

ORIGINAL ARTICLE

Interpersonal relationship communication training according to Peplau theory improves nursing team cooperation in the operating room of Haji Hospital, East Java Province, Surabaya

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ABSTRACT

Introduction: Interpersonal communication is a competency that must be possessed to foster cooperation. Failure in communication will reduce cooperation, which will impact the quality of service, especially in the operating room. **Objectives:** The aim of this research is to prove the effect of interpersonal relationship communication training according to Peplau's theory on nursing team collaboration in the operating room of the Haji Hospital, East Java Province. **Methods:** The quasi-experimental research method uses a pre-test-post-test control group design. The independent variable is interpersonal communication training. The dependent variable is the collaboration of the nursing team in the operating room. Data analysis using Wilcoxon and Mann-Whitney tests. The sample consisted of 25 nurses, with 13 in the treatment group and 12 in the control group. **Results:** The results of the Wilcoxon signed rank test for the treatment group were $p = 0.002 \leq \alpha = 0.05$. There was a significant difference between the pre-test and post-test results in the treatment group. In the control group, the Wilcoxon test obtained $p = 1.00 \geq \alpha = 0.05$, meaning there was no difference between the pre-test and post-test results. In the Mann-Whitney U test post-test for the treatment and control groups, the p value was $0.004 \leq \alpha = 0.05$, indicating that there is an influence of interpersonal relationship communication training on nursing team collaboration. **Conclusion:** Nurses' interpersonal communication in the operating room is very important to improve teamwork. Nurses are expected to improve interpersonal communication and teamwork.

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1. Introduction

The role of the nurse does not only include clinical aspects, but also requires greater involvement in teamwork. In a hospital environment, nursing team collaboration plays an important role in providing quality medical services. Collaboration is an important component of the organizational structure for providing high-quality care. Collaboration occurs when individuals have the same interests and goals in an organization (Rusdianto, 2023). The success of medical treatment and patient safety is highly dependent on effective teamwork and collaboration of nursing team members in the operating room (Bar-Lev Schleider et al., 2022). Another problem that often occurs in the operating room is the lack of cooperation between nurses in filling out nursing documentation, and the lack of effective cooperation between nurses at each stage of the perioperative phase. From these problems, several causes of ineffective team collaboration emerge.

The causes of less effective team collaboration are the absence of a clear vision, lack of trust between team members, differences in work styles, negative thinking between members, lack of clear division of tasks. Additionally, some team members do not help other members even if they have time, and it becomes difficult to work alone. Teamwork also occurs in nursing services which allows fellow nurses to remind each other, correct and communicate to reduce errors

(Tobing, 2020). Research conducted by Aprianti (2022) entitled "The influence of communication and teamwork on the performance of nurses at the Bima District General Hospital" showed that communication had an effect on teamwork, namely 32.3%. Based on Badu's (2023) research entitled The Relationship between Cohesiveness and Teamwork in Patient Safety Culture in the Inpatient Room at Kalabahi Hospital, it was found that team collaboration results between units in reporting patient safety incidents were 60.3%.

The quality of nursing services is not only determined by the quality of service to patients, but is also determined by the nursing service system. The nursing service system requires good communication from each group member, to create effective collaboration between teams (Hapsari, 2023). In addition, nurse communication occurs through collaboration between nurses, doctors and patients in a professional, moral and responsible manner. One of the concepts of interpersonal communication in nursing is the concept of Hildegard Peplau's theory.

The concept of nursing by Hildegard Peplau discusses interpersonal communication, where Peplau emphasizes the importance of interpersonal interaction which functions to provide holistic services and improve the quality of service, namely through interpersonal communication. Knowledge and skills (skills and knowledge) in communicating include nursing actions used daily (Kondo et al., 2020). Effective interpersonal communication not only improves nurses' performance in providing services but also their skills in making decisions, thinking rationally, managing emotions, tolerating other people's opinions, and thus has an impact on improving nurses' performance. Based on the results of research by Husairi & Wahyudi (2023), understanding the importance of the quality of relationships between nursing teams in patient care (avoiding the risk of patient falls) is able to support nurses in carrying out their duties effectively. This not only plays a role in more optimal treatment results, but also creates a safer environment for patients, and creates a positive atmosphere for fellow nurses who are the main target of quality health services.

Quality health services are obtained from effective collaboration in a team. Effective and good collaboration can be formed and learned by all nurses. Interpersonal Communication according to Peplau's Theory can be used as a basis for collaboration between nursing teams. To improve nurses' interpersonal communication skills, this can be done by attending training. Nursing training can provide many opportunities, knowledge through direct experience (Cacayan, Edmelyn B., 2021). So, with this presentation, researchers saw that interpersonal communication training was important for the nursing team in the operating room. The operating room is a busy environment and requires good cooperation between all team members to carry out procedures smoothly. Incompatibility or tension among nursing team members can lead to conflict and stress in the workplace, negatively impacting nurse well-being and the quality of patient care. Effective communication between nurses can strengthen interpersonal relationships in the operating room, which is very important to ensure that patients receive the best care (Mohammed & Adea, 2022).

This research aims to understand and improve the teamwork abilities of nurses through communication training based on the principles of Peplau's theory.

As far as the author has been concerned, there has been no research examining the effect of interpersonal relationship communication training on nursing team collaboration. Because of this, the researcher was interested in carrying out a research study with the title "The Effect of Interpersonal Relationship Communication Training According to Peplau's Theory on Nursing Team Collaboration in the Operating Room of the Haji Hospital, East Java Province".

2. Methods

This research uses quantitative methodology and a quasi-experimental research design. The population of this study was all 25 nurses in the operating room of the Haji Hospital, East Java Province, Surabaya. Researchers used a total sampling of 25 nurses. Sample 25 divided into 2 groups. The treatment group consisted of 13 nurses; the control group consisted of 12 nurses. In this study, sampling took the form of odd and even numbers. 25 people were given a lottery in the form of numbers from 1-25, then odd numbers became the treatment group and even numbers became the control group (Vonkova et al., 2021).

This research data collection technique uses questionnaires. The instruments used in this research were SOPs and questionnaires. The SOP for interpersonal communication training according to Peplau's theory was used by researchers to train interpersonal communication according to Peplau's theory to nurses in the treatment group and control group. The questionnaire sheet is a questionnaire resulting from Junie's research, then the researcher modified it and carried out validity and reliability tests. Questionnaire sheets were used to measure the characteristics of respondents and measure teamwork between the treatment group and the control group (Turkina, 2020).

The univariate analysis in this study was the result of the collaboration of the nursing team. The score resulting from the measurement of nursing team collaboration is divided into 2, namely collaboration with good and bad categories. This research's bivariate analysis serves to understand the extent to which interpersonal communication can influence nursing team collaboration. This research carried out statistical analysis using the Wilcoxon test. The Wilcoxon test is used to analyze the results of observations of ordinal or interval scale data and the Mann Whitney U Test is used to determine differences in teamwork between nurses in the treatment group and the control group. After the statistical test is carried out, it produces a P-Value < 0.05, then H1 is accepted, if the H1 P-Value is > 0.05 then H1 is rejected (Beynon et al., 2022).

In this research, data analysis was carried out using SPSS software. Statistical tests were carried out and data were analyzed to produce p-values. If the p-value obtained is smaller than alpha (0.05), then H1 is accepted, which shows that there is an influence of interpersonal communication according to Peplau on nursing team collaboration based on training. If the p-value is greater than alpha (0.05), then H1 is rejected, which indicates that there is no influence of interpersonal communication according to Peplau on nursing team collaboration based on training (Mawaddah et al., 2020).

3. Results and Discussion

3.1 Univariate Analysis

Table 1 Frequency Distribution Based on General Data of the Operating Room Nursing Team at Haji Hospital, East Java Province Based on Age, Gender in 2024.

	Category	Frequency (n)	Percentage (%)
1. Age	30-40 years	12	48
	41-50 years	7	28
	51-60 years	6	24
	Total	25	100
2. Education	D3 Nursing	20	80
	S1 Nursing	5	20
	Total	25	100
3. Gender	Women	9	36
	Men	16	64
	Total	25	100

Based on table 1, frequency distribution of respondent characteristics based on age, education and gender in the nursing team at the Hajj Hospital, East Java Province in April 2024, the results showed that less than half of the respondents were aged 30-40 years, 12 people (48%). Most of the respondents had a D3 education, 20 people (80%) and more than half of them were male, 16 people (64%).

1) Nursing team collaboration before and after in the treatment group.

Table 2 Frequency Distribution of Nursing Team Collaboration Based on Specific Data for 2024.

Group	Pre	Test	Score	Total	Percentage
1 Treatment			Bad (35-70)	4 People	30.7
	Nursing Team				

	Collaboration Questionnaire	Good (71-140)	9 People	69.2
	Post Test Nursing Team Collaboration Questionnaire	Bad (35-70)	0 People	0
		Good (71-140)	13 People	100
Total			13	100%

Based on table 2, the results of the pre-test in the treatment group showed that more than half of the respondents had teamwork in the good category, 9 people (69.2%). Meanwhile, in the post test results for the treatment group, all respondents had teamwork in the good category, 13 people (100%). Based on the research results, it shows that the results of the pre-test on teamwork among nurses in the treatment group who were given training, more than half of the respondents had teamwork in the good category. Analysis of the influence of training resulting from the Wilcoxon test in table 2 shows that there were 4 respondents who experienced an increase from the bad category to the good category, so that the final result was that all respondents had good teamwork. Teamwork is an activity carried out by a group of people who join an organization to achieve a common goal (Letsoin & Ratnasari, 2020).

According to researchers, the results of the study show that nurses of different age ranges have varying levels of experience and approaches to teamwork. Less than half of the nurses at the Hajj Hospital in East Java Province are in the 30–40-year age range. In this age range, they have sufficient work experience to enable them to develop good communication and collaboration skills so that they can form more effective teamwork. At this age they tend to be more adaptive to change and have enough energy to participate actively in the team. Meanwhile, nurses aged 41–50 years are also experienced, their smaller number in this study may indicate that the 30–40-year age group has a more dominant influence in shaping the dynamics of effective teamwork in hospitals (Masimula et al., 2021).

Based on the description above, according to researchers, in order for collaboration to work well, the nursing team needs a team structure, leadership, situation monitoring, mutual support, communication, responsibility, mutual contribution, and appreciation of abilities. Peplau relationship interpersonal communication training is very necessary, this is based on the results of the post test scores in the treatment group. The level of collaboration between the nursing team tends to be less than optimal, with a lack of shared understanding of the goals and duties of each team member. However, after training, there was an increase in teamwork, team members were better able to understand each other, communicate effectively, and work together to achieve common goals. These results indicate that interpersonal communication training based on Peplau's theory has a positive impact on nursing team collaboration in the operating room, by creating a cooperative and productive work environment, which ultimately contributes to improving the quality of health services in the operating room at the Haji Hospital, East Java Province (Forchuk, 2021).

2) Nursing Team Collaboration Before and After in the Control Group.

Table 3 Frequency Distribution of Nursing Team Collaboration in the operating room of the Haji Hospital, East Java Province in April 2024.

Group	Score	Total	Percentage
1 Control	Pre Test Nursing Team Collaboration Questionnaire	Not good (35-70)	2 People 16.6%
		Good (71-140)	10 People 83.3%
	Post Test Nursing Team Collaboration Questionnaire	Not good (35-70)	2 People 16.6%
		Good (71-140)	10 People 83.3%

Total	12	100%
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Based on table 4.3, in the control group, the pre-test results showed that most of the respondents had teamwork in the good category, 10 people (83.3%). Meanwhile, in the control group post test results, it was found that the majority of respondents had cooperation in the good category, 10 people (83.3%). Based on the research results in the control group, it showed that the pre-test and post-test most of the respondents had cooperation in the good category.

In this study, the results of observations showed that the collaboration of the nursing team in the operating room at the Haji Hospital, East Java Province in the control group did not change from before to after the research. The nursing team collaboration in the control group used communication according to the soup in the room. However, after the research was conducted, there was no significant change in the level of nursing team collaboration. This research shows that without interpersonal communication training intervention, the level of teamwork among nurses in the control group did not increase significantly. The causal factors include the lack of knowledge of older nurses or those who are considered parents, lack of communication skills, feelings of shame, and cultural influences that consider this topic to be taboo to discuss (Febriana et al., 2019).

This suggests that changes or improvements in nursing teamwork may require more active and targeted interventions, such as interpersonal communication training based on Peplau's theory. These results may also be influenced by other factors outside the scope of the study, such as complex team dynamics, individual differences in response to change, or uncontrolled environmental factors.

3.2 Bivariate Analysis

1. Differences in teamwork between nurses in the operating room before and after interpersonal communication training according to Peplau's theory in treatment groups

Table 4 Wilcoxon Test Results in the Nursing Team Collaboration Treatment Group in the operating room of the Haji Hospital, East Java Province in April 2024.

Treatment group	N	Mean	Std. Deviation	Minimum	Maximum	P Value Uji Wilcoxon Signed Rank Test
Pre Test	13	106.9	35.415	35	140	0.002
Post Test	13	134.6	5.483	122	140	

In table 4 the results of the Wilcoxon test for nursing team collaboration in the treatment group show a significance of 0.002, which is smaller than $p = 0.05$, so it can be concluded that there is an influence on the results of nursing team collaboration before and after the treatment is given. The table shows that the average value of the treatment group before treatment was 106.9, while after being given treatment, the average value was 134.6. This shows that the average value after treatment is greater than the average value before treatment. So, it can be concluded that Peplau's interpersonal relationship communication training has an influence on nursing team collaboration in the treatment group (Istinganah & Irna Nursanti, 2024).

The results of the research and analysis test of interpersonal communication training according to Peplau's theory on nursing team collaboration in the treatment group using the Wilcoxon Signed Rank Test statistical test showed that $p = 0.002$ was smaller than $p = 0.05$, so it could be concluded that there was a difference between the results of the pretest and posttest on the results of the nursing team's collaboration before and after the treatment is given. Nurses are required to have good and precise communication skills. With nurses' interpersonal communication skills (Ardhi, 2018).

Based on the results of this study, it shows that there was a significant increase in nursing team collaboration in the operating room in the treatment group after being given interpersonal communication training according to Peplau's theory which can be used as an alternative to

improve nursing team collaboration. According to Peplau's theory, interpersonal relationship communication training has a positive impact on nursing team collaboration (Su et al., 2024).

2. Differences in nursing team collaboration in the operating room before and after the control group.

Table 5 Results of the Wilcoxon Test in the Control Group of Nursing Team Collaboration in the operating room of the Haji Hospital, East Java Province in April 2024.

Control Group	N	Mean	Std. Deviation	Minimum	Maximum	P Value Uji Wilcoxon Signed Rank Test
Pre Test	2	119.6	25.5	65	140	1.00
Post Test	2	119.6	25.5	65	140	

In table 5, the results of the Wilcoxon test for nursing team collaboration in the control group show that the sig is 1.00, so it can be concluded that there is no influence on the results of nursing team collaboration before and after in the control group. The table shows that the average score for the pre-test control group was 119.6, while the post-test obtained an average score of 119.6. This shows that the average pre-test score has no influence on the average post-test score. So, it can be concluded that there is no effect on the control group. When interpersonal communication is maintained well, positive emotions will arise towards other people during communication. This will create better feelings and give other people the courage to participate more in all opportunities (Megaster, 2023). Training not only provides special knowledge and skills, but also learning experiences and decision-making skills (Notoadmojo, 2018).

Based on the results of research and analysis tests of interpersonal communication training according to Peplau's theory on nursing team collaboration in the control group using the Wilcoxon Signed Rank Test statistical test, it shows that the p value = 1.00, it can be concluded that there is no difference in the results of nursing team collaboration before and after in the group. control (no intervention given). Based on the description above, in the researcher's opinion there is no significant difference between the pre-test and post-test results in the control group because in this group no intervention was carried out, so for most of the respondents in the control group teamwork was still not optimal (Sarami et al., 2023).

The control group in the study aims to act as a comparison to see whether the provision of interpersonal communication training according to Peplau's theory affects team collaboration of nurses in the operating room. It is proven from the results of the analysis of the differences between the pre-test and post-test in the control group, that there is no significant difference between the results of the pre-test and posttest in the control group.

3. Differences in teamwork between nurses in the operating room between the treatment group and the control group.

Table 6 Differences in Nursing Team Collaboration in the Treatment Group and Control Group in the Operating Room of the Haji Hospital, East Java Province in April 2024.

Post Test	N	Mean Rank	p value Uji Mann Whitney
Treatment Group	13	15.8	0.004
Control Group	12	9.9	
Total	25		

Table 6 depicts the results of statistical analysis tests using the Mann-Whitney U Test on the post test results of the treatment group and control group. The test results show a p value of 0.004, where the p value is smaller than = 0.05, so it can be concluded that there is an influence of interpersonal communication training according to Peplau's theory on the collaboration of the nursing team in the operating room of the Haji Hospital, East Java Province. Based on research (Sahra, 2018) interpersonal communication training is a training program designed to develop a

person's skills in communicating interpersonally, with a focus on mastering social and behavioral skills.

Based on the results of interpersonal relationship communication training according to Peplau's theory, it shows that there is a significant increase in communication skills between nursing team members, thereby improving the quality of service provided to patients and interactions as well as good interpersonal relationships in nursing team collaboration. Peplau communication has 4 phases, namely the orientation, identification, exploitation and resolution phases (Peplau, 1991). The results of increased nursing team collaboration in this study were due to the content of the training explaining interpersonal communication according to Peplau.

4. Conclusion

In this study, according to Hildegard Peplau's theory, Interpersonal Relationship communication training for nurses in the operating room showed that all nurses had a good level of teamwork skills. Thus, there is an influence between Interpersonal Relationship communication training according to Peplau's theory on nursing team collaboration in the operating room. There are differences in interpersonal communication training according to Peplau's theory in the treatment group and the control group regarding nursing team collaboration in the operating room. Demonstrates significant improvement in teamwork.

Ethics approval and consent to participate

This research has passed an ethical test at KEPK RSUD Haji East Java Province on April 29 2024 in accordance with 7 WHO 2011 standards which refer to CIOMS 2016 with No. 445/084/KOM.ETIK/2024. This research ethics also regulates how researchers behave during the process of writing a thesis, implementing it, preparing reports and publishing research results.

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