



THE EFFECT OF NURSING SUPERVISION ON THE QUALITY OF INTERPROFESSIONAL COLLABORATION AMONG NURSES IN INPATIENT WARDS

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ABSTRACT

Interprofessional Collaboration (IPC) is essential for improving healthcare quality and patient safety in inpatient settings. This study aimed to analyze the effect of nursing supervision on IPC quality in inpatient wards. A quasi-experimental design was used with intervention and control groups, each consisting of 20 nurses with total sampling. IPC quality was measured five times (p1–p5) using an IPC instrument. The intervention group received structured nursing supervision, while the control group did not receive any intervention. The data were analyzed using descriptive and inferential statistics with multivariate analysis with GLM. The results showed a significant and consistent increase in IPC scores in the intervention group from the first to the fifth measurement, whereas the control group showed only a slight improvement. Multivariate analysis yielded a p-value of 0.001, indicating a statistically significant difference between the two groups. In conclusion, nursing supervision significantly improves the quality of Interprofessional Collaboration in inpatient wards.

Keywords: inpatient ward; interprofessional collaboration; nurses; nursing supervision

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INTRODUCTION

Hospitals are environments where various healthcare professionals work together to provide healthcare services. Physicians are not the only healthcare professionals involved in patient care; healthcare services also involve professionals from multiple disciplines who collaborate to deliver high-quality patient-centered care. Interprofessional collaboration is encouraged by the shift from healthcare provider-centered care toward patient-centered care (World Health Organization [WHO], 2010). The aim of this collaboration is to improve patient satisfaction, patient safety, community health outcomes, and reduce healthcare costs (Canadian Interprofessional Health Collaborative [CIHC], 2020). According to the World Health Organization (WHO) report in 2019, approximately 421 million patients are hospitalized globally each year. Among these, 42.7 million incidents are associated with medical errors and failures in collaboration within healthcare services. In Indonesia, the high rate of medication errors, reaching 98.69%, such as prescription inaccuracies and inadequate patient education, is associated with weak coordination and supervision among healthcare team members. Interprofessional Collaboration (IPC) enables healthcare professionals to work effectively together in overcoming interprofessional barriers (Falah, 2020; Steyer et al., 2022; Tan et al., 2025).

In the context of nursing service management, head nurses and nursing teams as first-line managers are responsible for the implementation of nursing care. One of the primary functions of head nurses is conducting supervision to improve nursing staff performance. Effective supervision has been shown to significantly improve the quality of nursing services and is considered an indicator of improved nursing care quality (Shannon & Cusack, 2019; Martin et al., 2024). Recent studies by Fitriyani and Febriani (2025) and Marpaung and Sihombing (2022) confirmed a significant

relationship between head nurse supervision and the success of Interprofessional Collaboration (IPC) in inpatient wards.

A residency study conducted at Hospital X Jakarta in 2022 found that nurses' satisfaction with interprofessional collaborative practices was high (95%). However, during physician-led ward rounds, interprofessional collaboration conflicts frequently emerged due to aggressive communication between physicians and nurses, particularly when junior nurses participated in rounds. In contrast, communication problems were less likely to occur when senior nurses participated. Patient care evaluations were conducted collaboratively by all healthcare professionals and documented in the Integrated Patient Progress Notes (IPP) using the SOAP format; however, the IPP was not consistently used as a shared reference among healthcare professionals. The implementation of Interprofessional Collaboration (IPC) at Hospital X However, its implementation still faces challenges related to time constraints, staff involvement, and continuity of the collaborative process. The active role of head nurses and nursing teams as supervisors has not yet been fully recognized as a key determinant of IPC success. In fact, nursing supervision is expected to improve motivation, role clarity, communication distribution, and integration in collaborative patient management.

Based on discussions with inpatient ward head nurses, primary nurses, and shift coordinators, it was found that interprofessional collaboration had been implemented, although not yet fully aligned with existing theoretical frameworks, and there were currently no standard operating procedures (SOPs) specifically related to IPC implementation. Based on these findings, research examining the effect of nursing supervision on the quality of Interprofessional Collaboration (IPC) is highly important. This study is expected to address the existing literature gap regarding key determinants for improving IPC and provide practical evidence for strengthening collaborative practices through nursing supervision in national referral hospitals.

METHOD

This study employed an experimental design. The study consisted of two groups: an intervention group that received nursing supervision intervention and a control group that did not receive nursing supervision intervention. The study population included all nurses working in the inpatient wards, consisting of 20 nurses in the intervention group and 20 nurses in the control group. Samples were selected using a total sampling technique. The study was conducted from December 2025 to January 2026. The research instruments included a structured questionnaire consisting of a nursing supervision observation sheet and the Perception of Interprofessional Collaboration Model Questionnaire (PINCOM-Q). Prior to data collection, the instruments were tested for validity and reliability. The validity test showed that all questionnaire items were valid, while the reliability test demonstrated good internal consistency with Cronbach's alpha values >0.70 . Data analysis was performed using the Generalized Linear Model (GLM) with repeated measures analysis (Repeated Measures GLM) to evaluate changes before and after the intervention. This study received ethical approval from the Ethics Committee of the Faculty of Nursing, Universitas Indonesia, with ethical clearance number KET-395/UN2.F1/ETIK/PPM.002.02/2006, prior to data collection.

RESULT

Table 1, the majority of respondents in both the intervention and control groups were female. In the intervention group, females made up 80.0% of the respondents, while in the control group, females made up 75.0%. The results showed that the majority of respondents in both groups were female. In the intervention group, the proportion of female nurses reached 80%, while in the control group, it was 75%. This finding is consistent with the composition of the nursing workforce in Indonesia, which is dominated by women nationally, with a proportion ranging from 52.6% to 82.4% (Tan et al., 2025).

Table 1.
Gender, Education, Length of Service (n=40)

Gender, Education, Length of Service (n = 40)			
Variables		Frequency (n)	Percentage (%)
Intervention Group			
Gender	Woman	16	80.0
	Man	4	20.0
Education	D3 Nursing	13	65.0
	S1 Nursing	7	35.0
Length of working	< 1 year	2	10.0
	1–5 years	2	10.0
	6–10 years	4	20.0
	> 10 years	12	60.0
Control Group			
Gender	Woman	15	75.0
	Man	5	25.0
Education	D3 Nursing	13	65.0
	S1 Nursing	7	35.0
Length of working	< 1 year	5	25.0
	1–5 years	5	25.0
	6–10 years	6	30.0
	> 10 years	4	20.0

Table 2.
Age (n=40)

Group	Variables	Mean	Median	Standard Deviation
Intervention (n = 20)	Age (years)	33.75	34.00	3.80
Control (n = 20)	Age (years)	35.00	35.00	4.77

Table 2, the average age of respondents in the intervention group was 33.75 years with a median of 34.00 years and a standard deviation of 3.80. Meanwhile, the control group had an average age of 35.00 years with a median of 35.00 years and a standard deviation of 4.77. In terms of age, the average age of respondents in the intervention group was 33.75 years (SD 3.80; median 34), while in the control group the average age was 35 years (SD 4.77; median 35). This age range indicates that respondents were in the young to early adult age category, which is the productive age group in the nursing profession (Jannah et al., 2022).

Table 3.
Overview of *Interprofessional Collaboration* (n=40)

Group	Measurement	Mean	Median	Standard Deviation
Intervention	Pre	118.55	119.5	11.78
	p1	139.30	136.50	18.22
	p2	145.75	145.00	15.93
	p3	152.65	150.50	18.11
	p4	176.25	173.00	8.89
	p5	222.05	225.00	9.83
Control	Pre	121.50	126.00	11.64
	p1	139.30	136.50	18.22
	p2	150.40	142.50	21.18
	p3	153.10	146.50	20.50
	p4	154.40	148.00	19.87
	P5	155.35	148.50	19.44

Table 3 shows that the *Interprofessional Collaboration (IPC)* scores in the intervention group showed a consistent increase from the pre to p5 measurements. The average IPC score at the initial (pre) measurement was 118.55 and increased gradually to 222.05 at the 5th measurement. The decrease in the standard deviation value at the 4th and 5th measurements showed that the variation in scores between respondents was getting smaller, which indicated a more even increase in IPC after the intervention was implemented.

In the control group, the mean IPC score tended to increase gradually from pre to the 5th measurement, but the increase was relatively small. The mean IPC score in the pre measurement

was 1.21.50 and increased to 1.55.35 in the 5th measurement . The relatively stable standard deviation value across all measurements indicates that the variation in IPC scores in the control group did not experience significant changes.

Table 4.

Differences in the quality of *Interprofessional Collaboration (IPC)* before and after the implementation of supervision

Effect	Test Statistics	Value	F	Sig.	Partial Eta Squared
Intervention	Pillai's Trace	0.950	165,384 ^a	0.001	0.950
	Wilks' Lambda	0.050	165,384 ^a	0.001	0.950
	Hotelling's Trace	18,901	165,384 ^a	0.001	0.950
	Roy's Largest Root	18,901	165,384 ^a	0.001	0.950
Control	Pillai's Trace	0.360	4,928 ^a	0.003	0.360
	Wilks' Lambda	0.640	4,928 ^a	0.003	0.360
	Hotelling's Trace	0.563	4,928 ^a	0.003	0.360
	Roy's Largest Root	0.563	4,928 ^a	0.003	0.360

Table 4 shows that all four multivariate statistical tests—Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root—in the intervention group showed significant results (p -value <0.001). This indicates a difference in the quality of *Interprofessional Collaboration (IPC)* before and after supervision implementation in the intervention group. In the control group, the four multivariate statistical tests also showed significant results (p -value = 0.003), but with smaller F values and effect sizes compared to the intervention group.

Table 7.

Comparison of the quality of *Interprofessional Collaboration (IPC)* before and after the implementation of supervision in the control and intervention groups ($n=40$)

Source	IPC	Mean Square	F	Sig.	Partial Eta Squared
IPC	p2 vs p1	608,400	1,483	0.231	0.038
	p3 vs p1	216,225	0.616	0.437	0.016
	p4 vs p1	4,774,225	20,148	0.001	0.346
	p5 vs p1	44,488,900	187,561	0.001	0.831
IPC * Group	p2 vs p1	608,400	1,483	0.231	0.038
	p3 vs p1	216,225	0.616	0.437	0.016
	p4 vs p1	4,774,225	20,148	0.001	0.346
	p5 vs p1	44,488,900	187,561	0.001	0.831
Error (IPC)	p2 vs p1	410,158			
	p3 vs p1	351,120			
	p4 vs p1	236,962			
	p5 vs p1	237,197			

Table 7 , the results show that the quality of *Interprofessional Collaboration (IPC)* shows a p -value <0.001 . This indicates a difference in IPC quality before and after supervision implementation. This difference began to be significantly apparent starting from measurement p4 and increased in measurement p5 compared to before supervision.

Table 8.

General Linear Model Repeated Measure Analysis of *Interprofessional Quality Collaboration (IPC)* in the Intervention Group and Control Group

Source	F	Sig.	Partial Eta Squared
Intercept	3704,560	0,000	0.990
Group	8,320	0.006	0.180
Error			

Table 8, it can be seen that the p -value for the group factor is 0.006 ($p < 0.05$) . This indicates that there are differences in the quality of *Interprofessional Collaboration (IPC)* between the intervention group and the control group significantly.

Based on these results, the alternative hypothesis (H_a) in this study was accepted. Changes in IPC quality in the intervention group were proven to be stronger and more significant than in the control group. This finding supports the assumption that nursing supervision has a cumulative impact on interprofessional collaboration. Structured supervision aligned with the *interprofessional action and*

collaboration training (Interprof ACT) protocol has been reported to significantly improve collaboration between nurses and doctors (Steyer et al., 2022). The combination of training and supervision resulted in consistent and sustainable improvements in IPC (Steyer et al., 2022).

An overall significance value of $p = 0.001$ indicates a significant difference in IPC quality between the intervention and control groups across five measurements. This result represents the combined effect of time and group interaction, not simply changes at a single point in time (Kaiser et al., 2022)(Octaviani, 2023) (Awaluddin et al., 2024).

DISCUSSION

The findings of this study demonstrate that nursing supervision has a significant effect on improving the quality of Interprofessional Collaboration (IPC) among nurses in inpatient wards. The multivariate analysis showed highly significant results in the intervention group across Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root tests ($p < 0.001$), indicating that the improvement in IPC after the implementation of nursing supervision was statistically consistent and robust. These findings suggest that structured nursing supervision contributes not only to communication improvement but also to broader dimensions of IPC, including coordination, shared decision-making, professional respect, and teamwork effectiveness. This result is consistent with previous studies that identified supervision as an essential mechanism for strengthening collaborative practice and enhancing interdisciplinary teamwork in healthcare settings (Steyer et al., 2022; Boltey et al., 2023).

The improvement observed in the intervention group may be explained through the role of supervision as a managerial and professional support system. Effective supervision provides guidance, feedback, clarification of professional roles, and opportunities for reflective practice, all of which are important components in strengthening collaborative relationships among healthcare professionals. In the context of nursing management, supervision conducted by head nurses or first-line managers facilitates communication flow and reduces interprofessional barriers that commonly occur in patient care settings. These findings support previous evidence showing that supervision enhances teamwork climate, promotes collaborative culture, and improves professional interaction among healthcare workers (Martin et al., 2024). Furthermore, supervision encourages accountability and mutual understanding among team members, which are essential foundations for successful IPC implementation.

The longitudinal findings of this study revealed that significant improvements in IPC became more evident during the later measurement phases, particularly at the fourth and fifth measurements (p_4 – p_5). This pattern suggests that the effect of supervision is cumulative and requires continuous implementation before substantial behavioral and collaborative changes emerge. The gradual improvement reflects a learning and adaptation process in which healthcare professionals progressively develop trust, communication skills, and collaborative competencies. Similar findings were reported by Schilling et al. (2022), who found that structured interprofessional interventions often demonstrate stronger effects after repeated implementation cycles. Therefore, supervision should not be viewed as a one-time intervention but rather as an ongoing managerial strategy to sustain collaborative practice in clinical settings.

Although the control group also demonstrated statistically significant changes in IPC, the magnitude of improvement was significantly lower compared to the intervention group. The Partial Eta Squared value in the intervention group (0.950) indicated a very strong effect size, whereas the control group showed only a moderate effect size (0.360). This finding indicates that routine work experience and daily interactions alone may contribute to minor improvements in collaboration; however, these factors are insufficient to produce substantial changes without structured supervisory intervention. Previous studies similarly reported that healthcare teams without targeted

supervision or collaborative interventions tend to show slower and less consistent improvements in IPC quality (Prentice et al., 2020; Sirimsi et al., 2022). Thus, the markedly larger effect size in the intervention group reinforces the importance of supervision as a primary driver of collaborative improvement.

The respondent characteristics in this study also provide important contextual insights into the findings. Most respondents were female nurses, reflecting the demographic composition of the nursing workforce in Indonesia, where nursing remains predominantly female-oriented due to sociocultural and historical factors related to caregiving roles (Jannah et al., 2022). In addition, the majority of participants held Diploma III nursing qualifications, which aligns with the current structure of the Indonesian nursing workforce. Variations in educational background and years of experience between groups may influence perceptions of supervision and collaborative practice. Nurses with longer work experience may possess stronger clinical confidence and organizational understanding, potentially facilitating better adaptation to supervisory interventions. Nevertheless, these variations also strengthen the external validity of the study because they reflect the real conditions of nursing human resources in Indonesian hospitals.

Overall, this study confirms that nursing supervision is an effective and evidence-based strategy for improving the quality of Interprofessional Collaboration in inpatient wards. The significant differences between the intervention and control groups, combined with the strong effect size and consistent longitudinal improvement, indicate that supervision plays a crucial role in strengthening collaborative healthcare practice. These findings have important implications for nursing management and hospital policy, particularly in developing structured supervision programs to support interprofessional teamwork and improve healthcare quality. Integrating regular supervision into nursing management systems may contribute to better communication, enhanced patient safety, improved healthcare outcomes, and sustainable collaborative practice within hospital settings.

CONCLUSION

The analysis results showed an increase in the mean IPC score in both groups, but a greater increase was found in the intervention group. The mean IPC of the intervention group increased significantly from 139.30 at the initial measurement (p1) to 222.05 at the final measurement (p5), while the control group only experienced an increase from 147.10 to 155.35. Multivariate tests showed a significant difference in IPC before and after supervision in the intervention group ($p < 0.001$) with a Partial Eta Squared value of 0.950 indicating a very large effect. In addition, the difference in IPC between the intervention and control groups was also significant ($p = 0.006$), with the influence of supervision being in the moderate to large category (Partial Eta Squared = 0.180).

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