

***Assessment of fall risk and it's contributing factors in patients and evaluate the practice adherence to fall prevention SOP among staff nurses at a selected hospital at Kolkata***

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**Broad area and specific area:** Broad area- M.sc nursing (2025-27)

Specific area- Medical-surgical nursing (oncology)

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### **Introduction:**

Falls, in healthcare settings, particularly within hospitals, represent a significant challenge where they are among the most frequent adverse incidents affecting patient safety. These incidents not only complicate the prognosis of the patient but also contribute to increased morbidity and mortality, extended hospital stays, elevated healthcare costs, and poor quality of life for patients. The complexity of fall risk arises from a combination of internal patient factors—such as age, comorbidities, medication effects, cognition and mobility limitations—and external or environmental factors, including hospital infrastructure, facilities and staff practices.

Despite the consistent implementation of standardized fall prevention protocols and guidelines, what stays inconsistent is the proper adherence to these measures across healthcare facilities. Variability in practice adherence can diminish the effectiveness of fall prevention strategies, resulting in preventable patient injuries. Therefore, a comprehensive assessment of fall risk factors, alongside an evaluation of healthcare providers' compliance with established Standard Operating Procedures (SOPs) for fall prevention, is essential. This dual approach aims to identify gaps in current practices, enhance patient safety initiatives, and ultimately reduce the incidence of falls within hospital settings.

### **Background and justification of the study:**

Falls result from a complex interplay of intrinsic factors, including advanced age, chronic illnesses, polypharmacy, cognitive impairment, and mobility limitations, as well as extrinsic factors such as environmental hazards, inadequate staffing, and inconsistent implementation of preventive measures. The adherence to Standard Operating Procedures (SOPs) for fall prevention, including environmental safety checks, patient education, and use of assistive devices, is critical to reducing fall incidence.

Falls in hospital settings are a major public health concern worldwide, contributing significantly to patient morbidity, mortality, and increased healthcare costs. The World Health Organization identifies falls as a leading cause of injury among older adults, with hospital environments posing unique risks due to patient vulnerability and complex care needs. In India, while hospital falls are recognized as a critical issue, there is a paucity of comprehensive data on fall risk assessment and adherence to prevention protocols, particularly in tertiary care settings.

Globally, hospital falls represent a major patient safety concern, contributing to increased morbidity, mortality, prolonged hospital stays, and higher healthcare costs. Studies indicate that 2-15% of hospitalized patients experience falls, with many incidents resulting in serious injuries such as fractures, head trauma, and functional decline. According to the World Health Organization, falls are the second leading cause of unintentional injury deaths worldwide, with approximately 37.3 million falls severe enough to require medical attention occurring each year. Adults over 60 years are particularly vulnerable, and over 80% of fatal falls occur in low- and middle-income countries.

- **Total Incident Cases:** In 2021, approximately **540.88 million prevalent cases** of falls were recorded globally, including **215.57 million new (incident) cases**.
- **Older Adults (65+):** This group accounted for **45.6 million new falls** in 2021 alone, a massive increase from previous decades.
- **Recent Upswing:** Between 2018 and 2021, the global age-standardized incidence rate (ASIR) saw a **modest increase of 0.78% annually**, reversing previous downward trends.
- **Mortality:** Global fall-related deaths reached approximately **802,803** in 2021, nearly doubling since 1990
- **India:** Large-scale data from the Longitudinal Aging Study of India (LASI) (2017–2019) found a **11.43% prevalence** of falls among 28,710 elderly participants

In India, hospital falls are an emerging concern with limited comprehensive data available. A systematic review indicates a significant burden of falls among patients, contributing to morbidity and mortality, yet hospital-based fall risk assessments and prevention adherence studies remain sparse. National health statistics highlight the need for improved patient safety measures, including fall prevention protocols. Standard Operating Procedures (SOPs) for fall prevention have been developed to mitigate these risks by promoting consistent, evidence-based practices among healthcare providers.

However, despite the availability of SOPs, adherence to these guidelines remains variable, often due to gaps in staff training, resource constraints, and organizational challenges. Evaluating both the prevalence of fall risk and the degree of SOP adherence is crucial to identifying barriers and facilitators to effective fall prevention.

This study is justified as it aims to fill the knowledge gap. by identifying the prevalence of fall risk among newly IPD patients in a tertiary hospital in Kolkata, exploring contributing internal and external factors, and evaluating healthcare providers' adherence to fall prevention SOPs. The findings will provide evidence to inform targeted interventions, improve clinical practice, and enhance patient safety outcomes in similar healthcare settings.

**Problem statement:** *Assessment of fall risk and it's contributing factors in patients and evaluate the practice adherence to fall prevention SOP among staff nurses at a selected hospital of Kolkata*

### **Objectives:**

- ~ To determine the level of fall risk among IPD patients.
- ~ To identify the factors contributing to fall risk among patients.
- ~ To evaluate practice adherence to fall prevention SOP among staff nurses.

### **Literature review:**

- Incidence and Risk Factors of Falls Among Older People in Nursing Homes: Systematic Review and Meta-Analysis (2023 Nov;24)

This systematic review and meta-analysis of 18 prospective studies found that 43% (95% CI 38–49%) of older adults in nursing homes experience falls, with incidence showing a gradual decline from 1998 to 2021. Strong risk factors included fall history, impaired ADL performance, insomnia, and depression, while moderate associations were seen with vertigo, walking aids, poor balance, psychotropic medication use, dementia, and male gender. Interestingly, bed rails acted as a protective factor. The study concludes that fall risk assessments should emphasize mobility, balance, medical conditions, and medication use, while future research should further explore environmental influences to guide tailored prevention strategies.

- Factors associated with falls in hospitalized adult patients (may 2015)

This retrospective study examined 160 hospitalized patients in a medical-surgical unit (2012) to identify fall risk factors. Falls remain a major concern, affecting 700,000–1,000,000 patients annually in U.S. hospitals. Multivariate analysis revealed that age, narcotic/sedative use, and overnight shifts significantly increased fall risk, while cardiovascular or neuromusculoskeletal disease, evening shifts, fall prevention strategies, and higher RN-to-assistive staff ratios reduced risk. Importantly, patients classified as high risk on the Hendrich I fall scale were 17% more likely to fall. The study concludes that fall risk assessments, prevention strategies, and strong RN presence are critical in reducing falls among hospitalized adults, highlighting workforce and clinical factors as key determinants.

- Inpatient Falls: Epidemiology, Risk Assessment, and Prevention Measures. A Narrative Review (Oct 1, 2024)

This review highlights that inpatient falls are the most common preventable adverse events in hospitals, affecting 700,000–1 million patients annually, with up to one-third resulting in injury and about 10% causing serious harm. Falls increase morbidity, prolong hospital stays (average 37.2 vs. 25.7 days for non-fall patients), and add significant costs—injurious falls averaging \$64,526, while prevention programs saved \$22 million over 5 years. Risk factors are both intrinsic (age, impaired mobility, cognitive decline, malnutrition, polypharmacy, stroke history) and extrinsic (poor lighting, slippery floors, inappropriate footwear, medication effects). Assessment tools such as the Hendrich II Fall Risk Model, Morse Fall Scale, and STRATIFY help identify high-risk patients, though each has limitations. Prevention strategies include patient and staff education, environmental adjustments, scheduled toileting, bed alarms, and nutrition interventions. Evidence shows that multifactorial, patient-centered approaches—engaging patients and families—reduce falls by 15% and fall-related injuries by 34%. Despite barriers like staffing shortages and inconsistent guidelines, tailored interventions targeting modifiable risks remain essential to improving patient safety and reducing healthcare costs.

- Efficacy of standard operating procedures for fall protection in hospitalized patients with schizophrenia (Oct 17, 2023)

This quasi-experimental study investigated the effectiveness of fall protection standardized operating procedures (FP-SOP) in reducing falls among long-term hospitalized male veterans with schizophrenia in China. A total of 687 patients were observed for one year, with 345 in the control group (routine nursing) and 342 in the FP-SOP group (routine nursing plus FP-SOP). Results showed a significant reduction in falls: 1.5% in the FP-SOP group vs. 4.6% in the control group. Medium-risk patients had a fall rate of 11.4% with FP-SOP compared to 34.3% in controls, while high-risk patients showed 14.3% vs. 50%. Most falls were linked to antipsychotic side effects, psychiatric symptoms, or mobility issues. Patient satisfaction was also significantly higher in the FP-SOP group (96.4% vs. 88.8%). The study concludes that FP-SOP is an effective, structured intervention that reduces fall incidence and improves patient satisfaction in psychiatric hospitals. Limitations include restriction to male patients, lack of medication dose data, and potential biases. Nonetheless, FP-SOP demonstrates strong potential as a practical fall prevention strategy in psychiatric care settings.

## **Variables & operational definition of terms:**

### Research variable

- Contributing Factors: In this study, contributing factors refers to selected measurable variables that may influence the fall risk in IPD patients. Intrinsic Factors (Age, gender, history of previous falls, gait/mobility status, cognitive status (orientation and presence of chronic illnesses) and Extrinsic Factors (Type of medications, use of assistive devices, and environmental conditions)

### Outcome variable

- Fall risk: In this study fall risk refers to the score obtained through assessment of patients using John Hopkins Fall Risk Assessment Tool
- SOP adherence: In this study SOP adherence refers to  $\geq 80\%$  compliance to fall prevention SOP of a selected hospital at Kolkata by the staff nurses via an observational checklist.

#### Staff nurse

In this study, staff nurse refers to registered nurses providing direct patient care in Selected hospital, kolkata with a minimum of three months of work experience.

#### Patients

In this study, patients refer to the adult IPD patients aged  $>18$  years in general wards, private wards and Intensive care units

**Research approach:** Quantitative approach.

**Research design:** Descriptive design.

**Settings:** General ward, private ward, ICU of Tata medical centre, Kolkata.

#### Population:

- Adult IPD patients aged  $>18$  years in general wards, private wards and Intensive care units of Tata medical centre, Kolkata.
- Staff nurses working for  $\geq 3$  months giving direct care to patients

**Sample:** 200 IPD patients & 50 staff nurses

#### Sampling technique and sampling criteria:

- Stratified random sampling for patients
- Simple random for nurses

#### Inclusion criteria:

- Patients admitted in IPD (wards & ICU)
- Patients  $>18$  yrs of age
- Nurses working for  $\geq 3$  months

#### Exclusion criteria:

- Patients unwilling to give consent
- Unconscious patients

#### Sample size calculation & feasible sample size:

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Using prevalence of high fall risk (30%, per Indian studies) at 95% CI, 5% margin: (Cochran formula)

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{e^2} = 323$$

Adjusted for 20% non-response: 388.

Feasible sample: 250 (200 patients + 50 nurses) due to time/resource constraints.

### Data collection tools and technique:

Tool	Data collection tool	Variables	Techniques
Tool-1	Modified JHFRAT primary tool : Score $\geq 6$ indicates elevated risk; subscales identify specific contributors.	Assessment of fall risk and its contributing factors	Patient chart audits + bedside assessments
Tool-2	Observational checklist	SOP adherence	Paper and pencil method

### Steps of data collection:

Administrative permission will be taken from the IRB & HOD of Tata Medical Center



20 pilot sample will be selected among the patients & 5 among nurses by stratified sampling technique.



Informed Consent for participation in the study will be taken from the sample



Fall risk score/level & contributing factors will be assessed for the pilot sample



SOP adherence will be assessed for nurses through an observational checklist

### Ethical consideration:

- Ethical permission will be taken from IRB (Institutional review board).
- Ethical permission will be taken from Institutional Ethics Committee of Tata medical centre, Kolkata.
- Administrative permission will be taken from Principal of Tata medical centre, Kolkata.
- Informed consent will be taken from respondents before data collection.
- Confidentiality and anonymity of information will be ascertained.

### Plan for statistical analysis:

Descriptive statistics- percentage & frequency

Inferential statistics

**Budget:** INR 20000/- (approx)

### References:

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2. Cox J, Thomas-Hawkins C, Pajarillo E, DeGennaro S, Cadmus E, Martinez M. Factors associated with falls in hospitalized adult patients. *Appl Nurs Res.* 2015;28(2):78-82. doi:10.1016/j.apnr.2014.12.003. PMID: 25908542.

3. Shao L, Shi Y, Xie XY, Wang Z, Wang ZA, Zhang JE. Incidence and Risk Factors of Falls Among Older People in Nursing Homes: Systematic Review and Meta-Analysis. *J Am Med Dir Assoc.* 2023;24(9):1234-1245. doi:10.1016/j.jamda.2023.06.002. PMID: 37433427.
4. Kim YJ, Choi KO, Cho SH, Kim SJ. Validity of the Morse Fall Scale and the Johns Hopkins Fall Risk Assessment Tool for fall risk assessment in an acute care setting. *J Clin Nurs.* 2022;31(1-2):161-170. doi:10.1111/jocn.16185. PMID: 34964175.