

Effectiveness of Structured Fall Prevention Protocols on Perception of Fall Risk among Patients and reduction in incidents of patient fall in a tertiary care Hospitals

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Abstract: Falls are upsetting to patients, family members, and health care providers and patient education is one approach to falls mitigation. Despite the use of fall prevention protocols, falls continue to happen in the health care organizations. The ensuring use of call bell, wear anti-slip footwear, use of walking frames when prescribed, and avoid multi-tasking, are some ways to minimize the risk of injury. By focusing on vulnerable adult patients admitted to hospitals, we aim to enhance patient safety and reduce the incidence of falls. The study aimed to evaluate the effectiveness of Structured Fall Prevention Protocols on Perception of Fall Risk, adherence to preventive measures and prevention for falls among patients. Quantitative research approach and quasi- experimental research design was used to conduct the study. 100 adult patients admitted in general wards and 50 nurses were selected using convenience sampling method. In the pre-test, out of 100 vulnerable patients, only 35 patients perceived that they can have a fall without assistance. Interventions like training of registered nurses on strengthening of patient education on fall and other measures like call bell, side rails up, assistance while ambulation etc. were implemented. Few (37 patients) were aware about the factors contributing to fall and its preventive strategies. A strong correlation ($r=0.89$) between before- and after-intervention knowledge was shown among the patients.

Keywords- Fall prevention protocol, fall risk, patient fall in hospital, vulnerable patient

INTRODUCTION

Falls within hospital pose significant risks, especially for vulnerable adult patients. These incidents often lead to adverse outcomes, including injuries, prolonged hospital stays, and elevated healthcare costs. Structured fall prevention protocols are designed to mitigate these risks through a comprehensive, multi-faceted approach. This research examines the effectiveness of these protocols in

influencing patients' perception of fall risk, adherence to preventive measures, and prevention for falls among patients.

The incidents of patient falls and related injuries in hospitals are distressing life events for the patients, their family members, the assigned nurses and the organization. In spite the use of fall prevention measures, falls continue to happen in our hospital. Somehow half of the falls in the health care organization occur either during early morning hours or for toileting¹. Falls increase their length of hospitalization, reduce their quality of life, and are also costly for the patients and the hospital. Patient falls not only increase patients' length of stay and healthcare costs but may also trigger lawsuits resulting in settlements with huge costs due to patient injury. Not all patient falls are foreseeable or unavoidable in health care organization. Some falls are simply the result of individual physiological responses to illness or treatment in care settings in which patient ambulation is essential for recovery².

For instance, instead of ringing for assistance, a patient goes out of bed alone, crossing over the bed side rails to go to the washroom, and ultimately leading to adverse event related to fall because of ignoring his vulnerability to fall.

MATERIAL AND METHODS

Quantitative, prospective research approach and quasi- experimental research design was used to conduct the study in a selected tertiary care hospital. 100 adult patients admitted in general wards and 50 nurses were selected using convenience sampling method. The independent variables are the training of staff nurses on patient education, safety measures and

assistive devices related to fall. The dependent variables are incidents of patient fall and perception of patient about their vulnerability to fall. The below mentioned interventions were categorized into groups based on the implementation of structured fall prevention protocols. These protocols included:

1. Education: Conducting training sessions for both patients and healthcare staff to inform them about fall risks and prevention strategies like implementing safety measures in the hospital environment, such as improved lighting, non-slip flooring, accessibility aids, call bells, vulnerable wrist band, keeping side rails up always, providing patients with bed alarms, handrails, and mobility aids to prevent falls.
2. Regular Assessments: Performing routine fall risk assessments and audits using validated checklist to identify and address potential risks. The audits were performed by nursing quality managers and the nursing teaching faculty members.

The tool had three sections: Section A describes the demographic proforma of the vulnerable patients like age, gender, diagnosis, vulnerability to fall (based on fall risk assessment tool) etc.; Section B showcases the demographic proforma of the staff nurses like age, gender, clinical unit posted etc.; Section C is a structured questionnaire on perception of patients about their risk of fall, which has six items having two options “yes” and “no”. The maximum score was 6 and minimum 0, score more than three implies awareness about their fall risk.

The data was collected from April 2024 to June 2024. Written consent was taken from each participant (staff nurses and the patients) before data collection. A pre-assessment was done regarding patients’ perception about their risk to fall in hospital setting and the staff nurses, then were given training on reinforcing patient education regarding prevention of patient fall. After 10 days of staff training, a post- assessment of patients’ perception about their risk to fall in hospital setting was conducted by using the same questionnaire. Other measures like vulnerable patient identity band, side

rails up, call bell, grab bars, safe footwears etc. were already in practice and their exercise was reinforced and audited in the study. Pre- and post-implementation surveys were used to collect data on patients’ perception of fall risk, adherence to the protocols, and incidents of fall.

RESULTS

As given in the table 1, out of 100 vulnerable patients, 32 were in age group 40-50 years, 35 in age group of 50-60 years and 33 were above 60 years. Majority (66) patients were males and were suffering from neurological disorders. Table 2 showcases the background information of the staff nurses. Out of 50 staff nurses, 23 (46%) were in age group 21-25 years, majority 45 (90%) were females, had staff nurse designation (41, 82%) and had work experience of 3-5 years (19, 38%)

The study results indicated a notable improvement in all three measured outcomes:

- Perception of Fall Risk: As depicted in figure 1, there was a 26% increase in the number of patients who accurately perceived their fall risk after the implementation of the protocols. It improved patients’ knowledge regarding contributing factors of fall. In the pre- assessment, out of 100 vulnerable patients, only 37 patients perceived that they can have a fall without assistance, whereas in post- assessment, 63 patients perceived this correctly.
- The paired t-test was used to determine the mean difference between pre- and post-intervention. A *p*-value of less than 0.05 was considered statistically significant. As depicted in table 3, paired t-test analysis showed a statistically significant difference.
- Reduction in Patient Fall: As shown in figure 2, in April 2024, six incidents of patient fall were observed, whereas after the implementation of the preventive measures, it reduced to one in May and zero in June 2024, which further depicts the effectiveness of the structured protocols.

Table 1: Background Information of the Vulnerable Patients

n=100			
S. No.	Item	Frequency (f)	Percentage (%)
1	Age (in years)		
a	40- 50	32	32
b	50-60	35	35

c	Above 60	33	33
2	Gender		
a	Male	66	66
b	Female	34	34
3	Diagnosis/ Organ system involved		
a	Cardiovascular	12	12
b	Respiratory	11	11
c	Neurological	29	29
d	Gastrointestinal	16	16
e	Genito- Urinary	8	8
f	Eye/ ENT	5	5
g	Musculoskeletal	9	9
h	More than one system involved	12	12

Table 2: Background Information of the Staff Nurses

n=50

S. No.	Item	Frequency (f)	Percentage (%)
1	Age (in years)		
a	21-25	23	46
b	25-30	14	26
c	30-35	8	16
d	Above 35	5	10
2	Gender		
a	Male	5	10
b	Female	45	90
3	Designation		
a	Staff Nurse	41	82
b	Team Leader	9	18
4	Work Experience (in years)		
a	0-1	5	10
b	1-3	14	28
c	3-5	19	38
d	More than 5	12	24

Table 3. Effectiveness of Structured Fall Prevention Protocols on Perception of Patients

n=100

Perception Score	Pre- Intervention			Post- Intervention			p- value
	N	Mean Score (+SE)	SD	N	Mean Score (+SE)	SD	
Negative	63	2.65 (+0.15)	1.54	37	4.65 (+0.10)	1.09	10.6*
Positive	37			63			

*Significant @p<0.05

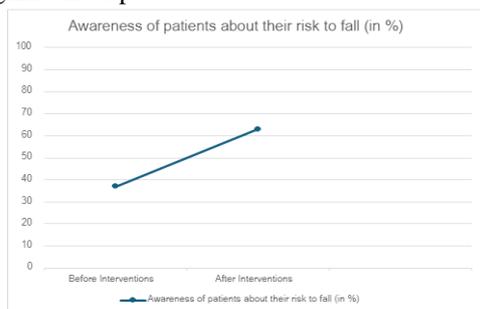


Figure 1: Perception of patients about their risk to fall

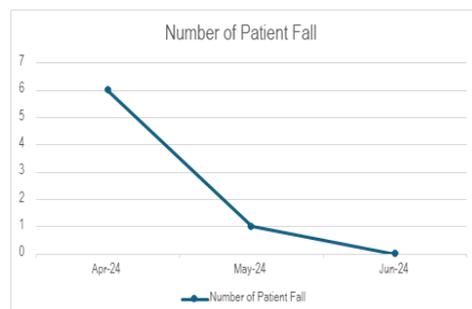


Figure 2: Number of Patient Fall

DISCUSSION

The findings demonstrate the effectiveness of structured fall prevention protocols in enhancing patient safety and satisfaction. Educating patients and healthcare staff about fall risks and prevention strategies is essential for fostering a culture of safety. Environmental modifications and assistive devices further support these efforts by creating a safer hospital environment. Regular assessments enable continuous monitoring and timely intervention, thereby reducing the incidence of falls.

A study by Priya Manirajan et al⁴ on “Enhancing knowledge, attitude, and perceptions towards fall prevention among older adults: a pharmacist-led intervention in a primary healthcare clinic, Gemas, Malaysia” suggested the similar findings that pre-intervention, 74.84% of the respondents (n = 232) agreed that falls and related fractures are the main reasons of hospital admission among older adults. In post-intervention, the number of respondents who agreed with this statement increased to 257 (82.91%). At baseline, 28 adults (9.03%) had poor knowledge, 160 (51.61%) had average knowledge, and 122 adults (39.35%) had good knowledge. After intervention, respondents with poor and average knowledge reduced to 1.93% (n = 6) and 29.35% (n = 91) respectively. A majority of respondents’ knowledge levels improved significantly after the intervention (n = 213; 68.71%). About eight respondents (2.58%) had a negative perception of falls. In post-intervention, the percentage reduced to 0.65% as only two respondents had a negative perception.

Another study by Afaf Mufadhi Alrimali⁵ on “Fall Prevention Knowledge, Attitudes, and Practices among Nurses in Saudi Arabia” found that significant differences existed in knowledge scores among nurses in hospitals.

CONCLUSION

Nursing interventions should focus on informing patients and their family members about the increased risk of falls in the hospital, as well as what actions are successful in preventing falls. Because the hospital is a new environment with unfamiliar surroundings and equipment. When completing activities such as going to the restroom and getting out of bed, who are hospitalised should be continuously supervised and assisted. There is mounting evidence that hospital falls

prevention interventions that include patient education can minimise falls. Despite the fact that no single approach of patient education has been found to be beneficial for everyone, this scoping research has revealed some essential elements.

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