2%) respondents had a history of appendectomy. Of those, 72.9% were female, 47.2% were between the ages of 19 and 40 years, and 38.9% were obese.

The incidence of cholelithiasis in Thailand has been reported to be 3.1%.[21] The reported rate is higher in Western populations.[21] The frequency of cholelithiasis detected by ultrasonography in the adult population is generally between 10% and 15%.[17,18] It is between 11% and 15% in females and between 3% and 11% in males, with a male to female ratio of 1/2 to 1/5.[17,18] The frequency of incidence increases with age, with a peak at between 50 and 65 years of age. In females, a rate of 5% to 20% has been reported between the ages of 20 and 50, 25% to 30% in those over the age of 50, and 50% in those over the age of 60. In males, a rate of up to 15% was seen in those over

the age of 60. Cholelithiasis was detected in 50% and 16% of women and men, respectively, aged in their 70s, and in 80% of men and women aged 90 or more.[22]

The annual frequency of cholelithiasis is approximately a ratio of 1 in 200 persons.[17] Most patients are asymptomatic when diagnosis is made and will remain asymptomatic.[23] The risk of developing symptoms is higher in the first 5 to 10 years and this rate decreases from 2% to 3% to 0.1% to 0.3% per year in the following years.[24,25] The frequency of cholecystectomy in our study was 6%. The ratio of males to females was approximately 1/5 and the distribution by age group was determined to be 10.41% between 19 and 40, 44.61% between 40 and 60, and 46% between 60 and 90.

Inguinal hernia represents 80% to 83% of all hernia cases. Indirect inguinal makes up 50%, 25% are direct inguinal, and 5% are femoral hernias. They are observed in approximately 3% to 8% of the whole population, and 75% to 85% of patients are men.[15,16] In our study, the incidence of groin hernia in the Konya population was 5.4%. Of those, 84.4% were men while 15.6% were women.

The optimal cesarean section birth rate according to the recommendations of the WHO published in 1985 is between 5% and 15%. Cesarean section rate exceeding 15% has been stated to be unnecessary and inappropriate.[26] The mean cesarean section rate was found to be 33%, 27%, and 8.8% in Latin America, Asia, and Africa, respectively, due to inadequate health facilities, according to a WHO 2005 survey.[27] The rate of cesarean section was 41.3%, 37.7%, 37.4%, 36.1%, 30.2%, 28.9%, and 27.8% in Brazil, Korea, Italy, Mexico, the United States, Switzerland, and Germany, respectively, according to WHO 2010 data.[28]

While the rate of cesarean section birth in North Korea was 4.4% in 1982, this rate has increased continuously and reached 40.5% in 2001. After taking a number of restrictive measures, including financial penalties for health institutions, the rate between 2001 and 2012 declined to 36.9%.[29]

As in the rest of the world, the rate of cesarean section birth in Turkey is gradually increasing.[5] Turkish health statistics indicate that while the percentage of cesarean section births among all births was 21% in 2002, it increased to 42.7% in 2009 and 50.4% in 2013.[30] Cesarean section births account for approximately 63% in university hospitals, according to studies carried out.[30] Our study results found that 11.1% of the women had undergone caesarean section. This ratio does not reflect the rate of cesarean section births among of all births.

Reasons for the increase in the cesarean section birth rate in Turkey and in the world include an increase in assisted reproductive techniques and multiple pregnancies, women's participation in employment outside the home, advanced maternal age, and greater use of electronic fetal monitoring.[31] Many mothers also prefer a cesarean section because they believe it is safer for both the mother and the baby.

When the Konya data of operation history and sociodemographic characteristics were compared, it was determined that the history of surgery in women was greater compared to men ($p<0.001$). However, no significant relationship was found between age and frequency of operations ($p=0.075$). Smoking prevalence was greater in those with a history of previous operation than those without a history of previous operation ($p<0.001$). Those who were overweight or obese had more operations than those who were underweight or of normal weight ($p=0.001$). In terms of the place of residence, those living in rural areas were found to have undergone surgery more often than those living in the city center ($p<0.001$) (Table 2).

Conclusion

It was determined that chronic diseases were more frequently observed in women, those who were overweight or obese, and those of advanced age. The rate of surgery was higher in women, housewives, non-working people, and in those living in the rural areas. A smoking habit was more common among healthy people.

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Ethics Committee Approval

Approval has been obtained from the Meram Faculty of Medicine University of Selçuk Ethics Committee.

Informed Consent

Approval was obtained from the patients.

Peer-review

Internally peer-reviewed.

Authorship Contributions

Concept: M.A.E., Ö.K.; Design: M.A.E., Ö.K.; Data collection &/or processing: N.S., R.D.; Analysis and/or interpretation: M.A.E., S.P.; Literature search: M.A.E., S.P.; Writing: M.A.E., S.P., Ö.K.; Critical review: M.A.E., Ö.K.

Conflict of Interest

None declared.

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Sosyo-demografik Özelliklerin Kronik Hastalık ve Ameliyat Sıklığına Etkisi: Konya Örneği

Amaç: Konya toplumunda kronik hastalık ve geçirilmiş operasyon sıklığının tespit edilmesi ve toplumun sosyo-demografik özellikleri ile ilişkisinin tanımlanması.

Gereç ve Yöntem: Konya il popülasyonunu temsil edecek şekilde, nüfus ağırlıklı sistematik tabakalı örnekleme yöntemi ile Konya merkez, ilçe ve köylerinden 49 yerleşim birimi seçildi. Ankette katılımcıların isim, yaş, cinsiyet, boy, kilo, meslek, yaşadığı yer, alışkanlıkları, kronik hastalıkları ve geçirdiği ameliyatlara ait bilgileri sorgulandı. Toplumun sosyo-demografik özellikleri ile kronik hastalık ve geçirilmiş operasyon sıklığı karşılaştırıldı.

Bulgular: Katılımcıların yaş ortalaması 46±15.6 (2015) idi. Bunların %14.5'i kronik hastalık öyküsü tanımladı. Kronik hastalıklar kadınlarda (p=0.007), 40 yaş üstünde (p=0.001), fazla kilolu veya obez olanlarda (p=0.001), ev hanımı veya çalışmayanlarda daha fazla (p≤0.001) idi. Çalışmaya dahil edilen kişilerden %39.40'ında ameliyat öyküsü mevcuttu. Kırsalda yaşayanlar şehir merkezinde yaşayanlara göre daha fazla ameliyat olmuşlardı (p≤0.001). Çalışmaya dahil edilenlerin %28.10'u tütün bağımlısı olarak belirlendi. Sigara kullanımı kronik bir hastalığı (p≤0.001) ve geçirilmiş ameliyatı olmayanlarda daha sıktı (p≤0.001).

Sonuç: Kronik hastalıkların kadınlarda, fazla kilolu-obezlerde ve ileri yaşlarda daha sık görüldüğü tespit edildi. Kadınlarda, ev hanımı veya çalışmayanlarda, kırsal kesimde yaşayanlarda, fazla kilolu-obezlerde ameliyat oranı daha yüksek bulundu.

Anahtar Sözcükler: Ameliyat sıklığı; kronik hastalık sıklığı; sosyo-demografik durum.