

Evaluation of Home Environments of People Over the Age of 65 in Terms of Home Accident Information

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ABSTRACT

Background: Home accidents pose serious problems that threaten public health. This study aims to evaluate the home environments of the elderly and to identify risky situations in terms of home accidents. **Methods:** This study was performed as a descriptive study between February and April 2015 and included 324 individuals aged 65 years and above. As for data collection tools, an interview form involving personal information with 23 questions and a home safety checklist with 26 questions prepared by researchers in line with the literature were used. The validity and reliability of the home security checklist were checked by Guler P et al. in 2002. Forms were filled out using observation and interview techniques by the researchers during the home visits. Data were transferred to a computer and evaluated. Number and percentile tests were used for data analysis. **Results:** The average score of the risk of home accidents for the elderly was found to be 14.00 ± 4.91 . The first items threatening home security were identified as the absence of bath and toilet bars. The relationships between the marital status of the elderly, working status, whether or not living together, income status, continuous use of medication, diagnosis of chronic illness and point average of home accident risk were statistically significant ($p < 0.05$). **Conclusion:** In the present study, it was determined that the elderly are at risk of experiencing home accidents. At the end of this work, planning and implementation of domestic regulations, training, and necessary nursing interventions are proposed to reduce the risk of home accidents.

Key words: home environments–older people–home accident–nursing

1 INTRODUCTION

The most common health problems observed in a society include “the most commonly seen”, “the most fatal” and “the most disabling” diseases [1]. According to the World Health Organization, the 10th most common cause of death worldwide is road injury, and the mortality rate of road injury equals that of diabetes mellitus, tracheal-bronchial diseases and lung cancers [2]. According to Turkish Statistical Institute 2018, circulatory system diseases (39.4%) and benign and malignant tumours (19.7%), respiratory system diseases (12.5%), nervous system and sense organs diseases (4.9%), endocrine, nutrition and metabolism-related diseases (4.8%), external injuries and poisonings (4.4%) occupy the 6th place, accounting for seven deaths in Turkey. Worldwide and in Turkey, the number of deaths caused by

accidents is as many as that caused by other diseases. Moreover, studies have reported that expenditure to gain protection against accidents requires much less than spending on the treatment of diseases [3]. Along with age progression in the old-age period, physiological stresses, losses, development of diseases, especially balance posture disorders, walking, hearing, vision problems and memory disorders increase the chances of accidents [4-7]. According to the Turkish National Burden of Disease Study, considering the order of causes of death for individuals over 65 years old, cardiovascular diseases occupy the first place, followed by malignant diseases at second place and accidents at third place [8]. Although accidents hold the 8th place among all age groups, they hold the 3rd place in the over-65 age group. In comparison with other types of accidents, home accidents more commonly occur in Turkey and the rest of the world. This situation can be attributed to the high number of people who can be exposed to home accidents and accident time,

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which spans all day. The rate of domestic accident injuries is 25%, though this value varies across countries and age groups [8]. It is assumed that 18% to 25% of all accidents comprise home accidents [9, 10], although no comprehensive study has focused on home accidents in Turkey.

Accidents pose serious problems that threaten public health. The elderly, children and the disabled constitute a significant risk group of home accidents [11]. Accidents can lead to the death of elderly people, and injuries may occur as a result; elderly people may also experience limitations due to functional losses and can deliberately limit their daily activities to survive accidents. The limitation of the elderly because of home accidents and fear of accidents causes a feeling of social isolation, depression and helplessness [6, 10, 12, 13].

This research is carried out to determine the risk of home accidents by evaluating the home environments of the elderly in terms of home accidents.

2 METHODS

This descriptive study was carried out to evaluate This descriptive study was carried out to evaluate the home environments of residents over the age of 65 years, living in Nevşehir City Avanos District, with a specific focus on house accidents. According to the results of the 2013 TURKSTAT population survey, the universe of this research constituted 4332 elderly people aged 65 and over in the Avanos district center with a population of 13,250. Because the number of individuals in the sample was known, the number of samples was 324, using the formula $n = Nt^2pq / d^2 (N-1) + t^2pq$. The Avanos district center comprises seven neighborhoods, one community health centre, and one family health centre. Domestic addresses of the elderly were requested from the directors of the Population Directorate and the Family Health Center. However, no addresses were provided for reasons of confidentiality. For this reason, the number of people to be sampled by the snowball method was reached. Data were collected with a 23-item personal information form and a 26-item home security checklist. The personal information form was filled in by face-to-face interviews and the home security checklist was implemented by home visits. Before the data collection started, a pretest was made with 20 elderly people. As a result of the pre-application, various corrections were made and the questionnaire was completed. Pretests are not included in the sample. Prior to the start of the research, written approval was obtained from the ethics committee of Hacı Bektas Veli University Ethics Committee (Decision No:2015.01.02), and the necessary permission from Avanos District Governorship (Issue No:26794494-529-41) and written consent were obtained with the informed consent form from the elderly who participated in the research. A score of 1 was given to those who answered “no” for Questions 1, 2, 3, 4, 5, 6, 7 and 11 and “yes” for Questions 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 and 26 on the home security checklist. All questions were summed up to calculate the total score for home accident

risk. The highest score that can be acquired from the home security checklist was 26, and an increase in the score indicated an increasing risk of home accidents. Kruskal–Wallis and Mann–Whitney U-tests were conducted to compare the differences between home accident risk scores and variables. A statistical significance value of 95% confidence interval was accepted at $p < 0.05$.

3 RESULTS

Among the elderly who participated in the survey, 63% were female, 36.1% were in the age group of 70 to 74 years, 58.6% were married, 31.5% were literate, 31.5% were housewives, 85.2% had social insurance, 66.7% had lower incomes and 48.5% were living with their spouse.

The elderly who participated in the survey, 58.3% had a disability. Of the disabilities of the elderly, 36.4% had orthopedic disabilities, 34% had vision loss, and 23.8% had hearing loss. It had been determined that 43.8% of the elderly need an auxiliary device. Also, 42.9% used assistive devices, and 34.5% used a walking stick.

Chronic disease is present in 52.8% of the elderly who participated in the study. Among the elderly who participated in the survey, 31.8% had hypertension, and 7.6% had diabetes mellitus.

Additionally, 48.8% of the elderly participating in the study used drugs constantly, and 33% used antihypertensive drugs constantly.

The average score of the risk of home accidents for the elderly accounted for 14.00 ± 4.91 . The items threatening home security were identified and are as follows: first, the absence of bath and toilet bars (79.3%); second, the slippery carpet or rug laid on the floor of the house (69.1%); third, slippery floor of the house (64.5%) and the electrical plugs and jacks invisible at night (64.5%); fourth, the unmarked oven, heater and other electrical appliances whose on/off status cannot be recognised (63.9%); and fifth, illegible phone numbers (54.6%). Comparisons were made between married elderly people and single people (14.93 ± 4.72), retired persons and those with other working conditions (15.04 ± 4.68), those living with spouses and those living with others (14.94 ± 4.74), those whose income is higher than their expenses and others (17.50 ± 4.00), men and women (14.69 ± 4.63), those who did not continuously use drugs and those who did (14.83 ± 4.97) and those with diagnosed chronic diseases and those without (15.28 ± 4.54), and results showed higher average scores of home accidents risk. The relationships between the marital status of the elderly, working status, whether or not living together, income status, continuous medication use and the diagnosis of chronic illness and average home accident risk points were statistically significant ($p < 0.05$).

4 DISCUSSION

Along with the progression of age in the old-age period, physiological stresses, losses, development of diseases, es-

pecially balance and posture disorders, walking, hearing, vision problems and memory disorders increase the probability of accidents [5–7]. In the present research, the average score of the risk of household accidents for the elderly was found to be 14.00 ± 4.91 . These results show that the elderly are at risk of experiencing domestic accidents (Table 1). Gershon et al. reported that 25% of the houses lacked hold bars in bathrooms and toilets [14], whereas Mehreban et al. reported that 49% of the houses lacked bathroom and toilet bars [15], Gokcek et al. reported that 6% of the houses lacked bathroom and toilet bars [16]. Gur et al. reported that 79.6% of the houses do not have hold bars in bathtubs, showers or toilets [1], whereas Evci et al. reported that 88.2% of the houses do not have hold bars in bathtubs [17]. In the present research, 79.3% of the houses showed an absence of hold bars in bathrooms and toilets. We can conclude that the elderly face a risk of accidents due to the absence of hold bars in the toilet and bathroom (Table 2). Gur et al. and Gokcek et al. reported that 43.1% and 20%, respectively, of the studied houses, possessed carpets and rugs that can cause sliding on the ground, and similar conditions were reported by Gershon et al. in 16.6% of houses [1]. The results of this research show that 69.1% of the houses were laid with carpets or rugs, which can cause sliding on the ground (Table 2). Mehreban et al. reported slippery floors in 95% of the houses, Gokcek et al. reported slippery floors in 10% of the houses [16], whereas similar conditions were reported by Gur et al. in 26% of the houses [1, 15, 17]. In the present research, 64.5% of the houses were found to have a slippery floor. According to these results, we can say that the elderly are likely to experience accidents due to slipping (Table 2).

Evci et al. reported that 76.9% of elderly people were injured by electrical appliances in the home environment [17]. Tekin et al. reported that 38.2% do not have night lighting installed. Additionally, 19.1% could not easily distinguish the on-off status of electronic devices [18]. In their research, 64.5% of the houses were not equipped with electricity plugs and jacks that are visible at night, and the residents of 63.9% of the houses lacked the capacity to notice the open-close conditions of the stove, heater and other electrical appliances (Table 2). This research result suggests that the elderly are more likely to be injured by electrical devices.

In research in which Gur et al. identified the risk of accidents according to the home security checklist, it was reported that inaccessible emergency phone numbers accounted for 45.9%, and the lack of easily accessible phones accounted for 17.7% of home accidents [1]. Tekin et al. reported that the lack of easily accessible phones accounted for 10.3% [18]. Findings indicate that 54.6% of the elderly who participated in the present research reported using illegible phone numbers in their home environment. Tortumluoglu et al. also observed that married elderly married people experienced more home accidents than unmarried ones [11]. In this research, results showed that married elderly people face a higher risk of home accidents compared with unmarried elderly (14.93 ± 4.72) (Table 3). The research results are consistent with those in the literature;

thus, married elderly people are at a higher risk of experiencing home accidents than elderly people in other marital statuses. This research has determined that retired elderly face a higher risk of home accidents compared with those who are housewives or are working [16]. Retired elderly individuals are more likely to experience accidents than others because elderly retirees may spend more time at home. In a study conducted by Erkal S., it was observed that house accidents more commonly affect the elderly living alone. Tortumluoglu et al. reported that elderly people living with their spouses experience more house accidents than others [11]. In this study, the elderly living with their spouses presented a higher risk of home accidents than those living with relatives, a child/children or alone. Results of this work suggest that elderly married people are deprived of support from their children. In the literature, home accidents are reported to be more frequent [12, 13, 19]. This study determined that the elderly with more income than expenses face a higher risk of home accidents than the others (Table 3). In studies conducted to determine the frequency of elderly household accidents, results have shown that the frequency of home accidents is higher with women than with men [7, 11, 17, 20, 21]. Col et al. reported that the incidence of accidents is higher with men than with women. They also observed that house accidents occupied the second place among the accidents that men were exposed to [22]. In this study, findings reveal that men feature a higher risk of home accidents than women (Table 3). The high risk of men experiencing home accidents in the study may be due to the fact that the majority of the elderly participating in the study are retired and retired men spend too much time at home. Sahbaz et al. reported that the frequency of home accidents in the elderly who continuously use medicines is higher than those who do not [6]. In this study, it was determined that those who do not continuously use drugs face a higher risk of home accidents than those who use drugs (Table 3). This condition suggests that the elderly who continuously take medication know the effects and side effects of drugs and take the necessary precautions accordingly. It has been reported in the literature that older people with chronic illnesses experience more home accidents than those without and that risks of home accidents are lower than those without chronic illnesses [4, 6, 23] (Table 3). The present study shows that the risk of home accidents among people with chronic diseases is higher than those without. The results of this study suggest that those with chronic illnesses take the necessary precautions to prevent the complications of chronic diseases. In the light of these results, it may be suggested that nurses evaluate the home environments of the elderly in terms of house accident risks and plan, implement and evaluate the necessary initiatives regarding domestic regulation.

The sample of the study consists only of the elderly living in the Avanos district. Therefore, the data obtained from this study can only be generalized to the participants. It cannot be generalized to all elderly people.

Table 1. The average score of the risk of home accidents of the elderly

Home Accident Risk Score	M ± SD
	14.00 ± 4.91

M mean; SD= standard deviation

Table 2. Distribution of home security threats according to the elderly home security audit list

Home Security Checklist Elements of Home Security Threats	Yes	No
	(%)	(%)
1. Is the floor of the house slippery?	209 (64.5)	115(35.5)
2. Is there a carpet or rug that may cause sliding on the floor of the house?	224 (69.1)	100(30.9)
3. Are the edges of the rugs and carpets used curled up?	145 (44.8)	179(55.2)
4. Are the toys and the tools, which can easily roll and fall, scattered around the house?	111 (34.3)	213(65.7)
5. Are there things like boxes etc. that will cause to crash in the corridors?	135 (41.7)	189(58.3)
6. Is there an electric line passing through the walking area?	160 (49.4)	164(50.6)
7. Are the electrical wires worn/damaged?	73 (22.5)	251(77.5)
8. Are electric plugs and jacks visible at night?	115 (35.5)	209(64.5)
9. Is the heater or hob fixed at home?	254 (78.4)	70 (21.6)
10. Are oven, heater and other electrical appliances marked so that the on/off status of the buttons is noticeable?	117 (36.1)	207(63.9)
11. Are there any objects that can burn next to the heater or oven?	134 (41.4)	190(58.6)
12. Is lighting adequate in the rooms of the house?	185 (57.1)	139(42.9)
13. Do you have bath and toilet grab bars?	67 (20.6)	257(79.4)
14. Is the house ventilation active?	215 (66.4)	109(33.6)
15. Is the ventilation active in the bathroom and kitchen?	224 (69.1)	100(30.9)
16. Are electrical tools stored outside the wet areas in the bathroom?	179 (55.2)	145(44.8)
17. Are the electrical appliances in the kitchen located away from the wet areas?	161 (49.7)	163(50.3)
18. Are the items that are frequently used by the individual on the shelves for easy access?	204 (63.0)	120(37.0)
19. Are drugs in the house stored in their own containers/packets?	193 (59.6)	131(40.4)
20. Are there balustrades on the stairs?	251 (77.5)	73 (22.5)
21. Is the phone that is used at home easily accessible?	183 (56.5)	141(43.5)
22. Is the phone number used by the individual easy to read?	147 (45.4)	177(54.6)
23. Is the night light used in the bedroom?	162 (50.0)	162(50.0)
24. Is there a place in the bedroom that a person may access for individual needs? (water, telephone or glass)	159 (49.1)	165(50.9)
25. Are the cabinets in the room at the height that people can reach without tiptoeing?	170 (52.5)	154(47.5)
26. Is lighting sufficient in working areas such as the oven, kitchen sinks and kitchen countertops?	152 (46.9)	172(53.1)

Table 3. The relationship between some variables of the elderly and average home accident risk

Variables	Home Accident Risk Score M ± SD	Test
Marital Status		
Married	14.93 ± 4.72	X ²
Single	14.40 ± 4.88	=
Widow/Widower	12.39 ± 4.85	16.203
Working Status		
Retired	15.04 ± 4.68	X ²
Housewife	13.34 ± 4.86	0.00
Working	10.20 ± 14.00	9.300
People Living Together		
Spouse	14.94 ± 4.74	X ²
Relatives	14.18 ± 5.89	0.010
Child/Children	14.17 ± 4.56	14.866
Alone	12.30 ± 4.85	=
Income Status		
Income is more than expense	17.50 ± 4.00	0.002
Income equals expenses	13.69 ± 4.88	=
Income is less than expenses	13.53 ± 4.84	15.588
Gender		
Male	14.69 ± 4.63	=
Female	13.60 ± 5.04	Z = -1.698
Continuous Drug Use		
Disuse	14.83 ± 4.97	Z =
Use	13.13 ± 4.97	0.0011
Diagnoses of Chronic Diseases		
Not available	15.28 ± 4.54	=
Available	12.87 ± 4.96	0.002

M =mean; SD = standard deviation; X²= Kruskal-Wallis; Z = Mann-Whitney U; p = p-value. 0.000

5 CONCLUSION

As a result of this study of the elderly, the top five home safety risks are the lack of bathroom and toilet grip bars, carpet and rugs that may cause slipping on the floor of the house, the floor of the house being slippery, electrical plugs and sockets that cannot be seen at night, un-marked buttons of the stove heater and other electrical appliances so that the open-closed state cannot be noticed, and the risks of the phone not being easily readable.

The income of men, married people, those living with their spouses, retired people, those who have a lot of expenses, and those who do not have a diagnosed chronic disease are factors in accident risk, and it was determined that those who do not use drugs have higher accident risks.

In the present study, it was determined that the elderly were at risk of experiencing home accidents. In line with the results, nurses evaluating the home environments of the elderly in terms of home accident risk and planning should implement the necessary initiatives for regulation assessment in the planning of health services for the homes of the elderly in terms of home accidents in order to create a system in which evaluation can be recorded. The risk of accidents in the home environments of the elderly in the execution of health services makes it necessary to arrange visits. In addition, more research on this subject is recommended.

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