Original Research Article

The Impact of Covid on Elderly Falls Living in the Community

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Abstract

Background: The preventing falls in elderly people WHO report showed that direct health expenses due to falls of individuals aged 65 or above were determined the financial costs are increasing worldwide.

Aim: To investigate the impact of controlled social life which began with COVID-19 pandemic on fall situation of individuals aged 65 years and over living in the society. It is very important to determine fall risk of the elderly, take necessary protective measures, and plan and develop fall prevention programs.

Materials and methods: Convenience sampling was used in the study. The data were collected using a descriptive form and the Morse Fall Scale. To evaluate the data, descriptive and comparative statistical methods were used.

Results: The results showed that as age increases, individuals aged 65 years and over have higher risk of fall. Furthermore, a significant correlation was found between fall of the elderly and the presence of chronic disease and experiences of fall in the previous year.

Conclusion: The findings from the study can be a good source for students and academics in the field of health and education, and employees involved in the protection and promotion of health.

Key words

Public health, Elderly falls, Incidence.

Introduction

Pandemic refers to epidemic of a disease that affects a great population or a whole region, a country or continent [1]. When we take a look into the beginning of the COVID-19 pandemic, it was announced that the cause of the disease was a corona virus with the same origin as the corona virus, the cause of severe acute respiratory syndrome, but with new genetic features [2, 3] in

the studies conducted after the declaration of idiopathic pneumonia cases in Wuhan, China in December 2019. It was discovered that the disease was transmitted from one person to another through droplets . WHO declared the disease as "Public Health Emergency of International Concern" on January 30, 2020 and "Pandemic" which was named COVID-19 on March 11, 2020 [4, 5]. The first COVID-19 case in Turkey was diagnosed on March 10, 2020 and the first death due to the disease was on March 15, 2020 [6].

The literature reported that should people believe the treatment of the disease to have difficult and serious consequences and the government to provide clear and sufficient information about the pandemic, confidence in the determination to control the infection and adherence to recommendations could be high [7, 8, 9, 10]. The Turkish Ministry of Health made explanations about the normalization process on May 6, 2020 and this new period was named as "controlled social life" [11]. To declare that the pandemic has ended, the last carrier should be isolated and treated.

Older adults are more likely to get very sick from COVID-19. Getting very sick means that older adults with COVID-19 might need hospitalization, intensive care, or a ventilator to help them breathe, or they might even die. Many countries implemented strict control and home quarantine to slow down the spread of the pandemic and minimize the transmission, and to impose a curfew for the elderly, particularly those aged over 65 years and may be affected by the disease mostly due to their chronic diseases. With the curfews imposed to prevent the risk of contamination, the elderly continued to use their current medications without any activity, not doing their routine check-ups, not adjusting the doses or even using their medications without sharing their side effects with their doctors and this process may cause many health problems like falls in the elderly. This is because it is very important that individuals with low mobility do physical activities at least 3 times a week to promote their balance and protect themselves against falls [12, 13, 14].

Low mobility causes physiological disorders in the muscle and bone tissues that constitute the motor system within time. Physical inactivity causes weakness of the muscles, decrease in endurance and muscle atrophy (reduction in size), while functional results of 2-3 weeks of bed rest can cause a 25-40% decrease in muscle strength.

Fall is the principal health problem leading to frequent wounding and death in elderly people [15]. Fall is defined as collapsing on the floor, object or other surfaces as a result of sudden and intentional position change or coming down from a level to a lower one [16]. Community-based prospective studies have reported that annual fall in elderly people is between 30-60% and nearly half of them experience refalls [17]. According the "Older age fall report"; 65 and over age elderlies' 28-35% fall each year increasing to 32-42% for those over 70 year aged Each year, at 30% of elderly individuals 65 and over aged have experienced one fall each year, and half are recurrent and progressing age is factor that increase the risk of falling [16, 17, 18]. Studies conducted in Turkey have demonstrated that the frequency of falls in nursing homes ranges between 33%-48.7%. Among general epidemiologic data regarding fall, the treatment and care cost rate caused by health problems due to falls within health expenses is of importance. There is no report at national level in Turkey in this regard. However, research reports from Australia and America indicate that treatment expenses due to falls constitute 5% of the overall health expenses [19]. Health expenses caused by falls are generally taken as direct or indirect expenses. While health services, nursing care, diagnostic tests, medications, home care and re-arrangement of home/living space constitute expenses of direct falls, informal care expenses (expenses caused by care provided by family, relative, friend, etc.) are deemed as indirect expenses. The preventing falls in elderly people WHO report showed that direct health expenses

due to falls of individuals aged 65 or above were determined the financial costs are increasing worldwide. The average health system cost per one fall injury episode for 65 and over aged was US$ 3611 in Finland and US$ 1049 in Australia. Cost analysis studies regarding falls of elderly people in Turkey are inadequate. It is very important to identify risk factors as two out of three falls in elderly people are avoidable [18, 19] and to take measures for the identified risks. The main strategy to be used to reduce falls and injuries due to falls is to emphasize creating safer environments, education, training, prioritizing fall prevention research and developing effective policies". Determination of the impact of controlled social life on fall of the elderly living in the community can be used to increase the quality of life of adults and the elderly population in potential pandemic periods.

Materials and methods

The sample of the descriptive study consisted of 569 elderly people, aged 65 years and over, independent of others in their daily activities and agreeing to participate in the study. The data were collected by third year 76 nursing students in a university and received a 30-minute training showing how to use the Morse fall risk assessment tool. The data were collected through face-to-face interview with parents of the students from their accommodation places between 01 and 21 April due to the distance education decision of the higher education institutions during the one-year period of controlled social life, including March 30, 2020 and 2021. The elderly were informed about the study prior to it and they provided their verbal consent.

Data Collection Tools

The data were collected using MFS developed by Janice M. Morse and interview form including descriptive characteristics (age, gender, education level, health-social security, duration in the institution) of the participants.

Morse Fall Scale

The tool used to determine fall risk in adults and elderly people was developed by Janice M. Morse in 1985 and reorganized in 2008. The dichotomous and categorical has 6 items is short and easy-to-use The scale helps evaluate history of falling, secondary diagnosis, ambulatory aids, intravenous therapy, type of gait and mental status. Some of these characteristics are asked to individuals and are obtained from individuals' records and observations [20, 21, 22]. The fall risk of an individual is determined by the total score obtained from the scale with a short evaluation of around 3-5 minutes. With the 2009 update of the MFS, the score between 0 and 44 means "no/little fall risk" and the 45 and above means "high fall risk". The use of Morse Fall Scale (MFS) in Turkey was investigated being used by Demir and Intepeler in 2009 in hospitalized adults. The tool was adapted to Turkish and its sensitivity and selectivity studies were determined. According to the findings from the year 2012, the tool had a low level validity [15].

Data Analysis

The data set was analyzed using SPSS program. We were used to analyze the descriptive data; percentage, mean value and chi-square, multinomial regression analyzes. The significance level was taken as $p<0.05$.

Results

A total of 569 elderly people who aged 65 years and over took part in the study. Most of them consisted of women (53%), aged between 65 and 69 (38%), were uneducated but literate (59%), lived alone (64%) and had chronic diseases (49%) (**Table - 1**).

In a year period between March 30, 2020 and 2021, 15.8% of them experienced fall, 26% experienced repeated falls and 64.44% experienced repeated falls in the same year. Fall situations that occurred within a year during the pandemic process in the groups with a high risk of fall (45 points and above) and in the groups with a low/moderate fall risk (0-44 points)

according to the grouping obtained from the fall scale scores are presented in **Table - 2**.

Table – 1: Distribution of the elderly according to their descriptive characteristics (n=569).

Features	Number	%
Female	305	53,60
Male	264	46,40
64-69 age	216	37,96
70-74 age	146	25,66
75-79 age	96	16,87
80-84 age	67	11,78
85 and up age	44	7,73
Literate, uneducated	335	58,88
secondary education	146	25,66
High school graduate	55	9,66
University graduate	33	5,80
Lives alone	365	64,15
Not live alone	204	35,85
Have a chronic disease	280	49,21
No chronic disease	289	50,79

Table – 2: Falling Situations of the Patients by Fall Risk Level (n: 569).

Groups by Fall Risk Level	Falling risk Status	The fallen	Fallen again in a year
High Risk (45 points and above)	278	70	41
No Risk/Low Risk (0-44 points)	291	20	17
Total	**569**	**90**	**58**

The multinomial logistic regression analysis showed that the groups were compared in all terms such as gender, age, education, presence of chronic disease, fall situation in the previous year; and a very significant relationship was found between the increase in incidence of falls with the increasing age and fall of the elderly with chronic diseases and those who fell a year ago also in the COVID-19 period (p<.001). According to fall risk created with Morse Fall Scale, 87.3% of the elderly with no risk of fall did not fall during the pandemic, whereas 12.7%

fell. However, 60.1% of the elderly with risk of fall did not fall during the pandemic, while 39.9 fell. The fall risk of the elderly and their fall situation during the pandemic are related [χ^2(1, N=569)=54.7, $p<.001$], and the effect size of Cramer's V=.31 is moderate. According to fall risk created with Morse Fall Scale, 93.1% of the elderly with no risk of fall did not experience repeated fall during the pandemic, whereas 6.9% did. However, 74.8% of the elderly with risk of fall did not experience repeated fall during the pandemic, while 25.2 did. The fall risk of the elderly and their fall situation during the pandemic are related [χ^2(1, N=569)=35.8, $p<.001$], and the effect size of Cramer's V=.25 is moderate.

Discussion

This study was conducted to determine fall situation of the elderly aged 65 years and over living in the community during the COVID-19 period. The group selected for the study consisted of 569 individuals living in the community. As in the world in Turkey too, fall of the elderly is one of the most frequent and resulting in death, yet preventable problems [15]. Although there are varied publications describing fall and risks of fall in the elderly in Turkey, there are very limited studies that discuss fall of the elderly who have had to stay at home motionless for a long period of time due to controlled social life.

Almost half of the elderly who constituted the sample group were at high risk of fall. Similar to study reports at national level, we can say that the elderly in this study group are also at high risk of fall.

The presence of multiple diseases and multiple uses of drugs increase the risk of fall [23]. One of the most prevalent side effects of medications is the impacts leading to falls. As indicated in the study of Işık et al. (2006), the relationship between multiple uses of drugs and fall is not precisely known. Similar to the findings of the research in Turkey, the number of chronic

disease of the elderly in this study group is very high (49.21%) and there is a significant correlation between fall situation and the presence of a chronic disease.

According to the findings from our study group, the risk of fall and occurrence of fall increase with age. Similar to studies examining the frequency of fall in the elderly (30-35%), the frequency of fall in this group was close to the expected levels (26%). Compared to the data of the research investigating the frequency of fall in the elderly, the risk of fall and occurrence of fall of the elderly in a controlled social life were found to be a serious threat for community health care prior to COVID-19.

Therefore, it is recommended to create and implement versatile programs, as the fall prevention initiatives for the elderly aged 65 years and over, even in the event of a pandemic (increasing self-efficacy, teaching how to manage chronic diseases, increasing mobility and reducing environmental risks, etc.) can be effective in reducing the incidence of fall in the elderly living in the community.

Further studies can be conducted with more diverse and larger samples from different regions of Turkey. Thus, a broader database can be obtained for the incidence of fall in the elderly living in the community.

Another suggestion for future research is that conducting correlational studies in different areas (fear of fall, doing exercise at home, drug use follow-up, etc.) can be important in terms of database.

With the termination of the pandemic, the data can be collected and evaluated again and this process may be important in determining the strategies to be followed in health and other fields. Furthermore, such research can be a good source to individuals who especially receive training on health, education and personal development in their literature review.

Acknowledgements

Conclusion

The findings from the study can be a good source for students and academics in the field of health and education, and employees involved in the protection and promotion of health.

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