Research Article

Comprehensive Geriatric Assessment of Elderly Adults

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Abstract

The geriatric population is increasing all over the world. Aging people have special health requirements and comprehensive medical checkups prevent physical, functional and mental decline during the aging period. This study aimed to examine the fitness level and identify problems with the well-being of elderly persons. In this context, the study also attempted to determine the relationship between socio-demographic factors and the health status of elderly adults. In this cross-sectional study, 168 elderly adults (≥65 years old) from 12 central villages of Kars, Turkey were examined. The home home comprehensive geriatric assessment was performed by a family physician in participant. In this study group, more than half of the participants reported urinary incontinence problems (51.2%) and a very high rate of generalized pain (58.3%). The most frequently observed chronic disease was hypertension (45.2%). The percentage of chronic dental oral problems was 57.1% in the current study group. Comorbidity and polypharmacy rate among the participants was 19.0%. The reported health problems in order to frequency in the study group were; heart disease: 17.3%, benign prostatic hypertrophy:16.7%, gastric diseases: 16.3%, diabetes mellitus (type II): 13.1%, chronic obstructive pulmonary disease: 11.6%, depression: 10.9%, the audio impairment:10.7%, visual impairment: 8.3%. There was a statistically significant relationship between advanced age, low economic level, low education level, lack of social support, co-

morbidities, polypharmacy, depression, and impaired health status. Comprehensive geriatric assessment of elderly adults is essential for managing geriatrics health problems. With the comprehensive geriatric assessment, pre-frail individuals could be detected and early medical care would be planned for this population.

Keywords
Comprehensive geriatric assessment; co-morbidity; frailty; public health

1. Background

As a result of longevity, the geriatric population is increasing in every country [1]. Due to these populations' special medical requirements, healthcare professionals must be aware of the risk factors that impair the older people's quality and span of life [2, 3]. Comprehensive geriatric assessment (CGA) is the most useful argument to evaluate the risk factors for older people's physical, mental, functional, social, and environmental health. In other words, CGA is an early diagnostic process to prevent frailty commonly recognized as a geriatric syndrome that includes malnutrition, cognitive impairment, falls, incontinence to functional decline and finally decrease the quality and span of life [4, 5].

CGA is a multidisciplinary and multidimensional evaluation used in geriatrics to determine and measure an elderly person's clinical vulnerability. The geriatric team includes a geriatric specialist, physician, social worker, nurse and pharmacist, which is essential for CGA. The geriatric team provides interdisciplinary coordination for assessing age-related problems and better health outcomes in old age [6-8]. However, even in developed countries, it is not possible to provide a geriatrics team in every area of the country [9]. For this reason primary health care physicians usually coordinate comprehensive geriatric assessment to promote maximum physical and mental health status for older people [10, 11].

A recently published study conducted in Kars, Turkey, examined the frailty among elderly people [12]. As part of this study, the family physician administered CGA to the participants at home.As part of this study, the family physician administered CGA to the participants at home by. Kars Province, located in the Eastern Anatolia Region, is known for its extremely cold winter season and difficult living conditions. These conditions not only create tough living conditions for the elderly living in rural areas of this region, but also create difficulties in accessing medical and social services [13]. The study aimed to examine the fitness level from malnutriiion to cognitive decline and identify problems with the well-being of elderly persons living in this region. The study also investigated the relationship between socio-demographic factors and the health status of elderly adults.

2. Method

This cross-sectional study was conducted with 168 elderly adults (≥65 years old) from 12 central villages of Kars, Turkey were included in the study. As the baseline of the survey, the home comprehensive geriatric assessment (CGA) was applied by the family medicine specialist to determine older individuals' medical conditions, mental health, and social circumstances.

The components of the CGA include the evaluation of general health status (hypertension, heart

disease, diabetes mellitus, chronic obstructive pulmonary disease, gastric diseases, benign prostatic hypertrophy, arthritis, generalized pain, overweight, thyroid function disorder, ıncontinence, mouth and teeth care, visual sensory impairment, auditory sensory impairment, polypharmacy, comorbidity, past falls & accidents, past operations, smoking), cognitive function (with the standardized mini mental scale, depression), social well-being, the physical environment, and caregiver burden. Additionally the Mini Nutritional Assessment-Short Form (MNA-SF) was used to evaluate the risk of malnutrition in participants [14]. That published study elaborately explained the methods of gathering data and using tests for CGA [12].

2.1 Data Analysis

The IBM SPSS Statistics (Version 20.0. Armonk, NY: IBM Corp., registered to Kafkas University, IP number: 194.27.41.6) software package was used for the data analysis. Descriptive statistics were examined as frequencies, percentage distributions, arithmetic means and standard deviations (SD). Pearson's Chi-square and Fisher's exact tests were used to compare variables. The threshold for statistical significance was set at $p < 0.05$.

3. Results

The study group comprised 168 adults aged 65-96 years (mean 72.70 ± 7.73 years), of which 53.6% were women. Female participants' ages ranged from 65-95 (mean 71.36 ± 6.75) and males 65-96 (mean 73.88 ± 8.12). The proportion of participants aged 80 and over was 16%. Sixty-four percent of the participants were without a spouse. The rate of participants living alone was only 2%. The percentage of caregiver burden was 7.3%. According to BMI 83% percent of the study group was of normal weight. And the overweight status was 16.7% of participants.

According to the Mini Nutrition Assessment-Short Form, no older adults in the study group were at risk of malnutrition. More than half of the participants reported urinary incontinence problems (51.2%). In addition, the study group reported a very high rate of generalized pain (58.3%). The rate of diagnosed arthritis was 48.3% of respondents. The high rate of chronic dental oral problems (57.1%) in the study group was remarkable.

Hypertension was the most common chronic disease in the study group with a rate of 45.2%. Interestingly, none of the participants has been reported kidney disease in the current study group. Comorbidity and polypharmacy rate in the participants was 19.0%. The reported health problems in order to frequency in the study group were; heart disease: 17.3%, benign prostatic hypertrophy: 16.7%, gastric diseases, 16.3%, diabetes mellitus (type II): 13.1%, chronic obstructive pulmonary disease: 11.6%, depression: 10.9%, the audio impairment: 10.7%, visual impairment: 8.3%. About twelve percent of respondents reported smoking (11.9%).

According to the standardized mini-mental scale, the rate of cognitive impairment in this study group was 6.8%. In the study group, the overall operation rate was 2.8%. Two point four percent of respondents reported accidents and falls, mostly due to agricultural work. It was gratifying that eighty-one percent of the participants did not report any comorbidity or polypharmacy. The rate of social well-being and perceived social support of the study group was quite high (95.2%)(Table 1). In this current study; a statistically significant relationship was found between advanced age ($p \leq$ 0.032), low economic level ($p \leq 0.046$), a low education level ($p \leq 0.021$), lack of social support ($p \leq$ 0.001), co-morbidities ($p \leq 0.001$), polypharmacy $p \leq 0.001$), depression ($p \leq 0.021$), and impaired

health status.

Table 1 The descriptive results of the Comprehensive Geriatric Assessment (CGA).

			SD Standard Deviation	95% CI	
				Min	Max
Age			7.73 (mean: 72.70)	65	96
CGA (n=168)	**n**	**%**			
Hypertension	76	45.2			
Heart Disease	29	17.3			
Diabetes mellitus	22	13.1			
Chronic Obstructive Pulmonary Disease	19	11.6			
Depression	18	10.9			
Overweight	28	16.7			
Arthritis	81	48.3			
Comorbidity & Polypharmacy	32	19.0			
Benign Prostatic Hypertrophy	28	16.7			
Urinary Incontinence	86	51.2			
Gastric Diseases	27	16.3			
Cognitive Impairment	11	6.8			
Chronic Dental Oral Problems	96	57.1			
Audio Impairment	17	10.7			
Visual Impairment	13	8.3			
Smoking	20	11.9			

n: Frequency, %: Percentage, CI: Confidence Interval, Min: Minimum, Max: Maximum

4. Discussion

The current small study group represents older people's mental, physical and social health statuses living in the relatively less developed region of Turkey. Hypertension in this study group was the most seen chronic health problem among participants. Almost half of the participants reported they had hypertension problems. However Type II Diabetes Mellitus was seen in less than one quarter of participants. One four of the study group reported polypharmacy.

In our study group, more than half of the respondents reported having urinary incontinence, a common health problem among elderly people [11]. Hearing and vision problems were seen in only almost ten percent of the study group, while dental-mouth problems were common among the participants. In the current study, most of the respondents were at normal weight, less than a quarter were overweight, and none of the participants were at risk for malnutrition. There was no

big difference between our study results and reported studies about the health problems of elderly people [15, 16].

This study determined a statistically significant relationship between impaired health status and advanced age, low economic level, low education level, polypharmacy, comorbidities, depression and lack of social support. These results were consistent with the other studies reported that impaired health status is related to lack of education, older age, lower economic level, polypharmacy, comorbidities, lack of social support and depression [5, 15, 16]. Very few participants had low social support in the current study group. While depression affected one-tenth of the participants, cognitive dysfunction was observed much less. Although this can be attributed to the perception of strong social support, this study method cannot prove this.

The geriatric population is increasing in Turkey as in the world. The elderly population rate was determined as 9.9% in the 2022 population census [17]. According to population projections, the rate of elderly population in Turkey is predicted to be 12.9% in 2030. On the other hand, there are not enough geriatric specialists in Turkey compared to the increasing elderly population [17]. The number of geriatric physicians is insufficient not only in our country, but also in the whole world, even in America [9]. Because of the low number of geriatricians in Turkey, medical care for elderly people is mostly provided by physicians (general practitioners and family physicians) working in primary care.

The current study clearly showed the effects of social determinants of health on elderly health [18]. Low education and low economic level were the most related factors for impaired health in respondents of the study. This study is valuable in terms of determining the health problems of the elderly population as well as showing that a single-family physician can perform CGA at home for elderly people living in rural areas. Moreover, geriatric assessment performed at home was much more effective in improving functional status, preventing hospitalization and reducing mortality compared to hospital [19, 20].

Although a single family physician could do CGA at home with the nurse, adding a social worker to the team would have speeded up the process. However, at this stage, inclusion in the team of social workers does not seem possible for our country. The family physician can compensate for the lack of a geriatric team by coordinating with other medical disciplines.

People do not have the same aging process in the same chronologic period. It's well known that lifestyle, socioeconomic status, and educational level are effective in healthy aging [1-3]. CGA provides an early warning system for healthcare professionals to prevent unhealthy aging [2, 11]. Determining the possible health risks according to the place and living conditions and taking precautions will help ensure healthy aging. When performing geriatric assessment, as physiological and functional status vary greatly among older adults, therapeutic or preventive decisions should be tailored to the individual's needs.

Knowing geriatric individuals' health problems and living conditions by family physicians who provide them with continuous, comprehensive and holistic health services, is important in identifying pre-frail individuals. Early detection of frailty, especially for the elderly population, who have difficulties in accessing health services living in rural areas, will reduce health expenditures as well as prevent many health problems. CGA by a family physician even at home could provide many benefits such as improved physical-mental health and decreased initialization [4, 5, 9, 19, 21].

CGA is an important diagnosis tool that does not require laboratory and imaging systems. In order to increase the life expectancy and quality of the elderly population and to reduce health

expenditures, CGA should be added to the primary health services and in-service training should be provided to health professionals in this field. In addition to CGA, the multidimensional prognostic index (MPI) is widely used to measure frailty in geriatrics [22]. The purpose of all indices used for geriatric assessment is to evaluate the bio-psychosocial health of the elderly individual and to prevent frailty [22, 23].

As it is known, aging is not a situation that occurs suddenly, it is structured over the years. Therefore, health in old age can only be achieved with the right living habits in the young period. In addition to individual responsibilities, health policies should be structured to establish a healthy and productive old age. This current study has made an important contribution to the literature, as it is the first to evaluate the health status of the elderly in a relatively underdeveloped province of Turkey. Although the results of our study are similar to other published studies in terms of the prevalence of some health problems, reaching medical services for elderly individuals was noted as the most important problem in this region.

CGA allows physicians both information about the cause of impairment and to reverse the situation in the early pathway to frailty. Family physicians can enable people to reach older ages more healthily by ensuring that healthy living habits are acquired at an early age in society [10, 11, 24]

In this study area, a rural and relatively less developed region of Turkey, people have extra difficulties with living conditions. Due to the lack of permanent health units, primary care physicians serve rural areas at certain times as mobile units. The current study presents limited knowledge about small groups' health and social problems living in rural areas. Therefore the study findings do not generalize to the whole of the country. To understand the health status and factors affecting the health of the elderly population, more reported studies are needed in the country. Thus, health care policy could be structured in the right way.

5. Conclusions

The study findings showed a statistically significant relationship between impaired health status and advanced age, low economic level, low education level, polypharmacy, comorbidities, depression and lack of social support. CGA is an essential component of geriatric preventive medicine, and preventive care is always an easy and cost-effective way to avoid health problems during aging. In order to age healthy and productively, it is necessary to acquire healthy living habits at an early age and to identify possible health problems from the beginning. For this reason, public health policies should be restructured according to the needs of the geriatric population, especially living in rural areas, and access of the elderly population to health care should be facilitated.

Author Contributions

The author did all the research work of this study.

Competing Interests

The author has declared that no competing interests exist.

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