



## **To assess the effectiveness of MEET-Medication error encouragement training upon reduction in medication error and improvement of level of knowledge among staff nurses at Apollo hospital, BG Road**

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### **Abstract**

Medication errors pose a significant risk to patient safety in healthcare settings worldwide. Nurses play a crucial role in mitigating these errors, especially during medication administration. This study conducted to examine the effects of Medication Error Encouragement Training (MEET) on medication safety confidence among nurses. The intervention involved scenario-based learning where nurses confronted real-world medication errors in a controlled, simulated environment. Results indicated that the MEET intervention significantly improved nurses' ability to recognize and prevent medication errors. The control group showed no significant change ( $p = 0.310$ ), while the experimental group demonstrated a highly significant improvement ( $p < 0.01$ ). This study underscores the importance of targeted training programs like MEET in enhancing nursing competence and improving patient safety in terms of medication error.

**Keywords:** Medication errors, nurse training, medication error encouragement training, patient safety, error reduction

### **1. Introduction**

Nurses are integral to the healthcare system, particularly in ensuring patient safety during the medication process. This process is inherently complex and error-prone, encompassing various stages from the selection and storage of medications to their prescription, verification, preparation, administration, and monitoring. Given their pivotal role, nurses are often the last line of defence against medication errors at the administration phase, which is known for its high risk and correlation with adverse patient outcomes. Patient safety has emerged as a critical concern in healthcare, with medication errors attracting significant attention due to their profound implications. Recent literature underscores the alarming frequency and severe consequences of such errors. For instance, studies estimate that medication errors affect approximately 1 in every 10 hospitalized patients, with nearly 7% of these errors resulting in fatalities. These errors not only threaten patient lives but also impose exorbitant costs on healthcare systems and reputation of the hospital will be compromised. Medication errors also negatively impact patients and their families. Healthcare professionals involved in errors may experience profound psychological effects, including anger, guilt, and feelings of inadequacy, depression, and even suicidal ideation, which can be further exacerbated by the threat of impending legal action.

### **2. Need for the Study**

Medication administration is one of the most frequently performed nursing tasks, accounting for about 40% of all nursing work (Hewitt *et al.*, 2014) <sup>[4]</sup>. It is a multidisciplinary, multistep process that requires various types of professional knowledge, such as the pharmacological characteristics of drugs and timeline. Medication administration in clinical practice is becoming more complex due to the diversification of medication routes, the increasing use of medical devices, and the rising severity of patients' conditions. As a result, a significant percentage of medical accidents are related to medication errors (Natan *et al.*, 2017) <sup>[6]</sup>.

A medication error refers to “any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer” (National Coordinating Council for Medication Error Reporting and Prevention, 2018). It can occur at any stage of the medication process—prescription, verification, preparation, delivery, or administration. Training nurses to perform correct and accurate medication administration is a crucial task. Although medication education is included in most nursing curricula, current approaches fail to adequately equip nurses with the required clinical competencies. Medication errors

are the most common clinical errors in healthcare practice and can lead to serious consequences. Medication Error Encouragement Training (MEET) brings nurses face-to-face with potential errors in a safe, simulated environment, where they are encouraged to understand both the error and the context in which it occurred. This study aimed to examine the effects of a MEET intervention on medication safety confidence among nurses.

**3. About MEET (Medication Error Encouragement Training) for Nurses**

Medication Error Encouragement Training (MEET) is an innovative program designed to enhance nurses' competency in managing and preventing medication errors. The primary goal of MEET is to improve patient safety by providing nurses with a deeper understanding of medication error risks, helping them recognize errors in a controlled, supportive environment, and enabling them to implement preventive measures in real clinical settings.

**3.1 Training Methodology**

MEET follows a structured approach to learning, designed to meet the specific needs of nurses by offering both theoretical and practical components:

- **Scenario-based learning:** Nurses are presented with real-world medication error scenarios based on past incidents. These scenarios simulate actual situations where errors could occur, providing nurses an opportunity to experience, identify, and resolve errors.
- **Two groups of training**
  - a) **Control group:** Nurses in the control group receive regular training on medication safety, focusing on foundational concepts such as the "rights" of medication administration.
  - b) **Experimental group:** Nurses in the experimental group are exposed to error scenarios created based on previous incidents within the healthcare setting. These scenarios replicate actual situations where errors occurred, providing nurses with insights into the context, causes, and prevention of such errors.

**3.2 Impact of MEET Training**

- **Reduction in medication errors:** MEET has been shown to significantly reduce medication errors by increasing nurses' awareness, confidence, and competence in medication safety practices.
- **Improved medication safety culture:** The training promotes a culture of safety where nurses are encouraged to report errors without fear of reprimand. This openness leads to continuous system improvements and a reduction in future errors.
- **Enhanced nursing competence:** By combining theoretical learning with practical, error-based scenarios, MEET equips nurses to perform medication administration tasks with greater accuracy and safety, resulting in improved patient care and outcomes.

**3.3 Tips to Maintain Zero Medication Errors**

To streamline the medication process and reduce errors, nurses should have clear knowledge of the medication process. The following steps should be verified to avoid nursing-related errors:

- **To control prescription errors:**
  - a) Ensure medication appropriateness with the help of a physician and pharmacist.
  - b) Check for legibility.
  - c) Verify correct patient identification.
- **To control transcription errors**
  - a) Verify the order.
  - b) Seek help if any doubts arise.
  - c) Understand how to enter data in the Health Information System (HIS).
- **To control dispensing errors**
  - a) Check each drug upon receiving it.
  - b) Confirm with the prescription.
- **To control administration errors**
  - a) Follow the six rights: right patient, right medication, right dose, right route, right frequency, and right documentation.
  - b) Implement a double-check system.
  - c) Get medication acknowledgment from the patient or bystanders to ensure the right medication is given.
- **To control documentation errors**
  - a) Document immediately after administering the medication.
  - b) Get acknowledgment from the patient or family members.

**4. Data interpretation and analysis**

4.1 Demographic variables of nurse's experience and areas of working

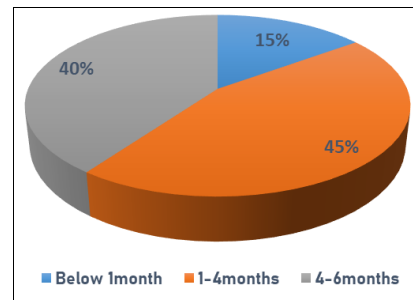


Fig 1: Practice experience of nurses

The distribution of nurses based on their years of experience in the study is as follows: 14% of the total sample, had less than 1 month of experience. 43.90% of the sample, had 1-4 months of experience. Lastly 39.02% of the total, had 4-6 months of experience.

**4.2 Demographic variables of Distribution of Nurses working in Critical and Non-Critical Care Areas**

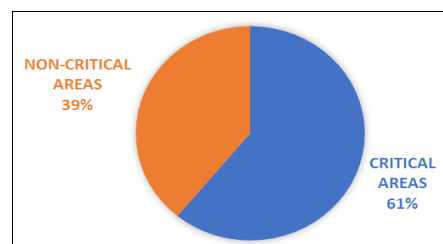


Table 2: The distribution of nurses based on their work areas in the study is as follows: 60.97% of nurses worked in critical areas, while 39.02% worked in non-critical areas.

### 4.3 Training effectiveness of MEET Training

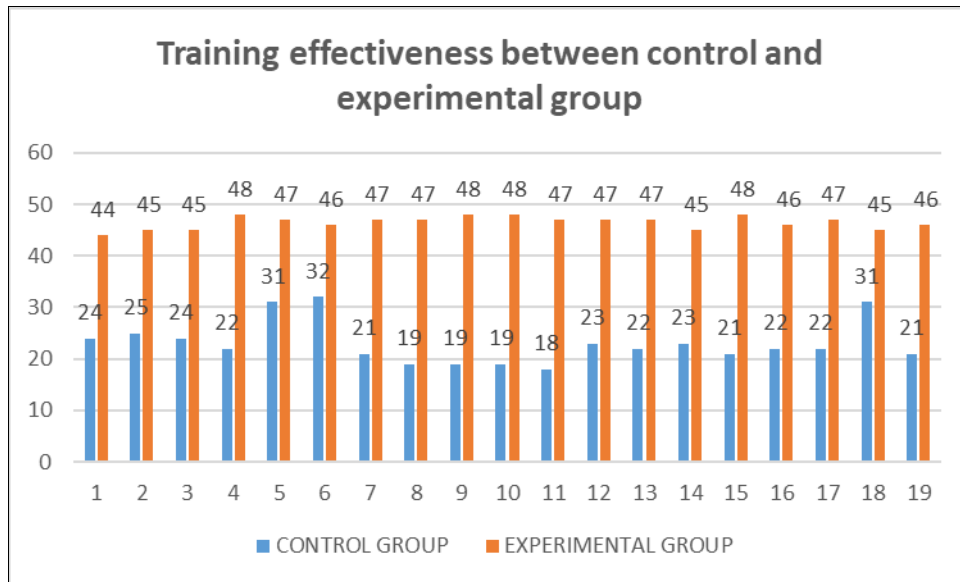


Fig 3: Training Effectiveness of MEET Training

For the control group, the p-value was found to be greater than 0.05, indicating that the difference between the pre- and post-test results was not statistically significant. This suggests that the regular training did not lead to a notable improvement in medication error reduction.

The p-value for the experimental group was found to be highly significant ( $p < 0.01$ ), indicating a substantial improvement between the pre- and post-test results. This suggests that the MEET intervention was highly effective in reducing medication errors among the nurses in the experimental group.

### 4.4 Error reduction after implementing MEET

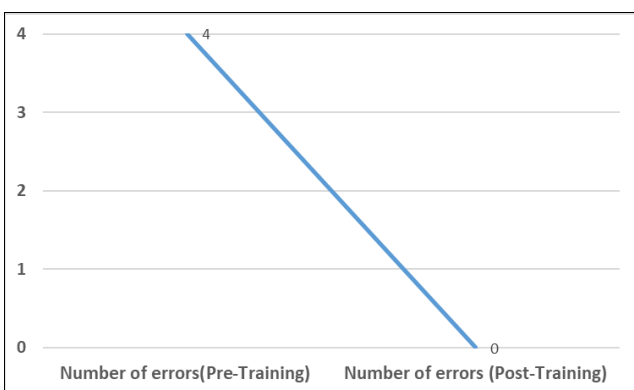


Fig 4: Medication Error Reduction

In the pre-training phase, there were 4 errors reported, while in the post-training phase, the number of errors dropped to 0. This significant reduction highlights the effectiveness of the training in improving medication safety and preventing errors.

### 5. Conclusion

The study aimed to evaluate the effectiveness of Medication Error Encouragement Training (MEET) in improving medication safety among nurses. The results showed a

notable difference between the control and experimental groups. In the control group, where regular training was provided, the pre- and post-test comparison yielded a p-value of 0.310031, indicating no statistically significant improvement in reducing medication errors. Conversely, the experimental group, which underwent MEET training using real-world error scenarios, demonstrated a highly significant improvement, with a  $p < 0.01$ , indicating a marked reduction in medication errors. These findings highlight the effectiveness of MEET training in enhancing medication safety practices and preventing errors.

### Conflict of Interest

Not available

### Financial Support

Not available

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