

THE EFFECT OF THE IPASS METHOD ON NURSES' SELF-EFFICACY IN HANDOVER IMPLEMENTATION IN THE INTENSIVE CARE UNIT: A QUASI-EXPERIMENTAL STUDY

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ABSTRACT

Background: Patient handover in the intensive care unit requires concise, accurate, and risk-focused communication because incomplete information transfer may compromise continuity of care and patient safety. This study aimed to determine the effect of the I-PASS method, consisting of Illness severity, Patient summary, Action list, Situation awareness and contingency planning, and Synthesis by receiver, on nurses' self-efficacy in performing handovers in the intensive care unit. **Methodes:** A quasi-experimental one-group pretest-posttest design was conducted among 31 intensive care unit nurses selected through purposive sampling in a general hospital in Bandung, Indonesia. Participants received structured I-PASS training followed by supervised role-play using intensive care case scenarios. Self-efficacy was measured before and immediately after the intervention using the General Self-Efficacy Scale. **Result:** Data were analyzed using descriptive statistics and the Wilcoxon signed-rank test. The proportion of nurses with high self-efficacy increased from 61.29% before the intervention to 87.10% after the intervention. Mean self-efficacy scores also increased from 29.35 (SD = 3.42) to 34.26 (SD = 3.87), and the difference was statistically significant ($z = -3.41$, $p = 0.001$). **Conclusion:** The findings indicate that I-PASS-based role-play training can improve nurses' confidence in organizing, prioritizing, and communicating critical information during intensive care handover. Integration of structured handover training into continuing nursing education is recommended to strengthen communication competence and patient safety culture. **Keywords:** clinical communication; patient safety; quasi-experimental study; role-play training; structured communication

INTRODUCTION

Responsibility, current patient information, anticipated risks, and care priorities from one professional to another. Incomplete or inconsistent handover may contribute to medication errors, delayed recognition of deterioration, incomplete care tasks,

patient falls, pressure injuries, and reduced continuity of care. Recent reviews show that structured handover interventions are associated with improved patient safety outcomes, better information completeness, and fewer communication omissions in hospital settings (Bressan et al., 2020;

Bukoh & Siah, 2020; Clari et al., 2021; Hada & Coyer, 2021; Khalaf, 2023; McCarthy et al., 2025).

The need for structured communication is particularly important in the intensive care unit (ICU). ICU nurses manage patients with unstable physiological conditions, complex therapies, invasive monitoring, and rapidly changing priorities. In this context, communication failures may increase cognitive burden, create uncertainty during decision-making, and reduce shared situational awareness. Studies in critical care settings describe handover as a high-risk communication event influenced by interruptions, time pressure, information overload, documentation quality, and the need for anticipatory planning (Abou Hashish et al., 2023; Ahn et al., 2021; Tataei et al., 2023; Vanderzwan et al., 2023). Patient safety culture and standardized handoff evaluation are also associated with the quality of nursing handover and staff perceptions of safety (Kim et al., 2021; Toren et al., 2022).

Several structured handover frameworks have been used in clinical practice, including SBAR and I-PASS. SBAR is widely used because it guides clinicians to communicate the Situation, Background, Assessment, and Recommendation in a clear sequence. However, in high-acuity settings, the I-PASS framework may offer additional advantages because it explicitly emphasizes illness severity, action lists, situation awareness,

contingency planning, and synthesis by the receiver. This final synthesis component encourages closed-loop communication and verifies whether the receiving nurse understands key priorities and risks. Multicenter evidence and recent implementation studies indicate that I-PASS can improve handoff quality and reduce handoff-related safety risks across different clinical environments (Blazin et al., 2020; Kapuria et al., 2025; Starmer et al., 2014; Starmer et al., 2023; Franco Vega et al., 2024).

Besides the communication framework itself, the educational strategy used to teach handover is important. Self-efficacy, defined as an individual's belief in the ability to organize and execute actions required to manage a situation, influences clinical performance, learning motivation, and confidence in communication (Bandura, 1977). Nursing handover education using simulation, role play, situated learning, and blended learning has been shown to improve handover performance, communication competence, and self-efficacy among nursing students and healthcare professionals (Chung et al., 2022; Kim et al., 2022; Lee & Lim, 2021; Noh & Lee, 2020; Pun, 2023). Role play is particularly relevant because nurses can rehearse realistic clinical communication in a safe environment, receive feedback, and improve performance before applying the method in actual patient care.

Although structured communication tools are increasingly recommended,

empirical evidence regarding I-PASS-based role-play training among ICU nurses in Indonesia remains limited. Many clinical units still rely on routine or informal adaptations of handover methods, and the psychological impact of structured handover training on nurses' self-efficacy has not been widely examined. This study therefore aimed to determine the effect of the I-PASS handover method delivered through role-play training on nurses' self-efficacy in performing handovers in the ICU.

METODE

This study used a quasi-experimental one-group pretest-posttest design to evaluate changes in nurses' self-efficacy before and after I-PASS role-play training. The study was conducted in the ICU of a general hospital in Bandung, Indonesia. The target population was registered nurses who were actively involved in direct patient handover in the ICU. Participants were recruited through purposive sampling based on the following inclusion criteria: registered ICU nurse, actively involved in patient handover, available during the intervention period, and willing to participate voluntarily. A total of 31 nurses met the criteria and completed both pretest and posttest measurements. The independent variable was structured handover training using the I-PASS method delivered through role play. The dependent variable was nurses' self-efficacy in conducting patient handover. Participant characteristics

included sex and length of work experience in the ICU.

The intervention consisted of structured training and supervised role-play practice using the I-PASS handover framework. The training introduced patient safety risks related to ineffective handover, the rationale for structured communication, and the five I-PASS elements: Illness severity, Patient summary, Action list, Situation awareness and contingency planning, and Synthesis by receiver. After the explanation and facilitator demonstration, participants practiced handover using ICU case scenarios. During role play, participants alternated as handover giver, receiver, and observer. Immediate feedback was provided on clarity, prioritization, clinical risk anticipation, and receiver synthesis. The intervention lasted approximately 90 minutes.

Self-efficacy was measured using the General Self-Efficacy Scale (GSES), which consists of 10 items scored on a 4-point Likert scale from 1 = not at all true to 4 = exactly true. Total scores range from 10 to 40, with higher scores indicating stronger self-efficacy. The Indonesian-adapted version has demonstrated acceptable reliability, and the reliability analysis in this study showed Cronbach's $\alpha = 0.84$, indicating good internal consistency.

Data collection was conducted in three phases. First, participants completed the GSES before the intervention as the pretest. Second, participants attended the structured I-PASS training and role-play session using ICU scenarios.

Third, participants completed the GSES again immediately after the training as the posttest. All questionnaires were checked for completeness before analysis.

Data were analyzed using IBM SPSS version 26. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to describe participant characteristics and self-efficacy scores. Because the pretest-posttest data did not meet parametric assumptions, the Wilcoxon signed-rank test was used to compare self-efficacy scores before and after the intervention. Statistical significance was set at $p < 0.05$.

This study received ethical approval from the Institutional Ethics Committee with Approval Number III/118/KEPK-SLE/STIKEP/PPNI/JABAR/XII/2023.

Institutional permission was obtained from the hospital before data collection. All participants provided written informed consent. Participation was voluntary, and confidentiality was maintained by not collecting personal identifying information in the research dataset.

RESULTS

A total of 31 ICU nurses participated in this study, and all participants completed both pretest and posttest measurements. The reliability analysis of the GSES in this study showed Cronbach's $\alpha = 0.84$.

Table 1. Characteristics of Participants

Characteristic	Category	Frequency (f)	Percentage (%)
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Sex	Male	14	45.2
	Female	17	54.8
Length of work experience	≤ 3 years	14	45.2
	> 3 years	17	54.8

Table 1 shows that most participants were female ($n = 17, 54.8\%$). More than half of the nurses had more than three years of work experience in the ICU ($n = 17, 54.8\%$).

Table 2. Self-Efficacy Before and After the I-PASS Role-Play Intervention

Measurement	High self-efficacy n (%)	Low self-efficacy n (%)	Mean score (SD)
Pretest	19 (61.29)	12 (38.71)	29.35 (3.42)
Posttest	27 (87.10)	4 (12.90)	34.26 (3.87)

As shown in Table 2, the proportion of nurses with high self-efficacy increased from 61.29% before the intervention to 87.10% after the intervention. The mean self-efficacy score increased from 29.35 ($SD = 3.42$) to 34.26 ($SD = 3.87$).

Table 3. Wilcoxon Signed-Rank Test Results

Posttest compared with pretest	n	z	p-value
Negative ranks	6		
Positive ranks	24		
Ties	1		
Total	31	-3.41	0.001

The Wilcoxon signed-rank test showed that 24 participants had increased self-efficacy scores after the intervention, 6 participants had decreased scores, and 1 participant had no change. The difference between pretest and posttest self-efficacy scores was statistically significant ($z = -3.41$, $p = 0.001$), indicating that the I-PASS role-play intervention significantly improved nurses' self-efficacy in ICU handover.

DISCUSSION

This study found that the I-PASS handover method delivered through role play significantly increased nurses' self-efficacy in performing ICU handovers. The increase in the proportion of nurses with high self-efficacy and the improvement in mean score indicate that structured handover training can strengthen nurses' confidence in organizing, prioritizing, and communicating critical clinical information. These findings are consistent with previous evidence showing that structured handover interventions improve information transfer, communication quality, and safety-related outcomes (Bukoh & Siah, 2020; Hada & Coyer, 2021; McCarthy et al., 2025).

The ICU requires communication that is concise but comprehensive, especially because patients often have unstable conditions and complex care plans. Informal handover may omit important clinical cues, while structured handover can reduce variability and help nurses focus on

essential information. Prior studies in critical care and hospital settings have shown that handover quality is influenced by staff communication skills, interruptions, work environment, and patient safety culture (Abou Hashish et al., 2023; Ahn et al., 2021; Kim et al., 2021; Vanderzwan et al., 2023). The present findings support the use of I-PASS because the framework guides nurses to communicate severity, summary, action priorities, contingency plans, and receiver synthesis.

The I-PASS framework may improve self-efficacy because it provides a clear cognitive structure for handover. Nurses do not need to rely only on memory or informal reporting habits; instead, they can use a predictable sequence that supports clinical reasoning and shared situational awareness. Previous implementation studies have shown that I-PASS improves handoff quality and reduces handoff-related safety events in diverse clinical settings (Blazin et al., 2020; Kapuria et al., 2025; Starmer et al., 2014; Starmer et al., 2023; Franco Vega et al., 2024). These findings are relevant to nursing management because standardization can reduce practice variation and promote accountability during shift transitions.

Role play also contributed to the improvement in self-efficacy. According to self-efficacy theory, mastery experience, feedback, and social modeling are important sources of confidence in performing a specific behavior (Bandura, 1977). In this study,

nurses practiced the I-PASS sequence in realistic ICU scenarios, received direct feedback, and observed peers performing the same task. Similar educational studies have reported that simulation-based, blended, situated, and stepwise handover education can improve handover competence, communication self-efficacy, and clinical performance (Chung et al., 2022; Kim et al., 2022; Lee & Lim, 2021; Noh & Lee, 2020; Pun, 2023).

The findings also align with broader evidence that structured and patient-centered handover contributes to safer care processes. Structured handover protocols such as SBAR and I-PASS support standardization, while bedside and patient-centered approaches can improve patient involvement, satisfaction, and verification of information (Anshasi & Almayasi, 2024; Chien et al., 2022; Forde et al., 2020; Ghosh et al., 2021; Oxelmark et al., 2020; Pazar et al., 2024). Although this study focused on nurses' self-efficacy rather than patient outcomes, confidence in handover communication is important because nurses who feel capable are more likely to speak up, clarify information, and anticipate clinical risks.

From a nursing management perspective, I-PASS training should not be treated as a one-time activity. Sustainable change requires integration into standard operating procedures, orientation for new ICU nurses, continuing professional development, supervision, and periodic evaluation. Electronic and structured handover

systems may also support continuity of information when implemented with adequate governance and training (Tataei et al., 2023; Toren et al., 2022). Therefore, nurse managers have a central role in reinforcing structured handover as part of a patient safety culture.

CONCLUSIONS

This study demonstrated that the I-PASS handover method delivered through role-play training significantly increased nurses' self-efficacy in performing ICU handovers. The structured I-PASS format helped nurses organize critical information, communicate priorities, anticipate patient risks, and confirm receiver understanding through synthesis. These findings indicate that improving handover practice requires both a standardized communication framework and an experiential learning strategy that builds confidence and communication competence. The integration of I-PASS role-play training into ICU nursing education, orientation programs, and clinical governance is recommended to support safer and more consistent handover practice.

STUDY LIMITATIONS

This study had several limitations. First, the one-group pretest-posttest design did not include a control group; therefore, external factors such as previous experience, unit culture, or informal learning may have influenced the outcomes. Second, the study was conducted in a single ICU with 31

nurses, which may limit generalizability to other hospitals or clinical units. Third, self-efficacy was measured immediately after the intervention, so the long-term retention of confidence and actual handover performance could not be evaluated. Fourth, the study measured self-efficacy rather than direct patient safety outcomes. Future studies should use larger samples, control groups, multiple settings, follow-up measurements, observational handover audits, and patient safety indicators to evaluate the broader impact of I-PASS implementation.

CLINICAL IMPLICATIONS

The findings suggest that I-PASS role-play training can be applied as a practical educational strategy for ICU nurses. Nurse managers and clinical educators may use this intervention to strengthen structured communication, reduce variability in handover practice, and improve nurses' confidence in communicating patient risks. The method may be integrated into orientation for new nurses, annual competency assessment, patient safety training, and continuing professional development. In clinical practice, the use of I-PASS may support clearer action planning, better anticipation of deterioration, and stronger shared situational awareness among nursing teams.

ACKNOWLEDGEMENTS

The authors thank the participating nurses and the hospital management

for their support during the implementation of this study.

FUNDING STATEMENT

This research received no external funding.

AUTHOR CONTRIBUTIONS

Conceptualization: SCN and ES. Methodology: Suci Noor Hayati, Eva Supriatin, and Diwa Agus Sudrajat. Data collection: Suci Noor Hayati and Diwa Agus Sudrajat. Formal analysis: Eva Supriatin and Diwa Agus Sudrajat. Writing-original draft preparation: Suci Noor Hayati. Writing-review and editing: Suci Noor Hayati, Eva Supriatin, and Diwa Agus Sudrajat. Supervision: Eva Supriatin. All authors reviewed the results and approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available from the corresponding author upon reasonable request. Data sharing is subject to ethical approval and participant confidentiality considerations.

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