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## CLINICAL INVESTIGATIONS

# The Prevalence of Chronic Diseases and Quality of Life in Elderly People in Samsun

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**Abstract:** The increasing aged population has recently become a focus of interest in developing countries. The aims of our study were to evaluate chronic diseases and measure the quality of life of elderly people in Samsun. A cross-sectional study was conducted between March 1 and April 30, 2001. There were 8350 elderly people in the study area. The study group consisted of 835 elderly people, calculated by using the sample size formula. Except for 98 (11.7%) individuals, 737 of 835 elderly people participated in this study. In the first step of the study, the data of 737 elderly people were used, and then in the second step the data of 150 elderly people with a chronic disease were compared with the data of 150 elderly people, matched according to age, without any chronic disease. All data were analyzed by using analysis of covariance (ANCOVA) for continuous and post-hoc Bonferroni test.

Ninety-six males (26.6%) and 54 females (14.4%) stated they did not have a chronic disease. In the study group, the scores of the SF-36 life quality scale subgroup decreased with age in most of the categories except "pain and general" ( $P < 0.05$ ). Participants with a chronic disease possessed significantly lower scores in all subgroups of the scale than the participants without a chronic disease ( $P < 0.001$ ).

While aging is an unpreventable physiological state, determining and solving the problems of elderly people might improve their quality of life.

**Key Words:** elderly people, quality of life, SF36

## Introduction

Aging is a process of gradual and spontaneous change resulting in maturation through childhood, puberty, and young adulthood and then decline through middle and late age. The regeneration capacity of cells and other processes due to growth and maturation is lost over time, ultimately leading to an incompatibility with life [1]. Although there is no certain age, 65 years is usually accepted as the beginning of old age. Old age, occurring in all living creatures without differentiation, is a continuous and universal process causing decreases in all functions [2]. The average life span of people around the world has been increasing dramatically. The maximum life span, generally determined to be about 125 years for women and somewhat shorter for men, has changed little in recorded history, although some experts suggest that it may be slowly increasing. Several factors influence longevity such as heredity and lifestyle, avoiding smoking,

maintaining a healthy weight and diet, and exercising appropriately. Exposure to environmental toxins can shorten life spans even among people with the most robust genetic makeup [1]. As the geriatric population grows worldwide, demographics are an important tool in the development of policies on the aging [3].

The world's population is aging. From 1996 to 2025, the percentage of people 65 years and older is expected to increase by 17 to 82% in European countries and by about 200% in some developing countries. By 2025, Italy and Japan are expected to have the highest proportion of people 65 years and older, accounting for nearly one third of their populations. However, developing countries such as China and India, which have the world's largest populations, have and will continue to have the largest absolute numbers of elderly people. In 1996, the greatest number of people 75 years and over lived in China, followed by the USA and India. By 2020, the world's

population is expected to include more than 1 billion elderly people, most of whom are living in developing countries rather than in developed ones. Between 1900 and 1990, the total US population increased 3-fold, while the population of elderly people increased 10-fold. In 1990, more than 31 million Americans were 65 years and over, nearly twice as many as in 1960 [3].

Life expectancy in Turkey has increased over the last decades. Between 1960 and 2000, life expectancy rose by more than 17.7 years for males and 17.9 years for females. According to the Turkish census, there were 67,844,903 people and 5.3% of them (3,595,780) were over the age of 65 years in 2000. In this age group 45.2% (1,625,293) were male and 54.8% (1,970,847) were female [4]. According to the Demographic and Health Survey (DHS)-1993 and DHS-1998, 4.3 and 5.9% of the research group were more than 65 years old, respectively [5].

The risk of having diseases such as diabetes mellitus, coronary heart diseases, cerebrovascular diseases and osteoporosis rises as the proportion of elderly people increases. Chronic diseases cause medical, social and psychological problems that limit the activities of elderly people in the community and decrease their quality of life (QOL) [6-9]. QOL in later years may be diminished if illness, chronic conditions, or injuries limit the ability to care for oneself without assistance. Elderly people maintain their independence and eliminate costly care-giving services by, among other things, shopping on their own, cooking their own meals, bathing and dressing themselves, and walking and climbing stairs without assistance [10]. Although there is no universal description of QOL, it is sometimes described as a wellness resulting from a combination of physical, functional, emotional and social factors [11].

Chronic diseases are prolonged illnesses that are rarely cured completely. Some examples are arthritis and hypertension. While not all chronic diseases are life threatening, they are a substantial burden on the health and economic status of individuals, their families, and the community as a whole. Chronic conditions affect the QOL of elderly people and contribute to disability and reduce their ability to live independently [9,10].

The diagnosis and treatment of chronic diseases develop as a result of progress in medical care. On the other hand, chronic diseases necessitate a long period of care and rehabilitation; therefore it is necessary to obtain

correct and up-to-date data to plan health services for the elderly [6-9]. The aims of the study were to evaluate chronic diseases and measure the QOL of elderly people in Samsun, Turkey.

## Materials and Methods

A cross-sectional study was conducted between March 1 and April 30, 2001, in Samsun, Turkey. Data were collected in 8 of 17 randomly selected primary care unit catchment areas. There were 8350 elderly people living in these areas. The size of the study group (835) was calculated by using a sample size formula [12]. The number of participants from each primary care area was calculated proportionally to the total population of the area [13]. Participants in the study were selected by using a systematic sampling method [12]. Ninety-eight people refused to participate in the study. The participation rate was 89.3%. A face-to-face questionnaire including socio-demographic characteristics and SF-36 questions was used in data collection. Interns informed the participants about the details of the study. The presence of a chronic disease in an elderly participant was determined by asking them.

In the first step of the study, the data of 737 elderly persons were used, and then in the second step the data of 150 elderly with a chronic disease were compared with the data of 150 elderly persons, matched according to age, without any chronic disease.

The main tool used to assess the health status of the participants was the SF-36. This is the short form of the medical outcomes study examining functioning and well-being profiles. The 36 items are used to compute 8 domains: physical functioning (PF), role limitations-physical (RP), bodily pain (BP), general health (GH), energy (E), social functioning (SF), role limitations-emotional (RE), and mental health (MH). All 8 SF-36 scales are standardized to a range from 0 to 100, with a higher score indicating better health status [11]. The validity and reliability study of the Turkish version of SF-36 was completed on patients with a chronic disease, and the test-retest reliability and internal consistency were 0.94 and 0.92, respectively [14].

Data are given as mean  $\pm$  standard deviation and analysis of data was performed by using analysis of covariance (ANCOVA) for continuous and post-hoc Bonferroni test.

## Results

In the study group, 376 (51.0%) were female and 361 (49.0%) were male. The sociodemographic characteristics of the female and male participants are shown in Table 1.

Ninety-six (26.6%) of the male and 54 (14.4%) of female respondents had no chronic disease. Chronic diseases by sex are presented in Table 2.

The social function subgroup score was the highest in all age groups. The means of SF-36 by age groups are presented in Table 3.

Participants without chronic disease had higher scores in all subgroups than the participants with a chronic disease. The means of SF-36 by chronic disease are presented in Table 4.

Table 1. Some demographic characteristics (Samsun, 2001).

	Female (n = 376)		Male (n = 361)		TOTAL (n = 737)	
	n	%	n	%	n	%
Age Groups						
65-69	207	55.1	178	49.3	385	52.2
70-74	93	24.7	112	31.0	205	27.8
75 ≥	76	20.2	71	19.7	147	20.0
Marital Status						
Married	167	44.4	271	75.0	438	59.4
Single	6	1.6	6	1.7	12	1.6
Widowed / Divorced	203	54.0	84	23.3	287	39.0
Educational Level						
Illiterate	163	43.4	36	10.0	199	27.0
Primary school	62	16.5	51	14.1	113	15.3
Secondary school	119	31.6	143	39.6	262	35.6
High school	15	4.0	49	13.6	64	8.7
University	12	3.2	48	13.3	60	8.1
Social Insurance						
Yes	295	78.5	314	87.0	609	82.6
No	81	21.5	47	13.0	128	17.4

Table 2. Chronic diseases by sex (Samsun, 2001)\*.

Chronic Disease	Female (n = 322)		Male (n = 265)		TOTAL (n = 587)	
	n	%	n	%	n	%
Hypertension	176	54.7	114	43.0	290	48.6
Osteoporosis	125	38.8	35	13.2	160	26.8
Arthritis	110	34.2	51	19.2	161	27.0
Diabetes mellitus	84	26.1	40	15.1	124	20.8
Cardiovascular disease	77	23.9	93	35.1	170	28.5
Gastrointestinal system disease	50	15.5	48	18.1	98	16.4
Visual impairment	50	15.5	50	18.9	100	16.8
Urinary tract disease	26	8.1	29	10.9	55	9.2
Respiratory disease	24	7.5	32	12.1	56	9.4
Hearing impairment	21	6.5	12	4.5	33	5.5
Psychiatric disorder	19	5.9	2	0.8	21	3.5
Stroke	10	3.1	10	3.8	20	3.4
Cerebrovascular disease	9	2.8	15	5.7	24	4.0
Cancer	3	0.9	4	1.5	7	1.2

\* The total number is higher than the number of the participants as some participants checked more than one

Table 3. SF-36 by age groups\* (Samsun, 2001).

Score	Age Groups (n = 150)			F	p
	65-69 ages (n = 80)	70-74 ages (n = 41)	≥ 75 ages (n = 29)		
Role Physical (RP)	69.0 ± 42.4	52.6 ± 44.4	41.1 ± 47.4	11.08	<0.0001
Physical Functioning (PF)	72.5 ± 27.6	58.9 ± 28.2	45.5 ± 32.8	33.13	<0.0001
Bodily Pain (BP)	64.8 ± 28.0	61.1 ± 27.3	52.7 ± 28.8	2.42	>0.05
Energy/ Fatigue (E)	48.2 ± 21.7	41.5 ± 22.1	38.0 ± 22.6	7.33	<0.01
Mental Health (MH)	72.6 ± 41.5	55.8 ± 45.7	48.1 ± 47.5	5.17	<0.01
Role Emotional (RE)	63.0 ± 21.2	62.0 ± 20.0	57.8 ± 20.9	9.73	<0.0001
Social Functioning (SF)	80.1 ± 24.9	69.7 ± 26.5	64.1 ± 30.2	11.03	<0.0001
General Health (GH)	53.9 ± 20.4	49.2 ± 22.0	47.6 ± 20.9	2.21	>0.05

\* ANCOVA with gender, marital status, educational level and social insurance as covariates

Table 4. The means of SF-36 according to chronic disease (n=300) (Samsun, 2001).

Score	Patients without	Patients with	t	p
	Chronic Disease(n = 150)	Chronic Disease (n = 150)		
Role Physical (RP)	80.4 ± 36.0	55.8 ± 46.5	255.98	<0.001
Physical Functioning (PF)	81.3 ± 23.7	56.3 ± 34.3	7.09	<0.001
Bodily Pain (BP)	77.6 ± 21.8	57.1 ± 28.6	259.99	<0.001
Energy/Fatigue (E)	57.0 ± 21.4	43.3 ± 23.1	278.00	<0.001
Mental Health (MH)	66.8 ± 17.9	56.1 ± 23.7	259.42	<0.001
Role Emotional (RE)	82.9 ± 34.3	61.4 ± 45.1	257.50	<0.001
Social Functioning (SF)	86.1 ± 20.0	69.3 ± 29.4	5.80	<0.001
General Health (GH)	64.3 ± 18.2	50.7 ± 21.8	240.73	<0.001

**Discussion**

Compared with DHS-1993 and DHS-1998, we noted that the ratio of the 65 years and older age group had increased. While in DHS-1993 4.3% of the research group was 65 years and older, this ratio was 5.9% in DHS-1998 [5]. According to the Turkish census, there were 67,844,903 people and 5.3% (3,595,779) of them were over the age of 65 years in 2000 [4]. Between 1994 and 2000, life expectancy increased by more than 5.5 years in females and by 0.9 years in males in Turkey [7,8]. Life expectancy at age 65 and age 85 has increased over the past 50 years and women have on average longer lives than men worldwide [10]. This result shows that the geriatric population in Turkey is growing in a similar way to global trends.

Although the female / male ratio is 1.15 in Samsun [15], women outnumber men more than 2 to 1 in this study. This result could be connected with the tendency

of women to stay at home more than men. Substantially more females were widowed, presumably due to a higher rate of male mortality, the tendency for widows and those divorced to not seek remarriage and the preference of widowed and divorced people to live the rest of their lives with their children. The life conditions of elderly people vary by age, sex, race and marital status. A majority of people of 65 years of age or older lived alone. Women in each age group were more likely than men to live alone in the USA [10].

In this study, 332 (88.3%) of females and 265 (73.4%) of males have a chronic disease; the most frequently reported chronic disease is hypertension in both sexes, though older women reported more hypertension than men. In the USA, more than 80% of non-institutionalized people 65 years or older have at least 1 chronic disease, and about 50% face some limitations in performing daily living activities. Chronic diseases cause 80% of deaths after age 65 and account

for more than 80% of health care expenditure in the USA [2,10].

The increasing aged population has recently become a focus of concern worldwide [2,10]. Health service needs are changing as the proportion of elderly people in society increases. Elderly people access health care services much more than young people do. Chronic conditions affect the QOL of elderly people and contribute to disability and the decline of independent living and increase the need for long-term care [9,10]. Therefore, the health care delivery system for elderly people should be oriented toward care of chronic disease, regardless of the patient's age, and should emphasize continuing care aimed at improving functions, postponing deterioration and disability, and preventing complications. To plan such services it is necessary to determine the problems and needs of the elderly in the light of current knowledge.

In 1995 among non-institutionalized people 70 years of age or over, 32% had difficulty performing and 25% were unable to perform at least 1 of 9 physical activities. Physical activity limitations increased with age. People 85 years of age or over were 2.6 times as likely as people 70–74 years of age to be unable to perform physical activities. An indication of functional well being is the ability to perform certain tasks of daily living [2,6,10].

However, 50% of elderly people also have at least 1 chronic disease. The major health problems of the elderly are chronic and degenerative diseases whose frequencies increase with the age [8,10]. Some researchers note that hypertension and osteoarthritis are the most frequent chronic diseases in elderly people [16-19]. Although many chronic diseases are not fatal, chronic conditions are leading causes of disability among the elderly and result in many elderly people being limited in their daily activities of life [10]. The social problems resulting from the health problems of the elderly are just as important as the health problems alone [6].

QOL is an intensely personal and variable concept. Questionnaires and other instruments that measure health-related QOL are rarely clinically useful. In the study group, there were statistically significant decreases in the points of the subgroups of the SF-36 life quality scale except for pain and general with increasing age. One of the main determiners of functional decline in the elderly is age [6]. Major changes occur in the body as age

increases. As such changes may be related with sensorial organs, they also are related with vital organs such as the cardiovascular system, central nervous system and pulmonary system. Musculo-skeletal system diseases increase with age, thus leading to decline in the physical functions of elderly people. While there is no important change in learning and memory until 65 years, after this age a speedy decline is seen in these functions. Chronic diseases disturb the social life of elderly people. Functional disturbance, insufficiency and disability occur as a result of physical and mental illnesses and all of these disturb the QOL of the elderly [6].

In this study we found that participants with a chronic disease obtained lower scores than those without a chronic disease in all subgroups of the scale. Bouchet *et al.* [20] reported that the points of all subgroups of SF-36 were higher for participants without a chronic disease than for those with a chronic disease. Many illnesses are not fatal, but can affect the activity and QOL of people over the short and long term [6].

Old age is an unpreventable physiological state. It is thought that determining and solving the difficulties of elderly people might improve their QOL. For this reason we propose the following:

Illnesses frequently seen in elderly patients should be determined by scientific studies,

Health services should be planned in the light of current knowledge,

People should be educated on subjects such as sufficient and balanced nourishment, and regular physical activity to prevent physical illness and disabilities,

By establishing various governmental or private elderly people clubs and information services, the loneliness and isolation of elderly people should be prevented, and the main economic and living conditions of elderly people should be improved.

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