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Strengthening Patient Safety Through Re-Pro Clinical Supervision

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Abstract

Patient safety is central to healthcare quality, yet compliance with Patient Safety Goals (PSGs) remains challenging in hospitals. Clinical supervision is crucial to reinforce adherence. This study evaluated the effectiveness of the Reflective-Proctor (RE-PRO) clinical supervision model in improving PSG compliance among nurses.

A quasi-experimental design with pre-test and post-test control groups was conducted in two type-C hospitals in Bali, Indonesia. Participants included 266 nurses and 6 supervisors, divided into intervention and control groups. The intervention group received RE-PRO supervision, while the control group continued conventional supervision. Compliance with six PSG indicators (patient identification, effective communication, safe medication, correct procedure/site, infection prevention, fall risk reduction) was assessed using validated observation checklists. Data were analyzed with Wilcoxon and Mann-Whitney tests.

Baseline characteristics between groups were comparable ($p > 0.05$). The control group showed no significant improvements in PSG compliance ($p > 0.05$). In contrast, the intervention group demonstrated significant improvement across all six indicators after RE-PRO implementation ($p = 0.001$). Overall PSG compliance in the intervention group was significantly higher than in the control group post-intervention ($p = 0.001$).

The RE-PRO clinical supervision model effectively enhanced nurses' compliance with Patient Safety Goals compared with conventional supervision. This model is recommended for wider adoption in hospital nursing management to strengthen patient safety outcomes.

Keywords: Clinical supervision, RE-PRO, Patient Safety Goals, nursing management.

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INTRODUCTION

Patient safety is a fundamental element of healthcare mandated by the Indonesian Health Law No. 17 of 2023, which emphasizes patient protection from harmful risks. Despite this, the implementation of Patient Safety Goals (PSGs) in hospitals continues to face major challenges, including the limited internalization of safety culture, ineffective communication, and low compliance with established procedures. The WHO (2024) reported that adverse events remain high globally, with Indonesia achieving only 64.81% compliance, far from the 100% benchmark set by the Hospital Accreditation Commission (KARS). This demonstrates a significant gap between regulatory policies and clinical practice.

Weak clinical supervision is identified as one of the main factors influencing poor PSG implementation. Clinical supervision plays a strategic role in improving service quality by ensuring adherence to practice standards, providing emotional support, and encouraging professional development. However, many current supervision models are not sufficient to address the complex challenges of patient safety. Hospital management therefore carries a major responsibility in ensuring effective PSG implementation through supportive policies, strict supervision, and adequate resource allocation (WHO, 2024). Managerial involvement in training and providing support is essential to improve staff understanding and skills (Halawa *et al*., 2023), yet without adequate human resources, infrastructure, and funding, these efforts remain suboptimal (Falender, 2022). In response to these gaps, this study introduces the Reflective–Proctor (RE-PRO) clinical supervision model, which integrates Proctor's functions with reflective practice. This model combines standard monitoring, emotional support, and professional development through structured reflection, offering a more comprehensive approach to clinical supervision (O'Donnell et al., 2023; Martin et al., 2021). Private hospitals in Bali were selected as the research setting because of their accessibility and flexibility in policy implementation, which allow for optimal supervision practices.

This study aims to quantitatively analyze the impact of RE-PRO clinical

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supervision on PSG compliance in private hospitals in Bali. By integrating reflective practice with Proctor's model, it is expected that RE-PRO will enhance healthcare workers' competence, strengthen patient safety culture, and ensure sustainable quality of hospital services.

METHOD

This study applied a quasi-experimental design with a pretest–posttest nonequivalent control group to evaluate the effectiveness of the RE-PRO clinical supervision model on the implementation of Patient Safety Goals (PSGs). The research was conducted in two type-C private hospitals in Denpasar, Bali, selected for their accessibility and policy flexibility, which facilitated the implementation of the intervention.

The study was carried out from February to April 2024, during which the RE-PRO clinical supervision model was implemented and its impact on the six PSG indicators was measured. The target population consisted of nurses working in type-C private hospitals in Bali, while the accessible population included 376 nurses employed in Denpasar. The sample size was determined using the hypothesis test formula for two proportions (Lameshow *et al*., 1997). Based on anticipated proportions of 0.76 and 0.89 reported by Utami (2017), with a significance level of 5% ($Z\alpha = 1.96$) and a statistical power of 80% ($Z\beta = 0.84$), the minimum required sample was calculated as 133 nurses per group, resulting in a total of 266 participants.

The sampling technique applied was non-probability convenience sampling. Nurses who met the inclusion criteria and agreed to participate were assigned to intervention and control groups. The intervention group received the RE-PRO clinical supervision model, while the control group continued with routine supervision.

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RESULTS

Table 1. Characteristics of Age and Length of Service

Characteristic	Group	n	*Min*	*Max*	Median	P-*Value*
Age	Control	133	20	55	34	0,927
	Intervention	133	20	55	33	
Lenght of work	Control	133	1	7	3	0,938
	Intervention	133	1	7	3	

The median age of respondents in the control group was 34 years, while in the intervention group it was 33 years. Statistical analysis showed no significant difference between the two groups (p = 0.927). Similarly, the median length of service was 3 years in both groups, with no significant difference (p = 0.938). These results indicate that the two groups were comparable in terms of age and length of service.

Table 2. Characteristics of Gender and Education

Characteristic	Intervention Group		Intervention Control		P *Value*
	n	%	n	%	
Gender					
Female	112	84,2	102	76,7	0,122
Male	21	15,8	31	23,3	
Education Level					
Bachelor	105	78,9	101	75,9	0,557
Associate degree	28	21,1	31	24,1	
Jumlah	133	100	133	100	

In terms of gender, 84.2% of respondents in the intervention group were female compared to 76.7% in the control group. For educational level, 78.9% of the intervention group had a Bachelor of Nursing degree compared to 75.9% in the control group. Statistical analysis showed no significant differences between groups for either gender (p = 0.122) or education (p = 0.557). This demonstrates that the two groups were comparable in these characteristics.

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Table 3. Hospital Readiness

No	Hospital Readiness	Yes	No	Jumlah
1	Have 1 head of room in each class 1, 2, 3	1	-	1 (100%)
2	The supervisor's educational background is at least a bachelor's degree in nursing.	1	-	1 (100%)
3	The supervisor has evidence of having provided guidance to nurses.	1	-	1 (100%)
4	There are at least 10 implementing nurses who do not rotate to another room for at least 3 months in 1 room.	1	-	1 (100%)
5	Have a nursing clinical supervision schedule	1	-	1 (100%)

Observation results showed that both hospitals met all readiness criteria (100%) for implementing the RE-PRO clinical supervision model. This included having a head nurse in each ward, supervisors with at least a bachelor's degree in nursing, prior supervisory experience, stable nursing staff assigned in one ward for a minimum of three months, and a structured supervision schedule.

Table 4. Pre- and Post-Test in the Control Group

No	Patient Safety Goals (PSGs)	Median ± IQR		*Z Value*	*P-Value*
		Pre	*Post*		
1	Identifying patients correctly	17,00 ±16	18,00 ±16	-6.356	0,001
2	Increase effective communication	13,00 ±13	13,00 ±12	-4,961	0,001
3	Improving the safety of high-alert medications	10,00 ±10	12,00 ±16	-7,015	0,001
4	Ensuring the correct surgical site, correct procedure, surgery on the correct patient	13,00 ±14	15,00 ±11	-7,433	0,001
5	Reducing the risk of healthcare-associated infections	10,00 ±10	12,00 ±11	-7,026	0,001
6	Reducing the risk of patient injury due to falls	11,00 ±11	11,00 ±12	-5,609	0,001
7	**Patient Safety Goals (PSGs)**	75,00 ±75	80,00 ±85	-7,647	0,001

Wilcoxon Test

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In the control group, the median score for Patient Safety Goals (PSGs) increased from 75.00 in the pretest to 80.00 in the posttest. Although improvement was observed, the Wilcoxon test indicated that the differences, while statistically significant (p = 0.001), were modest across several PSG indicators.

Table 5. Pre- and Post-Test in the Intervention Group

No	Patient Safety Goals (PSGs)	*Median±IQR*		*Z Value*	*P-Value*
		Pre	*Post*		
1	Identifiying patients corectly	17,00 ±17	18,00 ±18	-8,338	0,001
2	Increase effective communication	13,00 ±13	13,00 ±16	-9,146	0,001
3	Improving the safety of high-alert medications	10,00 ±19	12,00 ±12	-8,061	0,001
4	Ensuring the correct surgical site, correct procedure, surgery on the correct patient	13,00 ±13	15,00 ±16	-9,208	0,001
5	Reducing the risk of healthcare-associated infections	10,00 ±10	12,00 ±11	-7,959	0,001
6	Reducing the risk of patient injury due to falls	11,00 ±11	11,00 ±12	-8,573	0,001
7	**Patient Safety Goals (PSGs)**	74,40 ±75	86,15 ±85	-9,972	0,001

Wilcoxon Test

In the intervention group, the median score for PSGs increased substantially from 74.40 in the pretest to 86.15 in the posttest. The Wilcoxon test revealed statistically significant improvements across all PSG indicators (p = 0.001). This demonstrates that the RE-PRO clinical supervision model had a measurable impact on enhancing compliance with patient safety implementation

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Table 6. Comparative Analysis between Intervention and Control Groups

No	Patient Safety Goals (PSGs)	*Median±IQR*		*Z Value*	*P Value*	*Effect Size (Cliff Delta)*
		Control	**Intervention**			
1	Identifiying patients corectly	2,00 ±1	2,00±3	-5,248	0,001	0,637
2	Increase effective communication	0,00 ±0	3,00±3	-9,084	0,001	0,390
3	Improving the safety of high-alert medications	2,00 ±2	2.00±2	-0,047	0,962*	0,996
4	Ensuring the correct surgical site, correct procedure, surgery on the correct patient	1,00 ±1	2,00±2	-4,373	0,001	0,697
5	Reducing the risk of healthcare-associated infections	0,00 ±1	1,00±1	-0.303	0,762*	0,979
6	Reducing the risk of patient injury due to falls	0,00 ±0	1,00±1	-4,341	0,001	0,704
7	Patient Safety Goals (PSGs)	6,00 ±7	12,00± 12	-6,603	0,001	0,535

Mann-Whitney test

Comparative analysis using the Mann-Whitney test showed significant differences between the intervention and control groups in several PSG indicators, including correct patient identification, surgical site verification, infection risk reduction, and fall prevention (all p = 0.001). The overall PSG compliance score increased by 12 points in the intervention group compared to 6 points in the control group. The effect size (Cliff's Delta = 0.535) indicated a large effect, confirming that the RE-PRO model had a substantial and meaningful impact compared to conventional supervision

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DISCUSSION

This study examined the readiness of private hospitals in Bali to implement the RE-PRO clinical supervision model and its impact on Patient Safety Goals (PSGs). Findings revealed that hospitals demonstrated strong readiness, supported by competent head nurses, adequate educational backgrounds, structured supervision systems, and stable staffing patterns. These factors provided a conducive environment for implementing the RE-PRO model effectively. Competent head nurses played a critical role in ensuring adherence to nursing standards and guiding staff performance. Previous research confirms that effective head nurse supervision positively influences compliance with documentation and hand hygiene (Fatonah & Yustiawan, 2020; Parwa et al., 2019). Furthermore, head nurses with a bachelor's degree in nursing are better equipped to provide guidance due to their deeper understanding of nursing philosophy, standards, and procedures (Tulasi et al., 2021). Leadership competence also contributes to nurse motivation and empowerment, which ultimately improves service quality (Sudariani, 2019)

Structured and documented supervision was another key factor enhancing hospital readiness. Routine supervision enables systematic monitoring of nurse competencies, identification of challenges, and the provision of constructive feedback (Mubarok, 2020). This aligns with evidence that regular, well-documented supervision improves nursing service quality (Agustina et al., 2020). Stability in nurse assignments also supports successful implementation. Assigning at least ten nurses consistently to a ward enables continuous supervision, effective team communication, and stronger collaboration (Wulandari *et al*., 2021; Wulandari *et al*., 2021). Such stability allows supervisors to focus on developing nurse competencies systematically (Falender, 2022). Collectively, these findings highlight that Bali's private hospitals possess the foundational capacity to implement RE-PRO successfully.

The RE-PRO supervision model demonstrated a positive effect on PSG compliance. Statistically significant improvements were observed in several indicators, including patient identification,

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effective communication, surgical site verification, infection risk reduction, and fall prevention. These results confirm that structured and reflective supervision enhances compliance compared to conventional approaches. Similar findings have been reported in earlier studies, where process-based supervision improved nurse adherence to safety procedures and reduced the likelihood of adverse events (Hernawati et al., 2021)

Nevertheless, the model showed less optimal outcomes in areas such as medication safety and infection prevention, consistent with the findings of (Moureaud et al., 2021). These limitations may reflect the model's emphasis on competency development rather than broader systemic factors. Infection prevention, for example, requires comprehensive strategies beyond supervision, including environmental hygiene, sterilization, and strict adherence to infection control protocols (Nuritasari et al., 2020; Lyphout et al., 2022). Addressing such gaps may require multidisciplinary collaboration and sustained monitoring.

Despite these limitations, RE-PRO supervision outperformed conventional methods overall, providing structured guidance and fostering a stronger culture of safety in hospitals. Other studies also support the value of structured supervision in enhancing nurse awareness, reducing fatigue, and improving work-life balance (Ernawati et al., 2022; Ghallab & Elewa, 2024). Albaalharith & A'Aqoulah (2023) further demonstrated that structured supervision significantly increased compliance with safety protocols in hospitals in Riyadh.

Overall, the findings suggest that the RE-PRO model represents an innovative and effective approach to improving PSG implementation in Indonesian hospitals. By integrating reflective practice with Proctor's functions, the model not only strengthens nurse competencies but also promotes sustainable improvements in safety culture. However, further refinements, particularly through multidisciplinary supervision, are needed to optimize outcomes in medication safety and infection control.

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CONCLUSION(S)

1. The nursing practice readiness of type-C private hospitals in Bali to implement the RE-PRO clinical supervision model was generally categorized as ready. Both hospitals demonstrated adequate preparedness and capacity to apply the model, as reflected in the five hospital readiness checklist items. Sufficient resources and strong managerial support contributed significantly to this level of readiness.
2. The implementation of the RE-PRO clinical supervision model had a positive impact on the achievement of Patient Safety Goals. The model effectively improved nurses' adherence to safety procedures, reduced medical errors, and overall enhanced the quality of healthcare services.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the research, authorship, and publication of this article. The study was conducted independently without any financial or personal relationships that could have influenced the reported findings.

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