

A Study to Assess the Knowledge and Skill of Nurses in Maintaining the Patency of Arterial Line among Nurses in the Critical Care Units at Apollo Main Hospitals, Chennai

Ms. Maria Jesu Kumari

Clinical Nurse Lead Specialist, Apollo Main Hospitals, Chennai, India

Ms. Juliet Joji Varghese

Director of Nursing, Apollo Main Hospitals, Chennai, India

Ms. D. Maryline Flinsi

Principal, Apollo School of Nursing, Apollo Hospital, New Delhi, India

Abstract: *Background: Arterial line monitoring is a vital component of care for critically ill patients, enabling continuous blood pressure monitoring and frequent arterial blood sampling. Maintaining arterial line patency is essential to ensure accurate measurements and prevent complications such as thrombosis, infection, and catheter malfunction. Nurses play a central role in arterial line management; however, variations in knowledge and clinical skill may compromise patient safety. Objectives: To assess the knowledge and skill of nurses in maintaining arterial line patency, to identify gaps in practice, and to determine the association between nurses' knowledge and selected demographic variables. Methods: A quasi-experimental pre-test and post-test design without a control group was adopted among 100 nurses working in critical care units at Apollo Main Hospitals, Chennai. Knowledge was assessed using a structured questionnaire and skills were evaluated using an observational checklist. A structured teaching program was implemented, followed by post-test assessments. Descriptive and inferential statistics were used for data analysis. Results: The mean knowledge score increased significantly from 16.1 ± 2.8 in the pre-test to 19 ± 1 in the post-test ($p < 0.001$). Similarly, the mean skill score improved from 5.9 ± 0.9 to 9.7 ± 0.5 following the intervention ($p < 0.001$). A positive correlation was observed between post-test knowledge and skill scores.*

Conclusion: The structured teaching program was effective in significantly improving nurses' knowledge and skills in maintaining arterial line patency. Regular training and competency-based assessments are recommended to enhance patient safety in critical care settings.

Keywords: Arterial line, Patency, Knowledge, Skill, Critical care nursing, Structured teaching program

