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A study to assess the effectiveness of a pictorial educational booklet for fall preventive measures among elderly patients at selected tertiary care hospitals

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Abstract
Falls are a major cause of morbidity, mortality, and reduced quality of life among elderly individuals, particularly in hospital settings. Preventing falls through effective education is a key component of geriatric care. This study aimed to assess the effectiveness of a pictorial educational booklet on fall preventive measures among elderly patients admitted to selected tertiary care hospitals. A pre-experimental one-group pretest–posttest research design was adopted for the study. A total of 100 elderly patients aged 65 years and above were selected using convenience sampling. Baseline knowledge regarding fall prevention was assessed using a structured knowledge questionnaire. Following the pretest, a pictorial educational booklet on fall preventive measures was administered to the participants. The posttest was conducted after five days using the same tool to evaluate the effectiveness of the educational intervention. The results revealed a significant improvement in the posttest knowledge scores of elderly patients compared to pretest scores, indicating the effectiveness of the pictorial educational booklet. Statistical analysis using paired t-test showed a significant difference at $p < 0.05$. The study also found a significant association between posttest knowledge scores and selected demographic variables such as age and educational status. The findings of the study suggest that pictorial educational booklets are an effective, simple, and cost-effective method for improving knowledge regarding fall prevention among elderly patients. Incorporating such educational interventions into routine hospital care may help reduce the incidence of falls and enhance patient safety in tertiary care settings.

Keywords: Fall, assessment, knowledge, practice, nurses, patients, pictorial educational booklet

Introduction

Ageing is a natural and inevitable process accompanied by physiological, psychological, and functional changes that increase vulnerability to health-related problems. Among these, falls are one of the most common and serious issues affecting the elderly population. A fall is defined as an unintentional change in position resulting in coming to rest on the ground or a lower level. Falls among elderly individuals are a significant public health concern due to their high prevalence, associated complications, and impact on quality of life. They occur in 30% of adults aged over 65 years annually [2], for whom the consequences are more serious, despite concerted efforts of researchers and clinicians to understand, assess and manage their risks and causes. In addition to personal distress, falls and fall-related injuries are a serious health care problem because of their association with subsequent morbidity, disability, hospitalization, institutionalization and mortality [1, 3, 4]. Evidence suggests that many falls are preventable through appropriate interventions, including patient education, environmental modifications, and behavioral changes. Educating elderly patients about fall risk factors and preventive measures empowers them to actively participate in their own safety. However, traditional educational methods may be less effective among elderly individuals due to low literacy levels, cognitive decline, or sensory impairments. Pictorial educational materials are an effective teaching strategy for elderly patients as they enhance comprehension, retention, and recall of information. Visual aids can convey complex information in a simple and understandable manner, making them especially beneficial for individuals with limited reading ability. A pictorial educational booklet can serve as a practical, cost-effective, and easily accessible tool to reinforce knowledge on fall prevention measures both during hospitalization and after discharge. Despite the availability of fall prevention guidelines, there is a need to evaluate the effectiveness of structured, pictorial-based educational interventions among elderly patients in tertiary care settings. Assessing the impact of such educational tools on patients' knowledge can help nurses and healthcare professionals implement evidence-based strategies to reduce fall-related risks. Therefore, the present study was undertaken to assess the effectiveness of a pictorial educational booklet on fall preventive measures among elderly patients admitted to selected tertiary care hospitals. The findings of this study may contribute to improved patient education practices, enhanced safety measures, and better health outcomes for the elderly population.

Material and Method

The study was conducted in July – Oct 2025. A quantitative research approach with a survey research design was used to assess the knowledge of sample at the Apollo Hospitals Nashik. Permission from the Medical Superintendent at Apollo Hospitals Nashik and ethical clearance from the organizational ethical committee were taken before starting the study. A total of 100 samples were taken (hospitalized patients). A convenient sampling technique was used for data collection. The inclusion criteria for sample collection were hospitalized patients. The subjects were given a structured questionnaire form to fill out and give responses. Before the questionnaire was given to the participants, consent was taken, and aims and objectives were explained

to them. The structured questionnaire to assess the knowledge regarding prevention of fall has two sections, Section 1 consists of demography and Section 2 questionnaire to assess patient knowledge. In this study (H0) is no significant reduction in the incidence of falls and improvement in knowledge of patient. (H1) will be a significant reduction in the incidence of falls. (H2) will be a significant improvement in the knowledge regarding fall preventive measures.

Result

There were 100 people who responded, during the study period, and the overall response rate was 100%. Descriptive (Frequency &percentage) was used to assess the sociodemographic characteristics of samples

Table 1: Study sample distribution by sociodemographic characteristics

Variable	Option	Frequency	Percentage
Gender	Male	38	38
	Female	62	62
Age group	<65–69	77	77
	70–79	7	7
	≥ 80	16	16
Marital status	Married	79	79
	Single	4	4
	Widow	17	17
	Separation/divorce	0	0
Educational Status	Below primary education	20	20
	High School education	10	10
	Illiteracy	6	6
	Primary education	28	28
	Secondary education	36	36
Occupation	Employed or Self-employed	56	56
	Retired	44	44
Fall risk assessment	At risk	90	90
	No risk	10	10
Use assistive tools	Cane	5	5
	Crutch	15	15
	Mobility support framework	67	67
	Other instruments	13	13
Duration of hospital stay	< 1 Week	64	64
	>1 Week	36	36
Reason for admission to the hospital	Medical condition	85	85
	Surgical condition	15	15
Any known case of Comorbidity	Dementia	6	6
	Diabetes	17	17
	Hypertension	26	26
	Mental retarted	1	1
	Neurological disorders	50	50

Table 1 depicts subject distribution by socio-demographic characteristics

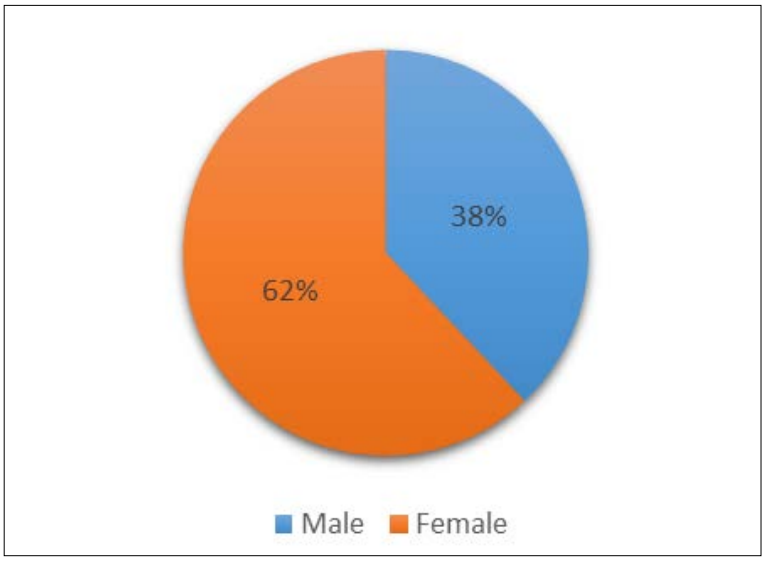

Fig 1: Frequency & Percentage of Subject According To Gende

Figure 1 depicts that the highest percent (62%) of the study samples were male and the lowest percent (38%) of the study samples were female.

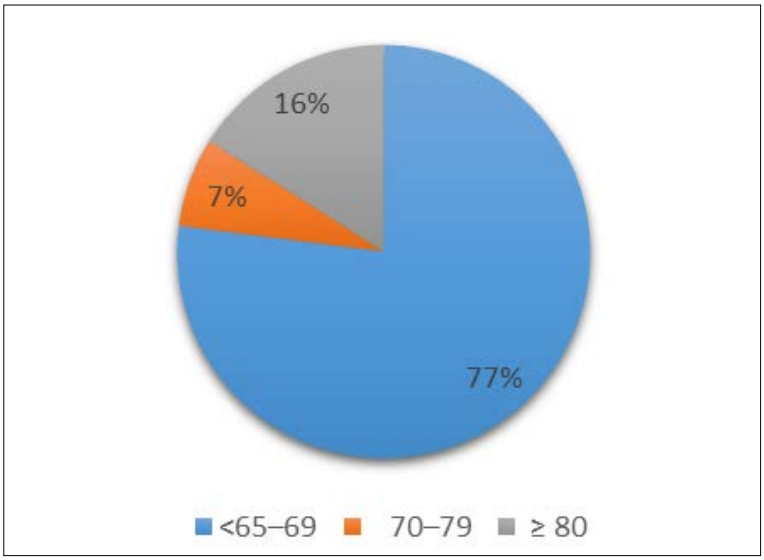

Fig 2: Frequency & Percentage of Subject According To Age

Figure 2 depicts that the highest percent (77%) of the study samples were between the age group of (<65-69years) and the lowest percent (7%) of the study samples were between the age group of (70-79years) and 16% were sample between the age group of (>80years)

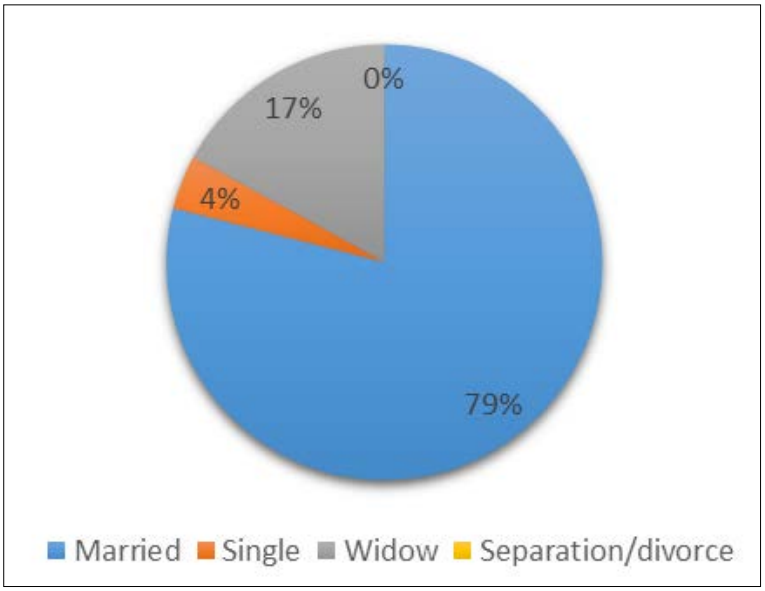

Fig 3: Frequency & Percentage of Subject According To Marital Status

Figure 3 depicts that the highest percent (79%) of the study samples were married and (17%) samples were widow and (4%) of the study samples were single and the none of the sample (0%) of the study samples were never separated or divorced.

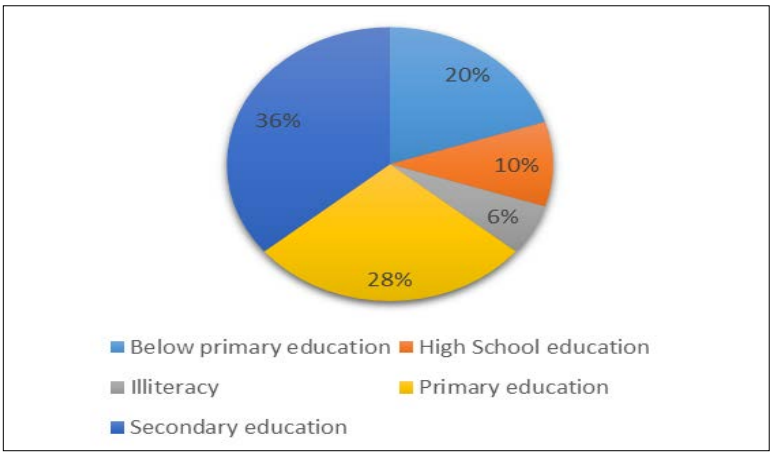

Fig 4: Frequency & Percentage of Subject According To Educational Status

Figure 4 depicts that the highest percent (36%) of the study samples were having secondary education (up to 10th standard), (28%) of the study samples of were primary education (up to 7th standard), (20%) of the study samples were having below primary education (<7th standard), and the (10%) of the study samples were having high school education (12th standard, degree and above education holder) and lowest (6%) samples were Illiterate.

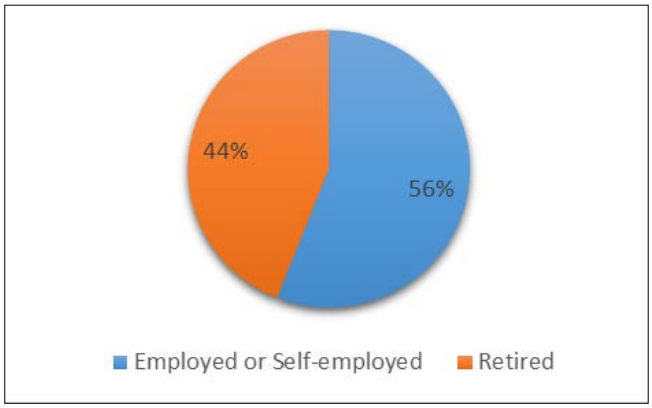

Fig 5: Frequency & Percentage of Subject According To Occupation Status

Figure 5 depicts that the percent (56%) of the study samples were employed or Self-employed and the percent (44%) of the study samples were retired.

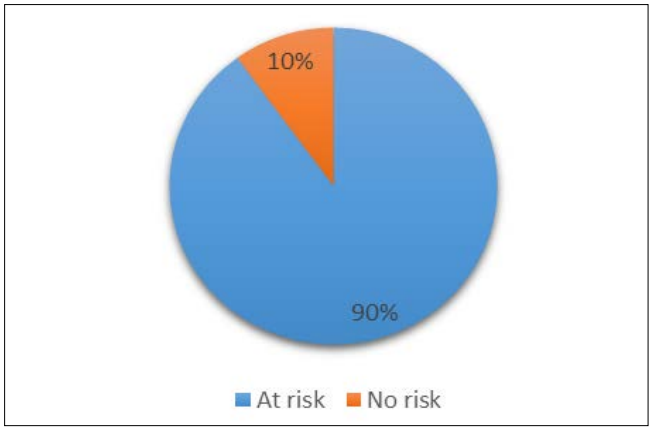

Fig 6: Frequency & Percentage of Subject According To Fall Risk Assessment Status

Figure 6 depicts that the highest percent (90%) of the study samples were at risk for fall, (10%) of the study samples were no risk for fall.

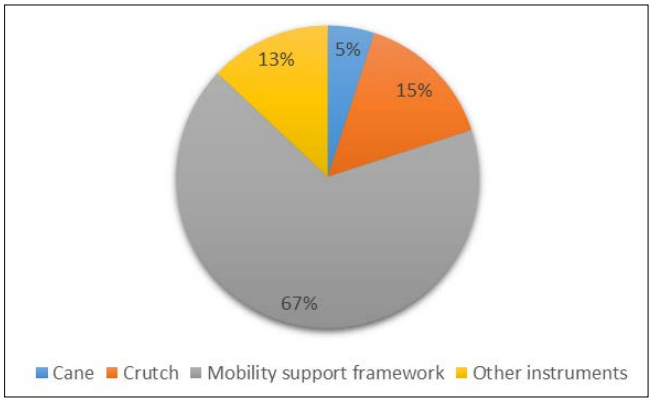

Fig 7: Frequency & Percentage of Subject According To Use Assistive Tools Status

Figure 7 depicts that the highest percent (67%) of the study samples were using in the Mobility support framework (e.g. support of others), (15%) of the study samples were using Crutch and (13%) Other instruments and the lowest percent (5%) of the study samples were using Cane.

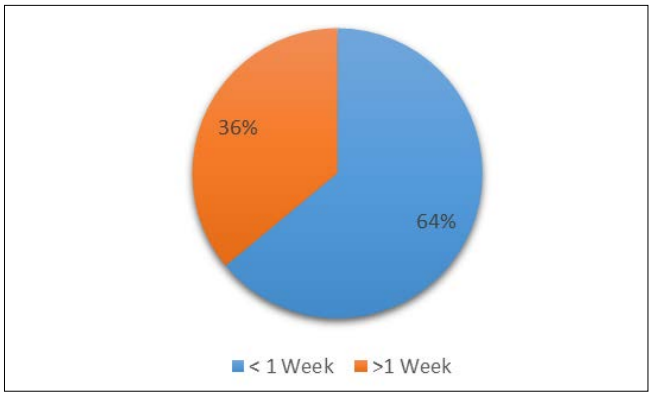

Fig 8: Frequency & Percentage of Subject as Per Duration of Hospital Days Status

Figure 8 depicts that the highest percent (64%) of the study samples were hospitalized for < 1 Week, (36%) of the study samples were were hospitalized for >1 Week.

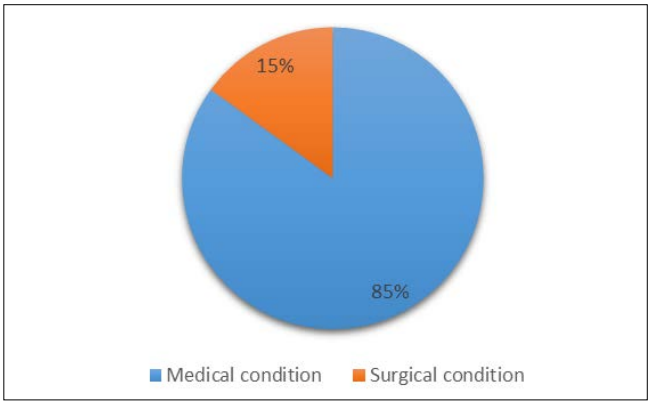

Fig 9: Frequency & Percentage of Subject Reason for Admission to the Hospital Status

Figure 9 depicts that the highest percentage (85%) of the study samples were admitted with medical condition, (15%) of the study samples were admitted with surgical condition.

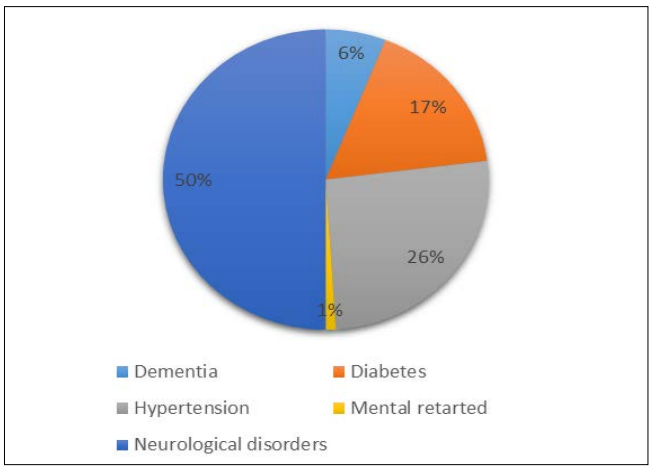

Fig 10: Frequency & Percentage of Any Known Case of Status

Figure 10 depicts that the almost half of the percent (50%) of the study samples were having Neurological condition, (26%) of the study samples were having Hypertension and (17%) samples were having Diabetes, (6%) samples were having Dementia and lowest percent (1%) of the study samples were mentally retarted.

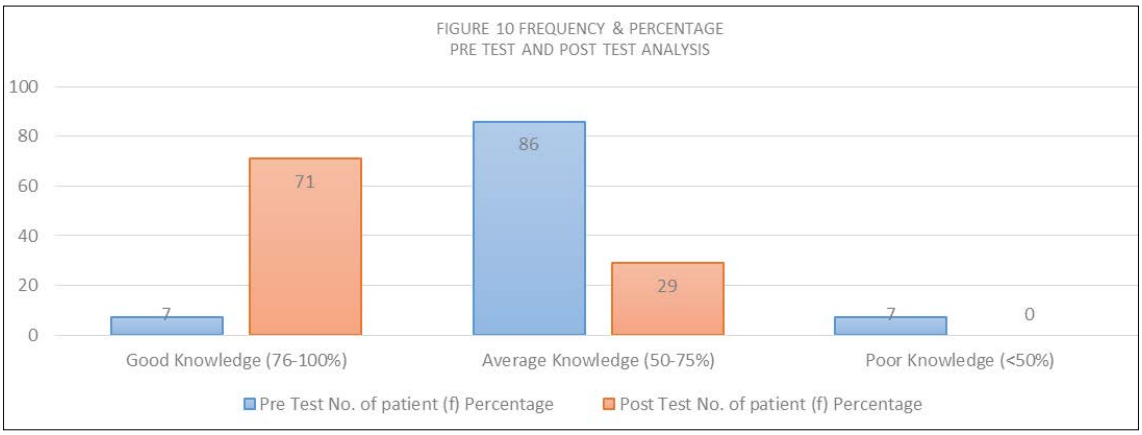

Fig 11: frequency & percentage Pre test and post test analysis

Figure 11 depicts the mean, standard deviation, and paired t-test scores of structured knowledge questionnaires. The mean score & standard deviation of the post-test (8.07, SD = 0.08) was significantly higher than the mean score & standard deviation (5.52, SD = 1.11). As per the paired t-test result of pre-test and post-test is (18.1811) and The two-tailed P value is less than 0.0001. So the research hypothesis - (H2) To assess the knowledge of elderly patients on fall preventive measures after pictorial PFE.

Discussion and Conclusion

The research hypothesis (H2) is supported and accepted. The implementation of pictorial PFE was highly effective in enhancing the knowledge of elderly patients regarding fall preventive measures. This statistical result confirms that the observed change is both mathematically robust and significant, providing a strong basis for recommending pictorial PFE as an educational tool for elderly fall prevention. Other study shown significant similarity with result. A 2025 quasi-experimental study specifically examining booklet media for fall prevention in the elderly found that the intervention group achieved a significant increase in knowledge scores (mean post-test of 12.60 vs. control of 8.85, $p = 0.000$). This mirrors result where the post-test mean (8.07) was significantly higher than the pre-test (5.52) [5]. Research published in 2025 highlights that while verbal instructions or videos alone can improve perception, the addition of a physical leaflet or booklet yields the highest scores in fall prevention behaviors compared to single-media interventions [6]. Study tracked through 2025 noted that structured educational programs significantly increase fall prevention awareness between baseline and 52-week follow-up ($p < 0.05$), reinforcing the value of your H2 hypothesis regarding post-education knowledge assessment [7]. A 2024–2025 descriptive study at a tertiary care hospital in Pune found that without intervention, 15.6% of elderly patients had "poor" knowledge and 51.1% had only "average" knowledge, underscoring the critical need for your pictorial booklet intervention [8].

Discussion

Significant Knowledge Gain: The increase in mean knowledge scores from the pre-test (5.52 ± 1.11) to the post-test (8.07 ± 0.08) indicates a substantial improvement in the elderly patients' understanding of fall preventive measures.

Statistical Strength: A paired t-test value of 18.1811 is exceptionally high, suggesting that the difference between the pre-test and post-test scores is far beyond what could be attributed to random chance.

Probability Analysis: The two-tailed P value of < 0.0001 provides "extremely strong evidence" against the null hypothesis. It means there is less than a 0.01% probability that this improvement in knowledge happened by accident.

Reduced Variance: The notably smaller standard deviation in the post-test (0.08) compared to the pre-test (1.11) suggests that the intervention (Pictorial PFE) not only improved knowledge but also made the group's knowledge level more uniform and consistent.

Recommendations

Based on the conclusions, the study recommended the following:-

1. Hospitals should integrate pictorial educational booklets into the standard admission protocol for all patients aged 65 and above to ensure early fall risk awareness.
2. Nursing staff should be trained to use structured knowledge questionnaires, such as the one used in this study, to verify patient understanding before discharge.
3. Future research should track the actual incidence of falls following the intervention to correlate improved knowledge scores with a measurable reduction in physical fall events.

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