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Original Research Article

Awareness in general population about the home modifications which are necessary to prevent falls in community dwelling elderly

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ABSTRACT

Background: Falls are considered to be one of the "geriatric giants". The living room, bathroom, bedroom and staircase are common areas where falls occur within home. Many elderlies who fall even if they remain uninjured, become apprehensive causing them to cut down on their activities of daily living and becoming less active, weaker, further increasing their chances of falling. Therefore, it's of paramount importance to scrutinize the awareness about the home modifications. The study was conducted to examine if the general population is aware of the home modifications necessary to prevent falls in community dwelling elderly.
Methods: A cross sectional study was conducted in 300people between 30 to 50 years old who were not medical professionals. Convenience sampling was used. A self-structured questionnaire was prepared and clearance of ethical committee was obtained. After taking people's consent they were asked to fill the questionnaire.
Results: Results show that out of 300 participants people are aware of non-slippery floors (70%), railings at the staircase (62%). People are least aware of the following modifications: glare free paints (20%), door knobs can be replaced with lever handle (40%), install adhesive strips on the staircase (30%).
Conclusions: Results show that out of 300 participants people are aware of non-slippery floors (70%), railings at the staircase (62%). People are least aware of the following modifications: glare free paints (20%), door knobs can be replaced with lever handle (40%), install adhesive strips on the staircase (30%).

Keywords: Awareness, Community dwelling elderly, Fall prevention, Home modifications

INTRODUCTION

Falls among adults aged 65 years and older are a leading cause of disability, morbidity, and death, with sufferers occasionally requiring special medical or nursing care for injuries, resulting in a subsequent decrease in quality of life.[1] Falling and injuries associated with falls constitute a major risk to the health, well-being and independence of older adults.[2] Elderly without a history of preceding falls have an increased risk of falling due to the presence of home hazards.[3,4] The magnitude of the influence of environmental factors on the risk of falls in the elderly is uncertain. Some studies have indicated that in the elderly living in the community, 30-50% of falls are due to environmental causes (e.g., poor lighting, slippery floors, and uneven surfaces). A frequent problem that older people encounter is to slip, trip, or misstep.[5] Most households contain potential hazards such as poor lights, clutter at home, stairs without railings, slippery floors, improper arrangement of furniture, improper height of the bed, improper height of the toilet seat, high threshold of

entrance, unsecured carpets and rugs, absence of railings besides toilet seats, ramps without rails.[6] Prevention of falls, particularly within the home, is a major issue for maintaining the functional life of community-dwelling older adults and has become a public health priority in super-aging societies.[7] Many elderlies after experiencing fall even if they remain uninjured become apprehensive and this apprehension may cause the person to cut down daily activities. When a person is less active, he becomes weaker increasing further risk of falls. Therefore, it's of paramount importance to scrutinize the awareness about the home modifications to prevent falls in community dwelling elderly. Environmental approaches are aimed at improving individual safety at home, outdoors, and in community and public places to reduce the risk of falls in older people living in the community.[8] Awareness about the home hazards and modification of the home environment is very important to prevent falls in community dwelling elderly.[9]

According to the report of National Association of Realtors on Home Buyers and Sellers generational trends most of the buyers are in the age group 30 to 50 years and maximum renovation is carried out by the same group of population. Even if they are not living with the elderly, they may have elder visitors and will not want any harm to them at their homes so it is very important to check awareness in this particular population.[10] The objective of this study is to examine the awareness about the home modifications in general population to prevent falls in community dwelling elderly, to find out the difficulties faced by the people in modifying their homes and to know about the modifications that are already present at homes. Health care professionals can screen, assess, and intervene to reduce their older patient's modifiable fall risk factors and offer solutions to help them remain healthy and independent longer.[11]

METHODS

The current study was a cross-sectional survey-based study conducted at Sancheti Institute for Orthopaedics and Rehabilitation, Physiotherapy department from October 2022 to April 2023. Convenience sampling technique was used in the present study and sample size was taken as 300.

Inclusion criteria

General population in the age group of 30 to 50 years were excluded.

Exclusion criteria

Medical Professionals in the age group of 30 years to 50 years were excluded.

Procedure

A self-structured questionnaire was made and face validation was done. Ethical clearance was taken from the ethical committee. The subjects were recruited as per the above-mentioned inclusion and exclusion criteria. The subjects were informed about the study and its procedure. The candidates were explained about the questionnaire. Demographic data was taken such as the name, age. A formal consent was obtained from them and they were asked to fill the questionnaire.

Data analysis

Descriptive statistics were used to analyse the data acquired from the questionnaire. The recorded data was entered into a spreadsheet and the results were converted into percentiles. The results were illustrated using graphs.

RESULTS

A total of 300 people participated in the given study between the ages of 30 to 50 years. The mean age of the participants was 40 years. 57.3% people have seen or heard about the fall experienced by any of the elderly at home due to home hazards while 42.7% have not (Figures 1-8).

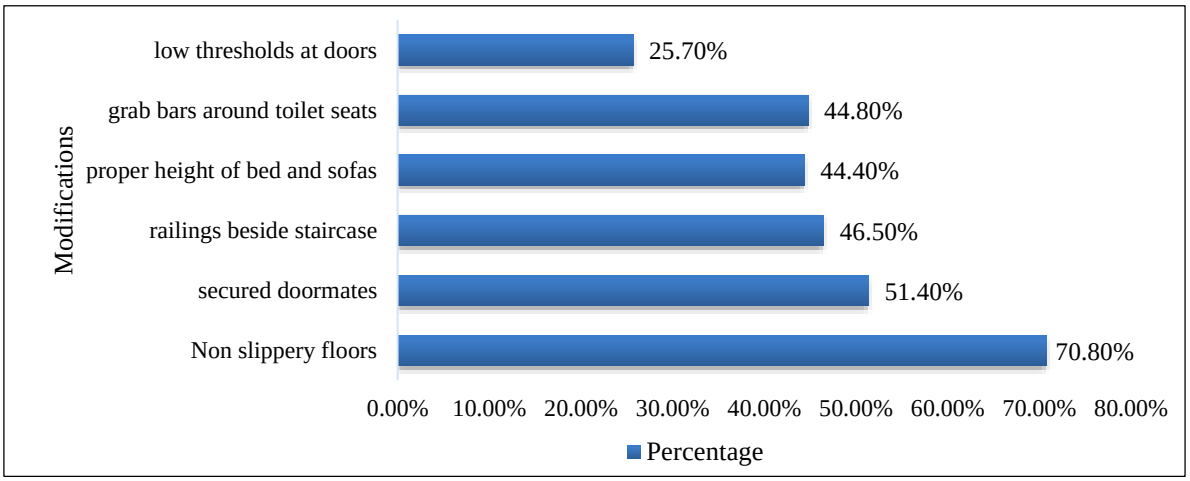

Figure 1: Percentage of modifications already present at homes.

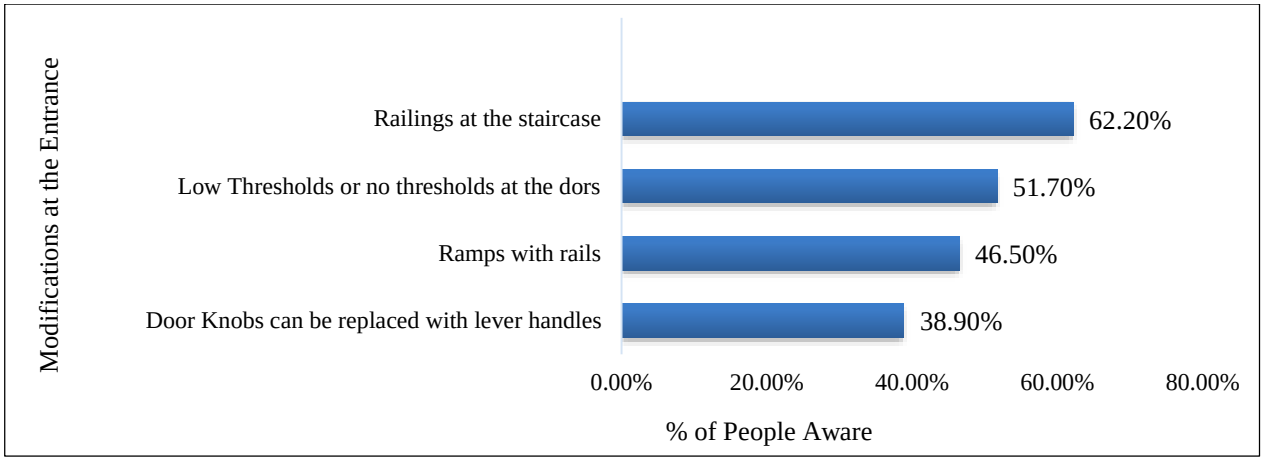

Figure 2: Percentage of awareness of the modifications at the entrance of the homes.

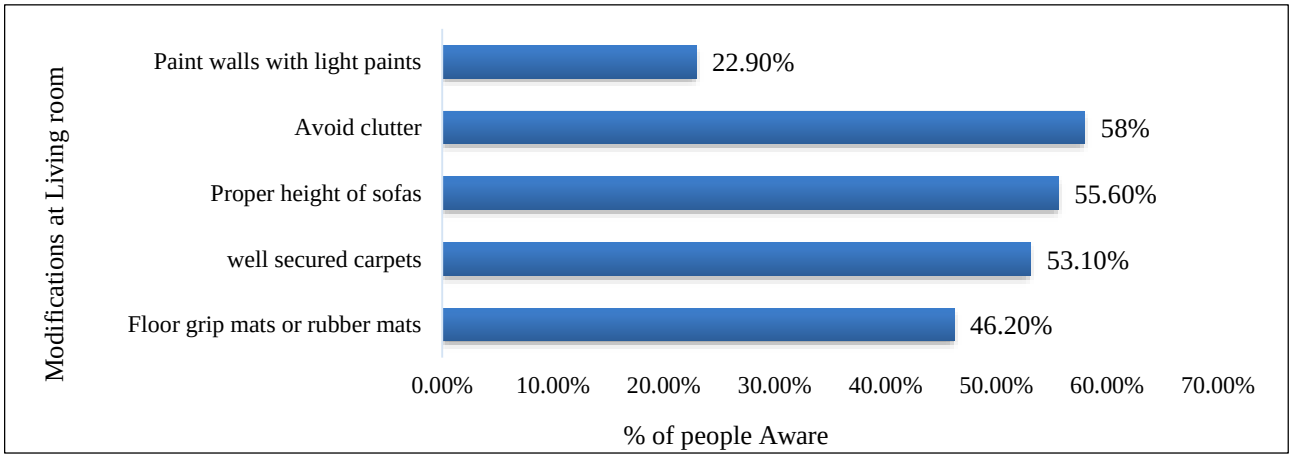

Figure 3: Percentage of the awareness of the modifications in the living room.

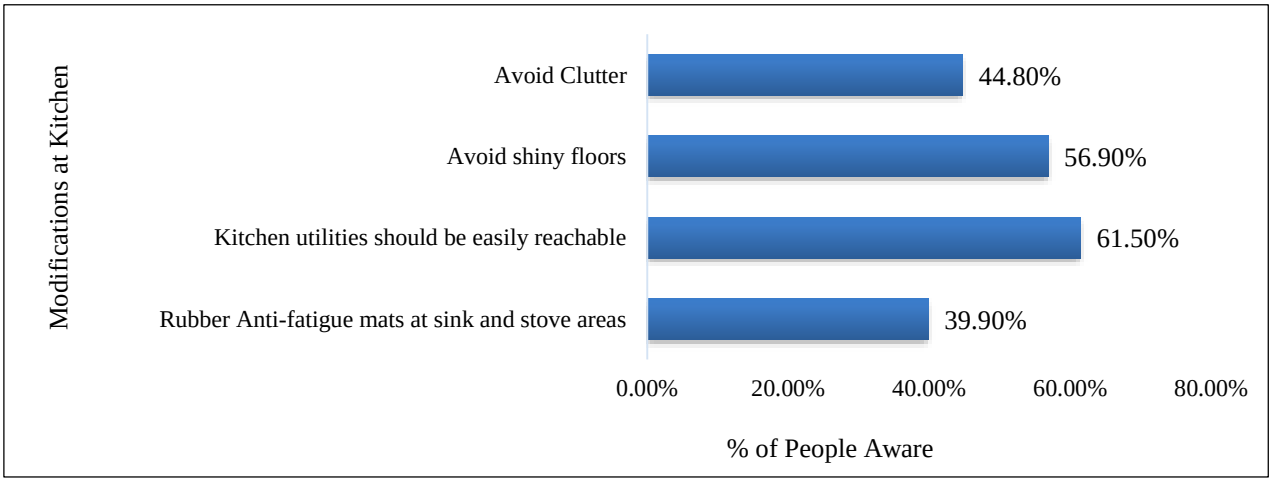

Figure 4: Percentage of awareness of the modifications in the kitchen.

DISCUSSION

Falls account for one of the most common and serious issues contributing to a disability, especially among elderly individual. The objective of this study was to determine the level of knowledge among individuals in the age group of 30 to 50 years regarding the important modifications that must be made at homes to prevent falls in senior citizens who live in the community. Additionally, it sought to encourage the creation of a hospitable environment for the elderly people at their homes.

The findings of Carter et al research on environmental hazards in the homes of older people showed that the environmental hazards contributing to falls were poor lightings, toilets without grab bars, uneven pathways, staircase without proper handrails, clutter at home.[6] In the present study, it is found that a significant number of people were aware of certain risk factors in their homes that could lead to falls, such as poor lighting, slippery floors, and unsecured carpets and rugs. This suggests that awareness campaigns and education programs on fall prevention can be effective in improving the safety of home environments for older adults.

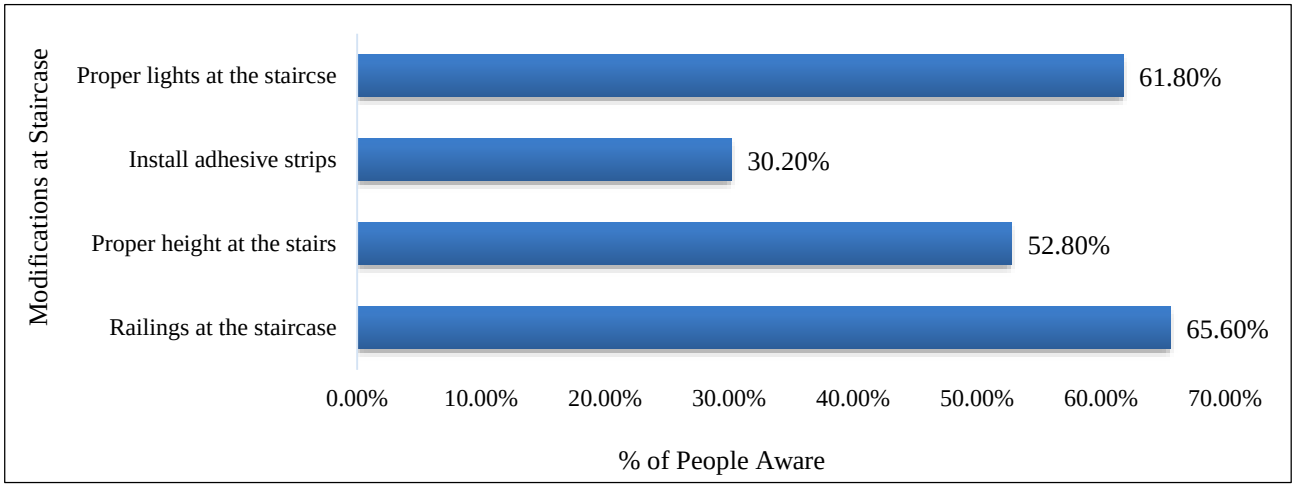

Figure 5: Percentage of awareness of the modifications at the staircase.

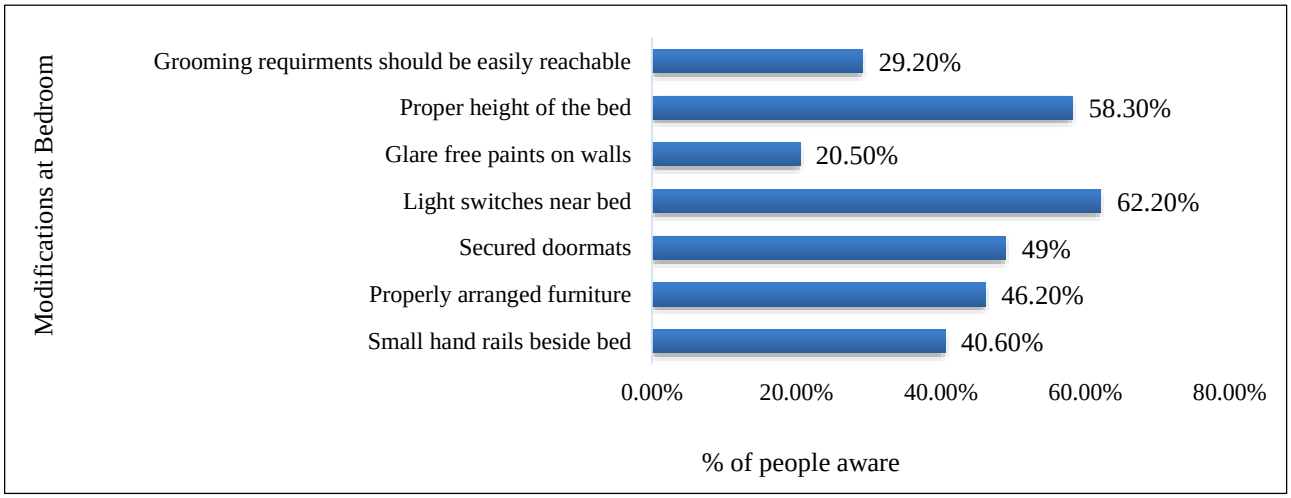

Figure 6: Percentage of awareness of the modifications in the bedroom.

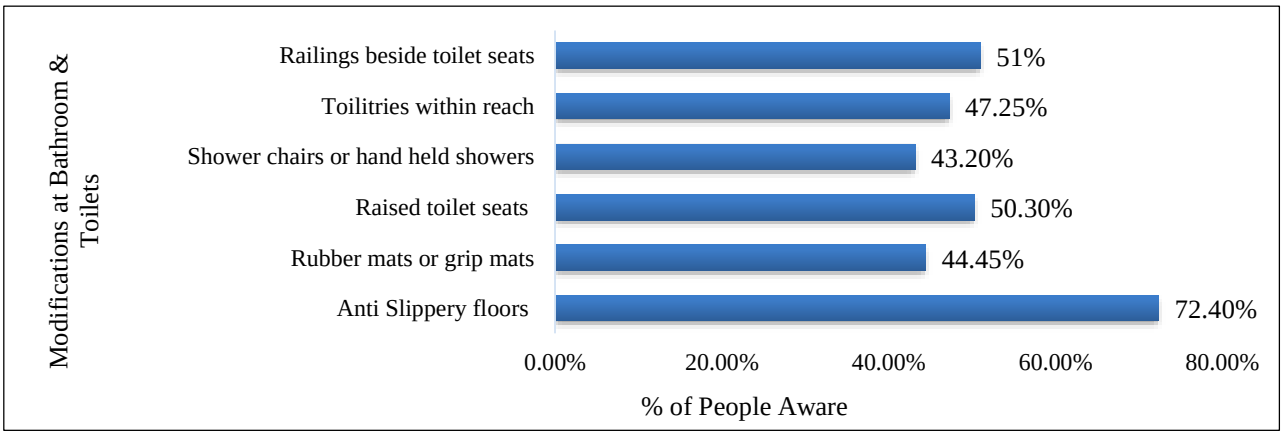

Figure 7: Percentage of awareness of the modifications in bathrooms and toilets.

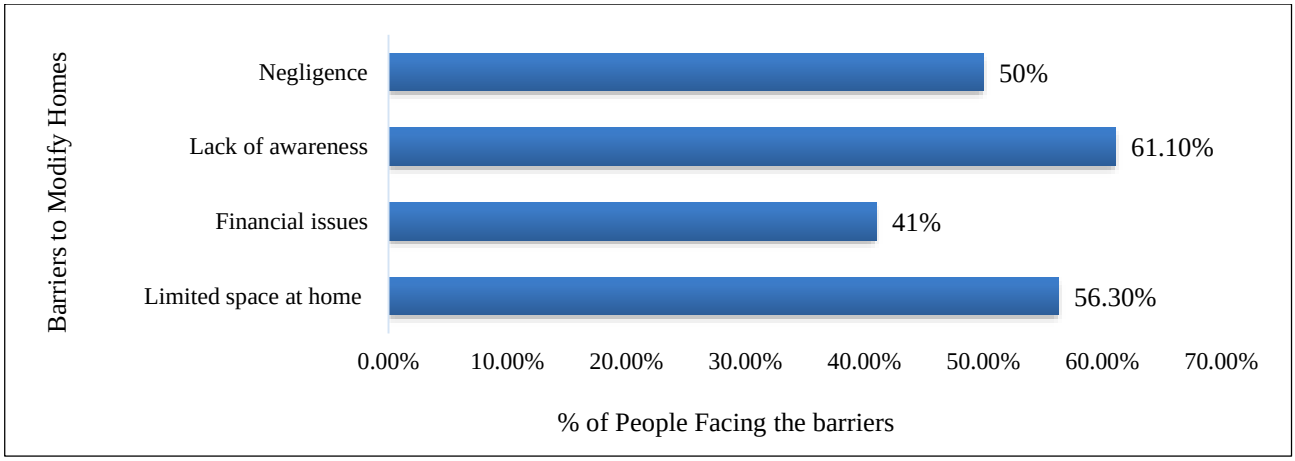

Figure 8: Percentage of the barriers faced by the people in modifying their homes.

According to a study conducted by Moreland et al concluded that senior citizens who visited the emergency department due to falls were more likely to have experienced indoor falls rather than outdoor ones.[11] The research also revealed that when the site of the fall could be established, it was more likely to have occurred inside the house for elderly individuals. The present study shows correspondence as the majority of the participants, accounting for over 50%, reported that they had either witnessed or heard about falls experienced by elderly individuals in their homes. This highlights the prevalence of falls as well as the importance of taking measures to prevent them in the elderly population.

The study conducted by Portegijs et al concluded that entrance-related environmental barriers can significantly impede the daily out-of-home mobility of community-dwelling older people, particularly when their functional capacity is compromised.[14] The study suggests that addressing and minimizing these barriers could help prevent older individuals from becoming confined to their homes and improve their overall quality of life. By reducing entrance-related environmental barriers, older individuals can have increased access to public spaces, transportation, and social activities, leading to improved physical and mental health outcomes.

The present study found that while people are aware of the importance of handrails at staircases, they have little awareness regarding other entrance-related environmental barriers that can hinder their mobility. Specifically, the study found that the people were largely unaware of low thresholds and the benefits of replacing door knobs with lever handles. These findings suggest that there is a need for greater education and awareness-raising efforts aimed at addressing these environmental barriers that can pose significant challenges to older individuals' everyday lives. By increasing public knowledge and awareness of these barriers and potential solutions, older people can be empowered to take steps to reduce the barriers that limit their mobility and independence, leading to better health and quality of life outcomes.

The results of the following study shows that some people are conscious of basic safety measures like avoiding clutter in their living rooms, proper height of the sofas, there may be a lack of awareness about additional safety features, such as glare-free paints and secured carpets and rugs. It is important to educate people about these safety measures as they can help to prevent falls and injuries, especially for older adults or those with mobility issues. Additionally, using floor grip mats in the living room can help to prevent slipping, making the space safer for everyone. Increasing awareness about these safety features can help to create safer and more comfortable living environments for people.

From the given study we came to know that while many people are aware of some basic safety measures in the kitchen, such as avoiding shiny floors, they may not be fully informed about other safety features that can improve their kitchen experience, such as using anti-fatigue mats. Anti-fatigue mats are designed to reduce the physical stress and fatigue that may occur when standing on hard surfaces, such as kitchen floors. These mats provide cushioning and support, which can help to reduce the risk of slips, trips, and falls, while also providing added comfort for those who spend a lot of time standing in the kitchen. People should also be informed about other safety measures, such as wearing appropriate footwear and keeping kitchen floors free from spills and clutter, to reduce the risk of accidents and injuries in the kitchen. Overall, increasing awareness about kitchen safety measures can help to create a safer and more enjoyable cooking experience for elderly.

The study shows that in the bedrooms of elderly while many people are aware of how the height of their bed and light switches should be adjusted to suit the specific needs of the elderly, as well as ensuring grooming supplies were within reach, they may not be aware of certain factors such as the optimal furniture arrangement, the usefulness of small bars around the bed for assistance, the importance of secured doormats, and incorporating glare-free paints into their bedrooms.

The study done reveals that many people are already familiar with the importance of installing anti-slip flooring and raised toilet seats in toilets and bathrooms, it's crucial to spread awareness regarding other safety measures that could go a long way in reducing the risk of accidents. These include items such as shower chairs, handheld showerheads, rubber grip mats, and rails beside toilet seats. By incorporating these additional safety features, individuals can create a more secure and comfortable bathroom environment that promotes accessibility and independence for elderly.

In the study done by Wiseman et al in 2021 about the barriers to the initiation of home modifications for older adults for fall prevention states that there are financial and procedural barriers to accessing home modifications for older adults.[15] There is a need for pathways in clinical and community settings to reduce barriers to home modifications to reduce the risk of falls. In the study many people think that lack of awareness can be a barrier to modifying homes to make them more accessible for elderly individuals. Also, most of them faced the problem of limited space at homes and financial issues. Negligence is another element for not modifying the houses in general population found in the study. However, there are resources and organizations available that can provide information and guidance on how to make modifications. Additionally, many modifications don't require significant construction or renovation work and can be done relatively easily and affordably. It's important for people to educate themselves and seek out resources to ensure they are creating a safe and inclusive home environment for elderly individuals.

A study was done in Japan by Kamei et al shown that home hazard modification program has the potential to improve fall prevention awareness and specifically decreased overall and indoor falls.[1] This study found that he people who were aware of some of the modifications like non slippery floors, secured carpets and rugs, raised toilet seat were practicing them at their homes. By practicing these modifications at home, they are creating a more accessible and safer environment for elderly individuals. It's important for the general population to take action and make modifications to their homes to ensure they are accessible and safe for elderly. Even small changes can make a big difference in older individual's ability to navigate and live comfortably in their home. It's important for everyone to be aware of the needs of the elderly and to take steps to create inclusive and welcoming environment at homes.

Clinical implication

Most of the elderly population experience falls in their own houses. They are at high risk of fall due to physiological changes which occurs during ageing. By comprehending the level of knowledge, we can create further awareness among general population about the necessary home modifications to prevent falls in community dwelling elderly.

This study has some limitations. Socioeconomic status of the participants was not taken into consideration. As only urban population was recruited; they were aware of some of the modifications.

CONCLUSION

Thus, people are aware of very few home modifications to prevent falls in community dwelling elderly such as 70% people were aware of non-slippery floors, 62% were aware of handrails at the staircase. 61.1% people think that lack of awareness is the barrier to modify the houses. 56.3% people faced the barrier of limited space at homes and 41% faced financial barriers in modifying their houses. We also conclude that the modification which is present at 70% people's homes is non-slippery floors, 51.4% people's homes have secured carpets and 46.5% people's homes have railings at the staircase.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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