

Disusing the mobility aids devices in the elderlies: how much and why?

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Received: 18 Oct 2021

Accepted: 12 Dec 2021

Published: 30 Jun 2022

Abstract

Background: Given that society is rapidly aging, identifying the problems of the elderly can help society and individuals, so in this study investigates the abundance of elderlies in need of mobility aids devices and the factors related to their disuse.

Methods: This cross-sectional study was performed on 209 elderlies who selected by random sampling in Taft city. Data gathering tools were MMSE and TUG tests, and a researcher-made questionnaire. The data were analysed Mann-whitney & chi-square test.

Result: Among the elderlies, 75.12% of them required to use mobility aids devices that 49% of these people did not use these devices due to the feeling of shyness, needless, ignorance of the device's necessity, and negative attitude of other people.

Conclusion: Despite the need of most elderly for motor assisted devices, almost half of them do not use these devices because of educational and attitudinal reasons.

Keywords: Aged; Communication Aids for Disabled; Muscular Disorders, Atrophic.

Cite this article as: Rahaei Z, Tavakoli M, Beigomi A, Jambarsang S. Disusing the mobility aids devices in the elderlies: how much and why? *Soc Determinants Health.* 2022;8(1):1-9. DOI: <http://dx.doi.org/10.22037/sdh.v8i1.36453>

Introduction

We can see an increasing number and proportion of elderlies in all of countries in the world (1) due to the medical, economical, and social advances and developments (2), the expansion of primary health care, the emergence of new technology for the prevention, diagnosis and treatment of diseases (3) which have increased and improved hygienic indicators (4), life expectancy, and birthrate deduction (5), nutrition improvement, and generally welfare level's improvement and promotion (6). This case causes that the

aging of the world has become one of the most important public hygienic challenges in recent years. (7)

Globally, the growth of older people's number is more than the number of people in other age group. As a result, the portion of the elderlies in the total population is increasing almost everywhere (8). While population aging is a global phenomenon, the aging process is more extensive in some areas than in other countries, which was began more than a century ago in developed countries (9).

The global population is aging rapidly, especially in the Asian region (10) between 2015 and 2050, the world population ratio will almost double over 60 years and reach from 12% to 22% (11). It is expected that most countries with the average income will have a double increase in the number of elderlies (12). According to the Census of Iran in 2016, 4.8 million individuals are equivalent to 6% of Iran's population aged 65 and older that. These statistics have been reported 8.7% in Yazd province and 14% in Taft city (13).

Functional problems endanger the ability to live at home and also threat the individual's life by social isolation, lower quality of life and poor hygienic outcomes, including sudden mortality (14). Age-related physiological changes in the nervous, sensory, and musculoskeletal system can lead to the balance disorders and falling down in the oldness (15). Studies have shown that the cares after falling down of the elderlies is costly (16). They can prevent the elderlies from falling down through the preventive methods including using the mobility aids devices and training how to use them (17).

Using the mobility aids devices reduces the risk of falling down, and increases self-reliance and independence (18). The function of Mobility aids devices includes: Increasing the level of reliance, improving balance and stability, reducing body burden, helping one's mobility, informing others and wayfarers that the individual needs special attention. Choosing the proper mobility aids device helps the person to have the most adaption with the least effort (18, 19). Studies have shown that many elderlies do not use these devices despite their need to use them in the old age (20-23). So, the aim of this study was to investigate the prevalence of elderlies in need of mobility aids devices and the factors related to their disusing in the elderlies in Taft city.

Methods

In this cross-sectional study, 209 individuals who are 65 years and older in Yazd city were studied during the year 2019. Inclusion criteria was having a file in Taft comprehensive health centers, ability to perform ¹TUG test and lack of cognitive impairment.

The sample size was calculated to be 196 individuals according to Cochran's formula by considering a prevalence of 0.5, a test power of 80%, an error level of 5% and the estimated error of 7%.

In this study, at first 300 elderlies who were enrolled in Taft comprehensive health system city and registered in Sib system of Shahid Sadoughi University of Medical Sciences in Yazd in 2019, were selected by simple random sampling method and investigated. 209 patients were enrolled after elimination of 91 elderlies who had cognitive disorder based on the ²MMSE questionnaire and were not able to do TUG test. The TUG test and the researcher-made questionnaire were completed for them. Cognitive practices assessed in the MMSE test include: orientation, recording, computation, attention, recent memory, various linguistic functions, and spatial meditation. 24-30 were considered as the good score, and less than 23 showed the probability of disorder and need for psychiatric counseling. The validity and reliability of the MMSE questionnaire have been confirmed in external studies (24, 25). The words should be read slowly and also aloud to the examiner in this test. The word or the substitution term is written in parentheses. The patient should be visited alone in the examination room, and the physician and patient should also have the same spoken language. If the answer is wrong, we should circle around number zero; and if the answer is correct, we should circle around number one. The questions can be repeated again after three or four minutes in the reminder section and a score

¹ Timed Up and Go Test

²Mini Mental State Exam

is assigned for each answer. However, the full score is given at the first repetition. If required, the demographic information of the person was registered and the TUG test was performed by the trained individual for himself based on this test and the ability to perform a TUG test. The TUG test was used to determine the need to use a mobility aid device. The elderly who were able to perform the TUG test (the elderly who were not completely disabled) received the TUG test using any device they routinely used. TUG test is a person's measurement of time per second in order to stand on a standard armchair which has a fulcrum for the hands (approximate height: 46cm, crank's height: 65cm), walk 3m distance (about 10 feet), and sit repeatedly on a chair (26, 27). Cut of point this test is considered 12 seconds or less than it, in a way that the elderly who can walk the mentioned distance in more than 12 seconds, need to use the mobility aids devices. A researcher-made questionnaire was completed for the elderly of the study who need using mobility aids devices by interviewing them. The questionnaire was consisted of three parts as follows:

The first part: Demographic variables (age, gender, number of children, marital status, education, employment status, lifestyle and insurance status), the second part: related to history of diseases and disorders (cardiovascular problems, visual and hearing impairment, joint pain, Hypertension, Diabetes, Sleep Disorders ...) and the third part: The reasons for using and disusing of mobility aids devices.

The validity of the questionnaire was evaluated by an expert panel consisting of specialists in geriatrics, rehabilitation and hygiene education and confirmed after the performing the corrections. Reliability of the questionnaire was assessed by a pilot study on 15 elderly who were not as a part of the study sample and ³ICC calculation

was calculated at two weeks' interval which was 0.83 and acceptable (28).

Chi-square and exact Chi-square tests were used to determine the relationship between qualitative variables with the need and use of mobility aids devices and the Mann-Whitney test was used to determine the relationship between quantitative variables with the need and use of mobility aids device under SPSS 20 software.

Prior to conducting the study, consent was obtained from Yazd University of Medical Sciences to complete the questionnaires, and patients were assured of confidentiality. This study was submitted to the Ethics Committee of Shahid Sadoughi University of Medical Sciences and was approved by IR.SSU.SPH.REC.1397.133 and the questionnaires were completed after obtaining informed and written consent of the elderly over 65 years.

Result

Most of the elderly participants in the study were women, married, aged 70-60, and illiterate (Table 1).

In this study 75.12% of the elderly needed to use mobility aids device and 49% of them did not use mobility aids device. The most important reasons for using mobility aids devices among the users were medical advice, physical pain relief, and independence, respectively. The most important reasons for the elderly not using mobility aids were reported as embarrassment, needlessness, and lack of awareness of need (Table 2).

Older people need to use mobility aids devices more than others ($P = 0.004$). Older people ($P = 0.041$) and those who took more medication ($P = 0.006$) also used mobility aids devices more than others. Women need to use mobility aids devices more than men and they also use this device more significantly ($P = 0.0001$).

³ Interclass Correlation Coefficient

Married Table 1: Absolute and relative frequency distribution of demographic variables in the studied elderlies

Variables	Frequency (N=209)	percentage	
Gender	Male	42.1	88
	Female	57.9	121
marital status	Married	66.03	138
	single	33.97	71
Age	60-70	42.1	88
	71-80	42.1	86
	80 >	16.75	35
education	illiterate	49.3	103
	Elementary	36.8	77
	High School and higher	13.87	29
Employment status	Employed	5.7	12
	housewife	56.5	118
	Retired	37.8	79
life style	single	24.9	52
	with wife	59.33	124
	With children	15.79	33
Income	Low	11	23
	medium	58.9	123
	Good	30.1	63
Complementary insurance	Yes	48.8	102
	No	51.2	107

Table 2: Absolute and Relative Frequency Distribution of Reasons for Using and Disusing of Mobility Aids Devices in participants Requiring Mobility Aids Devices

Reasons for using	Number (%)	Reasons for disusing	Number (%)
Doctor's advice	50 (63.3)	feeling embarrassed	45 (57.7)
Reducing physical pain	48 (60.8)	Feeling needless	45 (57.7)
Maintaining independence and control	45 (75)	Lack of awareness of the need for the device	38 (48.7)
Offer those around	36 (45.6)	Negative attitudes of those around	27 (34.6)
Fear Of Falling down	34 (43)	Feeling old and unable to use	19 (29.5)
Easy tool performance	33 (41.8)	Lack of awareness of the consequences of not using the device	19 (24.9)
age increasing	32 (40.5)	Fear of dependence on things	19 (24.4)
Prevent the progress of disability	30 (38)	Not knowing how to use the device	17 (21.8)
Used by peers	28 (35.4)	Feeling sorry for others	16 (20.5)
Balance disorder	28 (35.4)	Expensive items	10 (12.8)
Unable to move	35 (34.3)	Getting around with help for mobility	9 (11.5)
History of the crash	27 (34.2)	Lack of access to equipment	9 (11.5)
Participation in social activities	25 (31.6)	Lack of family support	7 (9)
Easy access to the device	21 (26.6)	I do not know	4 (5.1)
to be economical	20 (25.3)	Inappropriate device	2 (2.6)
Standard and safe	18 (22.8)	Improper design and appearance of the device	2 (2.6)
Obesity or weight loss	17 (21.5)	Unsafe device	1 (1.3)
Attractiveness and proper appearance of the device	10 (12.7)		
I do not know	4 (5.1)		

people also needed to use mobility aids more than others ($P = 0.001$), but they were not necessarily more likely to use mobility aids devices than single people.

The illiterates were more in need of mobility aids devices ($P = 0.048$) and they used them more significantly ($P = 0.002$).

Among the studied diseases, balance disorder ($P = 0.009$), visual problems ($P = 0.039$), joint pain ($P = 0.011$), sleep disorders ($P = 0.001$) and osteoporosis ($P = 0.0001$) were the factors that made the elderlies more in need of using mobility aids devices, and the elderlies with these diseases used them more than others. The elderlies needed mobility aids devices that had hearing problems ($P = 0.013$), urinary incontinence ($P = 0.0001$), hypertension ($P = 0.003$) and diabetes ($P = 0.007$) also use these devices more than others.

Discussion

The present study is performed with the objective of investigating the prevalence of elderlies need to use mobility aids devices and factors related to their inactivity in the elderlies.

The results of this study showed that a significant percentage of elderlies (75%) needed mobility aids devices that half of the them did not use them, which could seriously harm the health of the elderlies and expose them to injuries such as falling down, hip fractures, disabilities, diminished social relationships, and then, depression, lower life expectancy and more. Therefore, a program must be designed and implemented to inform the elderlies about the consequences of disusing these devices and the necessity of using them. In a study of the role of life events in successful aging, Abdullah also found that 80% of the elderlies have at least one chronic illness that causes them to be more vulnerable and disabled than other age groups (19). In one study, Aubi Avaz et al showed that

approximately 75% of participants used the aids device (29).

According to more results, elderlies who need to use mobility aids devices, used these devices because of the physician's recommendation and then to reduce physical pain and maintain independence. Van et al. reported similar results in their study about American elderlies (18). The findings of Resnik and colleagues also showed that the role of physicians in the use of mobility aids devices in the elderlies is very important and they can guide and satisfy the needy elderlies for using these devices and explain the benefits of using them. (22). In the Dudgeon study, patients also reported that physicians played an important role in their use of mobility aids devices (30). Advising and also training patients by physician is very useful in using mobility aids devices. Therefore, physicians have a great influence on the decision to start using mobility aids devices and play an important and useful role in the use of mobility aids devices, refer patients to other physicians (e.g., physiotherapists) to prescribe appropriate equipment, and educate patients in using these devices for some elderlies. Referrals to health professionals are also helpful in reducing concerns about poor device performance in the elderlies, because they guarantee the safety of using mobility aids devices.

Akbari also reports in her study that it seems necessary for physicians to become more familiar with rehabilitation courses in geriatric medicine, because physicians have an important role in justifying the importance of using mobility aids devices and thus the health of the elderlies (31).

Of course, some evidences have also been found in similar studies about the other reasons for using mobility aids devices after the doctor's advice. Iezzoni's study showed that making mobility aids devices as a tool to increase the independence and autonomy of patients increased patients' acceptance of

using mobility aids devices (32). Turkman's study also showed that there was a significant relationship between using mobility aids devices and the fear of falling down (33). In the study of Salarvand and his colleagues there was a significant relationship between falling down and using mobility aids devices (16).

As the results showed, the most important reasons of disusing mobility aids devices by the elderlies were shyness, lack of need and lack of awareness of the need and negative attitude of those around them. In the Resnik study, some users of mobility aids devices in research suffered from negative biases, feeling embarrassed, feeling oldness, and disabled. The findings showed the negative impact of social pressures and concerns about using mobility aids devices (due to labeling especially in minority populations) (22). Copolillo's study also showed that those using mobility aids devices felt socially anxious and embarrassed, which could have an effect on disusing mobility aids devices (34). Luborsky showed that elderlies do not use mobility aids devices due to others' persecution; and beliefs, attitudes, and unnecessary feelings of mobility and disability are important factors in using and disusing mobility aids devices in the elderlies (35). Numerous other studies have also documented the role of these unpleasant feelings and negative attitudes of those around them in disusing mobility aids devices (20, 21, 32), which seems that psychological interventions should be done on the elderly and even his family and people around him in addition to educational interventions in order to facilitate the process of acceptance and equipment's function.

This study showed that age is a determining factor for using of mobility aids devices so that older people need to use mobility aids devices more than others. Older people and those who took more drugs also used mobility aids devices more than others. Van et al. showed that increasing age and taking more drugs cause increasing the need of

using mobility aids devices (18). Peterson (36) and Gitlin (14) have also emphasized this in their studies. Of course, this relationship is not out of the question because as the age increases, the disability level and also chronic diseases and drug taking in the elderlies increase. Each of these cases increases the necessity of these devices and their use, and also indicates the necessity of more specific interventions for older people.

According to the results of this study, women required to use mobility aids devices more than men, and of course they used them significantly more than men, which was also observed in the similar studies (33, 36); and it can be due to that woman sicken and have physical weakness more than men.

The results of the present study showed that married people were more in need of mobility aids devices but they did not use them more than single people. This case can be due to the multiplicity of childbirth and its associated complications in married women, and due to the difficulties of running a family in married men. This necessity can be decreased by other people's help, especially children, and proper planning to reduce their problems.

The study showed that illiterates were more in need of mobility aids devices and they use them significantly more than others. Peterson's study showed that the use of mobility aids devices was associated with lower levels of education and obesity (36), which may be due to occupational differences in these two groups; Because literate people usually have easier physical jobs than illiterate people.

Among the studied diseases, balance disorders, visual problems, joint pain, sleep disorders and osteoporosis were factors that made the elderlies more in need of mobility aids devices and the elderlies with these diseases used these devices more than others. The elderlies who need to use mobility aids devices that had hearing

problems, urinary incontinence, hypertension and diabetes were more likely to use these devices than others. The association between chronic diseases and using mobility aids devices is also investigated in other studies (30, 37-39). It can be alleviated by preventing and controlling these diseases and training the elderlies about the proper using of mobility aids devices for the elderlies.

Conclusion

The results of the present study indicate that despite the need of the majority of elderlies for using mobility aids devices, almost half of them do not use these devices because of feeling embarrassed, feeling unnecessary, and being unaware about their need and negative attitude of those around them. In this regard, it is recommended that all health care personnel and physicians be provided with the necessary training on the usage, advantages and disadvantages of using mobility aids devices so that they can provide this information in the best possible way to the elderlies. Furthermore, forming self-help groups of elderlies who are using mobility aids devices to share experiences and group discussions with other elderlies can be effective in eliminating negative attitudes and feelings of embarrassment. Introducing functional but appealing products in the mobility aids devices' delivery centers with considering the resources and costs of the elderlies would be another useful solution.

The results also showed that older age, being female, lower education, chronic illness and drug usage were associated with the need and greater use of mobility aids devices. So, these people should be particularly paid attention by the health proctors and should receive the necessary training, even before entering adulthood and in middle age as an at-risk group.

Research Limitations

Our population may not be fully representative of the target population due to the small sample size. Our findings may

also not be generalizable to older people or the elderlies who have not yet been to health centers.

Acknowledgment

We would like to thank all those who have contributed to this study.

Funding sources

This study was financially supported by School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

Ethical Approval

All the work is compliance with Ethical Standards. This study was approved by the ethics committee of Yazd University of Medical Sciences with ethics code: IR.SSU.SPH.REC.1397.133

Author Contributions

ZR, AB, and MT designed research; MT and ZR conducted research; SJ analyzed data; All authors contributed to the writing and approved the final manuscript.

Consent to Participate

The authors declare their consent to participate in this work.

Consent for Publication

The authors declare their consent to publication of this manuscript by "Social Determinants of Health" journal.

Conflict of interest

The authors state that there is no conflict of interest with the present study.

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