

Predictors of IV Insertion Competency Among Staff Nurses: The Role of Clinical Experience, Training Exposure and Institutional Support

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ABSTRACT

This study aimed to identify predictors of IV insertion competency among staff nurses by examining the roles of clinical experience, training exposure, and institutional support in selected Level 2 hospitals in Rizal. A quantitative predictive-correlational research design was employed involving 153 registered staff nurses selected through proportionate stratified sampling. Data were gathered using a researcher-developed, expert-validated, and reliability-tested questionnaire administered through Google Forms. Descriptive statistics, Pearson Product-Moment Correlation, and Multiple Linear Regression Analysis were utilized to analyze the data. The findings revealed that staff nurses demonstrated a very high level of IV insertion competency, clinical experience, training exposure, and institutional support. Significant positive relationships were found between IV insertion competency and clinical experience, training exposure, and institutional support. However, regression analysis showed that only clinical experience and institutional support significantly predicted IV insertion competency, with clinical experience emerging as the strongest predictor, while training exposure did not significantly predict competency after controlling for the other variables. The study was limited to staff nurses from three selected Level 2 hospitals in Rizal and relied on self-reported responses, which may limit the generalizability of the findings and may not fully reflect actual clinical performance. Future studies may include observational competency assessments, additional organizational variables, and broader healthcare settings to strengthen the evidence. The findings provide empirical support for strengthening experiential learning, competency validation, mentorship, and organizational support systems in nursing practice through the proposed Project VASCULAR. This study contributes to the limited Philippine literature on IV insertion competency by identifying the strongest predictors of competency among Filipino staff nurses and provides evidence to guide nursing administrators, educators, and healthcare institutions in developing competency-based staff development programs.

Keywords: IV insertion competency, clinical experience, training exposure, institutional support, staff nurses.

INTRODUCTION

Intravenous (IV) insertion competency is a fundamental nursing skill that directly influences patient safety and quality of care. Understanding the factors that contribute to competency is essential for developing effective staff development programs and improving clinical practice. Despite its importance, limited local evidence has examined the factors influencing IV insertion competency among Filipino staff nurses.

Statement of the Problem

This study aimed to determine the predictors of IV insertion competency among staff nurses in selected Level 2 hospitals in Rizal, focusing on the role of clinical experience, training exposure, and institutional support.

Scope and Limitations

This study involved 153 registered staff nurses from three selected Level 2 hospitals in Rizal. It examined IV insertion competency in relation to clinical experience, training exposure, and institutional support using a researcher-developed questionnaire administered through Google Forms. The study was limited to self-reported responses from nurses involved in direct patient care and IV therapy; therefore, the findings may not be generalizable to other healthcare settings.

Review of Related Literature

Nursing competency is essential to patient safety and quality care, particularly in intravenous therapy. Previous studies have shown that clinical experience, training exposure, and institutional support contribute to competency development by improving knowledge, technical skills, confidence, and professional performance. However, limited Philippine studies have examined the combined predictive influence of these variables on IV insertion competency among staff nurses. This gap served as the basis for the present study.

Theoretical Framework

This study was anchored on Benner's Novice-to-Expert Theory, the Rochester Nursing Competency Model, and Roy's Adaptation Model. These frameworks explain that nursing competency develops through clinical experience, continuous learning, and supportive organizational environments.

Conceptual Framework

The conceptual framework identifies clinical experience, training exposure, and institutional support as the independent variables influencing IV insertion competency. It guided the examination of their predictive influence among staff nurses.

METHODOLOGY

This section describes the research methods employed in the study, including the research design, procedures, sample selection, data collection, statistical analysis, instrument validation, and ethical considerations. These methods were utilized to systematically examine the predictive influence of clinical experience, training exposure, and institutional support on IV insertion competency among staff nurses.

Research Design

The study employed a quantitative predictive-correlational research design to determine the relationships and predictive influence of clinical experience, training exposure, and institutional support on IV insertion competency among staff nurses.

Research Steps

Following ethics approval, the researcher validated and pilot-tested the questionnaire before administering it through Google Forms to eligible respondents. The collected data were statistically analyzed and used to inform the proposed clinical training program.

Data Collection and Sample Selection

The respondents were 153 registered staff nurses from three selected Level 2 hospitals in Rizal, chosen through proportionate stratified sampling with purposive selection. Data were collected using a structured online questionnaire.

Data Analysis Methods

Frequency, percentage, weighted mean, and standard deviation were used to describe the data. Pearson Product-Moment Correlation was used to determine variable relationships, while Multiple Linear Regression identified the significant predictors of IV insertion competency at the 0.05 significance level.

Research Hypotheses and Validation

The study tested the null hypotheses on the relationships and predictive influence of the independent variables. The questionnaire underwent expert validation and demonstrated acceptable reliability through Cronbach's Alpha.

Study Limitations and Ethical Considerations

The study relied on self-reported responses. Ethical approval, informed consent, confidentiality, anonymity, voluntary participation, and participants' right to withdraw were strictly observed.

RESULTS AND DISCUSSION

This section presents the study findings based on the Statement of the Problem using descriptive statistics, Pearson correlation, and multiple linear regression analysis.

SOP 1. Profile of the Respondents: *The respondents comprised 153 staff nurses*, with a mean age of 32.31 years (SD = 7.46). The majority were female (79.1%), Bachelor of Science in Nursing graduates (92.8%), assigned to the Operating Room (22.9%), and had 1 to 5 years of clinical experience (51.0%).

SOP 2. Level of IV Insertion Competency: The respondents demonstrated a **Very High** level of IV insertion competency (M = 3.699, SD = 0.440). Among the competency domains, Infection Prevention and Aseptic Technique (M = 3.810) and Patient Communication and Education (M = 3.807) obtained the highest ratings, while Knowledge of IV Therapy obtained the lowest mean (M = 3.553), although it remained within the Very High category.

SOP 3. Level of Clinical Experience, Training Exposure, and Institutional Support : Clinical Experience (M = 3.569), Training Exposure (M = 3.677), and Institutional Support (M = 3.772) were all rated **Very High**.

SOP 4. Relationship Between the Predictor Variables and IV Insertion Competency : Pearson Product-Moment Correlation analysis revealed statistically significant positive relationships

between IV insertion competency and Clinical Experience ($r = 0.780$, $p < .001$), Training Exposure ($r = 0.595$, $p < .001$), and Institutional Support ($r = 0.786$, $p < .001$).

SOP 5. Significant Predictors of IV Insertion Competency : Multiple Linear Regression Analysis showed that the overall regression model was statistically significant ($R = 0.844$, $R^2 = 0.713$, $F = 123.20$, $p < .001$), explaining 71.3% of the variance in IV insertion competency. Clinical Experience emerged as the strongest significant predictor ($\beta = 0.539$, $p < .001$), followed by Institutional Support ($\beta = 0.439$, $p < .001$). Conversely, Training Exposure did not significantly predict IV insertion competency ($\beta = -0.044$, $p = .468$) after controlling for the other variables.

SOP 6. Proposed Clinical Training Program: Based on the findings, the study proposed **Project VASCULAR (Validation and Advancement of Staff Competency Using Learning, Assessment, and Reinforcement)** as an enhanced clinical training program. The program emphasizes competency validation, simulation-based education, structured mentorship, experiential learning, and continuous institutional support to strengthen IV insertion competency and promote evidence-based nursing practice.

SUMMARY

This study determined the predictive influence of clinical experience, training exposure, and institutional support on IV insertion competency among 153 staff nurses. Clinical experience and institutional support significantly predicted IV insertion competency and served as the basis for the proposed Project VASCULAR.

CONCLUSIONS

Staff nurses demonstrated a Very High level of IV insertion competency. Clinical experience and institutional support significantly predicted competency, whereas training exposure did not independently predict competency after controlling for the other variables.

RECOMMENDATIONS

Based on the findings, healthcare institutions should strengthen competency-based IV therapy programs by promoting experiential learning, structured mentorship, regular competency validation, and simulation-based training. Hospital administrators should continue providing adequate institutional support through updated resources, policies, and professional development opportunities. Future studies may include additional variables and objective competency assessments to further explain IV insertion competency in different healthcare settings.

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AI DECLARATION STATEMENT

Artificial intelligence (AI) was used solely for language editing and manuscript preparation. All research design, data collection, analysis, interpretation, and conclusions are the sole responsibility of the author.

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