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Knowledge, Attitude, and Practices Regarding Fall Prevention Strategies among Spine and Hip Post-operative Elderly Individuals: A Cross-Sectional Study

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Abstract

Background: Falls and their consequences are always considered significant public health issue. Fall is considered a major health concern that makes older people more prone to injury and loss of life. Fractures of the hip, trunk, wrist, and neck are among the most common injuries caused by falls. Falls can cause disability, activity restriction, and fear of falling, all of which can affect quality of life and independence. As a result, inquiring about falls and assessing knowledge about falls, near falls, and fear of falling can assist us in identifying and mitigating any modifiable hazards before the next fall and also can help us shorten the rehabilitation period in the immediate post-operative period. **Objectives:** The objectives of the study were to determine the status of knowledge, attitude, and practices of falls prevention strategy among post-operative hip and spine elderly individuals in Karad. **Materials and Methods:** From July to December 2020, a cross-sectional investigation was conducted in a rural tertiary care hospital in Karad. In this study, a total of 100 individuals participated who had undergone spinal (n = 33) and hip (n = 67) surgeries. A consent form was filled out by the participants and completed a three-part questionnaire that asked questions about knowledge, attitude, and practices regarding fall prevention strategies. Following that, the data were examined using acceptable statistical procedures, and Excel was used to create various graphs with supplied frequencies and percentages generated using the software. The grade was determined by calculating the score into good/average/poor/very poor. **Results:** The present study shows that elderly people have poor awareness of how prone they are to falls postoperatively. At the same time, 17% of participants show very poor knowledge regarding fall prevention strategies. When assessed about the prevalence of attitudes and practices of the fall prevention program, 62% of participants exhibited a poor score. **Conclusion:** Based on the responses, there is a scarcity of knowledge regarding fall prevention strategies among the post-operative elderly individuals in Karad. The awareness regarding the knowledge and practice will thereby reduce the number of yearly falls both postoperatively and the silent falls. This practice would ensure a significant reduction in the post-fall complications and morbidity due to falls, thus leading to an improved quality of health care in the geriatric age group.

Keywords: Falls prevention program, Post-fall anxiety, Post-operative period, Risk of falls

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Introduction

Elderly population includes those who are 65 years or older chronologically, which is rising rapidly with 12% of the total population.[1,2] Important health problems to be addressed by this population include changes in balance and a higher chance of falling, which increase with each decade beyond 60 years.[3-6] In 1987, the Kellogg International Working Group on the prevention of falls in the elderly defined fall as "unintentionally coming to the ground or some lower level and other than as a consequence of sustaining a violent blow, loss of consciousness, and sudden onset of paralysis as in stroke or an epileptic seizure."[7,8]

Every year, roughly one-third of elderly population (aged 65 and up) falls, result in a variety of injuries ranging from minor bruising to fractures, and half of these people are projected to have multiple falls.[9-14] One of the leading causes of non-fatal injury is falls and fall-related injuries.[13] It's also worth noting that 40–50% of those who fall in a hospital will end up in a nursing home.[13] First episode of a fall induces a fear of fall in an individual or a post-fall anxiety syndrome, it is an excessive fear of falling that causes a person's activities to shift in the absence of physical disability or damage.[15] This dread manifests itself in a cyclical pattern, with decreased confidence in doing everyday chores, muscle atrophy, impaired balance, and an overall reduced quality of life.[13,15,16]

In elderly people, falls are multifactorial as they occur frequently as a result of the combination of the patient's risk, the environment, and the activity.[17] Reduced physical activity, decreased proximal muscle strength, and decreased stability when standing were all found to be linked to an increased risk of falling.

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Multiple factors contribute for falls in elderly such as decrease in the number of muscle cells, a decrease in the ability of muscle cells to be stimulated by a neuron, a gradual decline in motor function, including strength, coordination, and endurance, a decrease in the transparency of the cornea, and eye adaptation to light, a gradual decline in sensory functions, including vision, vestibular, and proprioception, a slowed reflex and decline in response time and multitasking ability.[18,19] Other important variables include knee arthritis and gait disability, hypotension, and the use of psychiatric medicines.[20] All these factors contribute to postural instability in elderly person that may result in fall among them.[21]

Fall-related deconditioning has a significant impact on the physical, mental, and social health of an individual.[22] Deconditioning is commonly connected with the post-operative phase. Deconditioning, which can be induced by a variety of circumstances, is linked to an increased risk of falling while in the hospital.[23] Other factors contributing to falls during the hospital stay include dehydration, agitation, and confusion, hospital anxiety, frequent toileting, medication (sedatives/hypnotics), increase in the patient-to-nurse ratio, lower limb weakness, poor coordination, and walking difficulties.[22-26] Falls in the elderly can cause fear of falling, post-fall anxiety syndrome, sadness, and a reduction in activity, all of which can have a severe impact on their well-being.[27]

As a result, it is critical to note that ensuring to use a proactive approach to ask such populations about falls and assess their knowledge about falls, near falls, and fear of falling will help us identify and mitigate any modifiable risks before the next fall, thereby reducing rehabilitation time in the immediate post-operative period, lowering hospital costs, and improving quality of life.[28]

Materials and Methods

From July to December 2020, a cross-sectional investigation was conducted in a rural tertiary care hospital in Karad. This study included both males and females and elderly individuals (above 50 years) who had undergone the following surgeries and describe a history of falls: Total hip replacement, hemiarthroplasty, total hip resurfacing, laminectomy, spinal fusion, and spinal decompression. The following conditions were excluded from the study such as, polytrauma patients, individuals with a history of any chronic illness like CVA and parkinsonism.

Data Collection Tools

Before filling out the data collection sheet, the participants had to sign a consent form with all the details explained in Marathi. The participants were given information regarding the aim and objectives of the study. The data collection sheet consisted of a questionnaire which assessed the knowledge, attitude, and practices aspect of the fall prevention strategies in Karad with a total of 13 questions and each question with a yes/no response. The questionnaire was in English as well as in Marathi; its respective psychometric properties (validity and reliability) were assessed. The questionnaire was validated by the Institutional Ethics Committee. All the information were entered into a database on Microsoft Excel. Microsoft Excel and Microsoft Word have been used to generate the tables and graphs.

Questionnaire[8,23,29-33]

Knowledge, attitude, and practices regarding falls prevention in post-operative hip and spine elderly individual

	YES	NO
1. Do you recall any history of a fall in the past 10 years?	☐	☐
2. Did you seek any medical assistance after the first fall?	☐	☐
3. Do you currently experience any fear of fall?	☐	☐
4. Do you consider a fall in an elderly to be a serious problem?	☐	☐
5. Do you know that you are susceptible to a fall during your hospital stay and even after discharge?	☐	☐
6. Do you think that falls in elderly people can be prevented and managed effectively?	☐	☐
7. Do you feel anxious while getting out of bed or while taking steps out of bed?	☐	☐
8. Will you restrict your usual activities after the discharge?	☐	☐
9. Do you think that a proper education regarding falls and falls prevention among the elderly age group can prevent falls and its complications?	☐	☐
10. Do you know that you might need certain home adaptations/use of assistive devices to help you to reduce the risk of falls?	☐	☐
11. If provided so, will you undertake a falls prevention program for yourself?	☐	☐
12. Do you know that physiotherapists play a prime role as an initiator in your falls prevention program, with the help of exercises, certain activity, as well as environmental modification?	☐	☐

All questions were assessed and a score was given based on the options selected by the participant. A maximum of 12 and a minimum of 0 marks were allocated. Each question carries 1 mark if the answer will be ticked "yes" by the patient and if no then it's 0. A grading system was used to analyze the results. It is categorized as good, average, poor, and very poor. All questions were assessed and a score was given based on the options selected by the participant. A maximum of 12 and a minimum of 0 marks were allocated. Each question carries 1 mark if the answer will be ticked "yes" by the patient and if no then it's 0. A grading system was used to analyze the results. It is categorized as good, average, poor, and very poor.

Grades	*Score*
Good	10–12
Average	7–9
Poor	4–6
Very poor	3 and below 3

Results

This study included 100 participants, 50 of whom were separated into urban and rural populations.

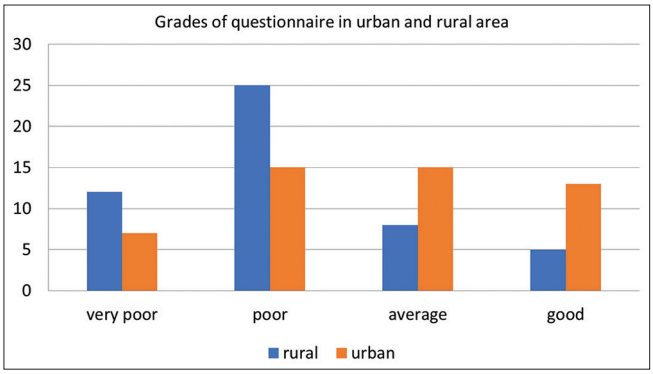
Interpretation

One hundred individuals completed the questionnaire. The majority of the individuals belong to 60–70 years of age criteria (48%) followed by 70–80 years of age (42%). The remaining 10% of individuals were between 50 and 60 years and more than 80 years of age. From 100 individuals, almost two-thirds were female (67%) who completed this questionnaire most were over 65 years of age. Furthermore, 66% underwent hip surgery and 34% underwent spine surgery (Table 1).

As shown in Graph 1, in rural, only 10% of individuals felt knowledgeable ("good") about fall prevention strategies while 48% of individuals had "poor" knowledge about FP strategies, 16% of individuals perceived themselves to be somewhat knowledgeable, that is, "average" and remaining 24% of individuals have "very poor" knowledge while in urban population, only 26% of individuals felt knowledgeable ("good") about fall prevention strategies while 30% of individuals had "poor" knowledge about FP strategies, 30% of individuals perceived themselves to be somewhat knowledgeable, that is, "average," and remaining 14% of individuals have "very poor" knowledge.

Table 2 shows that in rural and urban population, 90% recall their history of fall, 100% of participants mentioned that they experienced anxiety related to fall and had fear of fall. About 30% were aware that they were restricting their many usual activities due to fear of fall in rural while in urban population, it was 50% and remaining 20% were still unaware and almost all individuals fear of falling has reduced their activities. In rural population, 20% of participants were unaware that they susceptible to fall during hospital stay and after discharge, and in urban, 34% were unaware.

Table 3 shows that in the rural population, 34% of subjects and, in urban, 62% of participants had known the fact that they need medical assistance after their first fall. About 35% of participants in rural while 72% in urban were aware that falls in elderly people can be prevented and managed efficiently. In the rural population, 54% of subjects and, in the urban, 64% of participants know that they need assistive devices to reduce the risk of fall. About 34% of population from rural area and 66% of urban thinks that if proper education is given to elder individual, it may prevent falls and their related fear or anxiety. About 90% of urban subjects and 38% of rural subjects were willing to participate in program if provided. About 36% of participants in rural and 50% in urban were unaware that physiotherapists play an important role in building up a fall prevention program; the remaining 34% were aware.



Graph 1: Grades of the questionnaire

Table 1 : Demographic variables

Variable	*Number of participants*	*Percentage of participants*
Age		
50–60	1	1
60–70	48	48
70–80	42	42
>80	8	8
Gender		
Male	33	33
Female	67	67
Type of surgery		
Hip surgery	66	66
Spine surgery	34	34
Rural	50	50
Urban	50	50
Mechanism of injury		
Intrinsic factor	22	22
Extrinsic factor	78	78

Discussion

Every year, about one-third of elderly population (aged 65 and up) falls, result in a variety of injuries ranging from minor bruising to fractures, and half of these people are anticipated to have numerous falls requiring hospitalization.[9-14] Moreover, falls account for one of the most prevalent hospital accidents among the senior population, which might be a symptom of a medical problem when combined with pre-existing risk factors for falls.[1] This time period after the surgery is a major event which needs keen attention as the hospitalization and bed rest leads to the development of a state of irreversible functional decline/deconditioning.[2] Deconditioning can be induced by a variety of circumstances, is linked to an increased chance of falls during hospitalization, which can have a substantial impact on an individual's physical, mental, and social health.[22]

Fear of falling, post-fall anxiety syndrome, depression, and a reduction in activities can all affect the well-being of elderly adults who have fallen.[27] This highlights the need of a falls prevention program to be instituted in a primary health-care center to

Table 2: Percentage of knowledge, attitude, and practices about risk of fall

Criteria	*Rural*	*Urban*
History of fall	90%	90%
Fear of fall as a risk factor	100%	100%
Anxious while getting out of bed/while taking first steps	100%	100%
Restrict activity after discharge	30%	50%
Susceptible to fall during hospital stay and after discharge	20%	30%
Fall serious problem in elder individual	22%	34%

Table 3: Percentage of knowledge, attitudes, and practices about preventive measures

Criteria	*Rural*	*Urban*
Medical assistance after first fall	34%	62%
Falls in elderly prevented or managed	36%	72%
need certain home adaptations/use of assistive devices	54%	64%
Proper education to elder individual prevents falls	34%	66%
Willingness to take program	38%	90%
Physiotherapists play important role in a fall prevention program	36%	50%

minimize the consequences of a fall in elderly individual and to improve their standard of living.

The study's goal was to see what level of knowledge and attitude people had and practices regarding fall prevention strategies among elderly individuals who have underwent either a hip or a spinal surgery and those who reside in Karad locality using a cross-sectional survey method. The study assessed the knowledge of the individuals in two different aspects, one aspect which was assessed was the amount of awareness the individual has regarding how prone he is toward a fall and the factors affecting it; the other aspect which was assessed was the extent at which the individuals were aware regarding the fall's prevention strategies or program as a whole.

Taking into consideration, the possible needs to implement the falls prevention program, the people were assessed on their attitude toward the fall's prevention program; if implemented, and if they have learned about the institution of falls prevention program anywhere in Karad city. This study was comparable to one conducted by Nevitt *et al*. According to all, about 25% of persons who have experienced fall limit their typical activities (including potentially helpful behaviors like physical activity) due to an injury or the dread of falling again.[34]

The result of this study reveals that extrinsic factors contribute 78% to the risk of fall while intrinsic factors contribute 22% to the risk of fall. Bueno-Cavanillas *et al*.[35] supported our result by stating in his study of "extrinsic and intrinsic triggering causes of falls in the elderly are risk factors" that 52.1% had an extrinsic precipitating cause and 35.5% had intrinsic cause.

According to a study done by Laing *et al*., less than one-half (38%) of senior-serving professionals said that they were "very knowledgeable" about recommended fall prevention practices in Washington DC[36] whereas this study shows that only 23% and 18% of elderly individuals of Karad locality exhibit average and good knowledge regarding the fall's prevention program, respectively. These findings show that if a falls prevention program is implemented early in a rural community, it can obtain widespread acceptance.

According to a study done by Gillespie, one-third (33%) of elderly individuals, one of their least important personal health and safety worries was falling. Furthermore, they had only limited working knowledge (unaided awareness) of effective fall prevention strategies.[37] However, this study depicts 19% of individuals having a very poor knowledge and concern regarding falls and falls prevention as a whole.

Our study showed that the rural population had very less knowledge regarding fall prevention programs than the urban population. Because 26% of urban population had great knowledge, attitudes, and practices about fall prevention programs while 10% of population in rural areas had good knowledge. Gutta *et al*. in his study of the knowledge, attitudes, and practices in the elderly suggested the same that rural elderly (63.6%) had lower knowledge of the need for interventions to avoid recurrent falls than urban elderly individuals (77.4%).[29]

The findings lead us to focus our efforts on educating elderly people about the benefits of a falls prevention program during their post-operative period. This will aid in the development of a more positive attitude among community-dwelling elderly people toward rehabilitation and the pursuit of high-quality care. Along with raising awareness among community-dwelling senior people, a tertiary care facility must also raise awareness about the importance of instituting a falls prevention program on an inpatient and outpatient basis. The program's proper execution resulting in a decrease in the number of post-operative falls, lower hospital/rehab costs, and a dramatically improved quality of life. This may also assist to prevent additional "silent fallers" from occurring.

Previous research has focused on falls in the elderly as a general concept; however, this study concentrated on the post-operative period, which is crucial for rehabilitation and fall prevention. This research also looks on the prevalence of post-fall anxiety in those who have previously fallen.

Despite the fact that a large proportion of senior respondents (48%) had fallen, only 16% reported obtaining individual risk assessments, highlighting the necessity of fall prevention education through tailored treatment planning and continuous follow-up. Furthermore, the new American Geriatrics Society/ British Geriatrics Society Clinical Practice Guideline recommends a assessment of fall risk not only for those who have fallen but also for those who have gait or stability issues.[38]

Others have made the observation that, while elders are aware of the consequences of fall-related risk factors, they are unaware of their own risk of falling;[15] the elderly's desire to participate in fall prevention programs is influenced by their perception of the risk of falling,[16] suggesting that if senior citizens do not understand their own risk of falling, they are less likely to discuss how to reduce falls with their physicians. It's worth mentioning that as their primary source of health-related information, these seniors preferred to get advice on fall prevention from a health professional, a finding that has been supported by others.[17]

Conclusion

According to the responses, this study implies that many individuals had poor knowledge and practices regarding the use of fall prevention strategies as well as self-awareness regarding the risk of falls in the post-operative elderly individuals in the Karad rural population. Hence, it is necessary to focus on increasing the awareness regarding the knowledge and practice, as such awareness, if created, will thus prove helpful reduce the number of post-operative complications as well as deaths. If the awareness program was instituted, all elderly individuals in the community irrespective of having a history of falls or not would significantly reduce the number of falls and help identify silent falls.

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