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# Compliance Analysis of Nurses in Implementing Fall Risk Prevention in Post-Op Patients in the Jepun Room of Bali Mandara Hospital: A Case Study

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**Abstract:**
Falling risk is an increased sensitivity to falling that can result in physical injury and health problems. Nurses play a crucial role in reducing the risk of falls among patients in hospitals; therefore, nurses must adhere to established fall prevention protocols. The aim of this study is to assess nurses' compliance in implementing fall prevention measures for post-operative patients in the Jepun Room of Bali Mandara Regional General Hospital. The research design used is descriptive analysis in the form of a case study, with the study population consisting of 3 nurses from the Jepun Room at Bali Mandara Regional General Hospital. This study observes nurses' compliance in implementing fall risk prevention measures for patients. Based on observations, it was found that the implementation of mild fall risk prevention measures by 3 responsible nurses achieved 100% compliance. Specifically, ensuring non-slip footwear was applied 100% on the first day, with the lowest application being 0% on day 2 and 3. Meanwhile, measures such as providing patient orientation, obtaining patient consent to keep night lights on, and ensuring walking aids are within reach (if used) were never implemented, also at 0%. Regarding moderate fall risk prevention measures by these nurses, it was found that implementation was 100%. However, the installation of fall risk signs outside patient rooms had 0% implementation. From these findings, the role of these nurses as care coordinators in implementing fall risk prevention measures for patients is crucial to prevent undesired incidents.

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## INTRODUCTION

Patient Safety, often known as patient safety, is a medical procedure that ensures patients receive care safely. Identifying patients accurately, enhancing effective patient communication, maintaining high medication safety vigilance, ensuring correct site surgery and patient procedure, reducing infection risks, and minimizing patient fall risks are the six goals of patient safety (Salsabila, 2023). Among these goals, patient falls represent one of the most concerning adverse events in healthcare, potentially causing serious patient harm, including injury and even death. Patient falls are the second most common adverse event in healthcare after medication errors (Zarah & Djunawan, 2022; Adhitama et al., 2023). However, patient fall incidents remain high to date and require special attention.

The World Health Organization (WHO) has gathered information on 2.6 million deaths and 134 million adverse effects occurring in hospitals in low- and middle-income countries due to

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unsafe or hazardous hospital care (Fitriana et al., 2023). According to the National Committee on Patient Safety (KNKP), there has been a continuous increase in patient safety incident reports in Indonesia from 2019 to 2025. Compared to the 1,489 incidents recorded in 2019, safety incidents significantly rose to 7,465 cases by 2028. Out of these, 2,837 cases (38%) were near-miss incidents (NMI), 2,314 cases (31%) were non-injury incidents (NII), and 2,314 cases were unexpected incidents (UI). There were 171 death cases, 80 severe injury cases, 372 moderate injury cases, 1,183 mild injury cases, and 5,659 non-injury cases due to these accidents (Salsabila, 2023). The high incidence of patient falls is caused by various factors, including nurse negligence.

Due to the critical role of nurses in reducing the risk of falls, nurses must adhere to fall prevention protocols, which include conducting initial fall risk assessments, performing follow-up assessments whenever the patient's condition changes, and implementing fall prevention measures for at-risk patients (Zarah & Djunawan, 2022). Fall prevention encompasses several activities, such as risk assessment, patient risk identification and management, incident reporting and analysis, the ability to learn from events and their consequences, and the application of techniques to reduce risk and prevent injuries resulting from errors in action or failure to act (Aprisunadi et al., 2023; Karaveli et al., 2024). The process of identifying and evaluating patients at risk of falling, including specific identification measures such as using yellow wristbands to indicate fall risk among post-operative patients, lowering bed heights, installing bed rails, and providing written information to patients or families about fall risks, are examples of practices used in inpatient care (Zarah & Djunawan, 2022; Ramadhaini et al., 2022).

Based on interviews conducted with the head nurse of the Jepun Room, a third-class inpatient ward, several nurses are still less compliant in implementing fall prevention measures for patients, such as forgetting to install handrails and neglecting to place yellow fall risk warning signs on patients' beds. Additionally, from observations made, it was found that some patient beds lacked handrails, water from the AC above the door was dripping, posing a falling risk to patients and their families, and the bathroom floor was slippery with no floor mats, causing wet floors after patients exited. These factors contribute to patients having a high risk of falling during care. Based on this, nurses' compliance is crucial in preventing the risk of falls in patients. However, in reality, many phenomena still indicate nurses' insufficient compliance in efforts to avoid these risks. Therefore, an analysis is needed to assess nurses' compliance in implementing fall risk prevention in post-operative patients in the Jepun Room of Bali Mandara Regional Hospital.

## STUDY DESIGN

This study employs a descriptive design in the form of a case study used to measure a phenomenon centered around a single case. The research focuses on fall risk prevention for a specific patient by nurses in the Jepun Room of Bali Mandara Hospital during each measurement period. Data analysis in the study aims to assess nurses' compliance in implementing fall risk prevention for post-operative patients using a fall risk monitoring sheet. The study population consists of respondents selected based on inclusion and exclusion criteria. A checklist for monitoring and evaluating the implementation of fall risk monitoring protocols is used as a research tool to gather information on how nurses perform fall risk prevention for patients. Data sources for this research include both primary and secondary data. Primary data is obtained through direct observation and interviews with nurses in the ward. The researcher uses the fall risk monitoring checklist to focus on nurses' compliance in implementing fall prevention for post-operative patients.

## PATIENT INFORMATION

The patient, referred to as Mr. KT, 19 years old, was admitted to Bali Mandara Regional Hospital on March 8, 2024, with the medical diagnosis of mild head injury + comminuted left zygoma-maxilla tripod fracture + blow-in fracture of the left orbit + left coronoid fracture. He was transferred from the Emergency Department of Bali Mandara Regional Hospital to the Jepun Ward with complaints of headache and fainting post-traffic accident. The traffic accident occurred approximately 15 minutes before the patient arrived at the hospital. The patient has no memory of the incident and experienced nosebleeds.

## CLINICAL FINDINGS

Upon admission to the ward, initial assessment showed a Glasgow Coma Scale of E4V5M6, blood pressure of 128/91 mmHg, respiratory rate of 20 breaths per minute, temperature of 36.30°C, and SpO2 of 98% on room air. Physical examination revealed bruising from the eye to the left cheek area, a dirty mouth with dried blood and swelling, and an abrasion on the left leg from asphalt. On March 10, 2024, the patient is scheduled for pro-reconstruction of the orbit with bone grafting, open reduction and internal fixation (ORIF) plating of the left zygoma-maxilla, exploration of the left coronoid, and application of arch bars with MMF.

After undergoing surgery on March 10, 2024, on March 12, 2024, the researcher conducted an assessment and found that the patient complained of pain rated at 6 on the Numerical Rating Scale (NRS) at the post-operative wound site. The patient was conscious and oriented, with a blood pressure of 129/75 mmHg, heart rate of 74 beats per minute, temperature of 36.10°C, respiratory rate of 18 breaths per minute, and SpO2 of 96% on room air. The fall risk assessment obtained a total score of 12, indicating that the patient has a moderate risk of falling.

## THERAPEUTIC INTERVENTION

This study focuses on monitoring the implementation of fall risk prevention carried out by the responsible nurse care providers for Mr. KT, a post-operative patient.

### Implementation of Monitoring and Evaluation of Fall Risk Monitoring Protocol

Table 1. Fall Risk Prevention Monitoring Checklist

| Fall Risk | 12/03/2024 | | 13/03/2024 | | 14/03/2024 | |
|---|---|---|---|---|---|---|
| | Yes | No | Yes | No | Yes | No |
| Low Risk (1) | | | | | | |
| Orient the patient to the room/ ward environment | | ✓ | | ✓ | | ✓ |
| Ensure bed brakes are locked | ✓ | | ✓ | | ✓ | |
| Ensure patient call bell is within reach | ✓ | | ✓ | | ✓ | |
| Remove hazardous items, especially at night (additional chairs and others) | ✓ | | ✓ | | ✓ | |
| Obtain patient consent to keep night lights in due to unfamiliar surroundings | | ✓ | | ✓ | | ✓ |
| Ensure walking aids are accessible (if used) | | ✓ | | ✓ | | ✓ |
| Ensure non-slip footwear | ✓ | | | ✓ | | ✓ |
| Ensure personal needs are within reach | ✓ | | ✓ | | ✓ | |
| Place patient table properli to avoid obstruction | ✓ | | ✓ | | ✓ | |

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| Fall Risk | 12/03/2024 | | 13/03/2024 | | 14/03/2024 | |
|---|---|---|---|---|---|---|
| | Yes | No | Yes | No | Yes | No |
| Position the patient according to their height | ✓ | | ✓ | | ✓ | |
| Moderate Fall Risk (2) (protocol 1, 2) | | | | | | |
| Place yellow wristband and fall risk signs/symbols outside the room or above the bed | ✓ | | ✓ | | ✓ | |
| Explain to the patient and family the potential risk of falling and fall prevention measures | ✓ | | ✓ | | ✓ | |
| Encourage the patient to press the call bell promptly if assistance is needed | ✓ | | ✓ | | ✓ | |
| Assist with some Activities of Daily Living (ADL) | ✓ | | ✓ | | ✓ | |
| Respond promptly to the call bell | ✓ | | ✓ | | ✓ | |
| Review medications that pose risks | ✓ | | ✓ | | ✓ | |
| Instruct the patient to mobilize gradually; sit slowly before standing up | ✓ | | ✓ | | ✓ | |
| Install fall risk signs outside the room | | ✓ | | ✓ | | ✓ |

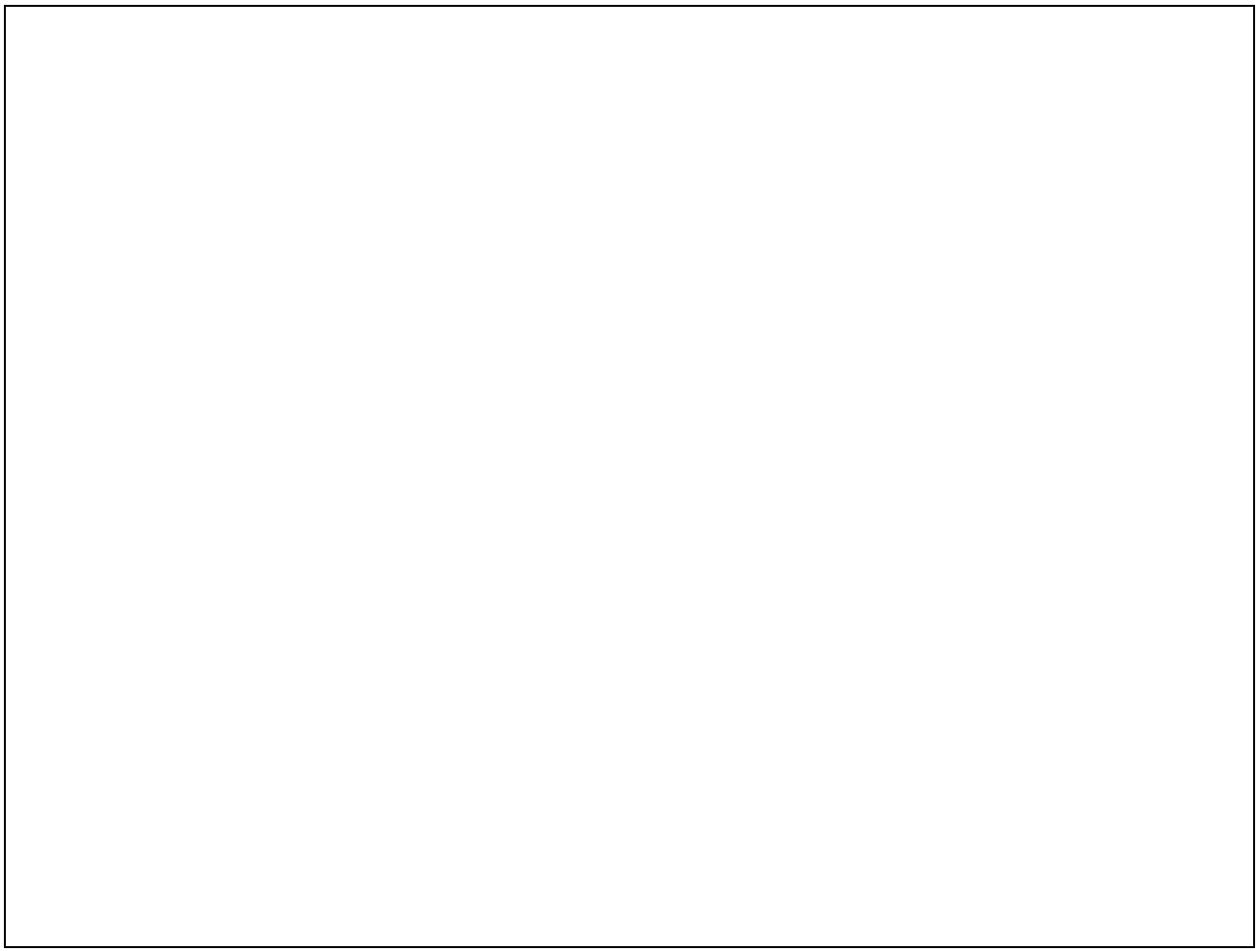

Figure 1. Chart of Law Fall Risk Prevention Implementation by Nurses for Patient Mr. KT

Based on Figure 1, in the graph of low fall risk prevention implementation for Mr. KT, it was found that the implementation of orienting the patient to the room/ward environment, obtaining patient consent to keep the night light on due to unfamiliar surroundings, ensuring mobility aids are within reach (if used) was never applied, i.e., 0% for 3 consecutive days. Meanwhile, for the indicator, ensuring bed brakes are locked, ensuring the patient call bell is accessible, removing

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hazardous items, especially at night (extra chairs, etc.), ensuring personal needs are within reach, positioning the patient's table properly to avoid obstruction, and placing the patient according to their height, it was implemented at 100% for 3 consecutive days. Regarding the indicator ensuring non-slip footwear, it was fully implemented on March 12th at 100%, and minimally implemented at 0% on March 13th and March 14th.

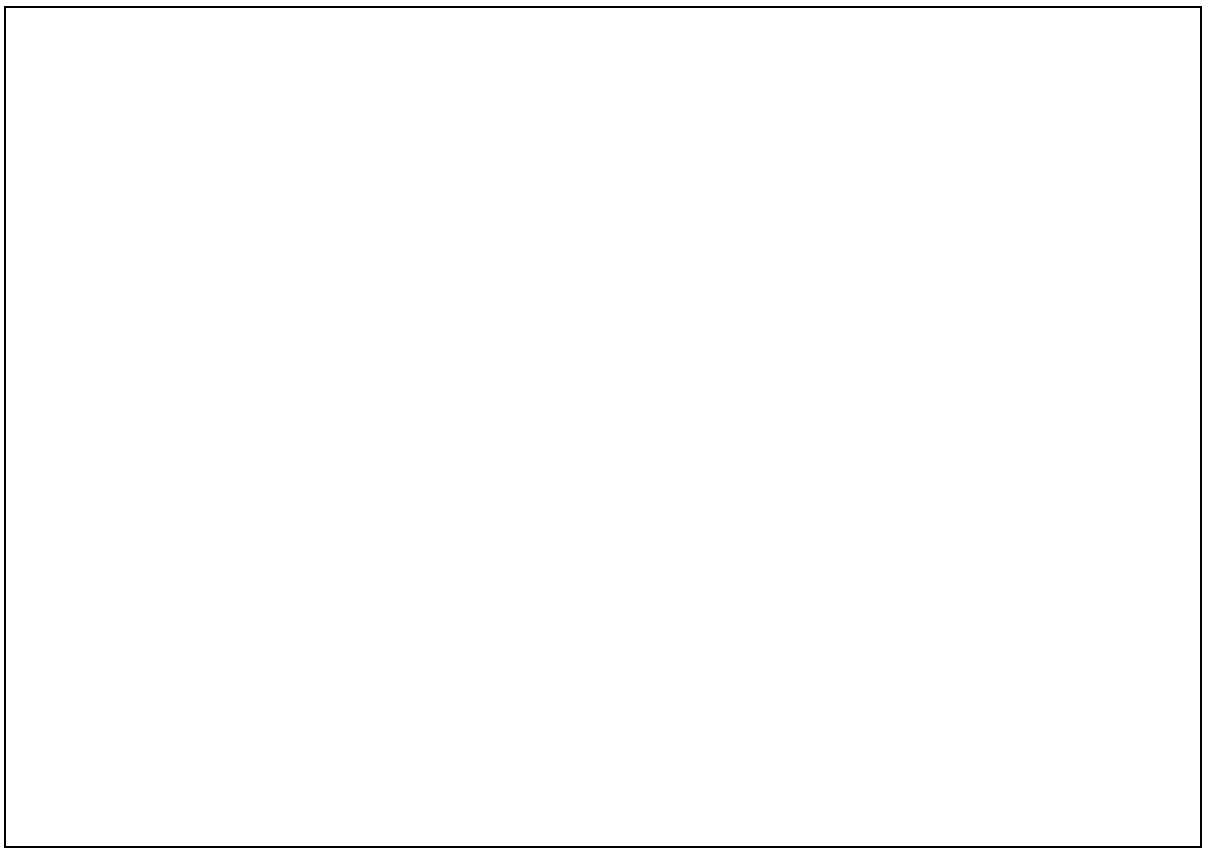

Figure 2. Chart of Law Fall Risk Prevention Implementation by Nurses for Patient Mr. KT

Based on Figure 2, it is found that in the graph of fall prevention measures applied to Mr. KT, it was observed that the implementation of wearing a yellow wristband and placing fall risk markers/symbols outside the room or above the bed, explaining the potential fall risks and preventive measures to the patient and family, asking the patient to press the call bell promptly when assistance is needed, assisting/supervising with some of the patient's activities of daily living (ADL), promptly responding to the call bell, reviewing medications that pose risks, and informing the patient to mobilize gradually: sitting up slowly before standing, were implemented at 100% for 3 consecutive days. Meanwhile, the indicator for placing fall risk markers outside the room showed a percentage of 0% implementation for 3 consecutive days.

## DISCUSSION

### Implementation of Low Fall Risk Prevention in the Care of Mr. KT

Research conducted using a checklist related to implement low fall risk prevention found that 3 care providers were compliant with implementing low fall risk prevention measures. However, nurses have not fully implemented fall risk prevention measures for patients.

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In observing the implementation of low fall risk prevention, it was found that 3 care providers were compliant in implementing low fall risk prevention measures for patients by “ensuring bed brakes are locked”, “ensuring patient call bell is within reach”, “removing hazardous items, especially at night (additional chairs and others)”, “ensuring personal needs are accessible”, “placing patient tables properly to avoid obstruction”, and “positioning patients according to their height”, This indicates that the fall prevention efforts by nurses are crucial in reducing unwanted incidents. Consistent with the study conducted by Nurhayati et al., (2020), the interventions mentioned above are efforts to minimize patient fall risks for their safety during hospitalization. However, fall prevention measures that were not implemented by the 3 care providers include “orienting patients to the room/ward environment”, “obtaining patient consent to keep night lights on due to unfamiliar surroundings”, and “ensuring mobility aids are accessible (if used)”. Based on the observations, nurses only provide room or ward orientation when patients first enter the room because orientation is only conducted when nurses and patients first meet. This is in line with the study conducted by Aditama et al. (2022), emphasizing the importance of providing orientation to patients and families for patient adjustment to a new environment, which can reduce the risk of falls.

The researchers also analyzed the barriers to nurse's compliance in obtaining patient consent to keep night lights on, due to Room Jepun being a Class 3 inpatient ward where non-isolation rooms have 6 patient beds, and not all patients are willing to keep the lights on while sleeping. Adequate lighting is crucial for nurses in implementing patient fall risk prevention measures. Consistent with the study by Daud et al. (2020), insufficiently bright lighting can affect nurses' visibility in patient care.

Based on the room observations, it was found that there were no mobility aids available when patients were in the room. However, mobility aids are typically provided when patients are about to be discharged. Mobility aids can improve patient balance, reduce limb strain, and decrease fall risk. Consistent with the study by Qamilla et al. (2023), canes and walkers can enhance balance. Crutches can provide base support, improving stability and bearing weight.

**Implementation of Moderate Fall Risk Prevention in the Care of Mr. KT**

Research conducted using a checklist related to implementing moderate fall risk prevention found that 3 care providers were compliant in implementing moderate fall risk prevention measures. However, there was 1 indicator that nurse care coordinator did not implement fall risk prevention for patients.

In observing the implementation of moderate fall risk prevention, it was found that all 3 care providers applied fall risk prevention measures to patients by “placing yellow wristbands and fall risk signs or symbols”, “explaining to patients and families the potential risks of falling and fall prevention actions”, “encouraging patients to use the call bell promptly if assistance is needed”, “assisting with Activities of Daily Living”, “responding promptly to calls”, “reviewing medications that pose risks”, and “advising patients to mobilize gradually, sit slowly before standing up”. By implementing fall prevention according to applicable standards, the frequency of patient falls will decrease. This aligns with the research conducted by Aprisunadi et al. (2023), which underscores the importance of nurse compliance with Standard Operating Procedures for fall risk to minimize patient falls.

Based on the research findings, the researchers analyzed that the indicator “placing fall risk signs outside the room” was not implemented due to Room Jepun being a Class 3 inpatient ward with non-isolation rooms having 6 beds, implying that the installation of fall risk signs outside the room cannot be fully carried out because not all patients have the same risk of falling. Consistent

with the study conducted by Yullyzar et al. (2023), it is explained that not all components of fall risk prevention measures are applied to patients, such as placing fall risk notices outside patients' rooms. Besides nurses adhering to hospital standard procedures, hospitals are required to continuously promote the implementation of fall risk prevention Standard Operating Procedures by installing these fall risk signs.

## CONCLUSION

Implementing low fall risk prevention by 3 nurse care coordinators yielded a 100% implementation rate. To ensure non-slip footwear, implementation was 100% on the first day and at least 0% on days 2 and 3. Meanwhile, for the indicators of providing patient orientation, obtaining patient consent to keep night lights on, and ensuring accessibility of walking aids (if used), these were never implemented, which is 0%.

The implementation of moderate fall risk prevention by 3 nurse care coordinators also showed a 100% implementation rate. However, the indicator of placing fall risk signs outside the room had a 0% implementation rate. This means the PPJA still needs to implement this indicator during the research process. From these findings, the nurse in charge of care plays a crucial role in implementing patient fall prevention measures to prevent unwanted incidents.

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## CONFLICT OF INTEREST

A weakness of this research is that the observations were conducted only on 3 shifts of nurse care coordinators for 3 days. Therefore, this could lead to a need for a more comprehensive assessment. It is hoped that future research will observe all nurse care coordinators across all shifts daily.

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